

[ James M. Mead, Chairman. (Jun. 30, 1950). Report on  
Interlocking Directorates. U.S Federal Trade Commission. ]

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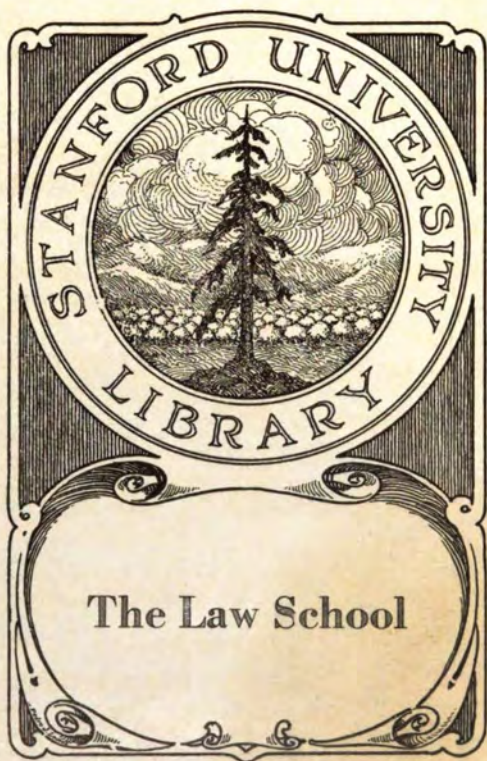
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**REPORT OF THE  
FEDERAL TRADE COMMISSION  
ON  
INTERLOCKING DIRECTORATES**

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on  
INTERLOCKING DIRECTORATES

ERRATA

Page 43, Table 1:

    Last column, 3rd line - Read 8.4 for 18.4.

    Last column, 7th line - Read 18.2 for 18.7.

Page 49, chart 1:

    Connect National Dairy Products Corp. to  
    General Electric Co.

    Connect National Dairy Products Corp. to J. P.  
    Morgan & Co.

Page 68, Table 11:

    Ward Baking Co. has a director in common with  
    International Paper Co. but not with Guaranty Trust Co.

Page 82, Table 13:

    First column under Food should be "Fajardo Sugar  
    Co." with "1" interlocking director with National  
    Sugar Refining Co.

Page 83, Table 13, continued, line 8:

    Delete "Rockwood & Co."

Page 90:

    Delete lines 4 through 7, the first full paragraph.

Page 110, line 25:

    Read "competition" for "completion."

Page 115, Table 22:

    Alan Wood Steel Co. had one director in common with  
    National Supply Co., not with United Engineering Co.

    Copperweld Steel Co. had one director in common  
    with United Engineering Co.

Page 116, Table 22:

    Alan Wood Steel Co. had one director in common  
    with Chemical Bank & Trust Co. and one in common with  
    Peoples First National.

    Superior Steel Co. had one director in common with  
    Mellon National Bank and one in common with Equitable  
    Life Assurance Society.

    Pittsburgh Forgings Co. had one director in common  
    with Mellon National Bank.

    Carpenter Steel Co. did not have a director in  
    common with Lehman Bros.

Page 191, first line in last paragraph:

Read "Table 32 shows" for "Table 32 are shown."

Page 206, footnote 6:

Read "J. I. Case" for "J. L. Case."

Page 228, line 12:

Delete the words, "served along."

Page 241, Table 39, last column:

Read "D(W. C. Frye)<sup>7</sup>" for "D(W. E. Frye)<sup>6</sup>."

Page 251, Table 42, 3rd column, 4th line:

Read "D(A. B. Breeze)<sup>7</sup>" for "D(A. B. Breeze)."

Page 257, line 6:

Read "chart 31" for "chart 3."

Page 366, footnote 42, line 5:

Read "Mission Oil Co." for "Mission Corp."

Page 366, footnote 42, line 6:

Delete sentence "Mission Corp., in turn, owned 59.37 percent of Skelly Oil."

Page 379, line 23:

Read "\$2,050,565,000" for "\$20,505,565,000."

Page 399, lines 9 and 10:

Delete sentence, "It appears that Belding Heminway is a raw material supplier to Julius Kayser, and also a distributor of its products."

Page 445, footnote 11b:

Read "Freedheim" for "Freedheisn."

Page 455, last footnote:

Read "4a" for "3b."

Page 473, footnote 6:

Read "Brunswick" for "Bruswick."

Page 476, Table 53, line 6 of stub:

Read "Balke" for "Blake."

March 14, 1951.



U.S. Federal Trade Commission  
✓  
REPORT OF THE  
FEDERAL TRADE COMMISSION  
ON  
INTERLOCKING DIRECTORATES



UNITED STATES  
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**FEDERAL TRADE COMMISSION**

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JAMES M. MEAD, *Chairman*

WILLIAM A. AYRES

LOWELL B. MASON

JOHN CARSON

D. C. DANIEL, *Secretary.*



## LETTERS OF SUBMITTAL

FEDERAL TRADE COMMISSION,  
*Washington, June 30, 1950.*

SIR: I have the honor to transmit herewith the report of the Federal Trade Commission, entitled, "Report on Interlocking Directorates."

A limited number of copies of the report is being printed by the Federal Trade Commission.

By direction of the Commission.

Yours sincerely,

JAS. M. MEAD,  
*Chairman.*

The PRESIDENT OF THE SENATE,  
*Washington, D. C.*

The SPEAKER OF THE HOUSE OF REPRESENTATIVES,  
*Washington, D. C.*





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## Part I

### Chapter 1

#### THE ORIGINS AND SCOPE OF THE LAW

The Clayton Act of 1914 was enacted to supplement the Sherman Act of 1890. By making certain definite practices illegal, Congress hoped to be able to prevent them from being used to create and maintain monopolies and conspiracies in restraint of trade. The act specifically prohibited price discrimination,<sup>1</sup> exclusive dealing contracts, and acquisition of stocks in competing corporations, where they might result in substantial lessening of competition.

The Clayton Act also contained important provisions prohibiting interlocking directorates between competing companies engaged in interstate commerce.

That from and after two years from the date of the approval of this Act no person at the same time shall be a director in any two or more corporations, any one of which has capital, surplus, and undivided profits aggregating more than \$1,000,000, engaged in whole or in part in commerce, other than banks, banking associations, trust companies, and common carriers subject to the Act to regulate commerce, approved February fourth, eighteen hundred and eighty-seven, if such corporations are or shall have been theretofore, by virtue of their business and location of operation, competitors, so that the elimination of competition by agreement between them would constitute a violation of any of the provisions of any of the antitrust laws.

The Congress in adopting the Clayton Act and thus in writing a directive to the Federal Trade Commission responded to an appeal from President Woodrow Wilson, who earnestly recommended legislation limiting interlocking directorates. However, President Wilson was not alone in his desire to have this legislation adopted. Both the Republican and the Democratic Party platforms of 1912 had committed the two parties to the revision and strengthening of the anti-trust laws. The Republican platform of 1912 endorsed the principle that there should be legislation outlawing specifically enumerated practices and ranged the Republicans behind the growing movement

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<sup>1</sup> As amended by the Robinson-Patman Act of 1936, this provision of the Clayton Act prohibits outright discrimination in price and related discrimination in services and facilities. It also gives the Federal Trade Commission power to establish maximum quantity discounts to implement the purposes of the act.

to establish an administrative commission to determine such practices.<sup>2</sup> The Democratic Party had written an even stronger declaration into their 1912 platform, pledging their backing to a law which would prevent interlocking directorates and other practices of the type later outlawed by the Clayton Act.<sup>3</sup> Indeed, President Taft had endorsed the same objectives in his message to Congress on December 11, 1911, following the decision of the Supreme Court in the Standard Oil Co. and American Tobacco cases.

Because of the importance of this legislative history, the statements of those who were concerned with the enactment of the Clayton Act deserve attention at this time.

In his message to Congress on January 20, 1914, President Wilson, in dealing with interlocking directorates pointed out that interlocks of the directorates of great corporations—banks, railroads, industrial corporations, commercial companies, and public-service bodies—mean the elimination of competition, the curtailment of opportunity for new enterprises and new business leaders:

We are all agreed that "private monopoly is indefensible and intolerable," and our program is founded upon that conviction. It will be a comprehensive but not a radical or unacceptable program, and these are its items, the changes which opinion deliberately sanctions and for which business waits:

It waits with acquiescence, in the first place, for laws which will effectually prohibit and prevent such interlockings of the personnel of the directorates of great corporations—banks and railroads, industrial, commercial, and public-service bodies—as in effect result in making those who borrow and those who lend practically one and the same, those who sell and those who buy but the same persons trading with one another under different names and in different combinations, and those who affect to compete in fact partners and masters of some whole field of business. \* \* \*

Such a prohibition will work much more than a mere negative good by correcting the serious evils which have arisen because, for example, the men who have been the directing spirits of the great investment banks have usurped the place which belongs to independent industrial management working in its own behalf. It will bring new men, new energies, a new spirit of initiative, new blood, into the management of our great business enterprises. It will open the field of industrial development and origination to scores of men who have been obliged to

<sup>2</sup> The Republican party "favors the enactment of legislation supplementary to the existing antitrust act which will define as criminal offenses those specific acts that uniformly mark attempts to restrain and to monopolize trade, to the end that those who honestly intend to obey the law may have a guide for their action, and that those who aim to violate the law may the more surely be punished" (Congressional Record, Aug. 25, 1914, p. 14213).

<sup>3</sup> "We favor the declaration by law of the conditions upon which corporations shall be permitted to engage in interstate trade, including among others the prevention of holding companies, of interlocking directors, of stock watering, or discrimination in price, and the control by any one corporation of so large a proportion of any industry as to make it a menace to competitive conditions" (Congressional Record, Aug. 25, 1914, p. 14213).

serve when their abilities entitled them to direct. It will immensely hearten the young men coming on and will greatly enrich the business activities of the whole country.\*

The House and Senate committees which framed the law acted upon the President's message. In their reports on the bill which subsequently became the Clayton Act, both committees stated that the sections of the act prohibiting interlocking directorates were intended to prevent giant aggregations of power that would present a substantial barrier to a freely functioning competitive enterprise system. The reports stated:

The concentration of wealth, money, and property in the United States under the control and in the hands of a few individuals or great corporations has grown to such an enormous extent that unless checked it will ultimately threaten the perpetuity of our institutions. The idea that there are only a few men in any of our great corporations and industries who are capable of handling the affairs of the same is contrary to the spirit of our institutions. From an economic point of view, it is not possible that one individual, however, capable, acting as a director in 50 corporations, can render as efficient and valuable service in directing the affairs of the several corporations under his control as can 50 capable men acting as single directors and devoting their entire time to directing affairs of one of such corporations. The truth is that the only real service the same director in a great number of corporations renders is in maintaining uniform policies throughout the entire system for which he acts, which usually results to the advantage of the greater corporations and to the disadvantage of the smaller corporations which he dominates by reason of his prestige as a director and to the detriment of the public generally.†

In speaking for the proposed legislation before Congress, Mr. Helvering, quoting Louis D. Brandeis, announced that "the practice of interlocking directorates offends laws, human and divine." He quoted Mr. Brandeis to the effect that interlocking directorates between rival corporations tend to suppress competition in violation of the Sherman Act, while interlocking directorates between corporations which sell to or buy from each other tend to violate the fundamental rule that no man can serve two masters. In either event, Brandeis had said, the interlocking directorate mechanism "removes incentive and destroys soundness of judgment."‡

Mr. Helvering went on to point out that Brandeis' position was strongly supported by known facts and cited the report of the Stanley Committee on the Steel Trust which had shown that the aggregate assets of the companies controlled by directors who served both the

\* Report of the Committee on the Judiciary to accompany, H. R. 15657, May 6, 1914 (63d Cong., 2d sess., H. Rep. 827, pp. 17-18).

† Report 627 to accompany H. R. 15657, May 6, 1914.

‡ Congressional Record, 63d Cong., 2d sess., May 23, 1914, p. 9186.



steel trust and steel-using companies aggregated over 16 billion dollars.<sup>7</sup>

<sup>7</sup> Ibid.

Mr. Helvering went on to cite cases set forth in the Report of the Pujo Committee:

"Mr. Baker is, or was until recently when he saw the handwriting on the wall, a director in 22 corporations having, with their many subsidiaries, resources or capitalization of \$7,272,000,000. Further than that, the directors of the bank which he dominates are directors in at least 27 other corporations, with resources of \$4,270,000,000. So we see that this First National Bank has representation on the boards of 49 corporations, with aggregate resources of \$11,542,000,000.

"Here are a few of the companies in which Mr. Baker had influence, either as voting trustee, executive committeeman, or director. The list was prepared by Mr. Brandeis:

"First. Banks, trust, and life-insurance companies: First National Bank of New York; National Bank of Commerce; Farmers' Loan & Trust Co.; Mutual Life Insurance Co.

"Second. Railroad companies: New York Central lines; New Haven; Reading; Erie; Lackawanna; Lehigh Valley; Southern; Northern Pacific; Chicago, Burlington & Quincy.

"Third. Public-service corporations: American Telegraph & Telephone Co.; Adams Express Co.

"Fourth. Industrial corporations: United States Steel Corp.; Pullman Co.

"Mr. Stillman is a director in 7 corporations, with assets of \$2,476,000,000, and the National City Bank, which he dominates, has directors in at least 41 other corporations which, with their subsidiaries, have an aggregate capitalization and resources of \$10,564,000,000.

"The members of J. P. Morgan & Co.'s firm hold 72 directorships in 47 of the largest companies of the country.

"Here is what the Pujo Committee found in regard to the members of the firm of J. P. Morgan & Co. and the directors of their controlled trust companies and of the First National and the National City Bank. They hold:

"One hundred and eighteen directorships in 34 banks and trust companies having total resources of \$2,679,000,000 and total deposits of \$1,983,000,000.

"Thirty directorships in 10 insurance companies having total assets of \$2,293,000,000.

"One hundred and five directorships in 32 transportation systems having a total capitalization of \$11,784,000,000 and a total mileage—excluding express companies and steamship lines—of 150,200.

"Sixty-three directorships in 24 producing and trading corporations having a total capitalization of \$3,339,000,000.

"Twenty-five directorships in 12 public-utility corporations having a total capitalization of \$2,150,000,000.

"In all, 341 directorships in 112 corporations having aggregate resources or capitalization of \$22,245,000,000.

"And, as Mr. Brandeis succinctly puts it, \$22,000,000,000 is more than three times the assessed value of all the property, real and personal, in New England. It is nearly three times the assessed value of all the real estate in New York City. It is more than twice the assessed value of all the property in the 13 Southern States. It is more than the assessed value of all the property in the 22 States, north and south, lying west of the Missouri River.

"And all of the power represented by this wealth is lodged in the hands of a



Opposition to the bill was, however, encountered both from those who were unable to see the need for such prohibitions and from those who felt that the limitations would not be effective. Mr. Nelson, for example, stated that he did not believe that the elimination of interlocking directorates would restore competition so long as common stock ownership persisted.<sup>8</sup> Despite such doubts by some Members of Congress, the Clayton Act was adopted by both Houses and became law on October 15, 1914. Two years later, the provisions relating to interlocking directors went into effect.

This then is the legislative background for the authority and responsibility which the Congress placed upon the Commission in the Clayton Act. In the discharge of this responsibility the Commission directed its staff to examine into the interlocking relations among the larger manufacturing corporations.

### PROHIBITIONS OF THE CLAYTON ACT RESPECTING INTERLOCKING DIRECTORATES

The law governing interlocking relations among corporate directorates is found not only in the Clayton Act but also in the several regulatory statutes enacted by the Congress. An examination of these enactments reveals the fundamental purposes of the Congress to preserve competition and economic opportunity and to forestall the acceptance of inconsistent and conflicting responsibilities by the directors of our large business corporations.

The provisions of the act governing interlocking directorates cover three classes of intercorporate relationship: Interlocking bank directorates; interlocking directorates between corporations other than banks, banking associations, trust companies, and common carriers; and interlocking directorates between railroads and their potential suppliers. Section 8 of the act contains the provisions covering the first two classes of interlock, while section 10 covers the third class.

Section 8 of the Clayton Act provides that no person may at the same time be a director in two or more corporations engaged in interstate commerce, if any one of the two companies has capital, surplus, and undivided profits aggregating more than \$1,000,000. The prohibition applies only where the corporations are, or were, competitors,

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few men. Can anyone doubt the danger which such concentration permits? Can we stop to inject partisanship into a discussion over methods proposed to wipe out such danger? It is useless to say that the power represented will never be used to the detriment of the American people. We could admit all that, even when we have had innumerable object lessons to show that the power has been so used; but even if it were in the hands of men in whom we all had implicit confidence, it is too great a power to be concentrated—it affords too great a temptation to frail humanity." (Id.)

<sup>8</sup> Congressional Record, May 23, 1914, pp. 9169-9170.

so that elimination of competition by agreement between them would constitute a violation of the antitrust laws.<sup>9</sup>

Section 8 of the act, as amended, also prohibits interlocking directors, officers, or employees between specified types of banks.<sup>10</sup> Despite

<sup>9</sup> "That from and after two years from the date of the approval of this Act no person at the same time shall be a director in any two or more corporations, any one of which has capital, surplus, and undivided profits aggregating more than \$1,000,000, engaged in whole or in part in commerce, other than banks, banking associations, trust companies, and common carriers subject to the Act to regulate commerce, approved February fourth, eighteen hundred and eighty-seven, if such corporations are or shall have been theretofore, by virtue of their business and location of operation, competitors, so that the elimination of competition by agreement between them would constitute a violation of any of the provisions of any of the anti-trust laws. The eligibility of a director under the foregoing provisions, shall be determined by the aggregate amount of the capital, surplus, and undivided profits, exclusive of dividends declared but not paid to stockholders at the end of the fiscal year of said corporation next preceding the election of directors, and when a director has been elected in accordance with the provisions of this Act it shall be lawful for him to continue as such for one year thereafter.

"When any person elected or chosen as a director or officer or selected as an employee of any bank or other corporation subject to the provisions of this Act is eligible at the time of his election or selection to act for such bank or other corporation in such capacity, his eligibility to act in such capacity shall not be affected and he shall not become or be deemed amenable to any of the provisions hereof by reason of any change in the affairs of such bank or other corporation from whatsoever cause, whether specifically excepted by any of the provisions hereof or not, until the expiration of one year from the date of his election or employment" (Clayton Act, excerpt from sec. 8, as amended).

<sup>10</sup> "No private banker or director, officer, or employee of any member bank of the Federal Reserve System or any branch thereof shall be at the same time a director, officer, or employee of any other bank, banking association, savings bank, or trust company organized under the National Bank Act or organized under the laws of any State or of the District of Columbia, or any branch thereof, except that the Board of Governors of the Federal Reserve System may by regulation permit such service as a director, officer, or employee of not more than one other such institution or branch thereof; but the foregoing prohibition shall not apply in the case of any one or more of the following or any branch thereof:

"(1) A bank, banking association, savings bank, or trust company, more than 90 per centum of the stock of which is owned directly or indirectly by the United States or by any corporation of which the United States directly or indirectly owns more than 90 per centum of the stock.

"(2) A bank, banking association, savings bank, or trust company which has been placed formally in liquidation or which is in the hands of a receiver, conservator, or other official exercising similar functions.

"(3) A corporation principally engaged in international or foreign banking or banking in a dependency or insular possession of the United States which has entered into an agreement with the Board of Governors of the Federal Reserve System pursuant to section 25 of the Federal Reserve Act.

"(4) A bank, banking association, savings bank, or trust company, more than 50 per centum of the common stock of which is owned directly or indirectly by

numerous exceptions spelled out in the act, this section of the law was clearly designed to preserve independence among banks and to prevent large aggregations of financial power from growing up through joint directorates.

Section 10 of the act makes it illegal for a common carrier to have dealings in securities or supplies or to make construction or maintenance contracts in amounts of more than \$50,000 in any 1 year with another corporation, if there is an interlocking relationship between them by virtue of a common director, president, manager, or purchasing or selling agent for the two companies.<sup>11</sup> This section, unlike

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persons who owns directly or indirectly more than 50 percentum of the common stock of such member bank.

"(5) A bank, banking association, savings bank, or trust company not located and having no branch in the same city, town, or village as that in which such member bank or any branch thereof is located, or in any city, town, or village contiguous or adjacent thereto.

"(6) A bank, banking association, savings bank, or trust company not engaged in a class or classes of business in which such member bank is engaged.

"(7) A mutual savings bank having no capital stock.

"Until February 1, 1939, nothing in this section shall prohibit any director, officer, or employee of any member bank of the Federal Reserve System, or any branch thereof, who is lawfully serving at the same time as a private banker or as a director, officer, or employee of any other bank, banking association, savings bank, or trust company, or any branch thereof, on the date of enactment of the Banking Act of 1935, from continuing such service.

"The Board of Governors of the Federal Reserve System is authorized and directed to enforce compliance with this section, and to prescribe such rules and regulations as it deems necessary for that purpose.

"\* \* \*

"When any person elected or chosen as a director or officer or selected as an employee of any bank or other corporation subject to the provisions of this Act is eligible at the time of his election or selection to act for such bank or other corporation in such capacity, his eligibility to act in such capacity shall not be affected and he shall not become or be deemed amenable to any of the provisions hereof by reason of any change in the affairs of such bank or other corporation from whatsoever cause, whether specifically excepted by any of the provisions hereof or not, until the expiration of one year from the date of his election or employment" (Clayton Act, sec. 8).

"That after two years from the approval of this Act no common carrier engaged in commerce shall have any dealings in securities, supplies or other articles of commerce, or shall make or have any contracts for construction or maintenance of any kind, to the amount of more than \$50,000, in the aggregate, in any one year, with another corporation, firm, partnership, or association when the said common carrier shall have upon its board of directors or as its president, manager or as its purchasing or selling officer, or agent in the particular transaction, any person who is at the same time a director, manager, or purchasing or selling officer of, who has any substantial interest in, such other corporation, firm, partnership or association unless and except such purchases shall be made from, or such dealing shall be with, the bidder whose bid is the most favorable to such common carrier, to be ascertained by competitive bidding under regulations to be prescribed by rule or otherwise by the Interstate Commerce Commis-

the section of the act covering common directorates between banks and between other corporations, is not designed to strike at links between otherwise competitive companies, but to prevent vertical interlocks between common carriers and their large-scale suppliers. It is based on the assumption that, where large sums are involved, railroads should have the benefit of arm's-length dealings and competition for its purchases, and that potential suppliers should be able to bid on equal terms for railroad business. In this connection, it is significant that the provisions of section 10 are not confined to a prohibition of interlocking directors as such, but apply also to other officers involved in buying and selling transactions.

#### OTHER PROHIBITIONS ON HORIZONTAL OR VERTICAL TIES

As has already been shown, the Clayton Act deals with two distinct forms of intercorporate interlock: The horizontal tie between competitors and the vertical interlock between a large-scale buyer and its potential suppliers. This act is not, however, the only law interdicting such relationships, since other Federal statutes directly or indirectly prohibit similar horizontal or vertical ties. Thus section 20 (a) of the Interstate Commerce Act of 1887, as amended; section 212 of the Communications Act of 1934; and section 409 of the Civil Aeronautics Act of 1938 prohibit specified classes of interlocks.

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sion. No bid shall be received unless the name and address of the bidder or the names and addresses of the officers, directors, and general managers thereof, if the bidder be a corporation, or of the members, if it be a partnership or firm, be given with the bid.

"Any person who shall, directly or indirectly, do or attempt to do anything to prevent anyone from bidding or shall do any act to prevent free and fair competition among the bidders or those desiring to bid shall be punished as prescribed in this section in the case of an officer or director.

"Every such common carrier having any such transactions or making any such purchases shall within thirty days after making the same file with the Interstate Commerce Commission a full and detailed statement of the transaction showing the manner of the competitive bidding, who were the bidders, and the names and addresses of the directors and officers of the corporations and the members of the firm or partnership bidding; and whenever the said commission shall, after investigation or hearing, have reason to believe that the law has been violated in and about the said purchases or transactions it shall transmit all papers and documents and its own views or findings regarding the transaction to the Attorney General.

"If the common carrier shall violate this section, it shall be fined not exceeding \$25,000; and every such director, agent, manager or officer thereof who shall have knowingly voted for or directed the act constituting such violation or who shall have aided or abetted in such violation shall be deemed guilty of a misdemeanor and shall be fined not exceeding \$5,000, or confined in jail not exceeding one year, or both, in the discretion of the court" (Clayton Act, sec. 10).

The Interstate Commerce Act makes it unlawful for any one person to hold a position as an officer or director of more than one carrier, unless authorized by the Interstate Commerce Commission after finding that neither public nor private interests will be adversely affected. The Civil Aeronautics Act makes it unlawful for any air carrier to have an officer or director who is also an officer, director, or member or who as a stockholder has a controlling stock interest in any other common carrier (surface as well as air carrier) or is engaged in any phase of aeronautics. Such interlocks may, however, be authorized by the Civil Aeronautics Board, if it finds that the public interest will not be adversely affected. Similarly, the Communications Act makes it unlawful for any person to be an officer or director of more than one company engaged in communication by wire, wireless, telegraph, telephone, or cable, unless the Federal Communications Commission finds that neither public nor private interests will be adversely affected.

The prohibitions on interlocking directorates among banks, common carriers, air carriers, and communication carriers apply, unless the appropriate regulatory authority has expressly authorized the interlock. In the case of the other corporations covered by section 8 of the Clayton Act, the interlocks are forbidden only for companies of the statutory size and where agreements to eliminate competition between them would violate the Sherman Act; however, every such interlock is illegal and no action by a regulatory body can give it legal sanction.

The provisions of the Clayton Act prohibiting common carriers from having directors or officers in common with companies from which they make large-scale purchases bears a relationship, in its intent, to the exclusive dealing provisions of section 3 of the Clayton Act. Section 3 makes it unlawful for anyone engaged in commerce to make sales or leases on condition that the buyer or lessee will not use or deal in the commodities of a competitor of the seller, or lessor. It comes into operation whenever the effect of such an understanding may be to lessen competition or tend to create a monopoly in any line of commerce.<sup>12</sup> This exclusive dealing provision is designed to prevent a close relation-

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<sup>12</sup> "That it shall be unlawful for any person engaged in commerce, in the course of such commerce, to lease or make a sale or contract for sale of goods, wares, merchandise, machinery, supplies or other commodities, whether patented or unpatented, for use, consumption or resale within the United States or any Territory thereof or the District of Columbia or any insular possession or other place under the jurisdiction of the United States, or fix a price charged therefor, or discount from, or rebate upon, such price, on the condition, agreement or understanding that the lessee or purchaser thereof shall not use or deal in the goods, wares, merchandise, machinery, supplies or other commodities of a competitor or competitors of the lessor or seller, where the effect of such lease, sale, or contract for sale or such condition, agreement or understanding may be to substantially lessen competition or tend to create a monopoly in any line of commerce" (Clayton Act, sec. 3).



ship between a supplier and his customer from so blocking the potential outlets for similar merchandise that competing sellers cannot enter the same market on terms of rough equality. It is, in effect therefore, a prohibition on a specific type of customer-supplier, or vertical, relationship which operates to restrict channels of trade.

### THREE RULES OF LAW APPLICABLE TO INTERLOCKING DIRECTORATES

The Clayton Act's two sections dealing with interlocking directorates embody three different rules of law applicable to different classes of corporations. One rule governs corporations engaged in commerce which are neither banks, banking associations, trust companies, nor common carriers. A second rule governs banks, banking associations, and trust companies. These two rules are contained in section 8 of the act. A third rule, contained in section 10, governs common carriers engaged in commerce.

The first rule, applicable generally to industrial and commercial corporations, provides that "\* \* \* no person at the same time shall be a director in any two or more corporations, any one of which has capital, surplus, and undivided profits aggregating more than \$1,000,000 \* \* \*" if such corporations are or "shall have been theretofore, by virtue of their business and location of operation, competitors, so that the elimination of competition by agreement between them would constitute a violation of any of the provisions of any of the antitrust laws \* \* \*"

This rule, based on the practical certainty that an interlocking directorate between competitors had an adverse effect upon competition, does not require for its enforcement any proof that in the particular instance the expected effect actually exists. However, the type of relationship that is prohibited is narrowly defined. The rule does not apply to interlocking directorates among small corporations. It leaves unchallenged interlocking directorates between corporations, both large and small, that have not been competitors in the past but might become so in the future; between corporations that are related to each other as seller and buyer; and between industrial and commercial corporations and financial institutions or common carriers. The reduction of competition that exists or has existed between relatively large interlocked corporations is the only danger that the rule seeks to avert.

Moreover, this rule applies only to corporate interlocks that are brought about through common directors. It does not attempt to prevent directors of one corporation from being officers or large stockholders in another.

The second rule forbids any person who is a private banker or a director, officer, or employee of a member bank of the Federal Reserve



System to be a director, officer, or employee of any other bank, banking association, savings bank, or trust company unless a regulation issued by the Board of Governors of the Federal Reserve System has authorized the interlock; and even through such a regulation an exception may be made only for an interlock with one other institution.<sup>13</sup>

The third rule, applicable to common carriers, is not designed to prevent interlocking relationships between common carriers that are in competition with each other.<sup>14</sup> Instead, it is focused upon interlocking relationships between carriers and other concerns with which they have business transactions, such as construction and maintenance companies, suppliers of commodities, and dealers in securities. If relationships between competitors are described as horizontal and those between sellers and buyers are so described as vertical, this rule is aimed at vertical rather than horizontal interlocks. It provides that “\* \* \* no common carrier engaged in commerce shall have any dealings in securities, supplies or other articles of commerce, or shall make or have any contracts for construction or maintenance of any kind, to the amount of more than \$50,000, in the aggregate, in any one year, with another corporation, firm, partnership or association when the said common carrier shall have upon its board of directors or as its president, manager or as its purchasing or selling officer or agent in the particular transaction, any person who is at the same time a director, manager, or purchasing or selling officer of, or who has any substantial interest in, such other corporation, firm, partnership or association, unless and except such purchases shall be made from, or such dealings shall be with, the bidder whose bid is the most favorable to such common carrier, to be ascertained by com-

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<sup>13</sup> Certain classes of banks are exempted from the rule—those that are Government-owned; that are in liquidation; that are engaged in international or foreign banking, or banking in a United States dependency or insular possession, under agreement with the Board of Governors of the Federal Reserve System; that are controlled by the concern with which they interlock through stock ownership of more than 50 percent of their common stock; that are not located in identical or contiguous places; that are not engaged in the same class of business; or that are mutual savings banks without capital stock. Some of these exemptions merely provide special treatment for banks that are not truly domestic or are not truly commercial or that are mere extensions of the corporate personality of a parent bank. However, the exemption applicable to banks that are not contiguous and the exemption applicable to banks engaged in different classes of business constitute important limitations upon the severity of the rule against interlocking personal relationships among bank officials.

<sup>14</sup> The Transportation Act of 1920 amended the Interstate Commerce Act to provide that no person may be an officer or director of more than one carrier unless authorized by the Commission on the basis of a finding that neither public nor private interest will be adversely affected by the interlocking director (Interstate Commerce Act, sec. 20 a (12)).

petitive bidding under regulations to be prescribed by rule or otherwise by the Interstate Commerce Commission."

The conception of interlocking relations embodied in this third rule is broader than in either of the other two, since it includes not only directors and the officers and employees who have authority to purchase, but also persons who have substantial interest in the concern with which the common carrier does business. Moreover, the rule is applicable not only to corporations but also to unincorporated business. The purpose of the rule is obviously to enforce arm's-length dealings between carriers and those who supply them with goods and services, for the rule has no application so long as purchases are made by an approved competitive bidding process. There is provision for reporting such purchases to the Interstate Commerce Commission in sufficient detail to permit appraisal of the good faith of the transactions.

Two different principles appear to underlie the type of rule applied to common carriers. The first principle is the maintenance of competition. If purchases are made from a business enterprise because officials of the buying company are personally interested in the supplying company, other business enterprises that are in competition with the supplier are obviously deprived of opportunity to compete for the business. If allocation of purchases to interlocked sources of supply becomes important enough, it may destroy competition among the suppliers. Hence the requirement that interlocks be avoided or purchasing be carried on in such a way as to prevent interlocks from guiding the purchases is a reasonable precaution in the maintenance of competition. The second principle is that the officials of a corporation are stewards of the property of the owners thereof and that they should not be allowed to serve other interests that are in conflict with the duties of their stewardship. Since the interests of buyer and seller are in many respects opposed, it is as reasonable to prevent a corporate official from having a voice on both sides of a commercial transaction as it is to prevent an attorney from representing persons on opposite sides of a legal negotiation. These principles apparently reinforced each other as inducements to the Congress to adopt section 10 of the Clayton Act.

When the three rules of law that have been set forth above are examined in relation to each other, it is clear that they do not constitute a fully integrated whole. Horizontal relationships alone are dealt with by the rules applicable to industrial and commercial corporations and to banks. Vertical relationships alone are dealt with by the rules applicable to common carriers. In the case of industrial and commercial corporations, the rule applies to directors only; in the case of banks to directors, officers, and employees, as well as private bankers; in the case of common carriers, to directors, presidents, man-

agers, purchasing and selling officers, agents, and persons who have a substantial interest in the concerns that deal with carriers. Only the larger corporations are subject to the rule that governs manufacture and commerce. Private bankers and banking associations, as well as banking corporations, regardless of size, are subject to the rule that governs banks. Any common carrier and any firm dealing with a common carrier, regardless of size or the form of business organization, is subject to the rule that governs common carriers, provided the dealings between the carrier and the concern amount to more than \$50,000 a year. The rules as to industrial and commercial corporations and banks are enforceable only by injunctive order. The rule as to common carriers is enforceable by fine and imprisonment in criminal proceedings. In the case of banks and industrial and commercial corporations, the prohibition of the law runs against the individual who occupies the prohibited position. In the case of common carriers, the prohibition applies against the carrier itself and also against directors, agents, managers, and officers who aided or abetted the violation.<sup>15</sup>

#### PROBLEMS NOT SOLVED BY THE LAW

When the Clayton Act was written the Congress had no experience with legislation about interlocking directorates. The provisions of the statute were apparently designed to cope with the problems that had become most conspicuous during the two previous decades. The lack of integration between the rules of law applicable to banks, common carriers, and industrial and commercial corporations is evidence of the tentative and experimental nature of the statute.

During the 36 years since the law was written business organization has become more complex, the scale of business operations has changed significantly, and technological progress has broadened the area of potential competition in many fields of industry. These changes have emphasized certain problems that were not covered by the original statute.

In what follows these problems will be considered only as they relate to the part of the law that is applicable to corporations other than banks and common carriers.

The portion of section 8 which applies to industrial and commercial

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<sup>15</sup> Most of the Federal regulatory statutes have included provisions restricting interlocking directorates among the companies subject to the jurisdiction of the act. Thus section 20 a (12) of the Interstate Commerce Act, incorporated by the Transportation Act of 1920, section 212 of the Communications Act of 1934, and section 407 of the Civil Aeronautics Act of 1938, all restrict interlocking relations between competing enterprises except with the approval of the regulatory authority on a showing, in the language of the Interstate Commerce Act, "that neither public nor private interests will be adversely affected thereby."

corporations expresses an unduly narrow conception of the personal ties through which corporations may be linked together. It is concerned only with the presence of the same individual on the boards of two or more companies. Officers of one corporation are often directors of another, and men holding a controlling interest in the stock of one corporation may be directors of another.<sup>18</sup> By such means enterprises may be linked as closely as through common directors. Moreover, different persons on the boards of two or more companies may express a common policy if these persons are closely associated with each other by family ties or by common business interests. To identify instances in which such personal associations are close enough to be significant is often a difficult matter.

The present law is also unduly limited in its conception of the competition that may be prevented by interlocking directorates. The law applies only where there is or has been competition between the interlocked companies. It does not apply where these companies might readily become competitors and probably would do so but for the effect of the interlock. As technology has become more dynamic, the opportunity for a corporation to invade new fields has become more frequent and varied. Interlocking directorates are as likely to prevent such opportunities from being seized as they are to destroy competition where it already exists.

The present law also expresses an unduly narrow conception of the types of interlocking relationships which may be sufficient to reduce or prevent competition. It is applicable only to direct interlocks

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<sup>18</sup> It would have been desirable to have included a survey of interlocking relations accomplished through officers and large stockholders, but this enlargement in the scope of the present inquiry would have been beyond the available resources of the Commission at this time. Indeed, financial writers in the press have commented that the substitution of officers who are not directors for directors makes a farce of Section 8. One example will suffice: American Steel Foundries and Baldwin Locomotive Works are the largest stockholders in General Steel Castings; on the board of General Steel Castings were the president and two vice presidents of American Steel Foundries, all three of whom were also directors of both companies, and the chairman of the board and the president of Baldwin Locomotive, both being also directors of the latter company; it is reported that in compliance with a request by the Department of Justice for the elimination of the interlocking directorates, these men withdrew and two vice presidents and the comptroller of American Steel Foundries and two vice presidents of Baldwin Locomotive, none of whom was a director of his respective company, became directors of General Steel Castings. In view of the ease with which officers may be used to evade the intent of Section 8, there have been noted in the analyses which follow a few samples of director-officer interlocking relations; these instances have not been sought out on any systematic basis, but are rather examples that thrust themselves on the attention of analysts during the examination of interlocking directorates involving the same companies. There is no reason to believe that the examples mentioned are more than a very small fraction of the total number of such interlocking director-officer relationships.

among competitors, whereas there are competition-reducing potentialities in indirect interlocks as well. If each of two competing corporations has a director on the board of a third corporation which is in competition with both of them, the effect of the interlock must be to impair the vigor of competition among all three concerns. Yet under the present statute the Federal Trade Commission is empowered to issue an order against the interlock between the third corporation and each of the others, but not to issue an order against the interlock between the other two corporations. Thus the two indirectly linked concerns may remain free to reestablish their indirect interlock through some other competitor.

Moreover, when competing corporations have directors on the board of an important customer or an important supplier, the business discussed by the board upon which these directors meet is likely to be so intimately related to the business of the competitors that mutual discussion of it by these directors has effects similar to those of an interchange of views through the presence of a director of one competitor on the other's board. But the law does not encompass indirect interlocks, whatever may be their character and significance.

The law applicable to industrial and commercial corporations is also unduly narrow in being confined to interlocking relationships among competitors. Where suppliers or customers are so important that access to them has a significant influence upon business success, equality of access is desirable in the industrial and commercial field for reasons akin to those that make it desirable in dealings between common carriers and enterprises that supply them with equipment. Interlocking directorates between buyers and sellers are inconsistent with the arm's-length dealings that prevent favoritism and assure equal access for other enterprises. Nevertheless, though the law strictly regulates the vertical interlocking relationships between common carriers and their suppliers, it contains no corresponding provisions about vertical interlocking relationships among industrial and commercial corporations.

This omission is of peculiar importance with reference to interlocking relationships between industrial and commercial corporations and concerns such as banks, that supply them with indispensable services. An interlocking directorate between an industrial corporation and a bank may establish preferential access to credit for the industrial corporation. Where several industrial and commercial corporations are interlocked with the same bank, a community of interest may be established that is strong enough to be a substantial handicap to other concerns dependent upon that bank for service. Nevertheless, the law is silent about such relationships.

The incompleteness of the law has facilitated the development of a substantial number of interlocking directorates with a tendency



to reduce competition and to establish preferential access to customers, supplies, or services. A primary purpose of this report is to ascertain the extent and potential significance of such relationships among the larger manufacturing corporations. To this end, the report explores not only interlocks among competitors but also interlocks among potential competitors, among concerns vertically related to each other, and between industrial enterprises and commercial, utility, and banking enterprises. Thus it examines in the industrial field not only the types of interlocks that Congress has forbidden there but also types that appear to be significant but are not forbidden there.



## Chapter 2

### INTERLOCKS AFFECTING COMPETITION

#### THE SIGNIFICANCE OF INTERLOCKING DIRECTORATES

The rules of law that limit interlocking directorates are expressions of a general policy that seeks to assure competition by keeping decisions by business enterprises separate and to assure the integrity of corporate stewardship by preserving arm's-length relationships in bargaining. But interlocking directorates are not the only way in which intimate ties are established between nominally separate enterprises. Corporations become related to one another through intercorporate stock ownership, and through the ownership of stock in separate companies by the same institutional or individual stock owners, as readily as through interlocking directorates. Business enterprises, both corporate and noncorporate, may be enduringly tied to each other by agency arrangements, long-term supply contracts, patent licensing agreements, and other similar contractual arrangements which establish in fact, though not in legal theory, a permanent status between the parties. All such links of ownership and enduring contract are as relevant as interlocking directorates in mapping the structure of corporate alliances. Nevertheless, only interlocking directorates fall within the scope of this report, and other ties are referred to only where they explain the origin or the significance of the directorships. Care should be taken, therefore, to avoid interpreting the patterns disclosed herein as a full account of the structural alliances among business enterprises.

Interlocking relationships among corporations through persons associated with those corporations are of various types, dependent upon the character of the enterprises that are linked, the directness of the linkage, the frequency of the linkage, and the responsibilities of the persons who constitute the links. Corporations that are linked together may be actual or potential competitors, buyers and sellers of commodities, users and suppliers of services, including banking and transportation services, or not engaged in dealings with each other. An interlock which is similar as to its directness and as to the function of the officials involved may be substantially different in its effect because of such differences in the market relationship of the concerns that are linked.

Moreover, interlocks between enterprises that have the same type of relationship in the market may differ in significance because of differences in the scope of the linkage. The interlock may depend entirely upon a single director in each corporation, or it may consist of multiple ties manifested through several different directors who meet each other on several corporate boards. The more numerous the interlocks the stronger is the presumption that they create unity of action.

Again, corporate linkages may differ in character with the functions and responsibilities of the persons who constitute the links. Representation by the chairman of the board may be more significant than representation by an ordinary director. Representation by a high officer of the corporation may mean more than representation by a subordinate officer, and may mean more or less than representation by a director, according to the division of actual authority between the board of directors and the corporate management. Representation by a person who gives the major part of his time to the concern may be more significant than representation by a person whose primary activity lies in neither of the corporations that are interlocked.

Where there are no significant differences like those discussed above, the meaning of interlocks may differ with differences in the directness with which one corporation meets another. The most direct and simple form of interlock is that forbidden by section 8 of the Clayton Act, in which a director of one corporation is also a director of another corporation. To varying degrees, however, more remote forms of interlocking relationships may be significant. A director of one company may be a director of a subsidiary of another company. Two parent corporations may be indirectly linked by an interlock between directors of their respective subsidiaries. This kind of indirectness may reach down to third or fourth level subsidiaries, with many possible variations in the relative nearness of the interlocked companies to the parent companies.

Moreover, concerns may be indirectly interlocked by the fact that their directors sit together on the board of directors of a third company not otherwise affiliated with either of them. The significance of this kind of indirect interlock may differ not only with the number of directors who thus meet together and the frequency with which they encounter each other on the boards of different concerns, but also with the nature of the business of the enterprise on whose board they jointly sit. If this enterprise is itself a competitor of the concerns from which they come, the interlock is likely to be at least as significant as a direct interlock between those concerns. If the third company is a potential competitor, the significance of the interlock may be only slightly reduced. If the third company is a supplier, a customer, or a financial institution, the decisions of its board may involve questions as to which the directors from other companies have the status

of accredited representatives of those companies, so that in effect they act jointly on behalf of those companies in considering policies of purchase, sale, or credit extension. If the third company is engaged in an unrelated line of business, the significance of the interlock may be much less clear and may consist merely in the growth of friendly association, mutually understood ways of attacking a business problem, mutual confidence, and habits of working together that may affect the behavior of the directors outside the board room in which they meet together.

Degrees of directness are to be found not only in the relationship of the corporate boards upon which directors sit, but also in the relationship of the persons who serve as directors. In some cases the same person may represent a company on the boards of two other companies. In other cases two different directors of one company may appear respectively on the boards of two other companies. In still other cases, a person who sits on one company's board may represent the same business interest as a person who sits on the board of another company, yet not be associated with that person on any corporate board. He may, for example, be an officer of a corporation in which the other person is a director, or a large stockholder of that corporation. Finally, persons who sit on two boards of directors may be linked by ties of blood rather than of business relationship: one may be the brother, the son, the brother-in-law, the son-in-law, or the cousin of another.

The linkage of corporations through related persons is, therefore, unmistakable in its simplest and most direct forms, but these clear relationships which lie at the center of the problem are surrounded by other relationships successively less clear, the significance of which shades off gradually. The point at which relationships become too greatly attenuated to be significant is a matter of judgment and may often be a matter of dispute. However, the importance of interlocking directorates does not depend upon the importance of borderline cases, and such cases affect public policy only by creating difficulties as to the exact limits that should be set for a rule of law. Attention should be focused upon the meaning of the more substantial interlocking relationships, and public policy should be directed toward removing whatever evils these relationships create.

Not all interlocking directorates are of significance, even where the same individual serves as a director of two corporations. Some may be clearly of a fortuitous nature; others are found to be without significance on the basis of further knowledge. Thus a bank director who serves as a director of a manufacturing company and of a retail store creates direct interlocks between the manufacturer and the retailer; yet both the manufacturer and retailer may have been interested in him because of his position in the financial world and neither may be interested in his other directorship. For example, Lewis L.

Strauss, a partner of Kuhn, Loeb & Co., was in 1946 a director of both United States Leather Co. and United States Rubber Co. Both companies are interested in the manufacture of footwear. Yet United States Leather has been one of the foremost in urging the unique qualification and absolute superiority of leather for footwear and must, therefore, have been increasingly concerned about the competition from rubber and other substitute materials which shoe manufacturers have been using in larger and larger quantities for soles and heels. When Mr. Strauss resigned from Kuhn, Loeb & Co. and severed his other industrial and financial connections to accept a Government post late in 1946, he was succeeded on the board of United States Leather by his brother, L. Z. Morris Strauss, but he was apparently not replaced on the board of United States Rubber, and the interlock disappeared. However, Francis B. Davis, Jr., remained as a director of both United States Rubber and Kuhn, Loeb & Co., so that an indirect interlock continued. Indirect interlocking relations have great possibility of being fortuitous in their origin, though not necessarily in their consequences, where directors who are spokesmen for one interest serve inadvertently as channels of indirect relations between other companies.

The significance of any one interlock of directorates is the result of two influences: First, the purposes and plans of those responsible for the interlock; and second, the necessary effect of the functions performed by the directors. The purposes of different people may vary under similar conditions, and the determination of any man's purpose is likely to require a close inspection of his activities and possibly of documents in which he declares his intentions. In a report of this kind, covering more than a thousand companies and a great many individuals, investigation of purposes has not been possible.

The effect of the performance of the director's function is likely to be predictable within moderately narrow limits. A board of directors has authority, under the general principles of corporation law, as representative of the owners of the company, to select the management and to determine questions of fundamental policy. A member of a board of directors has a duty to serve as steward of the corporate property on behalf of the owners and to use his best judgment in guiding the affairs of the company for their benefits. Though corporations differ greatly in the extent to which responsibility is delegated to management and the scope of the issues that are brought before the board of directors, the ultimate authority rests in the board, and the board is in a position to intervene in any question it regards as sufficiently important.

An individual who is a member of more than one board of directors cannot divide his personality into unrelated segments. When sitting on one board he necessarily continues to know what he has found out

on other boards, what he has recommended to those boards, and what action those boards have taken. He would be derelict to his responsibility if in two different boards of directors he supported policies each of which would tend to defeat the course of action he had recommended or seen adopted in the other company. Hence, wherever an individual serves on the boards of two or more companies that have interests related to each other, his duty as a director is necessarily to harmonize those interests so far as possible. If he cannot do so he can fulfill his duty to both companies only by withdrawing from further participation in the business at hand. A director of two competing corporations cannot in good conscience recommend that either shall undertake a type of competition which is likely to injure the other. A director of two corporations that are respectively buyer and seller of the same commodities or services cannot in good conscience recommend that either concern prefer unrelated sources of supply or customers instead of the other company in which he is interested, nor that either concern press to the limits its ability to strike a good bargain at the expense of the other. A director who is on the board of an industrial company and a financial institution cannot in good conscience encourage the latter to finance expansion by competitors of the former which may jeopardize the former's prosperity; nor can he in good conscience encourage the industrial company to obtain its credit through other channels. Thus the inherent tendency of interlocking directorates between companies that have dealings with each other as buyers and sellers, or that have relations to each other as competitors, is to blunt the edge of rivalry between corporations, to seek out ways of compromising opposing interests, and to develop alliances where the interest of one of the corporations is jeopardized by third parties.

Insofar as the idea of meticulous stewardship by boards of directors has been relaxed in practice, the effect of relaxation has necessarily been to strengthen these tendencies. Governmental investigations and private law suits have revealed impressive cases in which directors have regarded themselves as spokesmen of special interests other than those of the owners of the corporation on whose board they sit. When a director of one corporation views himself as a representative of another corporation and seeks to serve the interest of the latter even at the expense of the interest of the former, his directorship has an obvious tendency to destroy the independence of the former concern, whether it is competitor, seller, or customer.

Moreover, when concerns controlled by such directors are related to each other as buyer and seller, and when one company is managed in the interest of the other, there are likely to be manifold opportunities to manipulate transactions between the two so that profits appear wherever the controlling interest finds most advantageous and so that



prices are set at levels desired by the controlling interest regardless of the well-being of the other company. An independent enterprise competing either as seller or as buyer with concerns that are thus manipulated must buy or sell in a rigged market. Its survival may depend, not upon its efficiency, but upon the strategy of its manipulated competitor.

This general tendency of interlocking directorates among related corporations is expressed in different degrees by different kinds of directors. The so-called professional director, who is invited to take a place on various boards because of his competence to cope with particular problems of corporate management, probably is least active in coordinating the interests of different corporations, partly because of his personal detachment and partly because his multiple directorships are not likely to be centered in closely related corporations. The operating official of a particular concern is likely to be the most aggressive in using his directorships in other related concerns to establish a close harmony of interest with those enterprises.

The importance of the unifying tendency in interlocking directorates is enhanced by the fewness of the places on a corporate board and the manifold considerations that may suggest inclusion of more persons on the board than can be accommodated there. Any corporation has a limited number of opportunities to secure the services of a director who will strengthen it. An interest seeking representation on the board has only a limited number of opportunities to obtain a place. A place that is filled by one kind of director is not available for another kind of director. Positions on the board are filled with care in the light of possible candidacies that may include representatives of the management, representatives of large stockholders, persons with special competence, persons with public prestige, persons who can bring business, often not their own, to the company, and persons who represent other corporate interests, both financial and commercial. The relative importance given to these different types of representation is indicative of the general direction of corporate policy. Where the board contains significant representation of competitors, potential competitors, suppliers, customers, or financial institutions, it is reasonable to suppose that the choice of these persons was not inadvertent. However, even if there was no purpose in the selection, the tendency to harmonize conflicting interests remains inherent in the function of such directors.

#### PATTERNS OF INTERLOCKING DIRECTORATES

The Commission's study points to a number of patterns of interlocks of varying significance. They may be identified and described in terms of their fundamental tendencies in a competitive economy:

(1) Interlocking directorates between competitors, whether on a direct or indirect basis, tend to limit or eliminate competition between the competing concerns. (2) Interlocking relations between companies in the same or in closely related industries, but not in competition with each other, may forestall the development of competition which otherwise would come from normal expansion of the list of products which they manufacture. (3) Interlocking relations between companies that face similar problems, for example, the large integrated oil companies, or between companies in an industry and financial institutions that are broadly interested in that industry or in related industries, may give rise to communities of interest and create a united front against any who threaten habitual relationships or established preeminence. (4) Vertical interlocks may reach back to companies from which important supplies come and thereby evoke preferential treatment in the distribution of materials in short supply. (5) Vertical interlocks may reach forward to companies that consume or distribute the products of another and thus create preferential access to market outlets. (6) Interlocking relations between manufacturing corporations and financial institutions, especially banks and insurance companies, may establish a type of vertical relation that assures adequate credit to favored companies and a withholding of credit and capital from their competitors. (7) Interlocking relations may give expression to an underlying ownership interest and may involve nothing more than a desire to protect an investment.

The interlocking relations which are reported in this study suggest one or more of these patterns. In most cases sufficient facts are not available to tell the whole story. A given set of interlocks may only partly express a suggested pattern or may express more than one pattern simultaneously. Interlocking relations are a two-way street, although it is not always possible to weigh and evaluate the traffic that moves in both directions. Generally, it is not possible to say that every interlock is what it seems or that the pattern identified is the only one, or necessarily the central one, that fits the specific case.

1. Interlocks between directly competing companies were found in many industries. The food industry furnish some of the best illustrations. Five of the 12 meat-packing companies had indirect interlocks with competitors. Of the 23 largest sugar companies, 16 had direct or indirect ties with other sugar producers. Direct interlocks between Borg-Warner Corp., Bendix Aviation Corp., and Houdaille-Hershey Corp. linked companies producing aircraft parts, while the first two also manufactured carburetors and universal joints for automobiles. American Viscose Corp. and E. I. duPont de Nemours & Co. are the two largest rayon producers; both had directors on the board of J. P. Morgan & Co.

All except three of the 20 largest petroleum companies had direct or indirect interlocking relations with each other. Although the two largest were absent from this list, Standard Oil Co. (New Jersey) and Socony-Vacuum Oil Co. were tied to each other and to other large oil companies through joint control of subsidiaries.

The machinery industry afforded many examples of interlocks between competitors. Eighteen competing manufacturers of engines were directly or indirectly linked. Six of the largest farm machinery manufacturers were indirectly interlocked with each other. Four of the leading manufacturers of road building and earth moving equipment had multiple indirect interlocks through the First Wisconsin National Bank and the Northwestern Mutual Life Insurance Co. Two of these were also directly interlocked. Ten of the 18 largest machine tool producers had indirect links with their competitors; and of the four largest textile machinery companies, two were directly interlocked and all indirectly linked through two Boston banks. The transportation equipment industry also presented a number of instances of interlocking relations between competitors.

2. Interlocking relations among companies in the same industry may be significant, not for the competition which is destroyed, but for the tendency to prevent companies engaged in parallel lines of production from invading one another's fields. Such interlocking relations, even of a direct nature, are not violative of the Clayton Act, if there has been no prior competition. Yet in view of the modern tendency of large corporations to broaden their production bases, even to the extent of entering new and untried fields, there can be no doubt that such interlockings among companies in the same industry are often between potential competitors and that the consequence may be to forestall the development of additional competition among large and established companies. Specialization among manufacturing firms, accompanied by mutual forbearance which protects each from invasion of its field by others, may limit the number of competitors who produce a specialized type of product or may even convert each specialized field into a practical monopoly.

Modern technology permits flexibility in production in many industries. Most machinery companies use the same production techniques and employ similar machine tools; if specialization confines such a company to a limited field of production, the company is potentially competitive with other companies in the same general line of manufacture. Similarly, textile machinery appears to possess a convertibility which would permit active competition between textile manufacturers who are not now making the same products. The network of interlocks found may be a factor in preventing full advantage being taken of this flexibility in shifting production with shifting demand. A similar pattern of many indirect interlocks and some

direct interlocks, combined with a habit of buying and selling to one another, may be a factor limiting potential competition among chemical producers. The glass industry is another instance where specialization in production is characteristic of large companies: Libbey-Owens-Ford Glass Co. specializes in plate glass and flat glass, whereas Owens-Illinois Glass Co. produces a full line of glass containers; the two companies are directly and indirectly interlocked.

3. Important communities of interest, often extending beyond the limits of a single industry, appear to have been created by direct and indirect interlocking directorates. Such relationships tip the balance heavily in favor of the members in competitive relations. In some instances large industrial companies were the nucleus of such patterns. In other instances the focus lay in financial institutions. A study of the directorates of banks, investment bankers, and insurance companies would doubtless have revealed other communities of interest. In other cases, the community of interest appeared to be based upon understandings which were evidenced by jointly organized and owned subsidiaries, by joint participations in research programs, and by reciprocal supply contracts.

The interlocking relations between leading financial institutions and the four leading electrical machinery companies appear to have created one such community of interest. The Big Four electrical machinery companies were interlocked directly with six metropolitan banks and two large insurance companies. The community of interest was further solidified by interlocks between these companies through three other large corporations.

The du Pont interests in General Motors Corp. and United States Rubber Co., which were based upon direct interlocking relations supported by substantial stock interests, created a community of interest with a different orientation. The products of these companies complement one another and form the basis for important commodity transactions, perhaps of a preferential character, between them.

A third example of communities of interest involved the position of Chase National Bank with respect to the petroleum industry. Chase National Bank had directors in common with four leading petroleum companies. In addition, important Rockefeller interests, which appeared to center in Chase National Bank, brought the country's two largest integrated producers into the group.

Similarly, Central Hanover Bank & Trust Co.'s board of directors brought together directors of three of the larger oil companies. Similar communities of interest appear to have existed in the chemical industry.

4. Interlocking relations between manufacturing companies and their sources of supply may be carried to the point where they effect a kind of vertical integration. Such vertical integration has not

always been recognized as a threat to competition unless it takes the form of tying contracts and exclusive-dealing arrangements, both of which are forbidden by section 3 of the Clayton Act. Yet vertical integration may seriously impair free markets and prejudice the survival of unintegrated producers.

Vertical integration between manufacturers and their sources of supply is one of the recurring patterns in the analysis of interlocking relations. Thus, in the food industry, National Biscuit Co. had five directors in common with American Can Co.; and United Biscuit Co., Ward Baking Co., and Interstate Bakeries Corp. also shared directors with container manufacturers. In the metals industry, the interlocking relations of Revere Copper & Brass and General Cable Corp. with American Smelting & Refining Co., and of Bridgeport Brass Co. with Phelps Dodge Corp., were of the same character. The two largest electrical machinery manufacturers were directly interlocked with several primary metal producers. The large automobile manufacturers were all interlocked with a number of parts manufacturers. A similar pattern prevailed in other divisions of the transportation equipment industry. The most comprehensive pattern in the transportation equipment field was that which interlocked directly Pullman, Inc. with Air Reduction Co., A. M. Byers Co., Armco Steel Corp., Crane Co., du Pont, General Motors, Rockwell Manufacturing Co., and United States Steel Corp. The chemical industry also afforded numerous examples of interlocks which may have facilitated the preferential flow of supplies. American Viscose Corp., North American Rayon Corp., and American Bemberg Corp. had directors in common with International Paper Co., a leading producer of pulp for paper products and rayon. Commercial Solvents Corp., which produces alcohol from both corn and molasses, was similarly interlocked with Corn Products Refining Co. and South Porto Rico Sugar Co. Sun Chemical Corp. was interlocked with the Texas Co., a source of chemical raw materials from petroleum.

5. Vertical interlocks which tie manufacturers to possible outlets for their products were also prevalent throughout industry. They appeared to be more clearly discernible in the case of raw materials and intermediate products, but there were probably still more instances involving outlets to the final consumer market. Among the metals producers New Jersey Zinc Co. was interlocked with Union Carbide & Carbon Corp.; American Metal with General Electric and Babcock & Wilcox Co.; U. S. Smelting, Refining & Mining with General Electric Co. and American Telephone & Telegraph Co. In the transportation equipment field ACF-Brill Motors Co. had a notable series of interlocks with Checker Cab Manufacturing Co., Chicago Motor Coach Co., Gar Wood Industries, Marmon-Herrington Co., and Sterling Motor



Truck Co. An even more impressive pattern was provided by the interlocks of Westinghouse Air Brake Co. with American Car & Foundry Co., American Locomotive Co., Baldwin Locomotive Works, H. K. Porter Co., General American Transportation Corp., Pullman, and Lima Locomotive Works. In the glass industry significant interlocks linked Owens-Illinois Glass with National Distillers Products Corp., and also linked Anchor Hocking Glass Corp., with Sharp & Dohme, and, on an indirect basis, with National Dairy Products Corp., Distillers Corp.-Seagrams, American Home Products Corp., and Anheuser-Busch.

6. Interlocking relations between manufacturing corporations and financial institutions, notably the commercial banks, constituted the most important series of interlocking relations found and also gave rise to the most extensive and apparently significant of the networks of indirect interlocking relations. In themselves the interlocks with financial institutions may have the effect of assuring preferential access to credit. Ties with the nation's largest banks and insurance companies may have placed the large national corporations in a preferential position whenever their operations require either long-term capital or short-term credits. In the case of the smaller companies, the financial interlocks were principally with local banks and presumably were significant principally in giving assured access to the short-term credit market.

7. Interlocking directors between companies which are related on the basis of stock ownership are to be expected and have not been commented upon except in one industry where the combined pattern of interlocking directors and stock ownership appear to have had far-reaching consequences for healthy competition in the economy.

#### THE OUTSTANDING INTERLOCKS IN VARIOUS INDUSTRIES

A meaningful summary of information so extensive and diversified cannot be statistical, for statistics do not lend themselves to an evaluation of situations as variable and imponderable as the direct and indirect interrelations among corporate directorates. The present summary, therefore, attempts simply to characterize in general terms the separate industry chapters.

The food industry exhibits an extensive array of interlocking directorships which are significant both for competition within the industry and for its relations with other industries. In the meat packing branch of the industry, five of the 12 largest companies were indirectly interlocked in ways tending to reduce competition. Armour & Co. was indirectly interlocked with the third and fourth largest packers; three of the largest meat packers had indirect ties with three of the largest bakers. Armour and Swift & Co. had direct interlocks with equipment manufacturers.

Three of the 10 largest dairies were directly or indirectly interlocked with each other; the three largest dairies were also indirectly interlocked with General Foods Corp., Standard Brands, and Best Foods. The largest of the dairy products companies was indirectly interlocked with two large baking companies, which were potential customers, and with a large manufacturer of metal and paper containers.

Four of the 12 canners had direct or indirect interlocks with companies producing competitive products. The direct interlock between Libby, McNeill & Libby and Minnesota Valley Canning Co. is illustrative. Like other food producers, the canners had ties with suppliers of materials: California Packing Corp. with a large lumber company, and Hunt Foods with a large tin can manufacturer.

Six of the 12 grain mill products companies had interlocking relations with competitors. General Mills, the largest, had a direct interlock with Best Foods and indirect interlocks with Pillsbury Mills, International Milling Co., and Russell-Miller Milling Co. The three large milling companies also had one or more direct or indirect interlocks with bakers or distillers. Both General Mills and Pillsbury Mills were directly interlocked with a large manufacturer of kraft papers. Pillsbury Mills was also interlocked directly with a food container stock manufacturer.

The producers of bakery products were also tied together through interlocking directorates, six of the 10 companies being involved. Purity Bakeries Corp. interlocked directly with American Bakeries Co. The two largest—National Biscuit Co. and Continental Baking Co.—had indirect interlocks with each other and with a number of other baking companies. National Biscuit was also directly interlocked with American Sugar Refining and had indirect ties with five other potential suppliers in the food industry; one of its most notable ties outside the food industry rested upon five directors in common with American Can. United Biscuit, Ward Baking and Interstate Bakeries also had direct interlocks with container stock or container manufacturers.

A highly concentrated pattern of interlocks occurred among the sugar companies. Sixteen of the twenty-three largest of these companies had direct or indirect ties with each other. Six Hawaiian sugar companies were both directly and indirectly interlocked with each other, while sugar companies outside of Hawaii were equally intricately interlocked. The sugar companies also had direct or indirect ties with the country's largest producers of dairy products, bakery products, and beverages. American Sugar Refining alone had direct and indirect interlocks with sixteen potential customers, while South Coast Corp. had 4 directors in common with Celotex Corp., which uses

cane fiber, from which the sugar has been extracted, in the manufacture of Celotex.

Eight of the twenty-three largest beverage products companies were directly or indirectly interlocked with each other. Canada Dry Ginger Ale, for example, had a direct tie with National Distillers Products, which manufactures the White Rock line. Ties between beverage manufacturers and potential customers or suppliers were varied and numerous. National Distillers Products, the third largest of the distilled beverage manufacturers, for example, had indirect ties with the largest corn products and sugar refining companies. It also had a direct tie with the country's largest manufacturer of glass bottles.

General Foods, Standard Brands, and Best Foods were interlocked with each other through a variety of third companies. General Foods also had direct ties with the country's two largest dairy companies, and indirect ties with the largest bakery company and the two largest grain-mill-products companies, all of which manufacture products with which General Foods' lines compete. General Foods also had a direct interlock with American Can and with the Mead Corp., which sells paperboard.

Corn Products Refining Co. had a direct interlock with South Porto Rico Sugar Co. and had indirect ties with other large sugar companies. It also had indirect interlocks with potential customers in the bakery and beverage industries.

The interlocking relations within the primary iron and steel industry fell into four major categories. U. S. Steel maintained indirect interlocks with 11 other members of the industry, seven of which were integrated steel companies, one a nonintegrated strip steel producer, one a coke and chemical company, and two ferro-alloy companies. It interlocked with Jones & Laughlin and Crucible Steel on the board of New York Central Railroad. It interlocked with Youngstown Sheet & Tube Co. and Superior Steel Corp. on the board of General Electric. It was interlocked with Armco through both Equitable Life Assurance Society and Pullman. Inland Steel Co. and U. S. Steel were joined on the boards of Northern Trust Co. of Chicago and Atchison, Topeka, & Santa Fe Railroad.

The second group of steel companies included Republic Steel Corp., Youngstown Sheet & Tube, Inland Steel, Wheeling Steel Corp., Jones & Laughlin, and National Steel Corp. These companies were all interlocked through a group of important Cleveland companies, including four ore companies and the two Cleveland banks. The interlocks consisted of both stock ownership and common directors.

The third group centered in the Mellon family and a number of companies in the Mellon sphere of influence, including Mellon National Bank & Trust Co., Gulf Oil Corp., Koppers Co., Pullman, Pittsburgh Plate Glass Co., and Westinghouse Electric Co. Through

these corporations, interlocking relations were maintained among Bethlehem Steel Corp., Armco, Crucible Steel, A. M. Byers, Superior Steel, Granite City Steel Co., and Vanadium Corp. of America. In addition, Jones & Laughlin provided a point of contact between the Mellon group and the Cleveland group; and U. S. Steel was linked to the group through Pullman.

Finally, Pittsburgh Steel Co., Alan Wood Steel Co., Follansbee Steel Corp., and Pittsburgh Coke & Chemical Co. were interlocked through ties among themselves and with the Peoples First National Bank & Trust Co. (Pittsburgh). This group was interrelated with the Mellon group through Jones & Laughlin and with the Cleveland group through both Jones & Laughlin and National Steel. These interrelations encompassed such a substantial share of the steel industry and were so complicated that they may have formed a pattern of control.

The nonferrous metals industry was characterized by multiple indirect interlocking relations among companies within the industry, principally through financial institutions but also through a number of leading industrial corporations. The concerns thus interlocked were among the industry's most important. American Metal Co. interlocked with 10 companies; Kennecott Copper Corp. and Phelps Dodge Corp. with eight companies; Anaconda Copper Mining Co., American Smelting & Refining Co., and St. Joseph Lead Co., with seven; U. S. Smelting, Refining & Mining Co., with six; Magma Copper Co. with four; and National Lead Co., New Jersey Zinc Co., Mueller Brass Co., Doehler-Jarvis Corp., and Anaconda Wire & Cable Co. with three companies within the nonferrous metal industry. The fabricated metals industry also had significant interlocks that linked customers and suppliers and formed ties with leading financial institutions.

Several of the integrated producers of primary metals are also fabricators and thus compete with their customers, actual or potential. There were a relatively large number of interlocks between fabricated and primary metal producers. Some of these vertical interlocks, for example that between the Sharon Steel Corp. and the Mullins Manufacturing Corp., appear to have been the equivalent of forward integration. Other interlocks, for example those between U. S. Steel, Babcock & Wilcox, and American Radiator & Standard Sanitary Corp., provided the basis for establishment of a community of interest among companies dominant in their respective fields. The interlocks of fabricated metal producers with users of their products were concentrated: with the machinery industry they had 36 interlocks; with the transportation equipment industry, 24; and with the electrical machinery industry, 19. Significant interlocks existed between American Can, Continental Can, and their important customers, General Foods,

National Biscuit, and American Sugar Refining. The direct interlocking relations between fabricated metal producers and leading financial institutions gave rise to significant indirect interlocks with some of the largest manufacturing corporations in the country.

Companies in the machinery industry were linked primarily with banks, primary metals producers, transportation equipment companies, and electrical machinery manufacturers. In every branch of the industry competing producers were directly and indirectly interlocked. Among the farm machinery manufacturers, International Harvester, Allis-Chalmers, and J. I. Case were indirectly interlocked with each other and with two of the other six largest producers; the Oliver Corp. was indirectly interlocked with two other farm machinery companies; and Deere & Co. and Minneapolis-Moline Power Implement Co. were interlocked indirectly with each other. Eighteen competing engine producers were directly or indirectly interlocked, five being classified as manufacturers of engines and turbines and the remainder being otherwise classified. Ten of the large machine tool manufacturers were indirectly interlocked with one another, as were the seven largest manufacturers of office and business machines. Of the four largest producers of textile machinery, the two largest were directly, and all were indirectly interlocked with each other; they were also directly linked with four of the country's largest textile mills and indirectly with nine others. Six of the major producers of pumping and drilling equipment had direct or indirect ties with one or more competitors. The four leading manufacturers of road-building and earth-moving machinery were indirectly associated through multiple interlocks; two were directly interlocked. The machinery producers were also involved in direct vertical interlocks with primary metals producers and with numerous potential customers.

The electrical machinery industry presented three significant patterns of interlocking relations. The big four electrical machinery manufacturers—General Electric, Westinghouse Electric, Western Electric Co., and Radio Corp. of America—were indirectly interlocked on a multiple basis through six large commercial banks, two of the largest life-insurance companies, and a public utility, a railroad, and an industrial company. On the board of Chase National Bank of the City of New York were directors of General Electric, Westinghouse, and RCA. On the board of Guaranty Trust Co. of New York were directors of General Electric and RCA. Bankers Trust Co. (New York) had directors from General Electric and RCA. Chemical Bank and Trust Co. (New York) had directors from Westinghouse Electric and Western Electric. Mellon National Bank & Trust Co. (Pittsburgh) had one director from General Electric and three from Westinghouse. First National Bank of Chicago had directors from General Electric and Western Electric. New York Life Insur-



ance Co. had two directors from General Electric and one from RCA, while Equitable Life had two directors from Westinghouse and one from RCA. American Telephone & Telegraph, which owns substantially all of the stock of Western Electric, had two directors from General Electric and three from Westinghouse Electric. New York Central had one director from General Electric and one from RCA. Kennecott Copper had one from RCA and one from Westinghouse Electric. When the directors of General Electric met, they included one director from Chase National Bank, two from Guaranty Trust Co., two from Bankers Trust Co. (New York), one from First National Bank of Chicago, one from Mellon National Bank & Trust Co., two from New York Life, two from American Telephone & Telegraph, one from New York Central, and one from Kennecott Copper. When the Westinghouse Electric board of directors assembled, it included four directors of Chase National Bank, three of Mellon National Bank & Trust Co., one of Chemical Bank & Trust Co., two of Equitable Life, three of American Telephone & Telegraph, and one of Kennecott Copper. Of the directors of RCA, one was a director of Chase National Bank, one of Guaranty Trust Co., one of Bankers Trust Co., one of New York Life, one of Equitable Life, and one of New York Central. This system of interlocking directorates between the big four electrical manufacturers and leading financial institutions created a close community of interest which necessarily strengthened the electrical manufacturers in their competition with other smaller manufacturers and posed serious obstacles to the access of smaller competitors to the leading banks for credit or to other leading users of electrical equipment who were interlocked with the indicated financial companies.

The second pattern of interlocks linked lesser manufacturers or linked the leading manufacturers directly and indirectly with the smaller ones. Thus, General Electric was directly interlocked with Weston Electrical Instrument Co., and indirectly with McGraw Electric Co., Rome Cable Corp., and Okonite Co. Electric Auto-Lite Co. and Electric Storage Battery Co., producers of automotive lighting equipment, were indirectly interlocked, as were two St. Louis manufacturers of electric motors—Emerson Electric Manufacturing Co. and Wagner Electric Corp.

The third pattern of interlocking relations extended backward to suppliers of metals, plastics, and the like, and forward to users of electrical equipment. The interlocking directorates between General Electric and New York Central and between Westinghouse and the Pennsylvania and New Haven Railroads appear to be particularly noteworthy.

The transportation equipment industry presented a picture of extensive and complex interlocking relations. Significant interest

groups centered around General Motors Corp.; and the Victor Emanuel companies linked companies in all of the major subdivisions in the industry. The railroad equipment companies appear to have established a close network of interlocks—12 of the 15 interlocked directly or indirectly with other railroad equipment companies. Two manufacturers of railway air-conditioning equipment—Safety Car Heating & Lighting Co. and the Carrier Corp.—were directly interlocked. The only two manufacturers of railway air brake equipment—Westinghouse Air Brake Co. and New York Air Brake Co.—had multiple indirect interlocking relations. Pullman, an important manufacturer of railway cars, was the nucleus of a conspicuously far-reaching system of interlocking directorates. Other indirect interlocking relations existed among manufacturers of locomotives, railway rolling stock, and other special types of railway equipment. In the aircraft group there was a direct interlock between Douglas Aircraft Co. and Curtiss-Wright Corp., which, however, appears to have been discontinued. The aircraft group also had a chain of indirect interlocking relations that linked not only aircraft manufacturers but also producers of specialized equipment.

In the motor vehicle field direct interlocks between the large automotive manufacturers and the parts manufacturers appear to have been of principal importance. No significant interlocking relations were found in the ship and boat building field. As in other large and important industries, the pattern of interlocking relations between transportation equipment companies and financial institutions was extensive and impressive.

The chemical industry exhibited a relatively small number of direct interlocking relations, but many indirect interlocking relations, particularly through leading New York banks. Allied Chemical & Dye Corp. and Mathieson Alkali Works, Inc. were indirectly interlocked through Chase National Bank. Union Carbide and Carbon, Commercial Solvents, North American Rayon, Sun Chemical, and American Bemberg were indirectly interlocked through Central Hanover Bank & Trust Co. American Home Products Corp., General Aniline and Film Corp., Sharp & Dohme, and the Lambert Co. were indirectly interlocked through Manufacturers Trust Co. (New York). The chemical industry also exhibited a significant array of vertical interlocks that related producers to sources of supply and to outlets for their products. Interlocking directorates in the chemical industry are supplemented by the strategic position of patents and patent licensing in the chemical field.

The leading petroleum companies—Standard of New Jersey, Socony-Vacuum Oil Co., Texas, Standard of California, Standard of Indiana, Gulf Oil Corp., and others—were closely tied together by indirect interlocking directorates and by joint ownership of affiliates.

The most significant interlocking directorates were through Chase National Bank. On that board were directors of Standard of Indiana, Standard of California, Gulf, and Continental Oil. Texas, Shell Union Oil Corp., and Tide-Water Associated Oil were indirectly interlocked through Central Hanover Bank & Trust Co.

None of the rubber manufacturers had any directors in common in 1946. Indirect interlocking relations existed among the large tire manufacturers, between the large tire companies and some of the smaller tire manufacturers, and between some of the other rubber companies. The most significant of the interlocking relations were those between U. S. Rubber and General Motors, resting on du Pont investments in both companies and the presence of du Pont directors on both boards. Three of the large tire manufacturers—Goodyear Tire & Rubber Co., U. S. Rubber, and B. F. Goodrich Co.—had direct interlocking relations with chemical companies producing materials used in the manufacture of tires.

The textile industry had an extensive network of interlocks, with 39 of the 85 companies interlocked with one another. Although members of the same industry, these companies produced a diversified list of products. A large number of interlocks appeared to have been among companies that were currently producing competing products. Forward vertical interlocks appeared more significant than those reaching backward to sources of supply. Several of the textile mills had indirect interlocks, principally through financial institutions, with retail outlets, largely chain clothing and department stores.

In the apparel industry interlocking relations existed through banking interests and factors. The outstanding interlocks brought together on the board of Van Raalte Co. directors of Cluett, Peabody & Co., Manhattan Shirt Co., the Hat Corp. of America, and A. Stein & Co., thus creating a community of interest potentially significant for competition. Apparel manufacturers also interlocked with textile mills: Cluett, Peabody & Co. with Sidney Blumenthal & Co., Botany Worsted Mills, United States Finishing Co. and Cheney Bros.; the Hat Corp. of America with Sidney Blumenthal. In turn, Cluett, Peabody & Co. had directors in common with National Department Stores and Sears, Roebuck & Co.; Manhattan Shirt was also directly interlocked with the Hecht Co. and Gimbel Bros.; A. Stein & Co. was represented on the boards of Sears-Roebuck, Bond Stores, Inc., W. T. Grant Co., and S. H. Kress & Co.; the Hat Corp. of America was interlocked directly with Bond Stores. The strong position of Van Raalte and its interlocking relations with apparel manufacturers reflected in part the presence of two Goldman, Sachs & Co. partners and a Lehman partner on the board of Van Raalte.

The paper and allied products industry had a chain-like network of interlocking directorates connecting 22 of the 31 large companies

with one another. Sixteen of these companies were connected in groups of two to four by common directors; the remainder were indirectly interlocked. There was no one company from which these interlocking relations radiated; the ties were as characteristic of the smaller as of the larger companies. The pattern of interlocking directorates was reinforced by other interlocking arrangements, such as jointly owned affiliates, long-term contracts, and patent licensing agreements. The wide variety of products produced in the industry and the specialization of some of the companies created the possibility that many of the links through directors were between companies related to each other as suppliers and customers.

The printing, publishing, and allied industries had no directly interlocked directorates and relatively few significant indirect interlocks.

The lumber and wood products industry and the furniture and fixtures industry had few significant interlocking directorates.

In the glass industry the direct and indirect interlocks between Libbey-Owens-Ford Glass Co. and Owens-Illinois Glass Co. appear to have had significance in supporting a division of fields between the companies. Several of the glass companies also had vertical interlocking relations with important outlets. Interlocking directorates in the cement industry appeared to be important principally on the Pacific coast. Significance may have attached to the interlocks between refractories manufacturers and cement and steel companies. The gypsum manufacturers had their most important interlocks with financial institutions.

None of the larger companies classified in the leather products industry were directly interlocked. However, indirect interlocks existed between a number of the important companies: Endicott Johnson Corp. with Florsheim Shoe Co., and the latter with George E. Keith Co. The manufacturers were indirectly interlocked among themselves and also directly with sources of supply and with retail outlets.

No significant interlocking relations were found among the companies classified in the tobacco products industry.

In the professional and scientific instrument industry the few significant interlocks were between companies the products of which were complementary or which might provide components for finished products.

In the miscellaneous manufacturing industry, the interlocks, direct and indirect, involved supplier-customer relations.

## CONCLUSIONS

The major conclusions that emerge from the Commission's analysis of interlocking directorates among the 1,000 largest manufacturing

corporations and between these corporations and some 330 nonmanufacturing corporations follow:

(1) Among the largest companies there were in 1946 a substantial and significant variety of interlocking directorates, which, by virtue of the character of the businesses of the companies, involved reasonable probabilities that competition would be reduced thereby.

(2) Some of these interlocks appeared on their face to be violative of section 8 of the Clayton Act. The majority of them, however, did not fall within the prohibition contained in that act.

(3) Many of the interlocks which were capable of reducing competition were lawful under the provisions of section 8 of the Clayton Act because the interlocked concerns, though potentially competitors, had not been competitors in the past, or because the interlocked concerns were related to each other as actual or potential suppliers and customers rather than as competitors, or because the individuals through whom the interlocking relationships were maintained were officers or stockholders rather than directors, or because the companies involved, instead of having common directors, had directors who were jointly members of the boards of third companies.

(4) In certain cases interlocking relationships involving several directors from the same company provided a broad base for the development of common policies and attitudes. In certain industries directors from various important companies sat together on particular boards which served as focal points of interlocking relationships. In certain other industries, though there were no focal points, there was such a multiplicity of interlocking relationships as to constitute a network in which it was evident that the effect of any one interlock was strengthened and supplemented by the existence of the others. The Clayton Act contains no recognition of the significance of multiple, focal, and network interlocks, as distinguished from single interlocks.

(5) The most common interlocks were those that linked a seller of goods or services with a buyer thereof. In a substantial number of cases the importance of the seller, the buyer, or both was such that establishment of preferential or exclusive dealing relations between them might be expected to have adverse effects upon the opportunities of their competitors. This was particularly true in the case of interlocks between industrial companies and financial institutions. The problems raised by interlocks of the supplier-customer type appear to be similar to those which led the Congress to prohibit such interlocks in the case of common carriers except where steps are taken to assure arm's-length dealing. Nevertheless, there is no legal limitation upon this type of interlocking relationship among industrial and commercial companies.



## Part II

### Chapter 3

#### THE SCOPE OF THIS REPORT

The Federal Trade Commission's investigation into interlocking directorates has focused on the 1,000 largest manufacturing corporations, as listed by the Office of Business Economics in the Department of Commerce. The Commerce study was based upon data from Moody's Investors Service and the Securities and Exchange Commission. The Commission's inquiry seeks to trace the important interlocking relationships stemming from the 1,000 largest corporations, as measured by total assets as of the end of 1946.

A study confined to the 1,000 largest manufacturing corporations does not cover all of the possible interlocking relationships among companies subject to the rule of law applied to nonbanking corporations in section 8 of the Clayton Act. The smallest of the 1,000 largest manufacturing companies listed in the Department of Commerce study was Robbins & Myers, Inc., which at the end of 1946, had total assets of \$7,307,000 and combined capital, surplus, and undivided profits of \$5,676,000. It is believed that there were from 16,000 to 17,000 manufacturing corporations falling within the statutory size group.<sup>1</sup> Moreover, no systematic attempt has been made to cover the nonmanufacturing corporations. The Commission's study was started

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<sup>1</sup> In 1946, 8,576 corporations had total assets of \$5,000,000 or more, and 24,618 had total assets ranging from \$1,000,000 to \$5,000,000. This latter class had aggregate assets of \$53,374,653,000, or an average of \$2,168,000. Inasmuch as the distribution was skewed heavily toward the lower magnitudes, it is assumed that approximately one-third of the corporations in this class, or 8,200, were large enough to have capital, surplus, and undivided profits of \$1,000,000 or more. Bureau of Internal Revenue, Statistics of Income for 1946, Part 2. (Unpublished.)

The list of 1,000 largest manufacturing corporations is subject to one additional qualification. Certain corporations for which complete financial data were not publicly available were necessarily omitted. Among the large corporations known to have been omitted, the Department of Commerce study cites Lever Bros. Co.; Swedish Ball Bearing Co.; Campbell Soup Co.; Portsmouth Steel Corp.; Max Factor & Co.; and National Alfalfa & Dehydrating Co.

It is noted also that, since the data are largely on a consolidated basis, the number of individual corporations represented is considerably more than a thousand.

in 1948, using as its source the directors shown in Poor's Register of Directors and Executives for the years 1944 or 1945. Subsequently, all interlocking relationships found were revised to 1946 on the basis of Poor's Register of Directors and Executives, 1947.<sup>2</sup>

In the Department of Commerce listing of the 1,000 largest manufacturing corporations, corporations were classified on the basis of industries<sup>3</sup> and ranked according to size within each industry. The list of the 1,000 largest manufacturing corporations by industry groups as prepared by the Department of Commerce appears as appendix A. The distribution of corporations within industries is as follows:

Manufacturing industry group:	Number of corporations
Food and kindred products.....	126
Tobacco manufactures.....	13
Textile-mill products.....	85
Apparel and other finished products made from fabrics and similar materials.....	7
Lumber and wood products (except furniture).....	16
Furniture and fixtures.....	8
Paper and allied products.....	59
Printing, publishing, and allied industries.....	26
Chemicals and allied products.....	91
Products of petroleum and coal.....	41
Rubber products.....	16
Leather and leather products.....	11
Stone, clay, and glass products.....	34
Primary metal industries.....	82
Fabricated metal products (except ordnance, machinery, and transportation equipment).....	59
Machinery (except electrical).....	134
Electrical machinery, equipment, and supplies.....	53
Transportation equipment.....	90
Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks.....	21
Ordnance and accessories <sup>1</sup> .....	3
Miscellaneous manufacturing industries.....	25
Total.....	1,000

<sup>1</sup> The 3 companies classified in this industry were not analyzed.

The selection of 1946 as the year for analyzing interlocking directorates rests upon several considerations. (1) By 1946 most of the disturbances caused by the absence of industrial leaders in wartime service had ended and the pattern of interlocking relationships pre-

<sup>2</sup> No attempt was made, however, to discover and add new directors whose interlocking relationship originated subsequent to 1945.

<sup>3</sup> These are the so-called two-digit industries, that is, those broadly defined industries which are identified by two-digit numbers in the Standard Industrial Classification. The Commerce study reported the total assets in 1945 and the sales in 1945 and 1946.

sumably reflected normal relations. (2) Moreover, in May 1947, the Antitrust Division of the Department of Justice launched an examination into the directorships held by some 10,000 persons in 1,600 leading corporations in industry. After a 5 months' survey, the Department of Justice announced on October 11, 1947, that 1,500 of the 10,000 persons held directorships in more than one company and that of these 1,500 approximately 60 had been found to be holding directorships in two or more competing concerns. The Attorney General stated that 20 directors had resigned or agreed to resign from the boards of 14 corporations and that the Government would, in the near future, institute civil suits against other directors who disagreed with the Department's view as to the legality of their interlocking directorships. The Department of Justice inquiry focused only on the interlocking relations which were thought to be violative of the Clayton Act.<sup>4</sup> The selection of 1946 for study thus permits an appraisal of the degrees of conformity to the requirements of section 8 of the Clayton Act prior to the institution of these enforcement proceedings.

The 1,000 largest manufacturing corporations probably are not a wholly representative sample of the companies subject to section 8 of the Clayton Act. A greater frequency of forbidden interlocking relations may exist among smaller corporations, for they are less familiar with the requirements of the Clayton Act. On the other hand, where the smaller corporations sell in regional rather than national markets, there is less incentive for them to establish competition-reducing ties with corporations in other sections of the country.

The present investigation has not been confined to the direct interlocking relations among the 1,000 largest manufacturing corporations. Examination of the relations of these companies has been extended to cover indirect ties through the directorates of the largest commercial banks, investment banks, investment trusts, insurance companies, railroads, public utilities, retail establishments, and wholesale companies.<sup>5</sup>

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<sup>4</sup> There has been no further public announcement of the actions of the Department of Justice in this field.

<sup>5</sup> The nonmanufacturing companies are listed in appendixes B to J. The 100 largest commercial banks are ranked according to their deposits on December 31, 1944, as reported in *The American Banker* for January 30, 1945.

The investment banking list includes the 17 investment banking houses named by the Department of Justice in *United States of America v. Henry S. Morgan, et al.*, ranked according to the total volume of issues handled by the banking house from January 1, 1938, to April 30, 1947. To this list of 17 are added Mellon Securities Corp., which merged with First Boston Corp. on July 31, 1946, but operated independently during the period of the present study, and Otis & Co. and Halsey Stuart & Co., neither of which was named by the Department of Justice.

The 50 largest investment trusts are listed on the basis of net assets as of the

However, the interlocking relations of these nonmanufacturing companies, other than those involving the 1,000 largest manufacturing corporations, have not been analyzed. Moreover, not all of the interlocking relations originating with the 1,000 largest manufacturing companies are covered: In not pursuing those linking the largest manufacturing corporations to smaller companies, manufacturing and nonmanufacturing, a substantial proportion of all interlocking directorates has been ignored. The present report focuses on the interlocking directors among the 1,000 largest manufacturing corporations and between them and approximately 330 large nonmanufacturing corporations.

Many of the corporations included in the present report had numerous subsidiary and affiliated companies. Some of these have been included with their parent companies in this report's list of investment trusts, insurance companies, railroads, and public utilities. However, the present report, with a few clearly warranted exceptions which are specifically noted, has not regarded the presence of directors of two manufacturing corporations on the boards of two subsidiaries of the same parent company as establishing an indirect interlocking relation between the two manufacturing corporations.

The analysis of the interlocking relationships has proceeded on an industry basis. The companies in each major industry, sometimes subdivided to give more homogeneous groupings, have been listed, with each significant interlocking directorship enumerated.

Certain limitations in the Commission's findings derive from the nature of the sample and the analytical procedures followed:

1. Not all of the significant interlocking relations have been found. The source, *Poor's Register of Directors and Executives*, is not always complete.

2. Some significant interlocks have not been identified and discussed. In some instances, competitors may not have been recognized from

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end of 1946, as reported in Arthur Wiesenberger's *Investment Companies*, 1947 Edition.

The 17 largest life insurance companies, ranked on the basis of reported assets as of December 31, 1944, are listed from *Best's Insurance Reports*, 1945, and the 9 largest fire and casualty insurance companies with their subsidiaries are listed on the same basis from the same source.

The 25 largest railroad corporations, with their subsidiary companies, are ranked on the basis of their total assets as of the end of 1946, as reported in *Moody's Railroads*, 1947. The 50 largest public utility corporations, with their subsidiaries, are listed on the basis of their total assets as of the end of 1946, as reported in *Moody's Public Utilities*, 1947.

The 50 largest retail establishments and the 10 largest wholesale companies, ranked according to their net sales for 1948, are listed from *Moody's Industrials*, 1949.

the limited information at hand. Customer-supplier relations must often have been overlooked in the absence of detailed data on intercorporate transactions.

3. A notable understatement of indirect interlocking relations results from the fact that no systematic search has been made for interrelations tying together companies classified in different industries.

4. Interlocking relations have not been traced through subsidiary and affiliated companies, except on an illustrative basis in the case of a small number of petroleum companies. In view of the complex holding company systems that are to be found in some industries, this omission results in further substantial understatement of the prevalence of interlocking relations, direct and indirect.

5. Interlocking relations have not been traced through foreign corporations, although it is known that in some industries, paper for example, there are close relations between United States corporations and corporations chartered elsewhere.

6. Business associates have not been identified and traced as sources of interlocking relations unless they happened to be directors of the same corporation. This gap is probably important, for relatives by blood and marriage, officers of corporations, partners, and other close associates were links in many of the corporate complexes which have been the subject of specific study in the past.

7. Finally, errors probably have been made by mechanical slips in the processing of voluminous data, though repeated checks have been undertaken to keep such errors to a minimum.

It is important to note that all of the qualifications enumerated, except the last, have tended toward understatement of the extent of interlocking relations and consequently of the seriousness of the problem they raise for the healthy functioning of a competitive free enterprise economy.



## Chapter 4

### FOOD AND KINDRED PRODUCTS

There were 126 food products companies listed among the 1,000 largest manufacturing corporations in 1946. Ninety-four of these food companies maintained interlocking directors with 409 other companies, manufacturing and nonmanufacturing, among those selected for study. There were in all 742 directors serving on the boards of two or more of the companies studied.

Approximately two-thirds of these food companies had direct or indirect interlocks among themselves. Then, in order of importance, came direct interlocks with banks, railroads, chemicals companies, and nonelectrical machinery companies. These groups of companies accounted for approximately 60 percent of the interlocking relations of food manufacturers.

Interlocks of food companies with potential competitors or with potential customers or suppliers in the food industry accounted for a substantial proportion of the relations between food companies and other manufacturing and nonmanufacturing companies. Table 1 summarizes these relationships. Almost 50 percent of the 126 food products companies listed among the thousand largest manufacturing companies had interlocks with producers of competitive products, and at least one-third had interlocks with potential customers or suppliers in the food industry.<sup>1</sup>

### MEAT PRODUCTS

Twelve meat packers were represented among the 1,000 largest manufacturing corporations. Seven of these maintained interlocking directors with 43 other companies, manufacturing and nonmanufacturing, among those selected for study.

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<sup>1</sup> Material on relations between suppliers and potential customers or between customers and potential suppliers is illustrative rather than exhaustive. In selecting material, indirect interlocks between food companies and potential suppliers or customers outside the food industry were ignored; therefore, only direct interlocks and indirect interlocks between food companies and potential suppliers or customers within the food industry were examined. Even here, only those relationships which were immediately recognized as supplier outlet connections were used. Extension of the types of interlocks studied and further exploration of such relationships would undoubtedly develop many more instances than ties as are set forth in this chapter.

TABLE 1.—*Summary of interlocks<sup>1</sup> within the food industry*

Food products	Total number of companies among the 1,000 largest manufacturing companies	Companies with interlocks with companies producing competitive products		Companies with interlocks with potential suppliers or customers <sup>2</sup>	
		Number	Percent	Number	Percent
Meat packing products.....	12	5	41.7	3	25.0
Dairy products.....	10	3	33.3	3	33.3
Fruits, vegetables, and sea foods...	12	5	41.7	1	18.4
Grain mill products.....	12	6	50.0	4	33.3
Bakery products.....	10	6	60.0	8	80.0
Sugar.....	23	16	69.6	13	56.5
Confectionery.....	11	2	18.2	2	18.7
Beverages.....	23	8	34.8	7	30.4
General Foods Corp., Standard Brands, Best Foods.....	3	3	100.0	2	66.7
Corn Products.....	4	2	50.0	1	25.0
Total.....	126	57	45.2	44	34.9

<sup>1</sup> Direct and indirect.<sup>2</sup> Illustrative only.*Interlocks Potentially Reducing Competition*

Table 2 shows interlocks within the meat-packing industry and between meat packers and manufacturers of competitive products. It is constructed to show direct and indirect interlocks among the meat packers and between the meat packers and other food manufacturers who produce meat products or other products which compete with products sold by the meat packers. Meat packers are listed in the upper part of the stub of the table. Members of the food industry who are not meat packers, but who sell products which compete with those sold by the meat packers, and who have indirect interlocks with the meat packers, are listed in the lower part of the stub. The column heads of the table list two groups of companies with which the meat packers have direct interlocks. The left-hand set of column heads show directly interlocking companies which sell products competitive with those produced by the meat packers. The right-hand set of column heads show directly interlocking companies which serve as links joining two or more meat packers or a meat packer and some other food manufacturer who produces products which compete with meat. Thus, direct interlocks are read from the table at the intersections of rows and columns. Indirect interlocks are read vertically down a column. The link company appears as the column head and the companies linked are read from the stub.<sup>2</sup>

<sup>2</sup> The numbers appearing in the table at the intersections of rows and columns show the number of directors which the two companies in question have in common. In table 2, for example, the number 1 in the square where Swift & Co. meets Libby, McNeill & Libby, shows that 1 man is on the board of each of these two companies.

TABLE 2.—*Interlocks within the meat-packing industry and between meat packers and manufacturers of competitive products*

Producers of meat products	Directly interlocking companies <sup>1</sup>				
	Food— Libby, McNeill & Libby	Nonfood			
		Hat Corp. of America	Continental Illinois National Bank & Trust Co.	Illinois Central R. R. Co.	American Telephone & Telegraph Co.
Meat packers:					
Armour & Co. ....		1	2		1
Swift & Co. ....	1				
Wilson & Co. ....		1		1	
Cudahy Packing Co. ....			1		
Rath Packing Co. ....				1	
Other manufacturers: Borden Co. ....					1

<sup>1</sup> Direct interlocks are read from the table at the intersections of rows and columns. Indirect interlocks are read from columns; the link company appears as the column head; the companies linked appear in the stub.

It can be seen from table 2 that there were no direct links among the meat packers. Armour & Co., the largest of the meat packers, however, had an indirect tie with Wilson & Co., the third largest of the meat packers; directors from each of these companies met on the board of the Hat Corp. of America.<sup>3</sup> Two directors of Armour were on the board of Continental Illinois National Bank & Trust Co., on which a director of Cudahy Packing Co. also sat.<sup>4</sup> Armour was indirectly interlocked with the Borden Co. through American Telephone & Telegraph Co.<sup>5</sup> Armour and Borden are potentially, if not actually, competitors in sales of evaporated milk, butter, and dog food. Wilson had an indirect interlock with Rath Packing Co., through the board of the Illinois Central Railroad Co.<sup>6</sup>

Indirect interlocks of this kind serve to bring together meat packers with mutual interests which go beyond the direct interests of the intermediate companies. Thus, while no director of any of the meat-

<sup>3</sup> Elisha Walker of Kuhn, Loeb & Co., was on the boards of Armour and Hat Corp. Edward R. Tinker, director of United States Hat Machinery Corp. and Wilson, was also a director of Hat Corp.

<sup>4</sup> David A. Crawford, president and director of Pullman, Inc., and James R. Leavell, president of Continental Illinois National Bank & Trust Co., were on the boards of Armour and Continental Illinois National Bank & Trust Co. Edward A. Cudahy, chairman of the board of Cudahy Packing, was also on the board of Continental Illinois National Bank & Trust Co.

<sup>5</sup> David A. Crawford was a director of Armour and American Telephone & Telegraph. Thomas I. Parkinson, president and director of Equitable Life Assurance Society of the United States, was also a director of Borden and of American Telephone & Telegraph.

<sup>6</sup> Thomas E. Wilson, chairman of the board of Wilson and of Wilson Sporting Goods, was on the board of the Illinois Central. John W. Rath, chairman of the board of Rath Packing Co., was on the board of the Illinois Central.

packing companies under study was on the board of any other meat-packing company whose directorships were examined, similar effects on competition may have resulted from meetings of directors of the meat packing companies on the boards of third companies.

Swift & Co., the second largest meat packer, was directly interlocked with Libby, McNeill & Libby,<sup>7</sup> once owned by Swift. They were separated as a result of a consent decree of February 27, 1920; the sale was finally approved July 29, 1941. Although Libby is principally a fruit and vegetable canner, it competes with Swift in the sale of canned meats. A direct tie of this kind permits adjustment of purchasing and marketing policies of the two companies in consonance with mutual needs.

Armour, the largest of the meat packers, therefore, had indirect ties with the third and fourth largest packer; the third largest packer, in turn, had ties with the sixth largest packer. Swift, the second of the packers in size, had a direct tie with Libby, McNeill & Libby. To what extent competition was actually affected between members of these groups, which together comprised all but one of the six largest meat packers, has not been determined by this study; however, the tendency of such relationships must be to reduce competition among these concerns.

### *Interlocks with Potential Suppliers or Customers in the Food Industry*

Table 3 sets out interlocks found between meat packers and potential customers or suppliers in the food industry. This table is constructed

TABLE 3.—*Interlocks between meat-packing companies and potential customers or suppliers in the food industry*

Food products companies	Directly interlocking companies		
	U. S. Steel Corp.	Underwood Corp.	Guaranty Trust Co., New York
<b>Meat packers:</b>			
Armour & Co.....	1		
Swift & Co.....		1	
Wilson & Co.....			1
<b>Potential customers or suppliers:</b>			
National Biscuit Co.....	1		
Continental Baking Co.....		1	1

along the same general lines as table 2. Companies listed in the upper part of the stub are meat packers; companies listed in the lower part of the stub are potential customers or suppliers of the meat packers. Companies listed in the column heads have direct interlocks with the

<sup>7</sup> Charles Henry Swift, chairman of the board of Swift, was a director of Libby, McNeill & Libby in 1946. He was not a director of either company in 1949.

companies listed in the stub and serve as a link between the listed meat packers and potential customers or suppliers.

Each of the big three meat packers had at least one interlock with one of the country's largest baking companies. The large meat packers produce lard, shortening, butter, and other baking ingredients. Thus, Armour had an indirect interlock with National Biscuit Co. through United States Steel Corp.<sup>8</sup> Swift had an indirect interlock with Continental Baking Co. through the Underwood Corp.<sup>9</sup> Wilson had an indirect interlock through the Guaranty Trust Co. of New York, with Continental Baking Co.<sup>10</sup>

The three largest meat packers, therefore, had ties with two of the Nation's largest bakers. How great a chance other suppliers of shortening had to sell to these large-scale users depended upon the buying policies of the bakery companies. The interlocking relations between the large meat packers and the large bakers may have operated to reduce the sales opportunities of smaller manufacturers of cooking fats and oils.

#### *Interlocks with Potential Suppliers or Customers outside the Food Industry*

Armour, which sells dairy products as well as meats, had a direct interlock with International Harvester Co.,<sup>11</sup> which makes dairy machinery, including cream separators. It owns and operates specialized freight cars, and had a direct link with Pullman, Inc.,<sup>12</sup> which manufactures freight cars. Armour also had a direct link with Tide Water Associated Oil.<sup>13</sup> Armour uses refrigerants and refrigerating equipment. Liquid sulfur dioxide, which is widely used as a refrigerant, is obtained in the refining of automobile lubricants.

<sup>8</sup> Sewell L. Avery, chairman of the board and director of Montgomery Ward, was a director of Armour and U. S. Steel. A. C. Nagle, president of First National Bank of the City of New York, was a director of National Biscuit and U. S. Steel.

<sup>9</sup> Morgan B. Brainard, president and director of Aetna Life Insurance Co., was a director of Swift and of Underwood. R. L. Clarkson, president and chairman of the board of Amerex Holding Corp., was on the boards of Continental Baking and Underwood.

<sup>10</sup> William L. Kleitz, president and director of Guaranty Trust Co., was on the board of Wilson. William C. Potter, member of the executive committee and director of Guaranty Trust Co., was on the board of Continental Baking.

Wilson had an indirect director-officer interlock with Ward Baking Co. Robert E. Broome, vice president of Guaranty Trust, was on the board of Ward Baking.

<sup>11</sup> James R. Sewell, president of Continental Illinois National Bank & Trust Co. of Chicago, was on the boards of Armour and International Harvester.

<sup>12</sup> Sewell L. Avery, chairman of the board and director of Montgomery Ward, was a director of Armour and Pullman, Inc.

<sup>13</sup> Elisha Walker of Kuhn, Loeb & Co., was a director of Armour and Tide Water Oil.



Swift & Co. had a direct interlock with Worthington Pump & Machinery Corp.,<sup>14</sup> which manufactures refrigeration equipment, including cold-storage, air-conditioning, and ice-making equipment. It also had a direct link with Shell Union Oil Co.<sup>15</sup>

## DAIRY PRODUCTS

Ten dairy products companies were represented among the 1,000 largest manufacturing corporations. Six of these maintained interlocking directors with 50 other companies, manufacturing and non-manufacturing, among those selected for analysis.

### *Interlocks Potentially Reducing Competition*

Table 4 presents the interlocks within the dairy products industry and between dairy products manufacturers and manufacturers of competitive products. This table, and other tables in this chapter which show interlocks among manufacturers of competitive products, is like table 2.

TABLE 4.—*Interlocks within the dairy products industry and between dairy products companies and manufacturers of competitive products*<sup>1</sup>

Producers of dairy products	Directly interlocking companies					
	Food— General Foods Corp.	Nonfood				
		General Electric Co.	J. P. Morgan & Co.	North- western Mutual Life Insurance Co.	American Tele- phone & Tele- graph Co.	American Water Works & Electric Co.
Dairy products companies:						
National Dairy Products Corp.	1	1	1			1
Borden Co.	1			1	1	
Carnation Co.				1		
Other manufacturers:						
Armour & Co.					1	
Standard Brands		1	1			
Best Foods						1

<sup>1</sup> Direct interlocks are read from the table at the intersections of rows and columns. Indirect interlocks are read from columns; the link company appears as the column head; the companies linked appear in the stub.

National Dairy Products Corp. had a direct tie-in with General Foods through Sidney J. Weinberg, who sat on the board of each of the these companies.<sup>16</sup> Both companies sell frozen foods. National Dairy

<sup>14</sup> Lewis Latham Clarke, a trustee of the Bowery Savings Bank of New York, was on the boards of both Swift and Worthington Pump.

<sup>15</sup> Lewis Latham Clarke was a director of Swift and Shell Union Oil.

<sup>16</sup> S. J. Weinberg, partner in Goldman, Sachs & Co., was on the boards of National Dairy and General Foods in 1946 and in 1949.

also had an indirect interlock with Borden through General Foods.<sup>17</sup> It had an indirect interlock with Standard Brands, with which it competes in sales of cheeses and cream, through J. P. Morgan & Co.<sup>18</sup> and through General Electric.<sup>19</sup> In addition, National Dairy sells butter and Standard Brands sells margarine. Finally, National Dairy had an indirect tie with Best Foods through McKesson & Robbins, Inc.<sup>20</sup> and through American Water Works & Electric Co.<sup>21</sup> Since National Dairy sells butter and Best Foods sells margarine, these companies are indirectly, if not directly, competitive. Thus National Dairy had either a direct or an indirect tie to each of the three big companies manufacturing a general food-products line. Interlocks of National Dairy and other manufacturers of dairy products are shown in chart 1.

Besides the indirect tie with National Dairy<sup>22</sup> described above, Borden Co. also had an indirect tie with Carnation Co., through Northwestern Mutual Life.<sup>23</sup> It had a direct interlock with General Foods through Austin S. Igleheart.<sup>24</sup> Borden sells coffee, dried fruit juices, poultry and animal feed supplements, and chocolate syrup; General Foods sells coffee, Postum, fruit concentrates, materials for cattle feed

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<sup>17</sup> S. J. Weinberg was also on the boards of National Dairy and General Foods. Austin S. Igleheart, president and director of General Foods, was also on the board of Borden.

<sup>18</sup> Paul C. Cabot, president and director of State Street Investment Corp., was a director of National Dairy and of J. P. Morgan & Co. Henry C. Alexander, a vice president and director of J. P. Morgan & Co., was also a director of Standard Brands.

<sup>19</sup> Sidney J. Weinberg, a director of National Dairy, was on the board of General Electric. Donald K. David, Dean of the Graduate School of Business Administration at Harvard, was a director of Standard Brands and of General Electric.

<sup>20</sup> Henry C. Von Elm, vice chairman of the board and director of Manufacturers Trust Co., and Sidney J. Weinberg were on the boards of National Dairy and McKesson & Robbins. William J. Wardall, chairman of the board of Best Foods, was on the board of McKesson & Robbins.

<sup>21</sup> Thomas H. McInnerney, chairman of the board and director of National Dairy, was on the board of American Water Works & Electric. Randolph S. Catlin, president and director of United Stores, was on the boards of Best Foods and American Water Works & Electric.

<sup>22</sup> Austin S. Igleheart, president and director of General Foods, was on the board of Borden. S. J. Weinberg was on the board of National Dairy and General Foods.

<sup>23</sup> Theodore G. Montague, a director of Borden, was also on the board of Northwestern Mutual Life. Walter Kasten, president and director of First Wisconsin National Bank of Milwaukee, was on the boards of Carnation and Northwestern Mutual Life.

<sup>24</sup> Austin S. Igleheart, president and director of General Foods was a director of Borden in 1946 but not in 1949.

# INTERLOCKS AMONG MANUFACTURERS OF DAIRY PRODUCTS

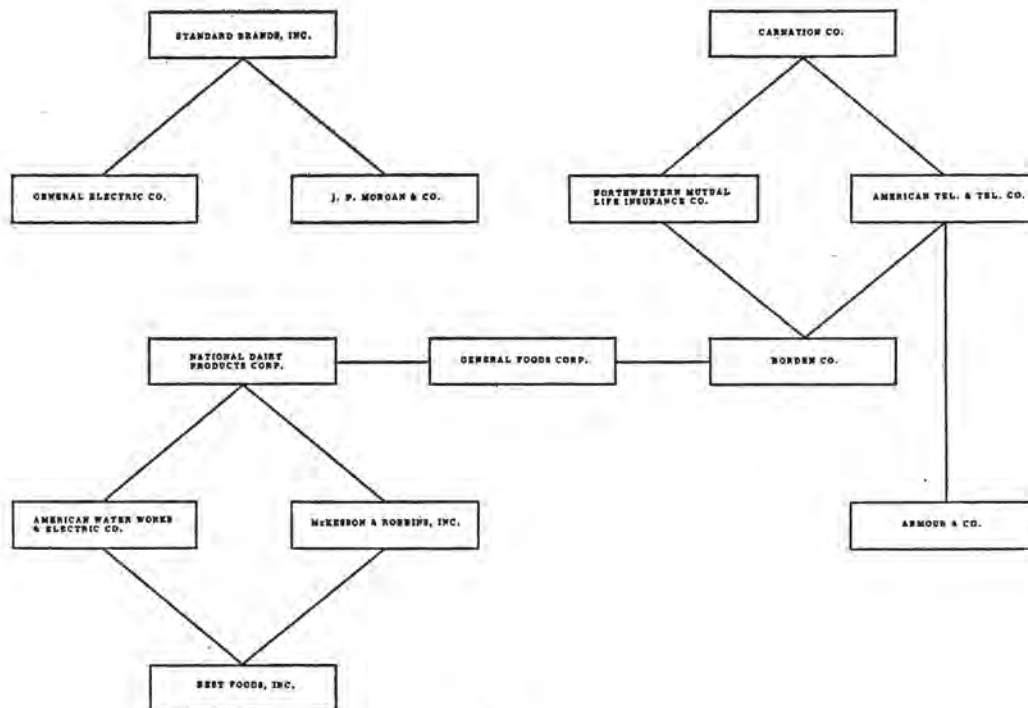


CHART 1.

and chocolate coatings. Finally, Borden had an indirect tie with Armour, which in addition to its meat products also sells butter and evaporated milk.<sup>25</sup>

National Dairy Products, Borden, and Carnation, the three largest sellers of dairy products, were, therefore, indirectly linked with each other. (See chart 1.) National Dairy Products and Borden had direct ties with General Foods; National Dairy Products also had indirect ties with Standard Brands and Best Foods. How much competition existed among these companies and how it expressed itself has not been investigated.

### *Interlocks with Potential Suppliers or Customers in the Food Industry*

Table 5 lists the interlocks between dairy products manufacturers and potential customers or suppliers in the food industry. It shows that National Dairy had indirect interlocks with three of the country's largest baking products companies. It interlocked with National Biscuit through General Electric;<sup>26</sup> with General Baking through Manufacturers Trust Co. (New York);<sup>27</sup> and with United Biscuit through Goldman, Sachs & Co.<sup>28</sup>

National Dairy had indirect interlocks with American Sugar Refining through Manufacturers Trust Co.,<sup>29</sup> and through Metropolitan Life Insurance Co.<sup>30</sup> Sugar is used in condensed milk products.

<sup>25</sup> Thomas I. Parkinson, president and director of Equitable Life, was on the boards of Borden and American Telephone & Telegraph. David A. Crawford, president of Pullman, was on the boards of Armour and American Telephone & Telegraph.

<sup>26</sup> S. J. Weinberg, partner in Goldman, Sachs & Co., was on the boards of National Dairy and General Electric. A. C. Nagle, president and director of the First National Bank of the City of New York, was on the boards of National Biscuit and General Electric.

<sup>27</sup> Henry C. Von Elm, vice chairman of the board and director of Manufacturers Trust Co., was a director of National Dairy. Oswald L. Johnston, a partner in the law firm of Simpson, Thacher & Bartlett, was a director of General Baking and Manufacturers Trust Co.

<sup>28</sup> S. J. Weinberg was a partner in Goldman, Sachs & Co. and a director of National Dairy. Henry S. Bowers, partner in Goldman, Sachs & Co., was a director of United Biscuit.

<sup>29</sup> Henry C. Von Elm, vice chairman and director of Manufacturers Trust Co., was a director of National Dairy. Samuel McRoberts, member of the executive committee and director of American Alliance Insurance, was on the boards of American Sugar Refining and Manufacturers Trust Co.

<sup>30</sup> Thomas M. McInnerney, chairman of the board and director of National Dairy Products, was also on the board of Metropolitan Life. Newcomb Carlton, honorary chairman of the board and director of Western Union Telegraph Co., was on the boards of American Sugar Refining and Metropolitan Life.

TABLE 5.—Interlocks between dairy companies and potential customers or suppliers in the food industry

Food products companies	Directly interlocking companies								
	Food—American Sugar Refining Co.	Nonfood							
		General Electric Co.	Westinghouse Electric Corp.	Chase National Bank, New York	Manufacturers Trust Co., New York	Goldman, Sachs & Co.	Metropolitan Life Insurance Co.	Equitable Life Assurance Society of the United States	Northwestern Mutual Life Insurance Co.
Dairy products companies:									
National Dairy Products Corp.		1			1	1	1		
Borden Co.	1		1	2				1	1
Carnation Co.									1
Potential customers or suppliers:									
Bakeries:									
National Biscuit Co.	1	1							
General Baking Co.					1				
United Biscuit Co.						1			
Sugar companies:									
American Sugar Refining Co.			1	3	1		1		1
Utah-Idaho Sugar Co.								1	

Chart 2 shows these interlocks.

The Borden Co., which uses sugar in its ice cream, flavoring, condensed milk, candy products, and bakery products, had a director on the board of American Sugar Refining.<sup>32</sup> Borden also had indirect ties with American Sugar Refining through Westinghouse Electric,<sup>33</sup> and through Chase National Bank.<sup>34</sup> It had an indirect interlock with a beet-sugar manufacturer, Utah-Idaho Sugar Co., through

<sup>32</sup> T. G. Montague, director of Borden, was on the board of American Sugar Refining in 1946. He was president of Borden and a director of American Sugar Refining in 1949.

<sup>33</sup> Thomas I. Parkinson, president and director of Equitable Life, was a director of Borden and Westinghouse Electric. J. L. Hall, partner in Choate, Hall & Stewart of Boston, was a director of American Sugar Refining and Westinghouse Electric.

<sup>34</sup> Austin S. Igleheart, president and director of General Foods, was a director of Borden and Chase National Bank. Thomas I. Parkinson, president of Equitable Life, was a director of Borden and Chase National Bank. Earl D. Babst, chairman of the board and director of American Sugar Refining, Francis H.



## INTERLOCKS OF NATIONAL DAIRY PRODUCTS CORPORATION WITH POTENTIAL SUPPLIERS AND CUSTOMERS IN THE FOOD INDUSTRY

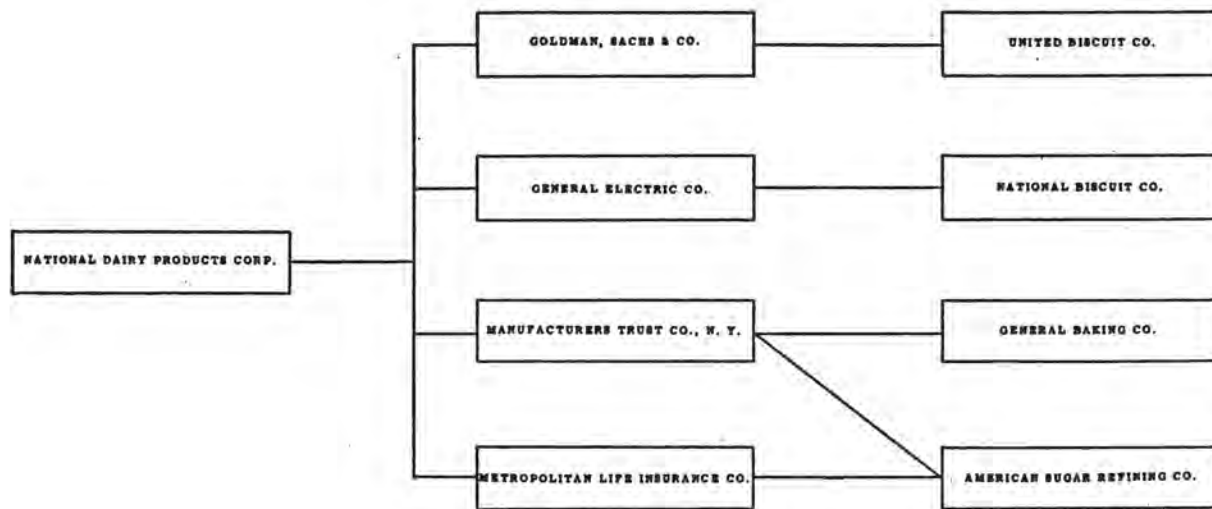


CHART 2.

Equitable Life.<sup>35</sup> It had an indirect interlock with National Biscuit Co. through American Sugar Refining.<sup>36</sup>

The Carnation Co.,<sup>37</sup> a processor of condensed milk and a large user of sugar, had an indirect interlock with American Sugar Refining through Northwestern Mutual Life Insurance Co.<sup>38</sup>

It thus appears that the major dairy companies had ties with potential customers among the country's largest manufacturers of bakery products and with potential suppliers among the country's largest sugar companies. National Dairy, the largest of the dairy products companies, and Borden, the second-largest, had between them ties with the largest of the bakers and with the largest sugar producer as well as ties with two other bakers and one other sugar producer among the country's 1,000 largest corporations.<sup>39</sup>

### *Interlocks with Potential Suppliers or Customers outside the Food Industry*

National Dairy had a direct tie with Continental Can Co.<sup>40</sup> which manufactures not only tin cans and other metal containers but also

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Brownell, chairman of the board and director of American Smelting & Refining Co., and Newcomb Carlton, honorary chairman of the board and director of Western Union Telegraph, were all on the boards of American Sugar Refining and Chase National Bank.

<sup>35</sup> Thomas I. Parkinson, president and director of Equitable Life, was on the board of Borden. Joshua Reuben Clark, Jr., member of the executive committee and director of Equitable Life, was on the board of Utah-Idaho Sugar.

<sup>36</sup> T. G. Montague, director of Borden, was also a director of American Sugar Refining. Roy E. Tomlinson, chairman of the board and director of National Biscuit, was a director of American Sugar Refining.

<sup>37</sup> Another instance of director-officer relations is provided by the indirect interlocks of Carnation Co. with National Biscuit and with Great Western Sugar. Reginald H. Fullerton, vice president of Bankers Trust Co. (New York), was on the board of Carnation. Paul Moore, a director of National Biscuit, and Henry J. Cochran, president and trustee of Franklin Savings Bank of New York and a director of National Biscuit, were on the board of Bankers Trust Co. Augustus S. Cobb, vice president of Bankers Trust Co. was a director of Great Western Sugar.

<sup>38</sup> Walter Kasten, president and director of the First Wisconsin National Bank (Milwaukee), was on the boards of Carnation and Northwestern Mutual Life. T. G. Montague, director of Borden and of American Sugar Refining, was a director of Northwestern Mutual Life.

<sup>39</sup> All of these ties were indirect, except for Borden's direct interlock with American Sugar Refining.

<sup>40</sup> S. J. Weinberg, partner in Goldman, Sachs & Co., was on the boards of National Dairy and Continental Can.

paper containers. Carnation had a direct interlock with A. O. Smith Corp.,<sup>41</sup> a manufacturer of pressure vessels and similar equipment for processing industries.

### CANNED FRUITS, VEGETABLES, AND SEA FOODS

Twelve canners of fruits, vegetables, or sea foods were listed among the 1,000 largest manufacturing corporations. Ten of these maintained interlocking directors with 39 other companies, manufacturing and nonmanufacturing, among those selected for study.

#### *Interlocks Potentially Reducing Competition*

Table 6 enumerates the interlocks among canners of fruits, vegetables, and sea foods and between these canners and manufacturers of competitive products.

California Packing Corp., which cans fruits and vegetables, was directly interlocked through nine directors with Alaska Packers Association, which cans fish.<sup>42</sup> Both companies can sardines. Would California Packing tend to develop a sea-food line of its own if it were not closely allied with Alaska Packers?

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<sup>41</sup> Walter Kasten, president and director of the First Wisconsin National Bank (Milwaukee), was a director of Carnation and A. O. Smith.

<sup>42</sup> R. N. Barthold, vice president of Alaska Packers, was a director of California Packing both in 1946 and in 1949. A. W. Eames was president of California Packing and chairman of the board of Alaska Packers in 1946. He was not a director of either company in 1949. A. M. Lester, vice president and director of California Packing and a director of Alaska Packers in 1946, was not a director of either company in 1949. Marshall P. Madison, a partner in Madison and Sutro and a director of California Packing and of Alaska Packers in 1946, was also a director of California Packing and Alaska Packers in 1949. Stanley Powell, vice president of California Packing and a director of Alaska Packers in 1946, was also a director of both companies in 1949. Roy L. Pratt, vice president of California Packing and a director of Alaska Packers in 1946, was also a director of both companies in 1949. Austin K. Tichenor was president of Alaska Packers and a director of California Packing in 1946; he was also a director of both companies in 1949. Leonard Earle Wood was a vice president of California Packing and vice president and a director of Alaska Packers in 1946; he was also a director of both companies in 1949. Balfour Adamson was a director of both California Packing and Alaska Packers in 1946; he was not listed as a director of either company in 1949. California Packing held 87.60 percent of the voting stock in Alaska Packers in 1946.

California Packing also had an indirect interlock with Pacific American Fisheries through Soundview Pulp Co.<sup>43</sup>

Libby, McNeill & Libby, which packs a wide variety of fruits, vegetables, meats, and baby foods, had a director in common with Minnesota Valley Canning Co.,<sup>44</sup> which packs corn, peas, and asparagus. This relationship may have affected competition between these companies.<sup>45</sup>

TABLE 6.—*Interlocks within the canned fruits, vegetables, and sea foods industry and between such canners and manufacturers of competitive products*<sup>1</sup>

Canned fruits, vegetables, and sea-foods companies	Directly interlocking companies				
	Food				Nonfood
	Canners				Soundview Pulp Co.
	California Packing Corp.	Libby, McNeill & Libby	Minnesota Valley Canning	Alaska Packers Association	
Canners of fruits, vegetables, and sea foods:					
California Packing Corp.				9	1
Libby, McNeill & Libby			1		1
Minnesota Valley Canning Co.		1			
Alaska Packers Association	9				
Pacific American Fisheries					1

<sup>1</sup> Direct interlocks are read from the table at the intersections of rows and columns. Indirect interlocks are read from columns; the link company appears as the column head; the companies linked appear in the stub.

California Packing, the second largest of the canners of fruit, vegetables and sea foods, was, therefore, directly affiliated with the country's tenth largest canner, Alaska Packers. It was indirectly interlocked with the twelfth largest canner, Pacific American Fisheries. Libby, McNeill & Libby, the third largest canner, was directly interlocked with Minnesota Valley Canning, the seventh largest canner. How much active competition survived among these companies could

<sup>43</sup> Henry D. Nichols, president of Tubbs Cordage Co., was a director of California Packing and of Soundview Pulp. Uberto M. Dickey, president and director of Soundview Pulp, was a director of Pacific American Fisheries.

<sup>44</sup> E. B. Cosgrove, president and director of Minnesota Valley Canning, was on the board of Libby, McNeill & Libby in 1948; he was not a director of the latter company in 1949.

<sup>45</sup> Libby, McNeill & Libby's direct tie with Swift has already been noted.

be determined only after further examination of their relations with each other and with other large canning companies.

*Interlocks with Potential Suppliers or Customers in the Food Industry*

Table 7 lists the interlocks between canners of fruits, vegetables and sea foods and potential customers and suppliers in the food industry.

Hawaiian Pineapple Co. had direct and indirect ties with most of the Hawaiian raw sugar producers. Thus, it had direct interlocks with Waialua Agricultural Co., Ltd.,<sup>46</sup> Oahu Sugar Co., Ltd.,<sup>47</sup> Ewa Plantation Co.,<sup>48</sup> and Olaa Sugar Co., Ltd.<sup>49</sup> It also had an indirect interlock through the Bishop National Bank of Hawaii<sup>50</sup> with Waialua Agricultural, Hawaiian Commercial & Sugar Co., Ltd., Oahu

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<sup>46</sup> A. G. Budge, president and director of Castle & Cooke, Ltd., and president and director of Ewa Plantation, was on the board of Hawaiian Pineapple and Waialua Agricultural. S. N. Castle, a director of Castle & Cooke, was on the boards of Hawaiian Pineapple and Waialua Agricultural. Charles J. Henderson, vice president and director of both Castle & Cooke and Waialua Agricultural, was a director of Hawaiian Pineapple.

<sup>47</sup> William H. McInerney, president of M. McInerney, Ltd., of Honolulu, was on the boards of Hawaiian Pineapple and Oahu Sugar.

<sup>48</sup> A. G. Budge, president of Ewa Plantation, was on the board of Hawaiian Pineapple. S. N. Castle was on the board of Hawaiian Pineapple and Ewa Plantation. C. F. Damon, president and director of Bishop Trust of Honolulu, was on the boards of Ewa Plantation and Hawaiian Pineapple. Charles J. Henderson, vice president and director of Castle & Cooke, was a director of Waialua Agricultural, Ewa Plantation, and Hawaiian Pineapple.

<sup>49</sup> William H. McInerney, president of M. McInerney, Ltd., was a director of Hawaiian Pineapple and Olaa Sugar.

<sup>50</sup> C. F. Damon, president and director of Bishop Trust of Honolulu, was a director of Hawaiian Pineapple and Bishop National Bank. G. S. Waterhouse, president and director of Bishop National Bank, was a director of Hawaiian Pineapple. Alfred L. Castle, partner in Robertson, Castle & Anthony, was a director of Waialua Agricultural, Hawaiian Commercial & Sugar, Ewa Plantation, and Bishop National Bank. H. P. Faye, vice president and assistant manager of American Factors, Ltd., G. P. Wilcox, a director of the same company, and E. H. Wodehouse, a director of Theo H. Davies & Co., were directors of Bishop National Bank and Oahu Sugar. Gaylord P. Wilcox, a director of American Factors, and H. P. Faye, whose affiliations have already been noted, were also on the boards of Olaa Sugar and Bishop National Bank. H. G. Dillingham, vice president and treasurer and director of Oahu Railway and Land Co., Robert McBryde Purvis, assistant vice president of Bishop National Bank, and Herman V. Von Holt were directors of Bishop National Bank and of McBryde Sugar.



Sugar, Ewa Plantation, Olaa Sugar, and McBryde Sugar Co., Ltd. At the same time, Hawaiian Pineapple was indirectly interlocked through the Bank of Hawaii<sup>51</sup> with Hawaiian Commercial & Sugar Co., Oahu Sugar, Olaa Sugar, and McBryde Sugar Co.<sup>52</sup>

TABLE 7.—*Interlocks between canners of fruits, vegetables, and sea foods and potential customers or suppliers in the food industry*

Food products companies	Directly interlocking companies						
	Food				Nonfood		
	Waiāluā Agricultural Co.	Oahu Sugar Co.	Ewa Plantation Co.	Olaa Sugar Co.	Chase National Bank, New York	Bishop National Bank of Hawaii	Bank of Hawaii
Canners of fruits, vegetables, and sea foods:							
Hawaiian Pineapple Co.....	3	1	4	1	-----	2	1
Potential customers or suppliers:							
Waiāluā Agricultural Co.....	-----	-----	-----	-----	-----	1	-----
Central Aguirre Associates.....	-----	-----	-----	-----	-----	-----	-----
Hawaiian Commercial & Sugar Co.....	-----	-----	-----	-----	-----	1	1
Oahu Sugar Co., Ltd.....	-----	-----	-----	-----	-----	3	1
Ewa Plantation Co.....	-----	-----	-----	-----	-----	1	-----
Olaa Sugar Co.....	-----	-----	-----	-----	-----	2	2
McBryde Sugar Co.....	-----	-----	-----	-----	-----	3	2

### *Interlocks with Potential Suppliers or Customers outside the Food Industry*

Both California Packing and Alaska Packers had a director in common with Pacific Lumber Co.,<sup>53</sup> which produces shooks for crates.

<sup>51</sup> E. W. Carden, president and director of the Bank of Hawaii, was a director of Hawaiian Pineapple. Charles Reed Hemenway, chairman of the board and director of the Hawaiian Trust Co., was a director of Hawaiian Commercial & Sugar and the Bank of Hawaii. W. F. Dillingham, president and director of Oahu Railway and Land Co., was a director of Oahu Sugar and the Bank of Hawaii. W. W. Chamberlain, vice president and director of Bishop Trust Co., and W. F. Dillingham, whose major affiliation has already been noted, were on the boards of Olaa Sugar and the Bank of Hawaii. W. W. Chamberlain and C. R. Hemenway were on the boards of McBryde Sugar and the Bank of Hawaii.

<sup>52</sup> These were Hawaiian regional ties.

<sup>53</sup> Marshall P. Madison was on the boards of California Packing, Alaska Packers, and Pacific Lumber.

Hunt Foods had a director in common with Atlas Imperial Diesel Engine Co., which makes tin cans.<sup>54</sup>

Alaska Packers Association had a director in common with Consolidated Chemical Industries,<sup>55</sup> which manufactures glues and greases, which can be made from fish oils and fish scrap and bones.

### GRAIN MILL PRODUCTS

Twelve grain mill products companies were among the 1,000 largest manufacturing corporations. Nine of these maintained interlocking directors with 63 other companies, manufacturing and nonmanufacturing, among those selected for study.

#### *Interlocks Potentially Reducing Competition*

Table 8 summarizes the interlocks among manufacturers of grain mill products and between these manufacturers and producers of competitive products.

General Mills, Inc. had a direct interlock with the Best Foods, Inc. through H. S. Sturgis,<sup>56</sup> a vice president of the First National Bank of the City of New York. General Mills sells flour and other grain mill products and Best Foods sells cake flour. General Mills had indirect ties with Pillsbury Mills through Minnesota & Ontario Paper Co.,<sup>57</sup> Northwestern National Bank & Trust Co.,<sup>58</sup> and First National Bank of Minneapolis.<sup>59</sup> It had indirect ties with International Milling Co. and with Russell Miller Milling Co. through the

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<sup>54</sup> Theodore Weisman, a director of Atlas Imperial Diesel Engine, was a director of Hunt Foods.

<sup>55</sup> Marshall P. Madison was a director of Alaska Packers, as noted above, and also of Consolidated Chemical.

<sup>56</sup> H. S. Sturgis, vice president of First National Bank of the City of New York, was on the boards of General Mills and Best Foods, both in 1946 and in 1949.

<sup>57</sup> Harold W. Sweatt, president and director of Minneapolis Honeywell Regulator Co., was a director of General Mills and Minnesota & Ontario Paper. C. T. Jaffray was on the boards of Pillsbury Mills and Minnesota & Ontario Paper.

<sup>58</sup> James F. Bell, chairman of the board of General Mills, was on the board of Northwestern National Bank & Trust. John Crosby, a director of General Mills, was on the board of Northwestern National Bank. Harold W. Sweatt, whose major affiliation has already been noted, was on the boards of General Mills and Northwestern National Bank. J. S. Pillsbury, cochairman of the board of Pillsbury Mills, was a director of Northwestern National Bank.

<sup>59</sup> F. M. Crosby, vice president and a director of General Mills, was a director of the First National Bank of Minneapolis. C. T. Jaffray and J. S. Pillsbury, whose major affiliations have already been noted, were on the boards of Pillsbury Mills and First National Bank of Minneapolis.

**TABLE 8.—Interlocks within the grain mill products industry and between grain mill products companies and manufacturers of competitive products<sup>1</sup>**

Grain mill products manufacturers	Directly interlocking companies						
	Food— Best Foods	Nonfood					
		Min- nesota & Ontario Paper Co.	North- western National Bank of Min- neapolis	First National Bank of Min- neapolis	Goldman, Sachs & Co.	New York Life Insurance Co.	Mutual Life Insurance Co. of New York
Grain mill products companies:							
General Mills.....	1	1	3	1			1
Quaker Oats Co.....						1	
Pillsbury Mills.....		1	1	2	1		
International Milling Co.....				1			
Ralston Purina Co.....						1	
Russell-Miller Milling Co.....				1			
Other manufacturers: General Foods Corp.....					1		1

<sup>1</sup> Direct interlocks are read from the table at the intersections of rows and columns. Indirect interlocks are read from columns; the link company appears as the column head; the companies linked appear in the stub.

First National Bank of Minneapolis,<sup>60</sup> and with General Foods through Mutual Life Insurance Co. of New York.<sup>61</sup> There appears to have been a centering of these milling interests in the two Minneapolis banks. Chart 3 illustrates these relationships.

Quaker Oats Co. had an indirect interlock with Ralston Purina Co. through the New York Life Insurance Co.<sup>62</sup>

In addition to its indirect tie with General Mills, Pillsbury Mills, which produces feed for livestock and poultry and cake flour and cereals, had an indirect tie with General Foods, which produces cereals and material for cattle feed and flour for cracker and cake bakers among its other lines. These two companies were interlocked through Goldman, Sachs & Co.<sup>63</sup> Pillsbury Mills also had a direct interlock with Archer-Daniels-Midland Co., which sells flour and flour byproducts.<sup>64</sup>

<sup>60</sup> F. M. Crosby, of General Mills, was also a director of the First National Bank of Minneapolis. Francis Atherton Bean, executive vice president of International Milling, was a director of the First National Bank of Minneapolis. E. F. Zelle, president of the Jefferson Transportation Co., was a director of Russell Miller Milling and First National Bank of Minneapolis.

<sup>61</sup> Henry S. Kingman, president and trustee of the Farmers and Mechanics Savings Bank of Minneapolis, was a director of General Mills and of Mutual Life. S. Sloan Colt, president of Bankers Trust Co., was on the boards of General Foods and Mutual Life.

<sup>62</sup> Edward L. Ryerson, chairman of the board and director of Inland Steel, was on the boards of Quaker Oats and New York Life. William H. Danforth, chairman of the board and director of Ralston Purina, was on the board of New York Life.

<sup>63</sup> Henry S. Bowers, a partner in Goldman, Sachs & Co., was on the board of Pillsbury Mills. S. J. Weinberg, partner in Goldman, Sachs & Co., was on the board of General Foods.

<sup>64</sup> Henry S. Bowers was also a director of Archer-Daniels-Midland.

# INTERLOCKS BETWEEN GENERAL MILLS, INCORPORATED AND MANUFACTURERS OF COMPETITIVE FOOD PRODUCTS

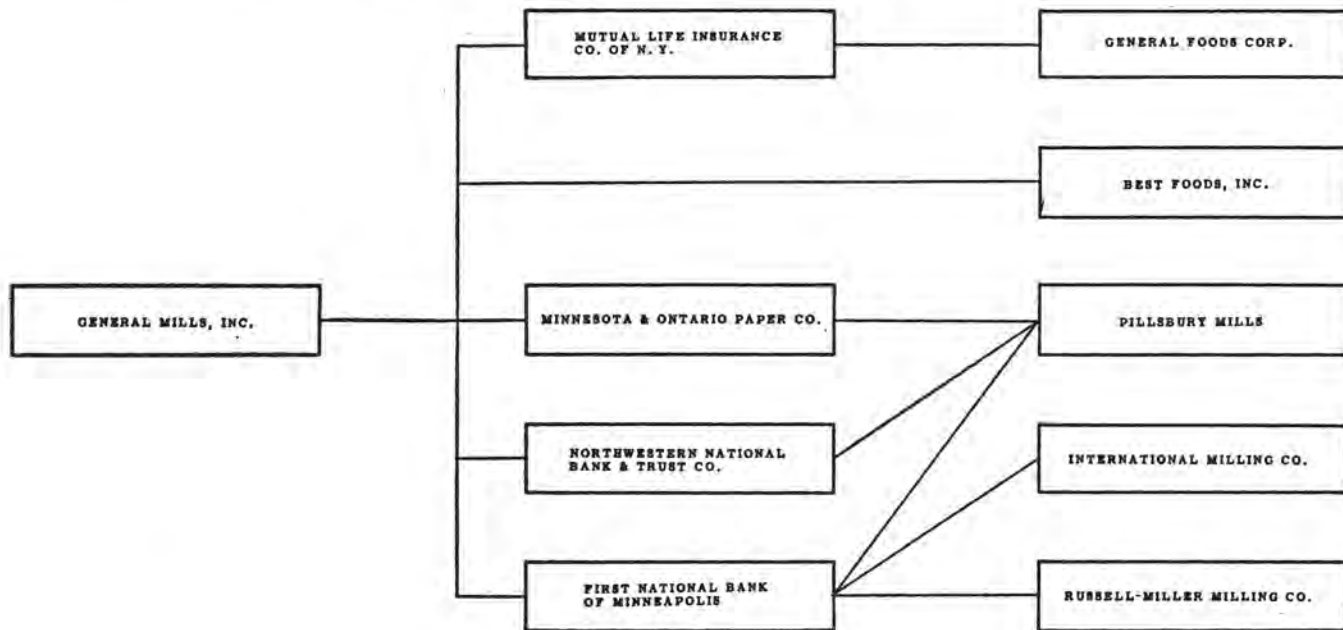


CHART 3.

Thus six of the country's largest manufacturers of grain mill products, including the five largest, had indirect interlocks with each other. Two of them also had indirect interlocks with General Foods, and one had a direct interlock with Best Foods. Thus General Mills, the largest of the grain mill products companies, had a direct tie with Best Foods and indirect ties with Pillsbury Mills, International Milling, and Russell Miller Milling. A determination of how far these interconnections operated to reduce competition among the large-scale milling companies is not within the scope of the present study.

### *Interlocks with Potential Suppliers or Customers in the Food Industry*

Table 9 lists the interlocks between the grain mill products companies and potential customers or suppliers in the food industry. Four of the major grain mill products companies, General Mills, Quaker Oats, Pillsbury Mills, and Colorado Milling & Elevator Co. had interlocks with bakery products companies or distillers.

General Mills, the largest of the grain mills products companies, led the others in the number of separate interlocks with potential customers in the food industry. It had an indirect interlock with National Biscuit<sup>65</sup> through the Manufacturers and Traders Trust Co. (Buffalo).<sup>66</sup> It had an indirect interlock with General Baking Co. through the Erie Railroad Co.<sup>67</sup> In addition, General Mills had two indirect interlocks with National Distillers Products Corp. through Mutual Life Insurance Co. of New York<sup>68</sup> and International Minerals & Chemical Corp.<sup>69</sup> Chart 4 exhibits these interlocks.

<sup>65</sup> General Mills was also indirectly interlocked with National Biscuit in an officer-director relation through the First National Bank of the City of New York. Henry S. Sturgis, vice president of the First National Bank of the City of New York, was a director of General Mills. A. C. Nagle, president and director of the First National Bank of the City of New York, was a director of National Biscuit.

<sup>66</sup> Frank F. Henry was a director of General Mills and Manufacturers and Traders Trust Co. William White, president and director of the Delaware, Lackawanna & Western Railroad, was a director of National Biscuit and Manufacturers and Traders Trust Co.

<sup>67</sup> Henry S. Sturgis of the First National Bank of the City of New York was a director of General Mills and the Erie. Charles H. Diefendorf, president of the Marine Trust Co. of Buffalo, was a director of General Baking and the Erie.

<sup>68</sup> Henry S. Kingman, president and trustee of Farmers & Mechanics Savings Bank, Minneapolis, was a director of General Mills and Mutual Life Insurance. Charles E. Adams, chairman of the board and director of Air Reduction, was also on the boards of National Distillers Products and Mutual Life Insurance.

<sup>69</sup> Henry S. Sturgis, whose major affiliation has already been noted, was on the boards of General Mills and International Minerals & Chemical. John E. Bierwirth, president of National Distillers Products in 1949, was on the boards of National Distillers Products and International Minerals & Chemical in 1946.



## INTERLOCKS OF GENERAL MILLS, INCORPORATED WITH POTENTIAL CUSTOMERS IN THE FOOD INDUSTRY

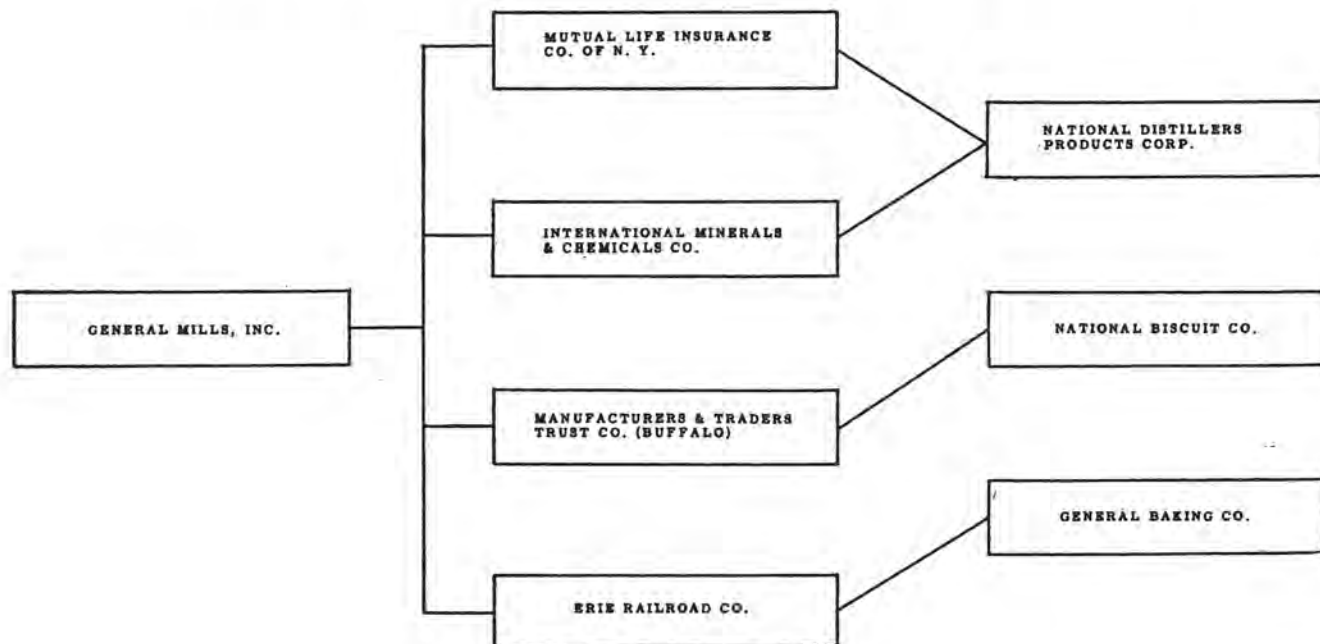


CHART 4.

Quaker Oats had an indirect interlock with Sunshine Biscuits, Inc., through the Atchison, Topeka & Santa Fe Railway Co.<sup>70</sup>

Pillsbury Mills was the only one of the grain mills which was found to have a direct interlock with a potential customer primarily engaged in the food industry. Henry S. Bowers sat on the board of both Pillsbury Mills and the United Biscuit Co. of America.

TABLE 9.—Interlocks between grain mill products companies and potential customers or suppliers in the food industry

Food products companies	Directly interlocking companies					
	Food—United Biscuit Co.	Nonfood				
		International Minerals & Chemical Corp.	Borg-Warner Corp.	Manufacturers & Traders Trust Co. of Buffalo	Mutual Life Insurance Co. of New York	Atchison, Topeka & Santa Fe Ry.
Grain mill products companies:						
General Mills		1		1	1	1
Quaker Oats Co.						
Pillsbury Mills	1					
Colorado Milling & Elevator Co.			1			
Potential customers or suppliers:						
Bakers:						
National Biscuit Co.				1		
Sunshine Biscuits						1
General Baking Co.						
Beverage manufacturers: National Distillers Products Corp.		1	1		1	

Colorado Milling & Elevator Co. had an indirect interlock with National Distillers Products through Borg-Warner Corp.<sup>71</sup>

The three largest milling companies, therefore, as well as the tenth largest of these companies, each had one or more ties with a large baker or distiller. General Mills alone had four such ties: One of them with National Biscuit, the Nation's largest baker, and two with National Distillers Products, the country's third largest beverage manufacturer. The interlocks between the grain mill companies and such large purchasers must be expected to lessen the chances for smaller grain-mill companies to sell to these potential outlets.

<sup>70</sup> Edward L. Ryerson, chairman of the board and director of Inland Steel, was a director of Quaker Oats and the Atchison, Topeka & Santa Fe. Bert L. Hupp, chairman of the board and director of Sunshine Biscuits, was a director of the Atchison, Topeka & Santa Fe.

<sup>71</sup> Paul H. Davis, senior partner in Paul H. Davis Co., was a director of Colorado Milling & Elevator and Borg-Warner. J. R. Forgan, partner in Glore Forgan & Co., was a director of National Distillers Products and Borg-Warner.

## *Interlocks with Potential Suppliers or Customers outside the Food Industry*

General Mills<sup>72</sup> and Pillsbury Mills<sup>73</sup> each had a director in common with Minnesota & Ontario Paper Co., a manufacturer of kraft paper and board. Pillsbury Mills also had a director in common with Champion Paper & Fibre Co.,<sup>74</sup> maker of sanitary food container stock, and with Archer-Daniels-Midland,<sup>75</sup> which operates elevator storage facilities.

### **BAKERY PRODUCTS**

Ten bakery-products companies were listed among the thousand largest manufacturing corporations. They maintained interlocking directors with 63 other companies, manufacturing and nonmanufacturing, among those selected for study.

#### *Interlocks Potentially Reducing Competition*

Table 10 enumerates the interlocks among manufacturers of baked goods and between these manufacturers and other producers of competitive products.

National Biscuit Co., the largest of the bakery products companies, had an indirect interlock with Continental Baking, the second largest of the bakery companies, through Republic Aviation Corp.,<sup>76</sup> and with General Baking, the fourth largest company, through Marine Midland Trust Co. of New York,<sup>77</sup> and Marine Midland Corp. (Jersey City).<sup>78</sup> It also had indirect ties with General Foods through General

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<sup>72</sup> Harold W. Sweatt, president of Minneapolis Honeywell Regulator, was on the boards of General Mills and Minnesota & Ontario Paper.

<sup>73</sup> C. T. Jaffray was on the boards of Pillsbury Mills and Minnesota & Ontario Paper.

<sup>74</sup> Henry S. Bowers, partner in Goldman, Sachs & Co., was on the boards of Pillsbury Mills, United Biscuit, and Champion Paper & Fibre.

<sup>75</sup> Henry S. Bowers was also on the board of Archer-Daniels-Midland.

<sup>76</sup> Paul Moore, a director of National Biscuit, was on the board of Republic Aviation. Livingston Platt, a partner in Bleakley, Platt & Walker, was a director of National Biscuit and Republic Aviation. R. L. Clarkson, president and chairman of the board of Amerex Holding Corp., was a director of Continental Baking and Republic Aviation.

<sup>77</sup> Frederick Beers, vice president and director of National Biscuit, was a director of Marine Midland Trust Co. Charles H. Diefendorf, president of the Marine Trust Co. of Buffalo, was a director of General Baking and of Marine Midland Trust Co.

<sup>78</sup> Frederick Beers and Charles H. Diefendorf were both also directors of Marine Midland Corp.

**TABLE 10.—Interlocks within the bakery products industry and between bakers and manufacturers of competitive products<sup>1</sup>**

Bakery products manufacturers	Directly interlocking companies							
	Food			Nonfood				
	Bakeries		Other					
	Purity Bakeries Corp.	American Bakeries Co.	Chase Candy Co.	American Can Co.	General Electric Co.	Republic Aviation Corp.	Bankers' Trust Co.	Martine Midland Corp., Jersey City Martine Midland Trust Co., New York
Bakers:								
National Biscuit Co.				5	1	2	2	1
Continental Baking Co.						1		
General Baking Co.								1
Purity Bakeries Corp.		2						
Consolidated Biscuit Co.			1					
American Bakeries Co.	2							
Other manufacturers, General Foods Corp.				1	2		1	

<sup>1</sup> Direct interlocks are read from the table at the intersections of rows and columns. Indirect interlocks are read from columns; the link company appears as the column head; the companies linked appear in the stub.

Electric,<sup>79</sup> Bankers Trust Co.<sup>80</sup> and American Can.<sup>81</sup> Since National Biscuit sells shredded wheat and General Foods sells Post Corn Toasties, Post Raisin Bran, et cetera, the two companies are competitors. Chart 5 clarifies these relationships.<sup>82</sup>

<sup>79</sup> A. C. Nagle, president and director of the First National Bank of the City of New York, was a director of National Biscuit and General Electric. S. Sloan Colt, president and director of Bankers Trust Co., and S. J. Weinberg, partner in Goldman, Sachs & Co., were directors of General Foods and General Electric.

<sup>80</sup> Henry J. Cochran, president and trustee of Franklin Savings Bank of New York, and Paul Moore were directors of National Biscuit and Bankers Trust Co. S. Sloan Colt, president and director of Bankers Trust Co., was a director of General Foods.

<sup>81</sup> Charles C. Auchincloss, partner in F. S. Moseley Co., was on the boards of National Biscuit and American Can. Dudley Weld Figgis, president of American Can, was on the board of National Biscuit. Edward S. Moore was a director of National Biscuit and American Can. Paul Moore was also a director of both companies. Roy E. Tomlinson, chairman of the board of National Biscuit, was also a director of American Can. S. Sloan Colt, president and director of Bankers Trust Co., was also a director of General Foods and American Can.

<sup>82</sup> An example of an indirect officer-director relation is found in the tie between Continental Baking Co. and Ward Baking Co. William C. Potter, member of the executive committee and director of Guaranty Trust Co., was a director of Continental Baking. Robert E. Broome, vice president of Guaranty Trust Co., was a director of Ward Baking.

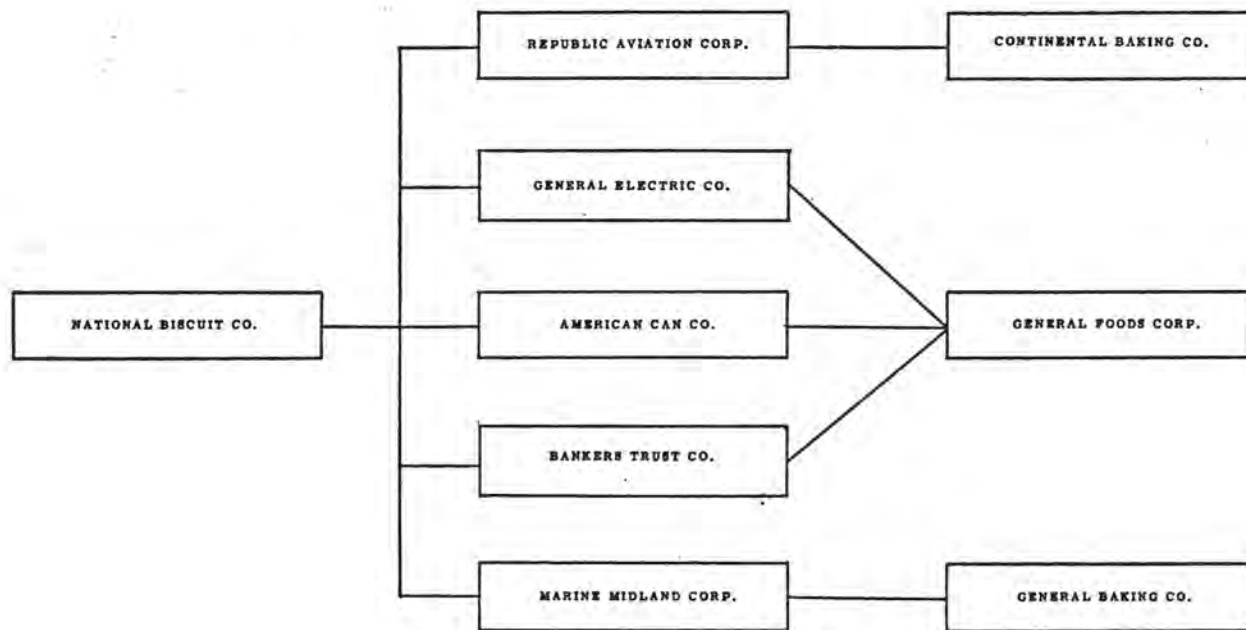
INTERLOCKS BETWEEN NATIONAL BISCUIT COMPANY  
AND MANUFACTURERS OF COMPETITIVE PRODUCTS

CHART 5.



Purity Bakeries Corp., which bakes and sells bread, cake, and specialty bakery products, had a direct interlock with American Bakeries Co., which sells crackers, bread, and cake, through Lewis A. Cushman<sup>64</sup> and Nicholas F. Lenssen,<sup>65</sup> who were on the boards of both companies.

Consolidated Biscuit Co., which in addition to its bakery products also makes candy, had a director in common with Chase Candy Co. in the person of F. S. Yantis.<sup>66</sup>

Six of the country's 10 largest bakery products companies, therefore, had direct or indirect interlocks with each other or with other large producers of competitive products. The dual interlock between Purity Bakeries and American Bakeries would tend to develop a common understanding of marketing policies and programs. The indirect interlocks between National Biscuit, the largest of the bakers, and Continental Baking, the second largest of the bakers, and the indirect ties of these companies with other bakery companies provided channels for a meeting of minds among the top companies in the industry.

#### *Interlocks with Potential Suppliers or Customers in the Food Industry*

Table 11 summarizes the interlocks between manufacturers of baked goods and potential customers or suppliers in the food industry.

National Biscuit had the greatest number of ties with potential suppliers in the industry. It interlocked directly with American Sugar Refining in the person of Roy E. Tomlinson, the chairman of its board. It also had indirect ties with American Sugar Refining through American Smelting & Refining<sup>67</sup> and the Pennsylvania Rail-

<sup>64</sup> Lewis A. Cushman, chairman of the board, president and director of Purity Bakeries, was a director of American Bakeries in 1946 and in 1949.

<sup>65</sup> Nicholas F. Lenssen, a member of Davies, Auerbach, Cornell & Hardy, was a director of Purity Bakeries and American Bakeries in 1946 and in 1949.

<sup>66</sup> F. S. Yantis, president and director of F. S. Yantis, was a director of Consolidated Biscuit and Chase Candy in 1946. He was not a director of Consolidated Biscuit in 1949, although he was still a director of Chase Candy in that year.

<sup>67</sup> Henry J. Cochran, president and trustee of Franklin Savings Bank of New York, was a director of National Biscuit and American Smelting & Refining. Francis H. Brownell, chairman of the board of American Sugar Refining, was a director of American Smelting & Refining.

TABLE 11.—Interlocks between manufacturers of bakery products and potential customers or suppliers in the food industry

Food products companies	Directly interlocking companies																		
	Food			Manufacturing						Finance				Miscellaneous					
	Pillsbury Mills	American Sugar Refining Co.	National Sugar Refining Co.	International Paper Co.	Rexall Drug	United States Steel Corp.	American Smelting & Re- fining Co.	American Can Co.	Underwood Corp.	General Electric Co.	Guaranty Trust Co., New York	Manufacturers Trust Co., New York	Bankers Trust Co., New York	Manufacturers and Traders Trust Co., Buffalo	Goldman, Sachs & Co.	Pennsylvania R. R. Co.	Atchison, Topeka & Santa Fe Ry.	Erie R. R. Co.	Associated Dry Goods Corp.
Bakeries:																			
National Biscuit Co.		1				1	1	5		1			2	1		1			
Continental Baking Co.									1		1						1		
Sunshine Biscuits												1						1	
General Baking Co.			1															1	
United Biscuit Co.	1														1				
Ward Baking Co.				1							1								
Purity Bakeries Corp.																			
Interstate Bakeries Corp.					1														
Potential customers or suppliers:																			
Meat packers:																			
Armour & Co.						1													
Swift & Co.									1										
Wilson & Co.											1								
Dairy products companies:																			
National Dairy Products Corp.										1		1			1				
Borden Co.		1																	
Grain mill products companies:																			
General Mills.														1				1	
Quaker Oats Co.																	1		
Sugar companies:																			
American Sugar Refining Co.				1	1		1		1			1				1			
Beverage products manufacturers:																			
Anheuser-Busch												1							
Other:																			
General Foods Corp.								1		2			1		1				
Corn Products Refining Co.				1															
Best Foods.			1															1	

road.<sup>88</sup> Whether or not National Biscuit bought sugar from American Sugar Refining and whether or not it bought from other sources have not been determined in this study.<sup>89</sup> It had an indirect link with General Mills<sup>90</sup> through Manufacturers & Traders Trust Co.<sup>91</sup> Through General Electric,<sup>92</sup> it had indirect ties with National Dairy Products, which supplies butter, milk, and cream, and with General Foods, which sells flour and baking powder. It also had an indirect tie with General Foods through American Can and through Bankers Trust Co.<sup>93</sup> Through American Sugar Refining,<sup>94</sup> it had an indirect tie with Borden, which could supply it with dairy products. Finally, it had an indirect tie with Armour, producer of shortenings, through U. S. Steel.<sup>95</sup> Chart 6 exhibits these interlocks.

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<sup>88</sup> Franklin D'Olier, chairman of the board and director of Prudential Insurance, was a director of National Biscuit and Pennsylvania Railroad. James E. Gowen, president and director of Girard Trust Co. (Philadelphia), was a director of American Sugar Refining and Pennsylvania Railroad.

<sup>89</sup> The indirect officer-director relation between National Biscuit and Great Western Sugar Co. was noted in the discussion of dairy products. Henry J. Cochran, president and trustee of Franklin Savings Bank of New York, was a director of National Biscuit and Bankers Trust Co. Paul Moore was also a director of National Biscuit and Bankers Trust Co. Augustus S. Cobb, vice president of Bankers Trust Co., was a director of Great Western Sugar.

<sup>90</sup> National Biscuit had indirect officer-director ties with both General Mills and Best Foods through the First National Bank of the City of New York. A. C. Nagle, president and director of First National Bank of the City of New York, was a director of National Biscuit. Henry S. Sturgis, vice president of First National Bank of the City of New York, was a director of General Mills and Best Foods.

<sup>91</sup> Frank Forrest Henry was a director of General Mills and Manufacturers and Traders Trust Co. William White, president and director of the Delaware, Lackawanna & Western Railroad, was a director of National Biscuit and of Manufacturers and Traders Trust Co.

<sup>92</sup> A. C. Nagle, president and director of the First National Bank of the City of New York, was a director of National Biscuit and General Electric. S. J. Weinberg, partner in Goldman, Sachs & Co., was a director of National Dairy, General Foods, and General Electric. S. Sloan Colt, president and director of Bankers Trust Co., was a director of General Foods and General Electric.

<sup>93</sup> Charles C. Auchincloss, Dudley W. Figgis, Edward S. Moore, Paul Moore, and Roy E. Tomlinson, were directors of National Biscuit and American Can. S. Sloan Colt, president and director of Bankers Trust Co., was a director of General Foods and American Can. Paul Moore was also a director of Bankers Trust, and Henry J. Cochran was a director of National Biscuit and Bankers Trust.

<sup>94</sup> Roy E. Tomlinson, chairman of the board and director of National Biscuit, was a director of American Sugar Refining. T. G. Montague was a director of Borden and American Sugar Refining.

<sup>95</sup> A. C. Nagle, president and director of the First National Bank of the City of New York, was a director of National Biscuit and U. S. Steel. Sewell L. Avery, chairman of the board and director of Montgomery Ward, was a director of Armour and U. S. Steel.

# INTERLOCKS OF NATIONAL BISCUIT COMPANY WITH POTENTIAL SUPPLIERS IN THE FOOD INDUSTRY

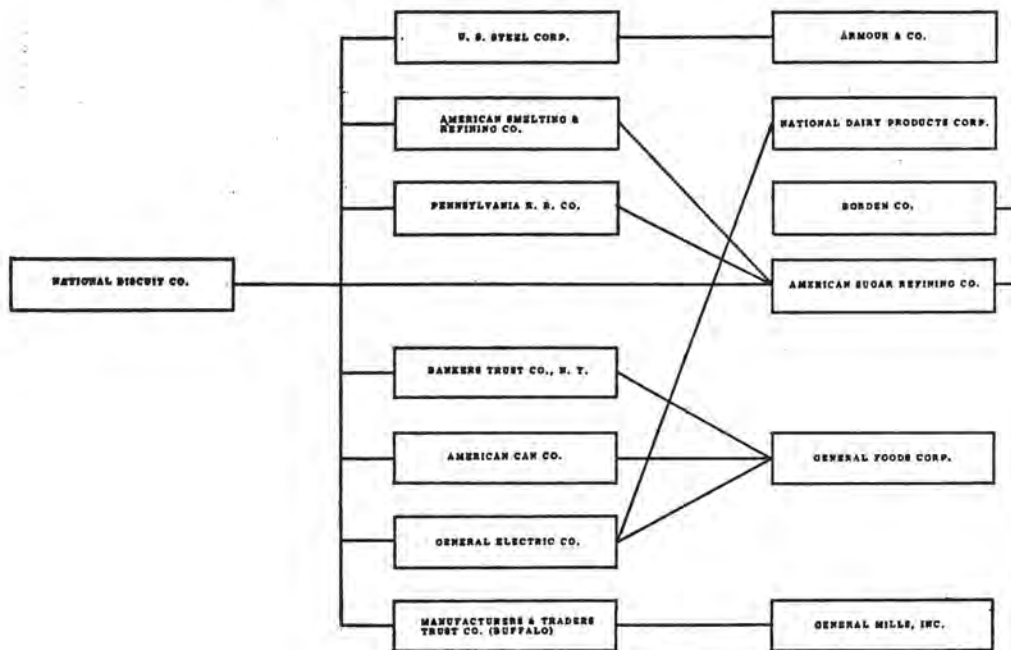


CHART 6.

Continental Baking had an indirect interlock, through Underwood Corp.,<sup>96</sup> with Swift, which produces lard, cooking oils, and shortening, and with American Sugar Refining. It was also interlocked through Guaranty Trust Co. with Wilson, which also produces cooking oil.<sup>97</sup>

Both Sunshine Biscuits and a potential supplier, Quaker Oats, which manufactures flour, had a director on the board of the Atchison, Topeka & Santa Fe.<sup>98</sup>

General Baking Co. interlocked directly with National Sugar Refining through Ellsworth Bunker, who was president of National Sugar Refining.<sup>99</sup> It interlocked indirectly, through National Sugar Refining, with Best Foods.<sup>1</sup> It had a director who, with directors of National Dairy, American Sugar Refining, and Anheuser-Busch, Inc., sat on the board of directors of Manufacturers Trust Co.<sup>2</sup> General Baking also had an indirect interlock with General Mills and Best Foods through the Erie.<sup>3</sup> Since General Baking may buy milk, cream, and butter from National Dairy, sugar from American Sugar Refining, baker's yeast and baker's malt sirup from Anheuser-Busch, and flour from General Mills and Best Foods, all of these relationships have significance.

United Biscuit Co. of America had a direct tie with Pillsbury Mills

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<sup>96</sup> R. L. Clarkson, president and chairman of the board of Amerex Holding Corp., was a director of Continental Baking and Underwood. Morgan Bulkeley Brainard, president and director of Aetna Life Insurance Co., was a director of Swift and Underwood. Albert Henry Wiggin was a director of American Sugar Refining and Underwood.

<sup>97</sup> William C. Potter, member of the executive committee and director of Guaranty Trust Co., was a director of Continental Baking. William Lambert Kleitz, president and director of Guaranty Trust Co., was a director of Wilson.

<sup>98</sup> Bert L. Hupp, chairman of the board of Sunshine Biscuits, was a director of the Atchison, Topeka & Santa Fe. Edward L. Ryerson, chairman of the board and director of Inland Steel, was a director of Quaker Oats and the Atchison, Topeka & Santa Fe.

<sup>99</sup> Ellsworth Bunker, president and director of National Sugar Refining, was a director of General Baking.

<sup>1</sup> William K. Dick, chairman of the board of National Sugar Refining, was a director of Best Foods.

<sup>2</sup> Oswald L. Johnston, partner in Simpson Thacker & Bartlett, was a director of General Baking and Manufacturers Trust Co. Henry C. von Elm, vice chairman and director of Manufacturers Trust Co., was a director of National Dairy. Samuel McRoberts was a member of the executive committee and director of both American Sugar Refining and Manufacturers Trust Co. Horace C. Flanigan, vice president and director of Manufacturers Trust Co., was a director of Anheuser-Busch.

<sup>3</sup> Charles H. Diefendorf, president of the Marine Trust Co. of Buffalo, was a director of General Baking and the Erie. Henry S. Sturgis, vice president of the First National Bank of the City of New York, was a director of General Mills, Best Foods, and the Erie.



through Henry S. Bowers. Also in the directorate of Goldman, Sachs & Co.,<sup>4</sup> this director met a director from National Dairy Products and General Foods, both suppliers to the bakery products industry.

Ward Baking Co. entered into indirect interlocks through International Paper Co.<sup>5</sup> with American Sugar Refining and with Corn Products Refining, which manufactures starch, corn sugar, and cooking oils.<sup>6</sup>

Through Associated Dry Goods Corp.,<sup>7</sup> Purity Bakeries had an indirect interlock with General Foods, which produces flour and baking powder.

Like most of the other baking companies mentioned, Interstate Bakeries Corp. had an indirect link with American Sugar Refining, in its case through Rexall Drug.<sup>8</sup>

Relations between bakery products companies and potential customers or suppliers in the food industry were much more numerous than similar relations in any of the branches of the food industry previously studied. National Biscuit, the largest of the bakery products companies, had a direct tie with American Sugar Refining, the largest of the sugar producers and indirect ties with five other potential suppliers or customers. Included in these were the country's largest meat packer, dairy products company, and grain mill company, as well as General Foods. This study has not attempted to determine how far such ties restricted the opportunity of other potential suppliers to sell to the bakery companies. The pattern of relations is, however, indicative of the magnitude and the complexity of the mutual interests involved.

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<sup>4</sup> H. S. Bowers, partner in Goldman, Sachs & Co. was a director of United Biscuit. S. J. Weinberg, partner in Goldman, Sachs & Co., was a director of National Dairy and General Foods.

<sup>5</sup> F. K. Morrow, director of Ogilvie Flour Mills, was a director of Ward Baking and International Paper. Albert Henry Wiggin was a director of American Sugar Refining and International Paper. C. S. McCain, president of Dillon, Read & Co., was a director of Corn Products Refining and International Paper.

<sup>6</sup> An indirect interlock between Ward Baking Co. and Willson, which may have had significant influence on commodity transactions, rested on an officer-director tie. Robert E. Broome, vice president of Guaranty Trust Co., was a director of Ward Baking. William Lambert Kleitz, president and director of Guaranty Trust Co., was a director of Willson.

<sup>7</sup> George L. Burr was a director of Purity Bakeries and Associated Dry Goods. Robert Lehman, partner in Lehman Brothers, was a director of General Foods and Associated Dry Goods.

<sup>8</sup> William R. Basset, director and member of the executive committee of Colgate-Palmolive-Peet, was a director of Interstate Bakeries and Rexall Drug. James L. Richards, director and member of the executive committee of American Sugar Refining, was a director of Rexall Drug.

## *Interlocks with Potential Suppliers or Customers outside the Food Industry*

National Biscuit had a direct tie through five common directors with American Can,<sup>9</sup> manufacturer of cans, packages, and fiber containers. It also had a direct link with Panhandle Producing and Refining Co.<sup>10</sup> Ninety-six percent of National Biscuit's sales were delivered to stores by delivery trucks operating from 257 distributing branches.<sup>11</sup>

Continental Baking had a direct tie with Continental Oil Co.<sup>12</sup> In 1947, Continental Baking operated more than 4,500 motortrucks and 178 passenger cars.<sup>13</sup>

General Baking had a direct tie with International Salt.<sup>14</sup> United Biscuit had direct ties with Champion Paper & Fibre,<sup>15</sup> which sells sanitary food container stock, and with Archer-Daniels-Midland,<sup>16</sup> which sells flour and flour byproducts.

Ward Baking had a direct tie with International Paper,<sup>17</sup> a producer of kraft board and kraft paper for wrapping and grocery bags. It also had a direct interlock with Mid-Continent Petroleum Corp.<sup>18</sup> In 1947, Ward operated about 2,200 electric and gas motor trucks.<sup>19</sup>

Interstate Bakeries had a director in common with Container Corp. of America,<sup>20</sup> which manufactures linerboard, box board, corrugated and solid fiber shipping containers, folding cartons, et cetera.

## SUGAR

Twenty-three sugar companies, including raw sugar producers, cane sugar refiners, and beet sugar manufacturers, were among the thou-

<sup>9</sup> Charles C. Auchincloss, Dudley Weld Figgis, Edward S. Moore, Paul Moore, and Roy E. Tomlinson have already been shown to have been on the boards of National Biscuit and American Can.

<sup>10</sup> Franklin D'Oller, chairman of the board of Prudential Insurance Co., was a director of Panhandle Producing & Refining and National Biscuit.

<sup>11</sup> Moody's Industrials, 1947, p. 2706.

<sup>12</sup> William C. Potter, member of the executive committee of Guaranty Trust, was a director of Continental Baking and Continental Oil.

<sup>13</sup> Moody's Industrials, 1947, p. 1917.

<sup>14</sup> Charles H. Diefendorf, president and director of the Marine Trust Co. of Buffalo, was a director of General Baking and International Salt.

<sup>15</sup> Henry S. Bowers, partner in Goldman, Sachs & Co., was a director of United Biscuit and Champion Paper & Fibre.

<sup>16</sup> Henry S. Bowers was also a director of Archer-Daniels-Midland.

<sup>17</sup> F. K. Morrow, a director of Ogilvie Flour Mills, was a director of Ward Baking and International Paper.

<sup>18</sup> F. R. Russell, chairman of the board and director of Ward Baking, was a director of Mid-Continent Petroleum.

<sup>19</sup> Moody's Industrials, 1947, p. 1628.

<sup>20</sup> William R. Basset, director and member of the executive committee of Colgate-Palmolive-Peet, was a director of Interstate Bakeries and Container Corp.

sand largest manufacturing corporations. Twenty of these maintained interlocking directors with 102 other companies, manufacturing and nonmanufacturing, among those selected for study.

Interlocks among sugar producers and between sugar producers and potential suppliers or customers were more numerous than similar interlocks in any other branch of the food industry. This was so because raw sugar companies were closely interlocked with each other and with American Sugar Refining. They were also intricately interlocked with dairy products companies, canned food and vegetable companies, bakery products companies, confectionery companies, and beverage manufacturers.

### *Interlocks Potentially Reducing Competition*

Table 12 illustrates the interlocks among sugar manufacturers and between these manufacturers and producers of competitive products.

The relations among sugar companies were many and complex. Among Hawaiian raw sugar manufacturers, for example, Ewa Plantation had a direct interlock with Waialua Agricultural<sup>21</sup> and with Hawaiian Commercial & Sugar Co.<sup>22</sup> Hawaiian Commercial & Sugar, in its turn, had a direct interlock with Waialua Agricultural<sup>23</sup> and with McBryde Sugar.<sup>24</sup> Oahu Sugar had a direct link with Olaa Sugar through six directors who were on the boards of both com-

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<sup>21</sup> A. G. Budge, president and director of Castle & Cooke, Ltd., of Honolulu, was a director of Ewa Plantation and Waialua Agricultural in 1946 and in 1949. A. L. Castle, partner in Robertson, Castle & Anthony of Honolulu, was a director of Ewa Plantation and Waialua Agricultural in 1946 and in 1949. H. K. L. Castle, president and director of Kaneohe Ranch Co., Ltd., of Honolulu, was a director of Ewa Plantation and Waialua Agricultural in 1946 and in 1949. S. N. Castle was a director of Ewa Plantation and Waialua Agricultural in 1946 and in 1949. The Securities & Exchange Commission's records show that prior to the war Ewa Plantation owned stock in Waialua Agricultural. No such interest was, however, listed in the 1946 SEC file.

<sup>22</sup> A. L. Castle was a director of Ewa and Hawaiian Commercial & Sugar in 1946 and in 1949.

<sup>23</sup> A. L. Castle was a director of Hawaiian Commercial & Sugar and Waialua Agricultural in 1946 and in 1949.

<sup>24</sup> Joseph Platt Cooke, president, general manager, and director of Alexander & Baldwin, Ltd., of Honolulu, was a director of Hawaiian Commercial & Sugar and McBryde Sugar in 1946 and in 1949. Charles Reed Hemenway, chairman of the board and director of the Hawaiian Trust Co., Ltd., was a director of Hawaiian Commercial & Sugar and McBryde Sugar in 1946. He was not a director of either company in 1949. J. T. Waterhouse, R. G. Bell, and C. B. Wightman were directors of both companies in 1949.



panies.<sup>25</sup> Olaa Sugar also had a direct link with McBryde Sugar.<sup>26</sup> Chart 7 set out these direct interlocks, and the indirect interlocks of the same companies.

South Porto Rico Sugar Co. had a direct interlock with Great Western Sugar,<sup>27</sup> a beet sugar manufacturer and with Corn Products Refining, which makes corn sirups and corn sugars.<sup>28</sup> Fajardo Sugar Co. had a direct interlock with the United States Sugar Corp.<sup>29</sup> and with Eastern Sugar Associates.<sup>30</sup> Chart 8 exhibits these direct interlocks, as well as the indirect interlocks of other sugar companies outside of Hawaii.

Indirect interlocks among potentially competitive or actually competitive producers of raw cane sugar were even more numerous than direct interlocks. They may be summarized as follows:

Six of the Hawaiian cane sugar producers, Waialua Agricultural, Hawaiian Commercial & Sugar, Oahu Sugar, Ewa Plantation, Olaa Sugar, and McBryde Sugar, were all represented on the board of the Bishop National Bank.<sup>31</sup> Furthermore, four of these companies, Hawaiian Commercial & Sugar, Oahu Sugar, Olaa Sugar, and Mc-

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<sup>25</sup> W. F. Dillingham, president and director of Oahu Railway & Land Co., was a director of Oahu Sugar and Olaa Sugar in 1946 and in 1949. H. P. Fay, vice president and director of American Factors, Ltd., of Honolulu, was a director of Oahu Sugar and Olaa Sugar in 1946 and in 1949. S. M. Lowrey, treasurer and director of American Factors, was a director of Oahu Sugar and Olaa Sugar in 1946, but was not a director of either company in 1949. W. H. McInerny, president of M. McInerny, Ltd., of Honolulu, was a director of Oahu Sugar and Olaa Sugar in 1946 but was not a director of either company in 1949. G. W. Sumner, vice president of American Factors, was a director of Oahu Sugar and Olaa Sugar in 1946 and in 1949. G. P. Wilcox was a director of American Factors, Oahu Sugar, and Olaa Sugar in 1946 and in 1949.

<sup>26</sup> Wm. Warren Chamberlain, vice president and director of Bishop Trust Co., was a director of Olaa Sugar and McBryde Sugar in 1946. He was not a director of either company in 1949.

<sup>27</sup> A. S. Cobb, vice president of Bankers Trust Co., was also a director of South Porto Rico Sugar and Great Western Sugar in 1946 and in 1949.

<sup>28</sup> G. M. Moffett, chairman of the board and director of Corn Products Refining, was a director of South Porto Rico Sugar in 1946 and in 1949.

<sup>29</sup> R. W. Atkins, partner in Shearson, Hammill & Co., was a director of Fajardo Sugar and U. S. Sugar in 1946. He was not a director of either company in 1949.

<sup>30</sup> Harry E. Henneman was a director of Fajardo Sugar and Eastern Sugar Associates in 1946. He was not a director of U. S. Sugar, but he was a director of Fajardo Sugar in 1949.

<sup>31</sup> Alfred L. Castle was a director of Waialua Agricultural, Hawaiian Commercial & Sugar, Ewa Plantation, and Bishop National Bank. H. P. Faye was a director of Oahu Sugar, Olaa Sugar, and Bishop National Bank. G. P. Wilcox was a director of Oahu Sugar, Olaa Sugar, and Bishop National Bank. E. H. Wodehouse was a director of Oahu Sugar and Bishop National Bank. Robert McBryde Purvis and H. V. Von Holt were directors of McBryde Sugar and Bishop National Bank.



# INTERLOCKS AMONG HAWAIIAN SUGAR COMPANIES

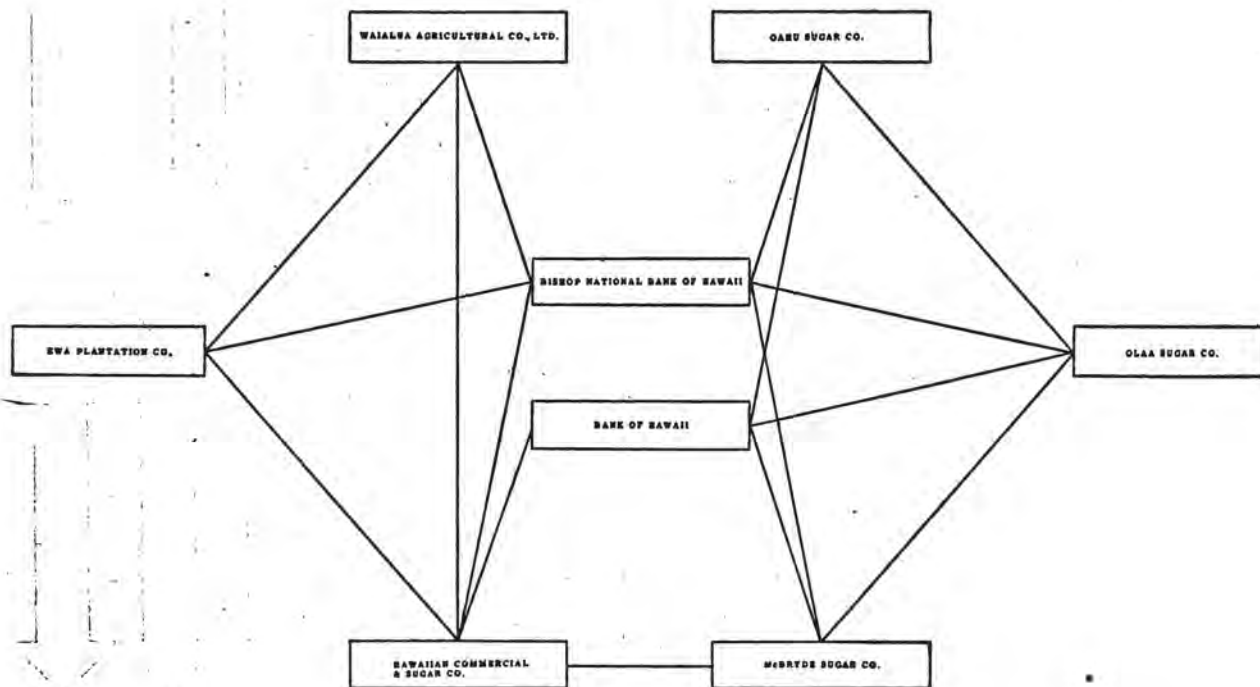


CHART 7.

# INTERLOCKS AMONG SUGAR COMPANIES OUTSIDE OF HAWAII

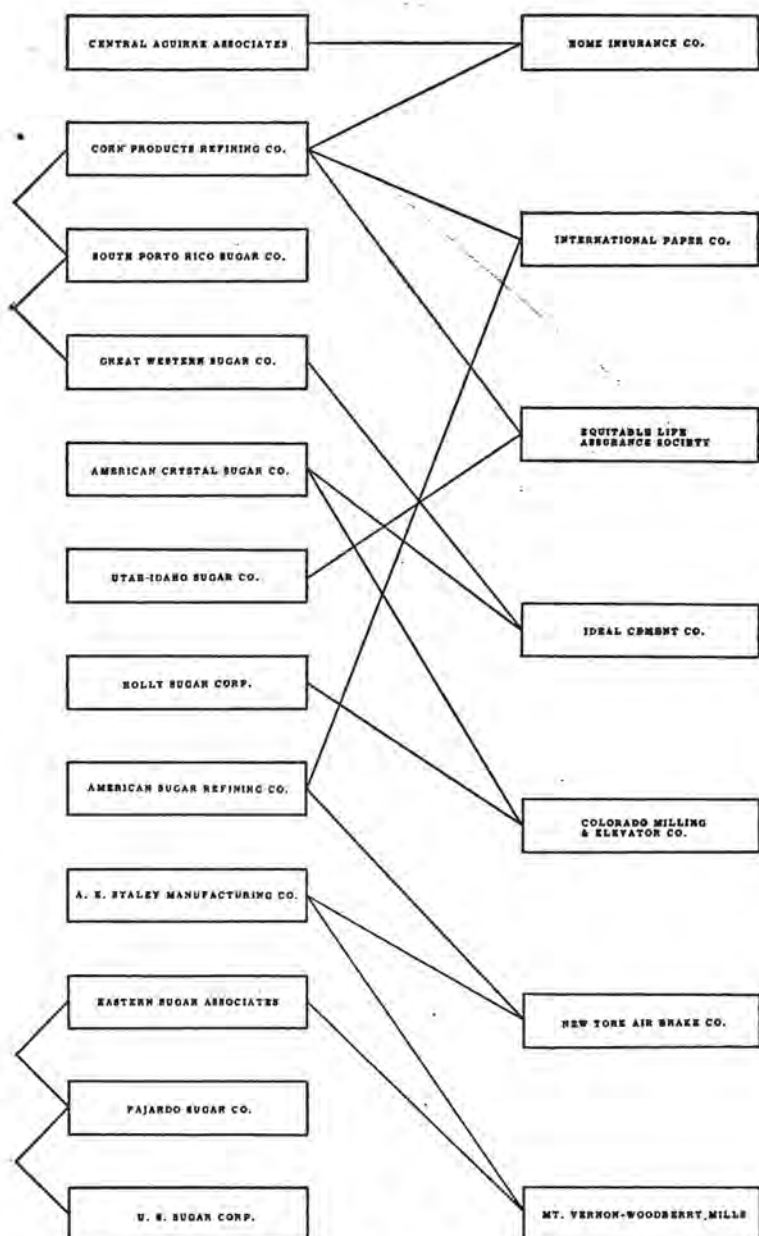


CHART 8.

Bryde Sugar were also represented on the board of the Bank of Hawaii.<sup>32</sup> Slightly lower concentrations of directors of raw sugar companies were represented on the boards of a series of other companies.

Great Western Sugar and American Crystal Sugar, both of which manufacture beet sugar, had directors who met on the directorate of the Ideal Cement Co.<sup>33</sup> American Crystal Sugar and Holly Sugar, another beet sugar manufacturer, had directors on the board of Colorado Milling & Elevator Co.<sup>34</sup> These are Colorado regional ties.

A series of indirect interlocks between producers of raw or refined sugar and manufacturers of corn syrup and corn sugar was also found. Thus, American Sugar Refining had an indirect tie with Corn Products Refining through International Paper<sup>35</sup> and with Staley Manufacturing through New York Air Brake Co.<sup>36</sup> Utah-Idaho Sugar Co., a beet sugar producer, likewise had a tie with Corn Products Refining, in this case through Equitable Life.<sup>37</sup> Central Aguirre Associates had an indirect interlock with Corn Products Refining through Home Insurance Co. of New York.<sup>38</sup> Eastern Sugar Associates had an in-

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<sup>32</sup> C. R. Hemenway, who was on the boards of Hawaiian Commercial & Sugar and of McBryde Sugar, W. F. Dillingham, who was on the Board of Oahu Sugar and Olaa Sugar, and William Warren Chamberlain, who was on the boards of Olaa Sugar and McBryde Sugar, were all on the board of the Bank of Hawaii.

<sup>33</sup> Charles Boettcher, president and director of Great Western Sugar, was on the board of Ideal Cement. Harry O. Warner, vice president and director of Ideal Cement, was a director of Great Western Sugar. Charles Boettcher II was a director of American Crystal Sugar and Ideal Cement. Claude K. Boettcher, president and director of Boettcher Corp. of Denver, was a director of American Crystal Sugar and Ideal Cement.

<sup>34</sup> J. B. Grant, partner in Lewis & Grant, was a director of American Crystal Sugar and Colorado Milling & Elevator. John Evans, president and director of the First National Bank of Denver, was a director of Holly Sugar and Colorado Milling & Elevator.

<sup>35</sup> Albert Henry Wiggin was a director of American Sugar Refining and International Paper. Charles S. McCain, president of Dillon, Read & Co., was a director of Corn Products Refining and International Paper.

<sup>36</sup> Samuel McRoberts was a director of American Sugar Refining and New York Air Brake. John Wilson Cutler, partner in Smith Barney & Co., was a director of Staley Manufacturing and New York Air Brake.

<sup>37</sup> Joshua Reuben Clark, Jr., director and member of the executive committee of Equitable Life, was a director of Utah-Idaho Sugar. Edward L. Shea, president and director of North American Co., was a director of Corn Products Refining and Equitable Life.

<sup>38</sup> Charles Garrison Meyer, president of Cord Meyer Co. and vice president and director of Central Aguirre, was on the board of Home Insurance. Harold H. Helm, first vice president and director of the Chemical Bank & Trust Co., was a director of Corn Products Refining and Home Insurance.

direct link with Staley Manufacturing through Mount Vernon-Woodberry Mills.<sup>39</sup>

The direct and indirect interlocks among the sugar companies reflect the highest degree of concentration of joint directorships found in the food industry. Six Hawaiian sugar companies had direct and indirect ties with each other. The sugar companies outside of Hawaii were also intricately interrelated with each other and with Corn Products and Staley, the country's principal producers of corn sugar. This pattern of interlocks created both the opportunity and a strong incentive for each of these companies to influence the others' policies in the market.

### *Interlocks with Potential Suppliers or Customers in the Food Industry*

Table 13 presents the interlocks between sugar manufacturers and potential customers or suppliers in the food industry.

American Sugar Refining had several interlocks with potential suppliers within the sugar industry. It had an indirect interlock with Central Aguirre, through Rexall Drug,<sup>40</sup> and through New York, New Haven & Hartford Railroad Co.<sup>41</sup> It also had an indirect interlock with Eastern Sugar through the Philadelphia, Baltimore & Washington Railroad Co.<sup>42</sup> Both of these interlocking companies are raw sugar producers.

American Sugar Refining's interlocks with potential customers in the food industry (chart 9) were more numerous than with potential

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<sup>39</sup> A. H. S. Post, chairman of the board and director of Mercantile Trust, Baltimore, was a director of Eastern Sugar and Mount Vernon-Woodberry Mills. T. B. Butler, president and director of the Safe Deposit & Trust of Baltimore, was a director of Staley Manufacturing and Mount Vernon-Woodberry Mills.

<sup>40</sup> James L. Richards, director and member of the executive committee of American Sugar Refining, was on the board of Rexall Drug. Charles Francis Adams, chairman of the board of the State Street Trust Co., was a director of Central Aguirre and Rexall Drug.

<sup>41</sup> John Loomer Hall, senior partner in Choate, Hall & Stewart, and James L. Richards and Albert Henry Wiggin were directors of American Sugar Refining and the New York, New Haven & Hartford. Charles Francis Adams was a director of Central Aguirre and New York, New Haven & Hartford.

<sup>42</sup> James E. Gowen, president and member of the board of managers of Girard Trust Co., was a director of American Sugar Refining and the Philadelphia, Baltimore & Washington Railroad. A. H. S. Post, director and chairman of the board of Mercantile Trust Co., Baltimore, was a director of Eastern Sugar and the Philadelphia, Baltimore & Washington Railroad.

suppliers. It had interlocks with potential customers in the dairy products industry who use sugar in the production of evaporated and condensed milk as well as for ice cream and other manufactured dairy products. It had a direct tie with Borden through T. G. Montague. It also had an indirect tie with Borden through Westinghouse Electric<sup>43</sup> and through Chase National Bank.<sup>44</sup> It interlocked with National Dairy through Manufacturers Trust Co.<sup>45</sup> and Metropolitan Life.<sup>46</sup> It interlocked with Carnation through Northwestern Mutual Life.<sup>48</sup>

It also had a series of interlocks with potential customers in the bakery products industry. Thus it had a direct tie with National Biscuit through Roy E. Tomlinson;<sup>49</sup> it interlocked with Ward Baking through International Paper;<sup>50</sup> and it interlocked with Interstate Bakeries through Rexall Drug.<sup>51</sup> It interlocked with General Baking through Manufacturers Trust;<sup>52</sup> and with National Biscuit through

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<sup>43</sup> John Loomer Hall was a director of American Sugar Refining and Westinghouse Electric. Thomas I. Parkinson, president and director of Equitable Life, was on the boards of Borden and Westinghouse Electric.

<sup>44</sup> Earl D. Babst, chairman of the board of American Sugar Refining, was a director of Chase National Bank. Francis H. Brownell, director and chairman of the board of American Smelting & Refining, and Newcomb Carlton, director and honorary chairman of the board of Western Union Telegraph, were also directors of American Sugar Refining and Chase National Bank. Austin S. Igleheart, president of General Foods, and Thomas I. Parkinson, president and director of Equitable Life, were both directors of Borden and Chase National Bank.

<sup>45</sup> Samuel McRoberts was a director of American Sugar Refining and Manufacturers Trust. Henry C. Von Elm, director and vice chairman of the board of Manufacturers Trust, was a director of National Dairy.

<sup>46</sup> Newcomb Carlton, director and honorary chairman of the board of Western Union Telegraph, was a director of American Sugar Refining and Metropolitan Life. Thomas H. McInnerney, director and chairman of the board of National Dairy, was on the board of Metropolitan Life.

<sup>48</sup> T. G. Montague was a director of American Sugar Refining and Northwestern Mutual Life. Walter Kasten was a director of Carnation and Northwestern Mutual Life.

<sup>49</sup> Roy E. Tomlinson was chairman of the board of National Biscuit.

<sup>50</sup> Albert Henry Wiggin was a director of American Sugar Refining and International Paper. F. K. Morrow was a director of Ward Baking and International Paper.

<sup>51</sup> James L. Richards was a director of American Sugar Refining and Rexall Drug. William R. Basset was a director of Interstate Bakeries and Rexall Drug.

<sup>52</sup> Samuel McRoberts was a director of American Sugar Refining and Manufacturers Trust Co. Oswald L. Johnston, partner in Simpson Thacher & Bartlett, was a director of General Baking and of Manufacturers Trust Co.

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# INTERLOCKS BETWEEN AMERICAN SUGAR REFINING COMPANY AND POTENTIAL CUSTOMERS IN THE FOOD INDUSTRY

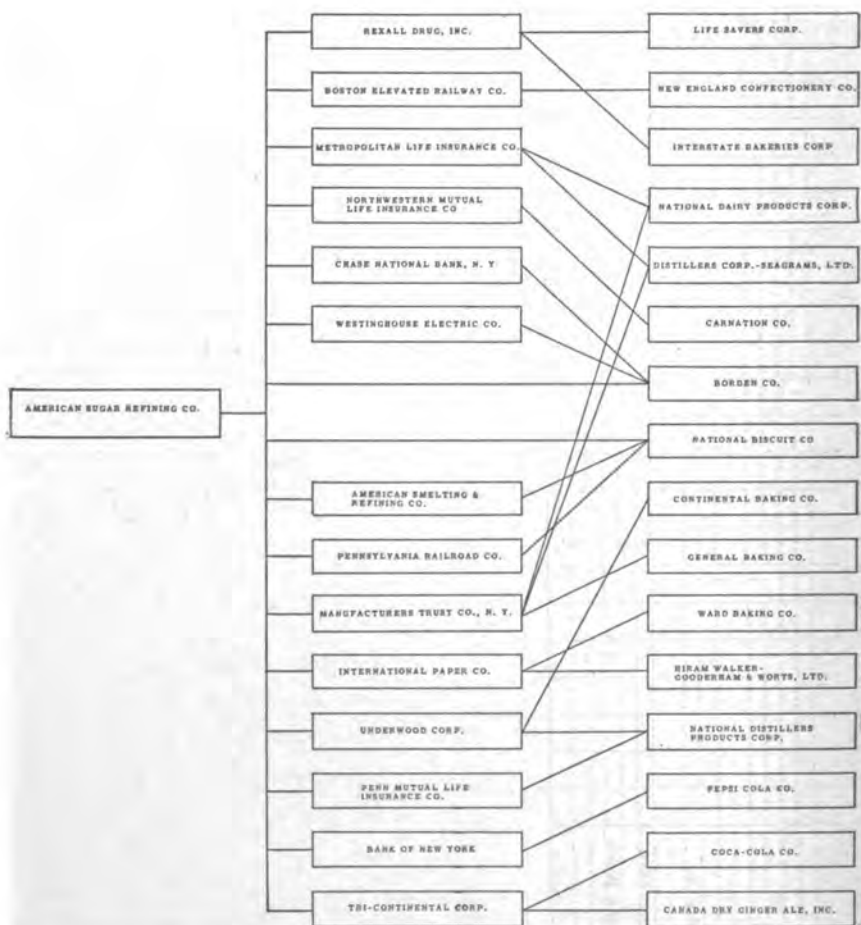


CHART 9.

American Smelting & Refining<sup>53</sup> and Pennsylvania Railroad.<sup>54</sup> Finally, it interlocked with Continental Baking through Underwood.<sup>55</sup>

American Sugar Refining interlocked with potential customers in the confectionery industry in two cases. It interlocked with Life Savers Corp. through Rexall Drug,<sup>56</sup> and with New England Confectionery Co. through Boston Elevated Railway.<sup>58</sup>

American Sugar Refining also had a number of indirect interlocks with producers of beverages or beverage products who use sugar substances in their manufacturing processes. It had indirect interlocks with Coca-Cola Co. through Tri-Continental Corp.,<sup>59</sup> with Pepsi-Cola Co. through the Bank of New York,<sup>60</sup> with Canada Dry Ginger Ale through Tri-Continental Corp.,<sup>61</sup> with Distillers Corp.-Seagrams through Manufacturers Trust Co.,<sup>62</sup> and through Metropolitan Life;<sup>63</sup>

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<sup>53</sup> Francis H. Brownell, chairman of the board of American Smelting & Refining, was a director of American Sugar Refining. Henry J. Cochran, president of the Franklin Savings Bank of New York, was a director of National Biscuit and American Smelting & Refining.

<sup>54</sup> James E. Gowen, director and president of Girard Trust Co., was a director of American Sugar Refining and Pennsylvania Railroad. Franklin D'Olier, director and chairman of the board of Prudential Insurance, was on the boards of National Biscuit and Pennsylvania Railroad.

<sup>55</sup> Albert Henry Wiggin was a director of American Sugar Refining and Underwood. R. L. Clarkson was a director of Continental Baking and Underwood.

<sup>56</sup> James L. Richards was a director of American Sugar Refining and Rexall Drug. Earl E. Anderson was a director of Life Savers and Rexall Drug.

<sup>57</sup> James L. Richards, director and member of the executive committee of American Sugar Refining, was a director of Boston Elevated Railway. Frank Lincoln Richardson, executive vice president of Newton-Waltham Bank & Trust, was a director of New England Confectionery and Boston Elevated Railway.

<sup>58</sup> Albert Henry Wiggin was a director of American Sugar Refining and Tri-Continental. Eugene W. Stetson, chairman of the board and director of Guaranty Trust Co., was a director of Coca-Cola and Tri-Continental.

<sup>59</sup> T. G. Montague was a director of American Sugar Refining and the Bank of New York. Walter Wm. Colpitts, partner in Coverdale & Colpitts, was a director of Pepsi-Cola and the Bank of New York.

<sup>60</sup> Albert Henry Wiggin was a director of American Sugar Refining and Tri-Continental. Otis Allen Glazebrook, Jr., partner in Hornblower & Weeks, was a director of Canada Dry Ginger Ale and Tri-Continental.

<sup>61</sup> Samuel McRoberts was a director of American Sugar Refining and Manufacturers Trust Co. Harvey Dow Gibson, president of Manufacturers Trust Co., was a director of Distillers Corp.-Seagrams.

<sup>62</sup> Newcomb Carlton was a director of American Sugar Refining and Metropolitan Life. T. H. McInnerney, chairman of the board of National Dairy, was a director of Distillers Corp.-Seagrams and Metropolitan Life.

with National Distillers Products through Penn Mutual Life<sup>64</sup> and Underwood<sup>65</sup> and, finally, with Hiram Walker-Gooderham & Worts through International Paper.<sup>66</sup>

National Sugar Refining had a direct tie, through William H. Hoodless, with Fajardo Sugar, which produces raw sugar. It had a direct tie with General Baking through Ellsworth Bunker, who was on the board of both companies. It also had two sets of indirect interlocks with potential customers in the food industry: one with Canada Dry Ginger Ale, Coca-Cola, and National Distillers Products through Air Reduction,<sup>67</sup> and one with Coca-Cola through the Southern Railway.<sup>68</sup>

The South Coast Corp., the third of the large sugar refining companies which had interlocks with potential customers in the food industry, had a tie with Pepsi-Cola through the Celotex Corp.<sup>69</sup>

Utah-Idaho Sugar Co.,<sup>70</sup> the second largest of the beet-sugar producers, interlocked with Borden through Equitable Life.<sup>71</sup>

Many of the raw sugar manufacturers have previously been shown to have had interlocks with Hawaiian Pineapple. Thus, Waialua

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<sup>64</sup> James E. Gowen was a director of American Sugar Refining and Penn Mutual Life. John E. Bierwirth, president of New York Trust Co., was a director of National Distillers Products and Penn Mutual Life.

<sup>65</sup> Albert Henry Wiggin was a director of American Sugar Refining and Underwood. R. L. Clarkson was a director of National Distillers Products and Underwood.

<sup>66</sup> Albert Henry Wiggin was a director of American Sugar Refining and International Paper. F. K. Morrow was a director of Hiram Walker-Gooderham & Worts and International Paper.

<sup>67</sup> Knight Woolley, partner in Brown Bros. Harriman, was a director of National Sugar Refining and Air Reduction. C. S. Munson, president and director of Air Reduction, was a director of Canada Dry Ginger Ale. Eugene W. Stetson, chairman of the board of Guaranty Trust Co., was a director of Coca-Cola and Air Reduction. Charles E. Adams, chairman of the board of Air Reduction, and C. S. Munson, president and director of Air Reduction, were directors of National Distillers Products.

<sup>68</sup> Knight Woolley was a director of National Sugar Refining and Southern Railway. R. W. Woodruff, chairman of the executive committee and director of Coca-Cola, was a director of Southern Railway.

<sup>69</sup> Bror G. Dahlberg, president of Celotex, and Chris L. Christensen, O. S. Mansell, and Carl G. Muench, vice presidents of Celotex, were all on the boards of Celotex and of South Coast Corp. Walter William Colpitts, partner in Coverdale and Colpitts, was a director of Pensi-Cola and Celotex.

<sup>70</sup> Great Western Sugar Co., the largest of the beet-sugar producers, had indirect officer director interlocks with Carnation Co. and National Biscuit through Bankers Trust Co. Augustus S. Cobb, vice president of Bankers Trust Co., was a director of Great Western Sugar. Reginald H. Fullerton, vice president of Bankers Trust Co., was a director of Carnation. Henry J. Cochran, president of Franklin Savings Bank of New York, and Paul Moore were directors of National Biscuit and Bankers Trust Co.

<sup>71</sup> Joshua Reuben Clark, Jr., member of the executive committee and director of Equitable Life, was a director of Utah-Idaho Sugar. Thomas I. Parkinson president and director of Equitable Life, was a director of Borden.

Agricultural,<sup>72</sup> Oahu Sugar,<sup>73</sup> Ewa Plantation,<sup>74</sup> and Olaa Sugar<sup>75</sup> had direct ties with Hawaiian Pineapple. Waialua Agricultural, Hawaiian Commercial & Sugar, Oahu Sugar, Ewa Plantation, Olaa Sugar, and McBryde Sugar also had an indirect interlock with Hawaiian Pineapple through the Bishop National Bank.<sup>76</sup> Finally, Hawaiian Commercial & Sugar, Oahu Sugar, Olaa Sugar, and McBryde Sugar were also indirectly tied with Hawaiian Pineapple through the Bank of Hawaii.<sup>77</sup>

Central Aguirre had an indirect interlock with Life Savers through Rexall Drug;<sup>78</sup> United States Sugar had an indirect interlock with Canada Dry Ginger Ale through Colgate-Palmolive-Peet;<sup>79</sup> and through United States Pipe & Foundry Co.<sup>80</sup> Central Aguirre was in-

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<sup>72</sup> A. G. Budge, president and director of Ewa Plantation, S. N. Castle, and C. J. Henderson were directors of Waialua Agricultural and Hawaiian Pineapple.

<sup>73</sup> William H. McInerny, president of M. McInerny, Ltd., was a director of Oahu Sugar and Hawaiian Pineapple.

<sup>74</sup> Charles J. Henderson, vice president and director of Castle & Cooke, A. G. Budge, president and director of Ewa Plantations, S. N. Castle, and C. F. Damon, president and director of Bishop Trust Co., were all on the boards of Ewa Plantation and Hawaiian Pineapple.

<sup>75</sup> William H. McInerny was on the boards of Olaa Sugar and Hawaiian Pineapple.

<sup>76</sup> C. F. Damon, president and director of Bishop Trust Co., was a director of Hawaiian Pineapple and of Bishop National Bank. G. S. Waterhouse, president of Bishop National Bank, was a director of Hawaiian Pineapple. Alfred L. Castle, partner in Robertson, Castle & Anthony, was a director of Waialua Agricultural, Hawaiian Commercial & Sugar, Ewa Plantation and Bishop National Bank. H. P. Faye, vice president and assistant manager of American Factors, G. P. Wilcox, director of American Factors, and E. H. Wodehouse were directors of Oahu Sugar and Bishop National Bank. G. P. Wilcox and H. P. Faye were also on the board of Olaa Sugar. H. G. Dillingham, Robert McBryde Purvis, and Herman V. Von Holt were directors of McBryde Sugar and of Bishop National Bank.

<sup>77</sup> E. W. Carden was a director of Hawaiian Pineapple and the Bank of Hawaii. C. R. Hemenway was a director of Hawaiian Commercial & Sugar, McBryde Sugar, and the Bank of Hawaii. W. F. Dillingham was a director of Oahu Sugar, Olaa Sugar, and the Bank of Hawaii. William Warren Chamberlain was on the board of Olaa Sugar, McBryde Sugar, and the Bank of Hawaii. W. W. Chamberlain and C. R. Hemenway were also on the boards of McBryde Sugar and the Bank of Hawaii.

<sup>78</sup> Charles Francis Adams was a director of Central Aguirre and Rexall Drug. Earl E. Anderson was a director of Life Savers and Rexall Drug.

<sup>79</sup> N. F. S. Russell, president and director of U. S. Pipe & Foundry, was a director of U. S. Sugar and Colgate-Palmolive-Peet. S. Bayard Colgate, chairman of the board and director of Colgate-Palmolive-Peet, was a director of Canada Dry Ginger Ale.

<sup>80</sup> N. F. S. Russell, president and director of U. S. Pipe & Foundry, was a director of U. S. Sugar. S. Bayard Colgate, chairman of the board and director of Colgate-Palmolive-Peet, was a director of U. S. Pipe & Foundry and Canada Dry Ginger Ale.

directly interlocked with Distillers Corp.-Seagrams through Home Insurance.<sup>81</sup>

The extensive and far-reaching nature of the ties of the country's largest sugar producers with potential customers in the food industry is evident in the above outline of these relationships. Little need be added by way of summary to reinforce the picture that has emerged. The country's three largest producers of dairy products, two largest bakers, and second and third largest beverage manufacturers had direct or indirect ties with the large sugar companies. American Sugar Refining, the largest of the sugar companies, had direct ties with the largest baking company and the second largest dairy company. Such interlocks may readily become the basis for preferential or even exclusive trading relationships to the detriment of the market opportunities of other sugar producers, and to the disadvantage of other buyers of sugar who were in competition with these large buyers.

### *Interlocks with Potential Suppliers or Customers outside the Food Industry*

American Sugar Refining had direct interlocks with American Can,<sup>82</sup> which also makes fiber containers; and with International Paper,<sup>83</sup> which manufactures kraft paper and kraft board.

South Porto Rico Sugar had direct ties with Commercial Solvents,<sup>84</sup> which uses sugar for manufacturing alcohol and whisky.

National Sugar Refining had a director in common with St. Regis Paper Co.,<sup>85</sup> which makes heavy duty multiwall bags for flour and sugar packets.

Finally, South Coast, a producer of raw sugar had four directors in common with Celotex,<sup>86</sup> which makes insulation board from cane fiber, from which the sugar has been extracted.

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<sup>81</sup> Charles G. Meyer, vice president and director of Central Aguirre, was a director of Home Insurance. Harvey Dow Gibson, president and director of Manufacturers Trust Co., was a director of Distillers Corp.-Seagrams and Home Insurance.

<sup>82</sup> Roy E. Tomlinson, chairman of the board and director of National Biscuit, was a director of American Sugar Refining and American Can.

<sup>83</sup> Albert Henry Wiggin was a director of American Sugar Refining and International Paper.

<sup>84</sup> G. M. Moffett, director and chairman of the board of Corn Products Refining, was a director of South Porto Rico Sugar and Commercial Solvents. Philip Gordon Mumford, president and director of American Machine & Metals, was a director of South Porto Rico Sugar and Commercial Solvents.

<sup>85</sup> William K. Dick, director of Irving Trust Co., was a director of National Sugar Refining and St. Regis Paper.

<sup>86</sup> Bror G. Dahlberg, president of Celotex; Chris L. Christensen, O. S. Mansell, and Carl G. Muench, vice presidents of Celotex, were all on the board of South Coast and Celotex.



## CONFECTIONERY AND RELATED PRODUCTS

Eleven manufacturers of confectionery or related products were listed among the thousand largest manufacturing corporations. Five of these maintained interlocking directors with 14 other companies, manufacturing and nonmanufacturing, among those selected for study. Indeed, the candy manufacturing companies had the fewest interlocks of any of the branches of the food industry.

### *Interlocks Potentially Reducing Competition*

No direct or indirect interlocks were found among the candy manufacturers under study. Chase Candy had a direct tie with Consolidated Biscuit,<sup>87</sup> which makes candy as well as baked goods. The American Chicle Co., which sells chewing gum, and National Dairy Products, which sells caramels and other candies, had an indirect interlock through American Water Works & Electric Co.<sup>88</sup> These interlocks are summarized in table 14.

TABLE 14.—*Interlocks within the confectionery industry and between confectionery companies and manufacturers of competitive products*<sup>1</sup>

Candy companies	Directly interlocking companies	
	Consolidated Biscuit Co.	American Water Works & Electric Co.
American Chicle Co.....	.....	1
Chase Candy Co.....	1	.....
National Dairy Products Corp.....	.....	1

<sup>1</sup> Direct interlocks are read from the table at the intersections of rows and columns. Indirect interlocks are read from columns; the link company appears as the column head; the companies linked appear in the stub.

### *Interlocks with Potential Suppliers or Customers in the Food Industry*

Life Savers had an indirect interlock with American Sugar Refining through Rexall Drug.<sup>89</sup> New England Confectionery Co., which

<sup>87</sup> F. S. Yantis, president and director of F. S. Yantis, was a director of Chase Candy and Consolidated Biscuit in 1946. He was not a director of Consolidated Biscuit, but was still a director of Chase Candy in 1949.

<sup>88</sup> Thomas H. Blodgett, chairman of the board and president of American Chicle, was a director of American Water Works & Electric. Thomas H. McInnerney, chairman of the board and director of National Dairy, was a director of American Water Works & Electric.

<sup>89</sup> Earl E. Anderson was a director of Life Savers and Rexall Drug. James L. Richards, chairman of the board and member of the executive committee of the Boston Consolidated Gas Co., was a director and member of the executive committee of American Sugar Refining and a director of Rexall Drug.

makes "Necco" candies, had an indirect interlock with American Sugar Refining through Boston Elevated Railway.<sup>91</sup> These relations are illustrated in table 15.

It thus appears that Life Savers, Rockwood, and New England Confectionery each had an indirect tie with a potential sugar supplier, while Rockwood also had a tie with a producer of milk and other dairy products.

TABLE 15.—*Interlocks between confectionary companies and potential customers or suppliers in the food industry*

Food product companies	Directly interlocking companies	
	Rezell Drug	Boston Elevated Ry. Co.
Candy companies:		
Life Savers Corp.....	1	
New England Confectionery Co.....		1
Potential supplier:		
American Sugar Refining Co.....	1	1

## BEVERAGE PRODUCTS

Twenty-three manufacturers of beverage products were represented among the thousand largest manufacturing corporations. Thirteen of these maintained interlocking directors with 90 other companies, manufacturing and nonmanufacturing, among those selected for study.

### *Interlocks Potentially Reducing Competition*<sup>92</sup>

Table 16 lists the interlocks among beverage manufacturing companies and between these companies and manufacturers of competitive products.

<sup>91</sup> Frank Lincoln Richardson, executive vice president of Newton-Waltham Bank & Trust, was a director of New England Confectionery and Boston Elevated Railway. James L. Richards was a director of American Sugar Refining and Boston Elevated Railway.

<sup>92</sup> The beverage industry is broken down in the Standard Industrial Classification Manual into five subindustry groups; bottled soft drinks and carbonated waters; malt liquors; malt; wines; and distilled, rectified, and blended liquors. All except wines are represented among the principal products of the thousand largest corporations. Although companies engaged principally in manufacturing products within each of these classifications are more closely competitive with each other than with companies in other classifications, members of each

The Coca-Cola Co. had two directors in common with the Atlantic Co., producer of malt beverages.<sup>93</sup> Through United States Industrial Chemicals, Inc.<sup>94</sup> and Guaranty Trust Co.,<sup>95</sup> it interlocked with Canada Dry Ginger Ale and with National Distillers Products. Through Tri-Continental Corp., it also interlocked with Canada Dry Ginger Ale.<sup>96</sup>

In addition to its indirect ties with Coca-Cola, Canada Dry Ginger Ale had a direct interlock with National Distillers Products;<sup>97</sup> both companies sell soft drinks as well as alcoholic liquor products. Canada Dry Ginger Ale also had indirect interlocks with National Distillers Products through Bridgeport Brass Co.<sup>98</sup> and National Aviation Corp.<sup>99</sup> It had an indirect interlock with Pepsi-Cola and with Schenley Distillers Corp. through Seaboard Airline Railway Co.<sup>1</sup>

Among the malt-liquor producers, Anheuser-Busch, Inc., which of the classes (except producers of malt) are, for the purposes of this study, considered to be in indirect competition with each other.

<sup>93</sup> T. K. Glenn, honorary chairman of the board and director of the Trust Co. of Georgia, was a director of Coca-Cola and Atlantic Co. in 1946. He was not a director of either company in 1949. J. N. Goddard, president and director of Conklin Tin Plate & Metal Co., was a director of Coca-Cola and Atlantic Co. in 1946. He was not a director of either company in 1949. C. H. Candler and H. Spalding were directors of both companies in 1949.

<sup>94</sup> Eugene W. Stetson, chairman of the board of Guaranty Trust Co., was a director of Coca-Cola and U. S. Industrial Chemicals. C. S. Munson, president of Air Reduction, was a director of Canada Dry Ginger Ale and U. S. Industrial Chemicals. Charles E. Adams, chairman of the board of Air Reduction, was a director of National Distillers Products and U. S. Industrial Chemicals.

<sup>95</sup> Eugene W. Stetson, chairman of the board of Guaranty Trust Co., was a director of Coca-Cola. R. W. Woodruff, chairman of the executive committee and director of Coca-Cola, was on the board of Guaranty Trust. C. S. Munson was on the board of Canada Dry Ginger Ale, National Distillers Products, and Guaranty Trust Co.

<sup>96</sup> Eugene W. Stetson was on the board of Coca-Cola and Tri-Continental. Otis Allen Glazebrook, Jr., partner in Hornblower & Weeks, was a director of Canada Dry Ginger Ale and Tri-Continental.

<sup>97</sup> C. S. Munson was a director of Canada Dry Ginger Ale and National Distillers Products in 1946 and in 1949.

<sup>98</sup> Otis A. Glazebrook, Jr., partner in Hornblower & Weeks, was a director of Canada Dry Ginger Ale and Bridgeport Brass. John E. Bierwirth, president of New York Trust Co., was a director of National Distillers Products and Bridgeport Brass.

<sup>99</sup> Otis A. Glazebrook, Jr., was a director of Canada Dry Ginger Ale and National Aviation. R. L. Clarkson, president and chairman of the board of Amerex Holding Corp., was a director of National Distillers Products and National Aviation.

<sup>1</sup> Otis A. Glazebrook, Jr., was a director of Canada Dry Ginger Ale and Seaboard Airline Railway. William H. Coverdale, partner in Coverdale & Colpitts, was a director of Schenley Distillers and Seaboard Airline Railway. Walter William Colpitts, partner in Coverdale & Colpitts, was a director of Pepsi-Cola and Seaboard Airline Railway.

TABLE 16.—Interlocks within the beverage products industry and between beverage products companies and manufacturers of competitive products <sup>1</sup>

Beverage and related products manufacturers	Directly interlocking companies											
	Beverages				Nonfood							
	Coca-Cola Co.	Canada Dry Ginger Ale	Atlantic Co.	National Distillers Products Corp.	United States Industrial Chemicals	Bridgeport Brass Co.	Guaranty Trust Co., New York	Manufacturers Trust Co., New York	Tri-Continental Corp.	National Aviation Corp.	North American Co.	Seaboard Air Line R. R. Co.
Bottled soft drinks:												
Coca-Cola Co.			2		1		2		1			
Pepsi-Cola Co.												1
Canada Dry Ginger Ale				1	1	1	1		1	1		1
Malt liquor:												
Atlantic Co.	2											
Anheuser-Busch								1			1	
Distilled beverages:												
Schenley Distillers Corp.												1
Distillers Corp.-Seagrams								1				
National Distillers Products Corp.		1			1	1	1			1		
Miscellaneous food products manufacturers: Corn Products Refining Co.											1	

<sup>1</sup> Direct interlocks are read from the table at the intersections of rows and columns. Indirect interlocks are read from columns; the link company appears as the column head; the companies linked appear in the stub.

manufactures beer, bakers' malt syrup, corn syrup, and other products, had an indirect interlock with Distillers Corp.-Seagrams through Manufacturers Trust Co.<sup>2</sup> It had an indirect interlock with Corn Products Refining, through the North American Co.<sup>3</sup> Finally, the Atlantic Co.'s relationship with Coca-Cola has already been noted.

The interlocks among producers of various types of beverage products were sufficiently numerous to raise a question how far such relationships may have operated to reduce competition or to develop joint distribution policies among the companies concerned. In the case of Canada Dry Ginger Ale, for example, which was found to have three indirect interlocks with Coca-Cola, and in the case of National Distillers Products, which had direct and indirect ties with Canada Dry Ginger Ale, the question whether these multiple interlocks were used to develop noncompetitive policies may appropriately be raised.

#### *Interlocks with Potential Suppliers or Customers in the Food Industry*

Table 17 shows the interlocks between beverage manufacturers and potential suppliers or customers in the food industry.

Coca-Cola had an indirect interlock with American Sugar Refining through Tri-Continental<sup>4</sup> and with National Sugar Refining through Southern Railway.<sup>5</sup>

Pepsi-Cola also had indirect ties with sugar producers. It had one with South Coast through Celotex<sup>6</sup> and another with American Sugar Refining through Bank of New York.<sup>7</sup>

<sup>2</sup> H. C. Flanigan, vice president and director of Manufacturers Trust Co., was a director of Anheuser-Busch. H. D. Gibson, president and director of Manufacturers Trust Co., was a director of Distillers Corp.-Seagrams.

<sup>3</sup> David R. Calhoun, Jr., president and director of St. Louis Union Trust, was a director of Anheuser-Busch and North American Co. Edward L. Shea, president and director of North American Co., was a director of Corn Products Refining.

<sup>4</sup> Eugene W. Stetson, director and chairman of the board of Guaranty Trust Co., was a director of Coca-Cola and Tri-Continental. Albert Henry Wiggin, director of American Express, was a director of American Sugar Refining and Tri-Continental.

<sup>5</sup> R. W. Woodruff, chairman of the executive committee and director of Coca-Cola, was a director of Southern Railway. Knight Woolley, partner in Brown Bros. Harriman, was a director of National Sugar Refining and Southern Railway.

<sup>6</sup> Walter William Colpitts, partner in Coverdale & Colpitts, was a director of Pepsi-Cola and Celotex. Bror G. Dahlberg, president of Celotex; Chris L. Christensen, vice president of Celotex; O. S. Mansell, vice president of Celotex; and Carl C. Muench, vice president of Celotex, were all on the boards of Celotex and South Coast.

<sup>7</sup> Walter William Colpitts was a director of Pepsi-Cola and the Bank of New York. T. G. Montague was a director of American Sugar Refining and the Bank of New York.

TABLE 17.—Interlocks between beverage products companies and potential customers or suppliers in the food industry

Food products companies	Directly interlocking companies																
	International Paper Co.	Colgate-Palmolive-Peet Co.	Air Reduction Co.	International Minerals & Chemical Corp.	B. F. Goodrich Co.	Celotex Corp.	Underwood Corp.	Borg-Warner Corp.	Manufacturers Trust Co., New York	New York Trust Co., New York	Bank of New York	Tri-Continental Corp.	Metropolitan Life Insurance Co.	Mutual Life Insurance Co. of New York	Penn Mutual Life Insurance Co.	Home Insurance Co.	Southern Railway
Beverage and related products manufacturers:																	
Bottled soft drinks:																	
Coca-Cola Co.			1									1					1
Pepsi-Cola Co.						1					1						
Canada Dry Ginger Ale		1	1														
Malt liquor: Anheuser-Busch, Inc.									1								
Distilled beverages:																	
Distillers Corp.-Seagrams					1				1				1			1	
National Distillers Products Corp.			2	1			1	1		2				1	1		
Hiram Walker-Gooderham & Worts	1																
Potential customers or suppliers:																	
Grain mill products companies:																	
General Mills				1										1			
Colorado Milling & Elevator Co.								1									
Bakers: General Baking Co.									1								
Sugar manufacturers:																	
American Sugar Refining Co.	1						1		1		1	1	1		1		1
National Sugar Refining Co.			1														
United States Sugar Corp.		1															
Central Aguirre Associates																1	
South Coast Corp.						4											
Miscellaneous food products manufacturers: Corn Products Refining Co.	1				1					1						1	



Canada Dry Ginger Ale had an even larger number of indirect ties with potential suppliers of sugar. Thus, it had indirect ties with U. S. Sugar through Colgate-Palmolive-Peet.<sup>8</sup> It interlocked with National Sugar Refining through Air Reduction<sup>9</sup> and with American Sugar Refining through Tri-Continental.<sup>10</sup>

Among producers of malt liquors and malt products, Anheuser-Busch, which produces bakers' yeast and bakers' malt syrup and corn syrup, had a tie with General Baking through Manufacturers' Trust Co.<sup>11</sup>

Three of the large manufacturers of distilled, rectified, and blended liquors had ties with potential suppliers. The largest of the liquor manufacturers, Distillers Corp.-Seagrams, had four separate sets of such interlocks. Thus, it had an indirect tie, through Goodrich,<sup>12</sup> with Corn Products Refining. It had a tie with American Sugar Refining through Manufacturers Trust Co.<sup>13</sup> and through Metropolitan Life.<sup>14</sup> It also had ties through Home Insurance<sup>15</sup> with Central Aguirre and Corn Products Refining.

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<sup>8</sup> S. Bayard Colgate, chairman of the board and director of Colgate-Palmolive-Peet, was a director of Canada Dry Ginger Ale. N. F. S. Russell, president and director of U. S. Pipe & Foundry, was a director of U. S. Sugar and Colgate-Palmolive-Peet.

<sup>9</sup> C. S. Munson, president and director of Air Reduction, was a director of Canada Dry Ginger Ale. Knight Woolley, partner in Brown Bros. Harriman, was a director of National Sugar Refining and Air Reduction.

<sup>10</sup> Otis A. Glazebrook, Jr., partner in Hornblower & Weeks, was a director of Canada Dry Ginger Ale and Tri-Continental. Albert Henry Wiggin, director of American Express, was a director of American Sugar Refining and Tri-Continental.

<sup>11</sup> Horace C. Flanigan, vice president and director of Manufacturers Trust Co., was a director of Anheuser-Busch. Oswald L. Johnston, partner in Simpson Thacher & Bartlett, was a director of General Baking and Manufacturers Trust Co.

<sup>12</sup> T. H. McInnerney, chairman of the board and director of National Dairy Products, was a director of Distillers Corp.-Seagrams, and Goodrich. Charles S. McCain, president of Dillon, Read & Co., was a director of Corn Products Refining and Goodrich.

<sup>13</sup> Harvey D. Gibson, president and director of Manufacturers Trust Co., was a director of Distillers Corp.-Seagrams. Samuel McRoberts, chairman of the board of McRoberts & Tegtmeier, was a director of American Sugar Refining and Manufacturers Trust.

<sup>14</sup> T. H. McInnerney, chairman of the board and director of National Dairy Products, was a director of Distillers Corp.-Seagrams and Metropolitan Life. Newcomb Carlton, chairman of the board and director of Western Union Telegraph, was a director of American Sugar Refining and Metropolitan Life.

<sup>15</sup> Harvey D. Gibson, president and director of Manufacturers Trust Co., was a director of Distillers Corp.-Seagrams, and Home Insurance. Charles G. Meyer, president of Cord Meyer Co. and vice president and director of Central Aguirre, was a director of Home Insurance. Harold H. Helm, first vice president of the Chemical Bank & Trust Co., was a director of Corn Products Refining and of Home Insurance.

National Distillers Products had seven separate sets of interlocks with potential suppliers of grain or sugar. It had indirect interlocks with American Sugar Refining through Underwood<sup>16</sup> and Penn Mutual Life.<sup>17</sup> It had an indirect interlock with National Sugar Refining through Air Reduction<sup>18</sup> and with Corn Products Refining through New York Trust Co.<sup>19</sup> Ties with grain-mill-products companies included an interlock with General Mills, through International Minerals & Chemical<sup>20</sup> and through Mutual Life.<sup>21</sup> It also had an indirect ties with Colorado Milling & Elevator through Borg-Warner.<sup>22</sup> Chart 10 describes these interlocks.

Hiram Walker-Gooderham & Worts had an indirect tie through International Paper<sup>23</sup> with American Sugar Refining and Corn Products Refining.

Ties between beverage manufacturers and potential customers or suppliers were relatively varied and numerous. Thus, Coca-Cola had indirect ties with the largest and the second largest of the cane sugar refining companies. Distillers Corp.-Seagrams, the second

<sup>16</sup> R. L. Clarkson, president and chairman of the board of Amerex Holding Corp., was a director of National Distillers Products and Underwood. Albert Henry Wiggin, director of American Express, was a director of American Sugar Refining and Underwood.

<sup>17</sup> John E. Bierwirth, president of New York Trust Co., was a director of National Distillers Products and Penn Mutual Life. James E. Gowen, president and member of the executive committee of Girard Trust Co., was a director of American Sugar Refining and Penn Mutual Life.

<sup>18</sup> Charles E. Adams, chairman of the board of Air Reduction, was a director of National Distillers Products. O. S. Munson, president and director of Air Reduction was a director of National Distillers Products. Knight Woolley, partner in Brown Bros. Harriman, was a director of National Sugar Refining and Air Reduction.

<sup>19</sup> Seton Porter, president and director of National Distillers Products, was a director of New York Trust Co. J. E. Bierwirth was a director of National Products and New York Trust Co. Morris Sayre, president and director of Corn Products Refining, was a director of New York Trust Co.

<sup>20</sup> John E. Bierwirth, president of New York Trust Co., was a director of National Distillers Products and International Minerals & Chemical. Henry S. Sturgis, vice president of First National Bank of the City of New York, was a director of General Mills and International Minerals & Chemical.

<sup>21</sup> Charles E. Adams, chairman of the board of Air Reduction, was a director of National Distillers Products and Mutual Life. Henry S. Kingman, president of the Farmers & Mechanics Savings Bank of Minneapolis, was a director of General Mills and Mutual Life.

<sup>22</sup> J. R. Forgan, partner in Glore Forgan & Co., was a director of National Distillers Products and Borg-Warner. Paul H. Davis, senior partner in Paul H. Davis Co., was a director of Colorado Milling and Elevator and Borg-Warner.

<sup>23</sup> F. K. Morrow was a director of Hiram Walker-Gooderham & Worts and International Paper. Albert Henry Wiggin, director of American Express, was a director of American Sugar Refining and International Paper. Charles S. McCain, president of Dillon Read & Co., was a director of Corn Products Refining and International Paper.

# INTERLOCKS OF NATIONAL DISTILLERS PRODUCTS CORPORATION WITH POTENTIAL SUPPLIERS IN THE FOOD INDUSTRY

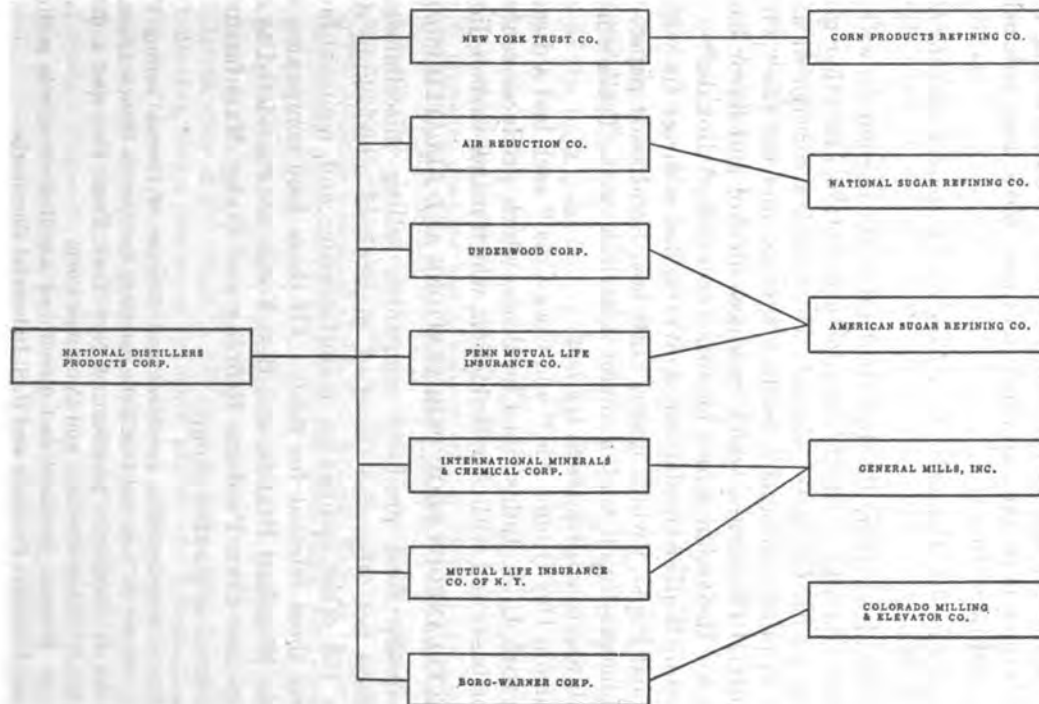


CHART 10.

largest of the distilled beverage manufacturers, had indirect ties with the largest corn-products-refining and sugar-refining companies. National Distillers Products, the third largest of the distilled beverage manufacturers, had indirect ties with the largest of the sugar-refining companies, the largest of the corn-products-refining companies, and the largest of the grain-mill-products companies. The opportunity for smaller companies to find customers among the country's largest beverage manufacturers may have been reduced by the relationships delineated.

### *Interlocks with Potential Suppliers or Customers outside the Food Industry*

National Distillers Products had a director in common with Owens-Illinois Glass Co.<sup>24</sup> which manufactures bottles and other glass containers; with Container Corp.,<sup>25</sup> which makes corrugated and solid fibre shipping containers, folding cartons, and the like; with U. S. Industrial Chemicals, which produces alcohol and flavor bases, and with Air Reduction, which manufactures carbon dioxide.<sup>26</sup>

Hiram Walker-Gooderham & Worts, had a direct tie with International Paper,<sup>27</sup> which makes kraft board and kraft paper.

Anheuser-Busch had a direct interlock with Trailmobile Co.,<sup>28</sup> which manufactures truck trailers.

Canada Dry Ginger Ale<sup>29</sup> and Coca-Cola<sup>30</sup> each had a direct interlock with U. S. Industrial Chemicals, which produces concentrated flavor bases and with Air Reduction, which makes carbon dioxide.

### **MISCELLANEOUS FOOD PREPARATIONS AND RELATED PRODUCTS**

Fourteen food products companies, selling miscellaneous food products not otherwise classified, maintained interlocking directors with 113 other companies, manufacturing and nonmanufacturing, among those selected for study. Of these food companies, General Foods, Standard Brands, and Best Foods are considered as a single group, and Corn Products Refining and Staley Manufacturing are considered as another group.

<sup>24</sup> Harold Boeschstein, president and director of Owens-Corning Fiberglas, was a director of National Distillers Products and Owens-Illinois Glass.

<sup>25</sup> John E. Bierwirth, president of New York Trust Co., was a director of National Distillers Products and Container Corp.

<sup>26</sup> C. S. Munson, president and director of Air Reduction, was a director of National Distillers Products and U. S. Industrial Chemicals.

<sup>27</sup> F. K. Morrow was a director of Hiram Walker-Gooderham & Worts and International Paper.

<sup>28</sup> David R. Calhoun, Jr., president and director of St. Louis Union Trust, was a director of Anheuser-Busch and Trailmobile.

<sup>29</sup> C. S. Munson, president and director of Air Reduction, was a director of Canada Dry Ginger Ale and U. S. Industrial Chemicals.

<sup>30</sup> Eugene W. Stetson, director and chairman of the board of Guaranty Trust Co., was a director of Coca-Cola, U. S. Industrial Chemicals, and Air Reduction.

*Interlocks Potentially Reducing Competition*

Table 18 enumerates the interlocks among General Foods, Standard Brands, and Best Foods and between these companies and manufacturers of competitive products.

General Foods, which sells frozen foods, had a direct tie through S. J. Weinberg<sup>81</sup> with National Dairy, which also sells frozen foods. It had a direct tie with Borden through Austin S. Igleheart.<sup>82</sup> Both companies sell coffee and material for animal feed, while General Foods sells frozen fruit juice and Borden sells dried fruit juices.

General Foods had indirect ties with Standard Brands through the Texas Co.,<sup>83</sup> General Electric,<sup>84</sup> Central Hanover Bank & Trust Co.,<sup>85</sup> and Fifth Third Union Trust Co. (Cincinnati).<sup>86</sup> General Foods sells Maxwell House coffee, Kaffee Hag, Postum, Sanka, Yuban coffee, and baking powder, while Standard Brands sells Chase & Sanborn coffee and Dr. Price's and Royal Baking Powder. General Foods also had an indirect tie, through McKesson & Robbins,<sup>87</sup> with Best Foods, which sells cake flour and cereals.

General Foods had indirect ties with potential competitors in other branches of the food industry. It had an indirect interlock through

<sup>81</sup> S. J. Weinberg, partner in Goldman, Sachs & Co., was a director of General Foods and National Dairy Products in 1946 and in 1949.

<sup>82</sup> Austin S. Igleheart, president and director of General Foods, was a director of Borden in 1946. He was not a director of Borden in 1949.

<sup>83</sup> William Steele Gray, Jr., president and trustee of Central Hanover Bank & Trust Co., was a director of General Foods and Texas Co. George N. Aldredge, chairman of the executive committee of the First National Bank in Dallas, and Walter G. Dunnington, partner in Dunnington, Bartholow & Miller, were directors of Standard Brands and Texas Co.

<sup>84</sup> S. S. Colt, president of Bankers Trust Co., and S. J. Weinberg, partner in Goldman, Sachs & Co., were directors of General Foods and General Electric. Donald K. David, dean of the Graduate School of Business Administration at Harvard University, was a director of Standard Brands and General Electric.

<sup>85</sup> C. M. Chester, honorary chairman of the board and director of General Foods, was a director of Central Hanover Bank & Trust Co. W. S. Gray, Jr., president and trustee of Central Hanover Bank & Trust Co., was also a director of General Foods. Walter G. Dunnington, partner in Dunnington, Bartholow & Miller, was a director of Standard Brands and Central Hanover Bank & Trust Co.

<sup>86</sup> Carl J. Schmidlapp, vice president and director of Chase National Bank, was a director of General Foods and Fifth Third Union Trust Co. John B. Hollister, partner in Taft, Stettinius & Hollister, was a director of Standard Brands and Fifth Third Union Trust.

<sup>87</sup> S. J. Weinberg, partner in Goldman, Sachs & Co., was a director in General Foods and McKesson & Robbins. William J. Wardall, chairman of the board and director of Best Foods, was a director of McKesson & Robbins.

TABLE 18.—Interlocks among General Foods Corp., Standard Brands, and Best Foods and between these companies and manufacturers of competitive products<sup>1</sup>

	Directly interlocking companies													
	Food			Manufacturing		Finance						Other		
	National Dairy Products Corp.	Borden Co.	General Mills	Texas Co.	American Can Co.	General Electric Co.	Central Hanover Bank & Trust Co.	Bankers Trust Co., New York	J. P. Morgan & Co., Inc.	Fifth Third, Union Trust Co., Cincinnati	Goldman, Sachs & Co.	American Water Works & Electric Co.	Mutual Life Insurance Co. of New York	McKesson & Robbins
General Foods Corp.....	1	1		1	1	2	2	1		1	1		1	1
Standard Brands.....				2		1	1		1	1				
Best Foods.....			1									1		1
Competitive companies:														
National Dairy Products Corp.....						1			1			1		2
National Biscuit Co.....					5	1		2					1	
General Mills.....													1	
Pillsbury Mills.....											1			

<sup>1</sup> Direct interlocks are read from the table at the intersections of rows and columns. Indirect interlocks are read from columns; the link company appears as the column head; the companies linked appear in the stub.



Goldman, Sachs & Co.<sup>38</sup> with Pillsbury Mills; both companies sell cake flour. It had indirect ties with National Biscuit through General Electric,<sup>39</sup> Bankers Trust Co.,<sup>40</sup> and American Can.<sup>41</sup> General Foods sells such breakfast cereals as Post's 40% Bran Flakes, Post Corn Toasties, Post's Raisin Bran, Grape-Nuts, and Grape-Nuts Flakes; while National Biscuit sells Shredded Wheat. It had an indirect tie with General Mills, which sells Wheaties and cake flour, through Mutual Life.<sup>42</sup> Chart 11 illustrates these interlocks.

Standard Brands had an indirect tie, through General Electric<sup>44</sup> and through J. P. Morgan and Co.,<sup>45</sup> with National Dairy. Standard Brands sells margarine, cheeses, and cheese spreads, which are competitive with products sold by National Dairy.

Best Foods, whose products include cake flour and cereal, was directly interlocked with General Mills, through Henry S. Sturgis.<sup>46</sup>

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<sup>38</sup> S. J. Weinberg, partner in Goldman, Sachs & Co., was a director of General Foods. Henry S. Bowers, partner in Goldman, Sachs & Co., was a director of Pillsbury Mills.

<sup>39</sup> S. Sloan Colt, president of Bankers Trust Co., and S. J. Weinberg, partner in Goldman, Sachs & Co., were on the boards of General Foods and General Electric. A. C. Nagle, president and director of the First National Bank of the City of New York, was a director of National Biscuit and General Electric.

<sup>40</sup> S. Sloan Colt, president of Bankers Trust Co., was a director of General Foods. Henry J. Cochran, president and trustee of Franklin Savings Bank of New York, was a director of National Biscuit and Bankers Trust Co. Paul Moore was a director of National Biscuit and Bankers Trust Co.

<sup>41</sup> S. Sloan Colt, president of Bankers Trust Co., was a director of General Foods and American Can. Charles C. Auchincloss, partner in F. S. Moseley & Co., Dudley Weld Figgis, president of American Can, Edward Small Moore, Paul Moore, and Roy E. Tomlinson, chairman of the board of National Biscuit, were all directors of National Biscuit and American Can.

<sup>42</sup> S. Sloan Colt, president of Bankers Trust Co., was a director of General Foods and Mutual Life. Henry S. Kingman, president and trustee of Farmers & Mechanics Savings Bank of Minneapolis, was a director of General Mills and Mutual Life.

<sup>44</sup> Donald K. David, dean of the Graduate School of Business Administration at Harvard University, was a director of Standard Brands and General Electric. S. J. Weinberg, partner in Goldman, Sachs & Co., was a director of National Dairy and General Electric.

<sup>45</sup> Henry Clay Alexander, vice president of J. P. Morgan & Co., was a director of Standard Brands. Paul C. Cabot, partner in State Street Research & Management Co., was a director of National Dairy and J. P. Morgan & Co.

<sup>46</sup> Henry S. Sturgis, vice president of First National Bank of the City of New York, was a director of Best Foods and General Mills in 1946 and in 1949.

# INTERLOCKS BETWEEN GENERAL FOODS CORPORATION AND PRODUCERS OF COMPETITIVE FOOD PRODUCTS

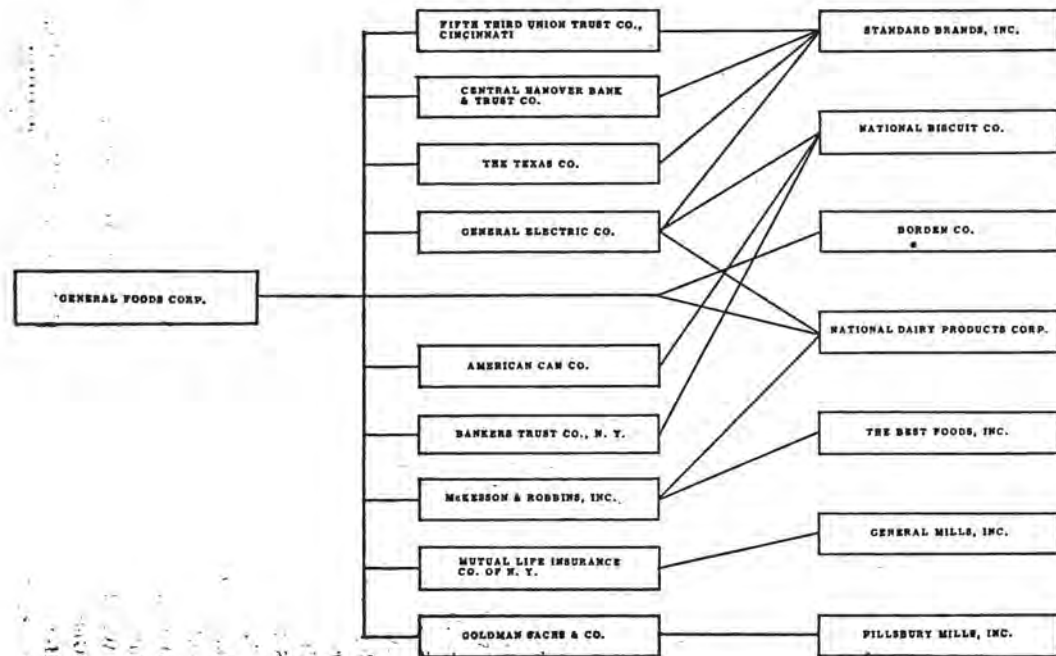


CHART 11.

It had an indirect tie with National Dairy Products, through McKesson & Robbins<sup>47</sup> and through American Water Works & Electric Co.<sup>48</sup> Best Foods sells margarine and mayonnaise; National Dairy sells butter and mayonnaise.

The preceding paragraphs have shown that General Foods, Standard Brands, and Best Foods were interlocked with each other through a variety of third companies. In addition, General Foods had direct links with the country's two largest dairy companies. It had indirect ties with the largest bakery company and the two largest grain mill products companies. Standard Brands had indirect interlocks with the country's largest producer of dairy products and bakery products. Best Foods had a direct interlock with the largest grain mill products company and had indirect interlocks with the country's biggest dairy products company. Each of these sets of interlocks was between companies producing similar products.

### *Interlocks with Potential Suppliers or Customers*

Table 19 shows interlocks of General Foods and Best Foods with potential customers or suppliers in the food industry.

General Foods, which sells flour for cake and crackers, had indirect ties with National Biscuit through American Can,<sup>49</sup> General Electric,<sup>50</sup> and Bankers Trust Co.;<sup>51</sup> with United Biscuit through Goldman, Sachs & Co.;<sup>52</sup> and with Purity Bakeries through Associated Dry

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<sup>47</sup> William J. Wardall was a director of Best Foods and McKesson & Robbins. Henry C. Von Elm, vice chairman of the board of Manufacturers Trust Co., and S. J. Weinberg, partner in Goldman, Sachs & Co., were directors of National Dairy and McKesson & Robbins.

<sup>48</sup> Randolph Catlin, president and director of United Stores, was a director of Best Foods and American Water Works & Electric. Thomas H. McInnerney, chairman of the board of National Dairy, was a director of American Water Works & Electric.

<sup>49</sup> S. Sloan Colt, president of Bankers Trust Co., was a director of General Foods and American Can. Charles C. Auchincloss, partner in F. S. Moseley & Co., Dudley Weld Figgis, president of American Can, Edward Small Moore, Paul Moore, and Roy E. Tomlinson, chairman of the board of National Biscuit, were all directors of National Biscuit and American Can.

<sup>50</sup> S. Sloan Colt and S. J. Weinberg were directors of General Foods and General Electric. A. C. Nagle, president and director of the First National Bank of the City of New York, was a director of National Biscuit and General Electric.

<sup>51</sup> S. Sloan Colt was a director of General Foods and Bankers Trust Co. Henry J. Cochran, president of Franklin Savings Bank of New York, and Paul Moore were directors of National Biscuit and Bankers Trust Co.

<sup>52</sup> S. J. Weinberg, partner in Goldman, Sachs & Co., was a director of General Foods. H. S. Bowers, partner in Goldman, Sachs & Co., was a director of United Biscuit.

**TABLE 19.—Interlocks of General Foods Corp. and Best Foods with potential customers or suppliers in the food industry**

	Directly interlocking companies						
	Food— National Sugar Refining Co.	Nonfood					
		Ameri- can Can Co.	General Electric Co.	Bankers Trust Co., New York	Gold- man, Sachs & Co.	Erie R. R. Co.	Associ- ated Dry Goods Corp.
General Foods Corp.....		1	2	1	1		1
Best Foods.....	1					1	
Potential customers or sup- pliers:							
General Baking Co.....	1					1	
United Biscuit Co.....					1		
Purity Bakeries Corp.....							1
National Biscuit Co.....		5	1	2			

Goods Corp.<sup>53</sup> It also had a direct tie with American Can,<sup>54</sup> Continental Can,<sup>55</sup> Mead Corp.,<sup>56</sup> which sells paperboard, and with Air Reduction<sup>57</sup> and Union Carbide & Carbon,<sup>58</sup> both of which sell carbon dioxide, which is used in making dry ice.

Best Foods<sup>59</sup> finds a potential customer for its margarine and its cake flour in General Baking, with which it interlocked through Erie,<sup>60</sup> and through National Sugar Refining.<sup>61</sup>

#### **Corn Products Refining and A. E. Staley Manufacturing**

Although there are four corn-products manufacturing companies among the thousand largest manufacturing companies, none of these

<sup>53</sup> Robert Lehman, partner in Lehman Bros., was a director of General Foods and Associated Dry Goods. George L. Burr was a director of Purity Bakeries and Associated Dry Goods.

<sup>54</sup> S. Sloan Colt was a director of General Foods and American Can.

<sup>55</sup> Sidney J. Weinberg, a partner in Goldman, Sachs & Co., was a director of General Foods and Continental Can.

<sup>56</sup> Clarence Francis, chairman of the board of General Foods, was a director of Mead Corp.

<sup>57</sup> Clarence Francis was a director of General Foods and Air Reduction.

<sup>58</sup> W. S. Gray, Jr., president of Central Hanover Bank & Trust Co., was a director of General Foods and of Union Carbide & Carbon.

<sup>59</sup> Best Foods may also have found a customer in National Biscuit, with which it had indirect officer-director relations. Henry S. Sturgis, vice president of the First National Bank of the City of New York, was a director of Best Foods. A. C. Nagle, president of the First National Bank of the City of New York, was a director of National Biscuit.

<sup>60</sup> Henry S. Sturgis was a director of Best Foods and Erie. Charles H. Diefendorf, president of the Marine Trust Co. of Buffalo, was a director of General Baking and Erie.

<sup>61</sup> William K. Dick was a director of Best Foods and National Sugar Refining. Ellsworth Bunker, member of the executive committee and director of National Sugar Refining, was a director of General Baking.

were found to have interlocks with each other. Two companies, Corn Products Refining and Staley Manufacturing, were found to have interlocks with potential competitors or with potential suppliers or customers. Tables 20 and 21 list these interlocks.

TABLE 20.—*Interlocks of Corn Products Refining Co. and A. E. Staley Manufacturing Co. with manufacturers of competitive products*<sup>1</sup>

	Directly interlocking companies						
	Food— South Porto Rico Sugar Co.	Nonfood					
		Mount Vernon- Wood- berry Mills	Inter- national Paper Co.	New York Air Brake Co.	Equitable Life As- surance Society of the United States	Home Insur- ance Co.	North Ameri- can Co.
Corn Products Refining Co.	1		1		1	1	1
A. E. Staley Manufacturing Co.		1		1			
Competitive companies:							
Anheuser-Busch							1
Utah Idaho Sugar Co.					1		
Central Aguirre Associates						1	
American Sugar Refining Co.			1	1			
Eastern Sugar Associates		1					

<sup>1</sup> Direct interlocks are read from the table at the intersections of rows and columns. Indirect interlocks are read from columns, the link company appears as the column head; the companies linked appear in the stub.

TABLE 21.—*Interlocks of Corn Products Refining Co. with potential customers or suppliers in the food industry*

	Directly interlocking companies			
	Inter- national Paper Co.	B. F. Goodrich Co.	New York Trust Co.	Home Insurance Co.
Corn Products Refining Co.	1	1	1	1
Potential customers or suppliers:				
Ward Baking Co.	1			
Hiram Walker-Gooderham & Worts	1			
Distillers Corp.-Seagrams		1		1
National Distillers Products Corp.			2	

### *Interlocks Potentially Reducing Competition*

Corn Products Refining had a direct interlock with South Porto Rico Sugar through G. M. Moffett.<sup>62</sup> It had an indirect interlock with Anheuser-Busch, which produces corn syrup, through the North American Co.<sup>63</sup> It also had an indirect interlock with American Sugar

<sup>62</sup> G. M. Moffett, chairman of the board and director of Corn Products Refining, was a director of South Porto Rico Sugar in 1946 and in 1949.

<sup>63</sup> Edward L. Shea, president and director of North American Co., was a director of Corn Products Refining. David R. Calhoun, Jr., president and director of St. Louis Union Trust, was a director of Anheuser-Busch and North American Co.

Refining through International Paper.<sup>64</sup> It had an indirect interlock with Utah-Idaho Sugar through Equitable Life,<sup>65</sup> and with Central Aguirre, through Home Insurance.<sup>66</sup>

Staley Manufacturing had an indirect interlock with Eastern Sugar through Mount Vernon-Woodberry Mills,<sup>67</sup> and with American Sugar Refining through New York Air Brake.<sup>68</sup>

Cane, beet and corn sugar producers were, therefore, linked through a series of indirect ties with one another.

### *Interlocks with Potential Suppliers and Customers*

Corn Products Refining was found to have a number of interlocks with potential customers. Through International Paper,<sup>69</sup> it interlocked with Ward Baking and Hiram Walker-Gooderham & Worts. Through Goodrich<sup>70</sup> and Home Insurance,<sup>71</sup> it interlocked with Dis-

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<sup>64</sup> Charles S. McCain, president of Dillon, Read & Co., was a director of Corn Products Refining and International Paper. Albert Henry Wiggin, director of American Express, was a director of American Sugar Refining and International Paper.

<sup>65</sup> Edward L. Shea, president and director of North American Co., was a director of Corn Products Refining and Equitable Life. Joshua Reuben Clark, Jr. was a member of the executive committee and director of Equitable Life and a director of Utah-Idaho Sugar.

<sup>66</sup> Harold H. Helm, first vice president and director of Chemical Bank & Trust Co., was a director of Corn Products Refining and Home Insurance. Charles G. Meyer, vice president and director of Central Aguirre, was a director of Home Insurance.

<sup>67</sup> Thomas B. Butler, president and director of the Safe Deposit & Trust Co. of Baltimore, was a director of Staley Manufacturing and Mount Vernon-Woodberry Mills. A. H. S. Post, chairman of the board and director of Mercantile Trust, was a director of Eastern Sugar and Mount Vernon-Woodberry Mills.

<sup>68</sup> John Wilson Cutler, partner in Smith, Barney & Co., was a director of Staley Manufacturing and New York Air Brake. Samuel McRoberts, chairman of the board and director of McRoberts & Tegtmeier, was a director of American Sugar Refining and New York Air Brake.

<sup>69</sup> Charles S. McCain, president of Dillon, Read & Co., was a director of Corn Products Refining and International Paper. F. K. Morrow was a director of Ward Baking, Hiram Walker-Gooderham & Worts, and International Paper.

<sup>70</sup> Charles S. McCain, president of Dillon, Read & Co., was a director of Corn Products Refining and Goodrich. T. H. McInnerney, chairman of the board and director of National Dairy, was a director of Distillers Corp.-Seagrams and Goodrich.

<sup>71</sup> Harold H. Helm, first vice president and director of Chemical Bank & Trust Co., was a director of Corn Products Refining and Home Insurance. Harvey Dow Gibson, president of Manufacturers Trust Co., was a director of Distillers Corp.-Seagrams and Home Insurance.



tillers Corp.-Seagrams. Through New York Trust Co.,<sup>72</sup> it interlocked with National Distillers Products. It had two directors in common with Commercial Solvents Corp.,<sup>73</sup> which manufactures alcohol and whiskey. All of these companies can use corn products in the manufacture of the products they sell.

#### PRINCIPAL INTERMEDIATE COMPANIES

Certain of the principal New York banks and the investment banking house of Goldman, Sachs & Co. have interests in food manufacturing companies. On the board of Chase National Bank,<sup>74</sup> for example, were two directors from Borden, three directors from American Sugar Refining, and two directors from General Foods. Borden sells dairy products. General Foods sell frozen fruits and vegetables. Both of these companies use sugar in their products. Three companies with related interests in the food industry were therefore joined under the aegis of Chase National Bank.

Manufacturers Trust Co. (New York)<sup>75</sup> had directors from National Dairy, General Baking, American Sugar Refining, Distillers Corp.-Seagrams and Anheuser-Busch. The products of National Dairy and American Sugar can be used by General Baking in the manufacture of baked goods. American Sugar's product can be used by Distillers Corp.-Seagrams. Anheuser-Busch's bakers yeast can be

<sup>72</sup> Morris Sayre, president and director of Corn Products Refining, was a director of New York Trust Co. John E. Bierwirth, president of New York Trust Co., was a director of National Distillers Products. Seton Porter, president and director of National Distillers Products, was a director of New York Trust Co.

<sup>73</sup> Linus C. Coggan, vice president and director of Corn Products Refining, and G. M. Moffett, chairman of the board of Corn Products Refining, were directors of Commercial Solvents.

<sup>74</sup> Austin S. Igleheart, president and director of General Foods and member of the board of directors of Borden; Thomas I. Parkinson, president and director of Equitable Life and a director of Borden; Earl D. Babst, chairman of the board and director of American Sugar Refining; Francis H. Brownell, chairman of the board of American Smelting & Refining and a director of American Sugar Refining; Newcomb Carlton, honorary chairman of the board and director of Western Union Telegraph and a director of American Sugar Refining; and Carl J. Schmidlapp, vice president and director of Chase National Bank and a director of General Foods, were all members of the board of Chase National Bank.

<sup>75</sup> Henry C. Von Elm, vice chairman of the board and director of Manufacturers Trust Co. and a director of National Dairy Products; Oswald L. Johnston, partner in Simpson Thacher & Bartlett and a director of General Baking; Samuel McRoberts, chairman of the board and director of McRoberts & Tegtmeyer and a director of American Sugar Refining; Harvey Dow Gibson, president of Manufacturers Trust Co. and a director of Distillers Corp.-Seagrams; and Horace C. Flanigan, vice president of Manufacturers Trust Co. and a director of Anheuser-Busch, were all members of the board of Manufacturers Trust Co.

used by General Baking. These companies have a potential supplier or customer relationship to each other.

The board of directors of Guaranty Trust Co. also served as a meeting place for five food companies, with mutual interests. Directors from Wilson, Continental Baking, National Distillers Products, Canada Dry Ginger Ale, and Coca-Cola were all on the board of Guaranty Trust Co.<sup>76</sup> The cooking fats and oils produced by Wilson could be used by Continental Baking. Canada Dry Ginger Ale and Coca-Cola produce competitive products.

Representatives of Goldman, Sachs & Co.<sup>77</sup> sat on the board of National Dairy Products, Pillsbury Mills, United Biscuit, and General Foods. Here again was a nucleus of companies with closely related interests.

### SUMMARY

Preliminary exploration of patterns of interlocking directorships within the food industry and between members of the food industry and other companies in other industries has shown that ties among producers of competitive products and ties between possible customers and suppliers are neither few nor insignificant. The present study does not attempt to measure the effects of such ties on competitive relations within the food industry or among members of other industries who sell to or buy from it. The study does, however, exhibit the anatomy of the interlocks existing in the food industry in 1946 and raises questions concerning the effect of interlocking directorates upon competition in an industry in which so many interlocks existed.

#### *Interlocks Potentially Reducing Competition*

. In the meat packing branch of the industry, five of the 12 meat packing companies listed among the thousand largest manufacturing companies had indirect interlocks with companies producing competitive products. Armour, the largest of the meat packers, had ties with the third and fourth largest packer; while the third largest packer, in turn, had ties with the sixth largest packer.

In the dairy products branch of the industry, three of the 10 largest

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<sup>76</sup> William Lambert Kleitz, president and director of Guaranty Trust Co. and director of Wilson; William C. Potter, director and member of the executive committee of Guaranty Trust Co. and director of Continental Baking; Charles S. Munson, president and director of Air Reduction and director of National Distillers Products and Canada Dry Ginger Ale; R. W. Woodruff, chairman of the executive committee and director of Coca-Cola; and Eugene W. Stetson, chairman of the board of Guaranty Trust Co. and director of Coca-Cola, were all members of the board of Guaranty Trust Co.

<sup>77</sup> S. J. Weinberg, partner in Goldman, Sachs & Co., was on the board of National Dairy and General Foods. Henry S. Bowers, partner in Goldman, Sachs & Co., was on the board of Pillsbury Mills and United Biscuit.

companies in the country had interlocks with companies producing competitive products. National Dairy Products, Borden, and Carnation, the three largest dairy products companies, were indirectly interlinked with each other. National Dairy Products and Borden had direct ties with General Foods; also National Dairy Products had indirect ties with Standard Brands and Best Foods. The extent to which competition was affected among these companies remains open for further investigation.

In the fruit, vegetable, and sea-food canning branch of the industry, five of the 12 largest companies had interlocks with companies producing competitive products. California Packing, the second largest of the canners, was directly affiliated with Alaska Packers and indirectly with Pacific American Fisheries. Libby, McNeill & Libby, the third largest of the canners, had a direct tie with Minnesota Valley Canning, the seventh largest canner.

In the grain mill products branch of the industry, six of the 12 companies among the thousand largest had direct or indirect ties with companies producing competitive products. General Mills, the largest of these companies, had a direct tie with Best Foods. It had indirect ties with Pillsbury Mills, International Milling and Russell Miller Milling. The possibility of a focusing of the mutual interests of these companies through their interlocking directors appears to have been substantial.

In the bakery products branch of the food industry, six of the country's 10 largest bakers had direct or indirect ties with producers of competitive products. There was a dual interlock between Purity Bakeries and American Bakeries. In addition, National Biscuit, the largest of the bakers, and Continental Baking, the second largest, had indirect interlocks with each other and with other baking companies that produced a pattern of relations among the top companies in the industry.

In the sugar branch of the industry, the highest degree of concentration of joint directorships was found. Sixteen of the 23 sugar companies listed among the country's thousand largest manufacturers had direct or indirect ties with other sugar producers. Six Hawaiian sugar companies had direct and indirect ties with each other; while the sugar companies outside of Hawaii were intricately interlocked with each other and with Corn Products Refining and Staley Manufacturing, the country's principal producers of corn sugar.

In the confectionery branch of the industry, two of the companies listed among the thousand largest were found to have interlocks with companies not primarily in the candy industry, which produce competitive products.

In the beverage products branch of the industry, interlocks among producers of competitive or complementary products were sufficiently numerous to raise question how far such relationships may have operated to reduce competition or to develop joint distribution policies among the companies concerned. Illustrative of the type of interlock found here is the case of Canada Dry Ginger Ale, which had three indirect interlocks with Coca-Cola, and the case of National Distillers Products, which had direct and indirect ties with Canada Dry Ginger Ale.

Finally, among the companies producing miscellaneous food products, General Foods, Standard Brands, and Best Foods were interlocked with each other through a variety of third companies. In addition, General Foods had direct links with the country's two largest dairy companies. It had indirect ties with the largest bakery company and the two largest grain mill products companies. Standard Brands had indirect interlocks with the country's largest producer of dairy products and bakery products. Best Foods had a direct tie with the largest grain mill products company and had an indirect interlock with the country's biggest dairy products company.

Corn Products Refining had a direct interlock with South Porto Rico Sugar. It also had indirect ties with American Sugar Refining and two other large sugar companies. Staley Manufacturing, which produces corn products, had indirect ties with two of the large sugar producers including American Sugar Refining.

How far completion is reduced where there are such relationships can be determined only after further examination of the structure and activities of the different branches of the food industries. Mutuality of interests presents, however, a pervasive incentive to bring the policies and operations of companies producing competitive products into harmony with each other when such companies have joint directors or have directors who meet on the board of a third company.

#### *Interlocks with Potential Suppliers or Potential Customers in the Food Industry*

Interlocks between potential customers and their suppliers or potential suppliers and their customers in the food industry were studied on an illustrative basis only. The following summary, therefore, merely indicates the nature of such relations and the magnitude of the companies whose interests were tied together through direct or indirect interlocks.

The three largest meat packers had indirect ties with two of the Nation's largest bakers.

The second largest dairy company had a direct tie with the largest sugar company, while the largest and the second largest dairy products companies, between them, had indirect ties with three of the

country's largest bakers and two of the country's largest sugar producers.

The sixth largest of the canners had direct ties with four of the country's largest sugar producers.

The three largest milling companies, as well as the tenth largest, each had one or more direct or indirect ties with a large baker or distiller.

The largest of the bakery products companies had a direct tie with the largest of the sugar companies; it also had indirect ties with five other potential suppliers or customers. Included in these were the country's largest meat packer, dairy products company, and grain mill company.

The large sugar companies had direct or indirect ties with the country's three largest producers of dairy products, two largest bakers, and second and third largest beverage manufacturers.

Ties between beverage manufacturers and potential customers and suppliers were varied and numerous. The second largest of the distilled beverage manufacturers had indirect ties with the largest corn products and sugar refining companies. The third largest of the distilled beverage manufacturers had indirect ties with the largest of the sugar refining companies, the largest of the corn products refining companies, and the largest of the grain mill products companies.

How far such ties between manufacturers of vertically related products operated to restrict opportunities of other suppliers to sell to or other customers to purchase from the companies involved is a question that requires, and would merit, more extended exploration.

#### *Interlocks with Potential Suppliers or Customers outside the Food Industry*

Only direct interlocks between the food companies and potential customers or suppliers in other industries were studied, and these were examined on an illustrative basis only. From the limited number of interlocks examined, it appears that relations between the large food companies and outside companies among the thousand largest manufacturing companies may be used as two-way channels between sources of supply and outlets.

Armour, which sells dairy products as well as meat products, had a direct interlock with a manufacturer of dairy products machinery, and Swift had a direct tie with a manufacturer of refrigeration equipment.

National Dairy Products had a direct tie with the second largest of the container manufacturers.

California Packing had a direct tie with one of the large lumber companies. Hunt Packing had a direct tie with one of the largest manufacturers of tin cans.



General Mills had a direct tie with one of the large manufacturers of kraft paper and board. Pillsbury Mills had a direct interlock with the same paper manufacturer. It also had a direct tie with one of the large manufacturers of sanitary food container stocks.

National Biscuit had five directors in common with American Can. United Biscuit, Ward Baking, and Interstate Bakeries each had a direct tie with a container stock or a container manufacturer.

American Sugar Refining had a direct tie with a large container and a large paper manufacturer. South Porto Rico Sugar had a direct tie with one of the large companies using sugar for manufacturing alcohol and whiskey. National Sugar Refining had a direct tie with one of the large container companies. South Coast, a producer of raw sugar, had four directors in common with Celotex, which uses cane fiber from which the sugar has been extracted in the manufacture of Celotex.

Among the beverage products companies, National Distillers Products had a direct tie with the largest manufacturer of glass bottles, with a large manufacturer of shipping containers, with a large manufacturer of flavor bases, and with one of the large companies manufacturing carbon dioxide.

The strikingly logical nature of such ties between food manufacturers and potential suppliers or customers in other industries and, particularly, the number of ties between the food companies and manufacturers of containers or container materials is evident in the small group of cases studied. If indirect interlocks had been examined and if further work on product relationships had been undertaken, it is probable that many more ties between the food industry and potential customers and suppliers in other industries would have emerged as significant.

How pervasive the influence of the horizontally and vertically linked food companies may be, can be determined only after further study. The pattern here demonstrated, however, indicates that there is an opportunity for development of nuclear groups of companies with related interests wherever directors of such companies meet on the same board of directors. Although the precise effects of the dovetailing of mutual interests among groups of the Nation's largest food companies have not been studied here, it is evident from present data that closer scrutiny of the implications of such conglomerations for a free competitive enterprise system is needed.



## Chapter 5

### PRIMARY IRON AND STEEL PRODUCTS

There are 41 primary iron and steel producers listed among the 1,000 largest manufacturing corporations. Twenty-eight of these in 1946 were directly or indirectly interlocked. The only outstanding exception was the Bethlehem Steel Corp., the directors of which had no other affiliations. Bethlehem Steel, however, was indirectly linked to other members of the industry through stock ownership.

Table 22 shows how the various members of the industry were directly or indirectly interlocked. Primary iron and steel producers<sup>1</sup> are listed in the "stub" of the table while the companies with which they directly interlock are shown in the column headings. When two members of the industry have directors on a third company, there is an indirect interlock between them. For example, United States Steel Corp. had one director in common with American Metal Co. The column headed American Metal Co. indicates that this company shared three directors with Climax Molybdenum Co. Thus U. S. Steel and Climax Molybdenum were indirectly interlocked through American Metal.

#### PRIMARY IRON AND STEEL COMPANIES

Interlocking relationships suggest that the primary iron and steel industry may be divided into four broad groups. The first group centers in U. S. Steel; the second consists of prominent iron and steel companies closely tied in with certain Cleveland interests; the third revolves around the Mellon family interests; and the fourth consists of a number of smaller iron and steel concerns aligned with the Peoples First National Bank & Trust Co. (Pittsburgh) and corporations under the control of John H. Hillman, Jr., of Pittsburgh.

These groups are brought together not only by interlocking directorates, but also by stock ownership ties. They are also bolstered by strong economic and institutional connections with prominent iron ore companies and banks.

The interlocking relations of U. S. Steel are depicted in chart 12. Chart 13 is concerned with the interconnections of the Cleveland,

<sup>1</sup> The primary iron and steel industry includes establishments operating blast furnaces, steel works and rolling mills, and also those manufacturing ferro and nonferrous additive alloys. The ferro and nonferrous additive alloys are consumed largely in steel-making operations.

TABLE 22.—Interlocks within the primary iron and steel products industry

[illegible]

## Primary iron and steel

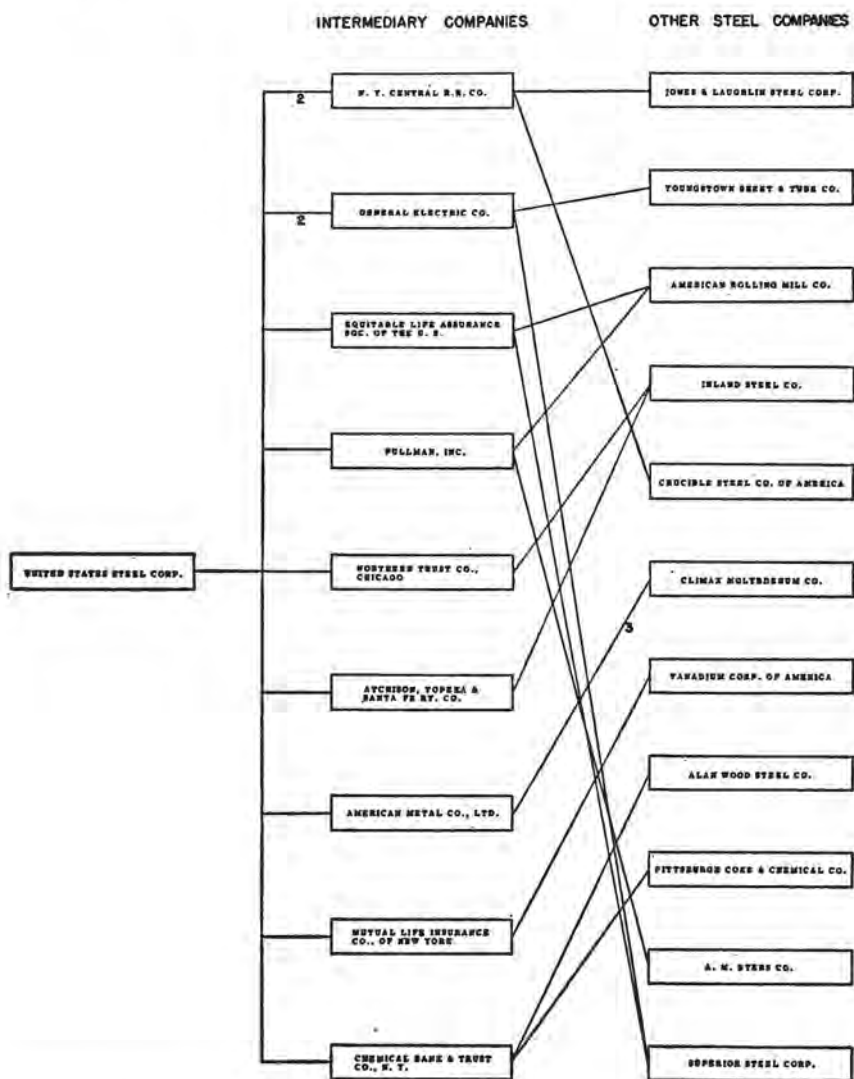
## Indirect interlocks—Continued

Primary iron and steel	Fabricated metal products		Machinery (except electrical)		Electrical machinery, equipment, and supplies		Transportation equipment				Food and kindred products		Chemicals and allied products	Products of petroleum and coal		Rubber products
	Florence Stove Co.	National Enameling & Stamping Co.	National Supply Co.	United Engineering	General Electric Co.	Westinghouse Electric Corp.	Pullman, Inc.	Mack Trucks, Inc.	Thompson Products, Inc.	New York Shipbuilding Corp.	National Dairy Products Corp.	United States Sugar Corp.	Industrial Rayon Corp.	Gulf Oil Corp.	Koppers Co., Inc.	Goodyear Tire & Rubber Co.
United States Steel Corp.					2		1			1	1					1
Republic Steel Corp.																
National Steel Corp.													1			1
Jones & Laughlin Steel Corp.						1							1			1
Youngstown Sheet & Tube Co.					1				1							1
American Rolling Mill Co.						1	1				1			1		
Crucible Steel Co. of America						1									1	
Pittsburg Steel Co.				1												
Sharon Steel Co.	1															
Granite City Steel Co.		5						2							1	
Alan Wood Steel Co.				1												
Copperweld Steel Co.									1							
A. M. Byers Co.						2	1									
Vanadium Corp. of America	1	1						2		1				1		
Follansbee Steel Co.				1												
Scullin Steel Co.												1				
Superior Steel Corp.					1										1	
Pittsburgh Forgings Co.			1													
Gloss-Sheffield Steel Co.												1				

TABLE 22.—Interlocks within the primary iron and steel products industry—Continued

Primary iron and steel	Indirect interlocks—Continued															
	Stone, clay, and glass products			Banks						Investment banks	Life-insurance companies		Fire and casualty insurance companies	Utilities	Railroads	
	Pittsburgh Plate Glass Co.	Medusa Portland Cement	Kelly Island Lime, etc.	Chemical Bank & Trust Co.	Cleveland Trust Co.	Northern Trust Co., Chicago	Mellon National Bank, Pittsburgh	National City Bank, Cleveland	Peoples First National, Pittsburgh	Lehman Bros.	Equitable Life Assurance Society	Mutual Life Insurance Co., New York	United States Fidelity & Guaranty	Standard Gas & Electric Co.	New York Central	Santa Fe
United States Steel Corp.				1		1					1	1			2	1
Republic Steel Corp.		1	1													
National Steel Corp.																
Jones & Laughlin Steel Corp.		1			1		2	2	2						1	
Youngstown Sheet & Tube Co.					2			2	2							
American Rolling Mill Co.											1					
Inland Steel Co.						1										1
Wheeling Steel Corp.			1						1							
Crucible Steel Co. of America.	1						3								1	
Pittsburgh Steel Co.									2							
Interlake Iron Corp.			1		1											
Granite City Steel Co.																
Alan Wood Steel Co.							1				1					
Copperweld Steel Co.																
A. M. Byers Co.	1						4									
Pittsburgh Coke & Chemical Co.				1					1							
Vanadium Corp. of America.												1				
Follansbee Steel Corp.									1							
Scullin Steel Co.													1			
Superior Steel Co.				1					1							
Tennessee Products Corp.																
Pittsburgh Forgings Co.										1						
Carpenter Steel Co.										1						
Firth Sterling Steel & Carbide Corp.										2						

# INDIRECT INTERLOCKS BETWEEN U.S. STEEL CORP. AND OTHER PRIMARY IRON AND STEEL COMPANIES, 1946



Consulting Steel Institute and various directors, subject observation indicated.

CHART 12.

Mellon and Peoples First National-Hillman groups. At certain points all four groups were interconnected. Thus U. S. Steel was linked to three prominent steel companies falling within the Cleveland group, four in the Mellon group and two in the Peoples First National-Hillman group. Jones & Laughlin Steel Corp., which was also indirectly interlocked with U. S. Steel, provided a point of contact between the Cleveland and Mellon groups; National Steel Corp. linked the Cleveland and Peoples First National-Hillman groups.

*Interlocks of United States Steel Corp.*

U. S. Steel (chart 12) indirectly interlocked with 11 members of the iron and steel industry. It had two directors on the board of New York Central Railroad Co. and two directors on the board of General Electric Co. Also on the board of New York Central were directors of Jones & Laughlin Steel Corp. and Crucible Steel Co. Youngstown Sheet & Tube Co. and Superior Steel Corp. had common directors with General Electric.

U. S. Steel was indirectly linked with Armco Steel Corp. (formerly American Rolling Mill Co.) through two other companies, namely, Equitable Life Assurance Society of the United States and Pullman, Inc. U. S. Steel was interlocked with Inland Steel Co. through Northern Trust Co. (Chicago) and Atchison, Topeka & Santa Fe Railway Co. It was indirectly interlocked with the country's two largest producers of ferro alloys—Climax Molybdenum Co. and Vanadium Corp. of America—through American Metal Co. and Mutual Life Insurance Co. of New York. It was indirectly interlocked with two smaller members of the industry, Alan Wood Steel Co. and Pittsburgh Coke & Chemical Co., through Chemical Bank & Trust Co. (New York). It was linked with A. M. Byers Co. through Pullman.

Thus, U. S. Steel was indirectly interlocked with 11 other members of the industry—seven fully integrated steel companies, one non-integrated strip steel producer, one coke and chemical company, and two ferro-alloy companies. Such links may facilitate the leadership of the largest company in the determination of prices, programs of expansion, and production policy.<sup>2</sup>

<sup>2</sup> The importance of U. S. Steel as a price leader is suggested by the following colloquy that occurred on April 3, 1936, between Senator Burton K. Wheeler, chairman of the Senate Interstate Commerce Committee, and William A. Irvin, president of U. S. Steel:

"The CHAIRMAN. \* \* \*

"All the witnesses thus far give the impression that their prices were set only to meet competition. In other words, they indicate that they only follow the bell-wether. Somebody, somewhere, must set the original price. During the era of the 'Gary dinners' we knew how the prices were set. They were set because, when they got together in these dinners, they set the price. In earlier days they



U. S. Steel is the world's largest producer of steel. In 1945 it owned 35.2 percent of the industry's capacity for steel ingots and steel for castings.<sup>3</sup> Moreover, U. S. Steel occupies the leading position in practically every one of the major individual steel shapes. The seven integrated steel producers<sup>4</sup> shown to have indirect interlocks with U. S. Steel operate approximately 19 percent of the Nation's steel ingot capacity. Thus, approximately 54 percent of the iron and steel industry was brought into common association through interlocking directorships.

U. S. Steel, Jones & Laughlin, and Crucible Steel came together on the board of the New York Central.<sup>5</sup> Jones & Laughlin ranks fourth in the industry in terms of ingot capacity. About one-third of its finishing capacity is in sheet and strip; one-fourth, in merchant and cold-rolled bars; about 15 percent, in plate; 11 percent, in pipe; 7 percent, in tin plate; and the remainder is devoted to wire products, structural shapes, rail and track equipment, etc.<sup>6</sup> Crucible Steel, tenth largest in the industry, is one of the leaders in such high-grade steels as high speed, tool and die steels, stainless and heat-resisting steels, electrolytic alloy steels, and a wide variety of other specialty

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got together and sat down and agreed in writing what the prices should be, but at the present time it seems to be extremely difficult to find out who the bellwether is and who fixes the price originally that they follow to meet that competition.

"Mr. IRVIN. I would say we generally make the prices.

"The CHAIRMAN. You generally make the prices?

"Mr. IRVIN. Yes, sir. We generally make the prices, unless some of the other members of the industry think that that price may be too high, and they make the price.

"The CHAIRMAN. You lead off, then, with a price charged, either up or down, at Gary; is that correct?

"Mr. IRVIN. Yes."

(Hearings before the Senate Interstate Commerce Committee. "To Prevent Uniform Delivered Prices," 74th Cong. 2d sess., on S. 4055, p. 595.)

<sup>3</sup> This and other figures cited below on steel capacity are based on the statistics published in the Directory of Iron and Steel Works of United States and Canada, 1945, published by the American Iron & Steel Institute. (See Federal Trade Commission, Concentration of Capacity in the Iron and Steel Industry by Products and Companies, 1945, mimeographed.)

<sup>4</sup> Specifically, Jones & Laughlin, Youngstown Sheet & Tube, Armco, Inland Steel, Crucible Steel, Alan Wood Steel, and A. M. Byers.

<sup>5</sup> The two U. S. Steel directors serving on the board of New York Central were Myron C. Taylor and Alexander C. Nagle. Mr. Taylor was a member of the finance committee of U. S. Steel and on the executive committee of New York Central. Mr. Nagle was president of the First National Bank of the City of New York. Jones & Laughlin was represented on New York Central by E. B. Greene. Mr. Greene was president of the Cleveland-Cliffs Iron Co. and a member of the executive committee of the New York Central. Crucible Steel was represented on the board of New York Central by Laurence N. Murray, president of the Mellon National Bank & Trust Co. (Pittsburgh).

<sup>6</sup> Merrill Lynch, Pierce, Fenner & Bean, Steel, 1945, p. 38.

products. The interlock among these three companies raises two significant questions: First, to what extent did the association of these steel companies with New York Central Railroad influence the purchases of this railroad? Second, to what extent did the interlock make the three companies less competitive, not only for the business of the railroad industry, but also for that of other buyers?

Approximately three-fourths of the steel consumed by the rail transportation industry consists of five items—standard rails; sheared and universal plates; structural shapes; hot-rolled bars; and hot-rolled sheets.<sup>7</sup>

U. S. Steel is clearly the dominant factor in the production of steel rails, with 57.1 percent of the capacity for standard rails, and 46.7 percent for light rails. It is also the leading producer of sheared and universal plate, with 52.9 percent of the capacity; of structural shapes, with 42.7 percent of the capacity; of hot-rolled bars, with 31.9 percent; and of hot-rolled sheets, with 24.9 percent. Although it is not a rail producer and is a relatively minor factor in sheared and universal plate, Jones & Laughlin is competitive with U. S. Steel in hot-rolled bars, structural shapes, and hot-rolled sheets, ranking fourth, fifth, and sixth, respectively, in these products.<sup>8</sup> Crucible Steel is the seventh largest producer of hot-rolled bars, but only the nineteenth ranking producer of hot-rolled sheets.

Jones & Laughlin outranks U. S. Steel in cold-finished bars, a product sold largely to the automotive and industrial machinery industries.<sup>9</sup> In cold finished bars, Jones & Laughlin is the second largest producer, following Republic Steel Corp., while U. S. Steel is the fifth largest, and Crucible Steel is the ninth largest. U. S. Steel and Jones & Laughlin are the first and second ranking producers of strip mill plate, with 23.7 percent and 14.6 percent of the capacity, respectively.

While Crucible Steel produces a number of steel products in competition with both U. S. Steel and Jones & Laughlin, its specialty is tool steel bars; of these it is the Nation's leading producer, with 33.3 percent of the total capacity. Neither U. S. Steel nor Jones & Laughlin are competitive with Crucible Steel in this field.

Two directors of U. S. Steel were members of the board of General

<sup>7</sup> The following is the breakdown of shipments to the rail transportation industry for 1948, as reported by the American Iron & Steel Institute, *Annual Statistical Report, 1948*, p. 66.

	Net tons	Percent of total
(1) Rails—standard (over 60 pounds).....	1,324,714	25.4
(2) Sheared and universal plates.....	1,287,314	24.6
(3) Structural shapes.....	564,337	10.8
(4) Hot-rolled bars.....	450,727	8.6
(5) Hot-rolled sheets.....	261,978	5.0

<sup>8</sup> Jones & Laughlin in 1945 owned 6 percent of the industry's capacity for hot-rolled bars; 3 percent for structural shapes; and 7.8 percent for hot-rolled sheets.

<sup>9</sup> See Merrill Lynch, Pierce, Fenner & Bean, *op. cit.*

Electric, in company with directors of Youngstown Sheet & Tube and Superior Steel.<sup>10</sup> As the leading company in the electrical equipment industry, General Electric is a large consumer of steel products, including electrical sheets and strip, hot-rolled sheets, cold-rolled sheets, pipes and tubes, standard and hot-rolled bars.<sup>11</sup>

Youngstown Sheet & Tube is the fifth largest steel company, measured by ingot capacity, with sheet and strip and pipe products its most important items of output. Its capacity for producing tubular products is larger in relation to its size than that of any other large steel company. It also has substantial capacity in merchant bars and tin plate and tin mill products. The automotive and oil and gas industries are its most important customers.<sup>12</sup> Superior Steel is a small strip steel producer, engaged only in finishing operations. The automobile industry is normally its largest single customer, but a large proportion of its sales are to manufacturers of hardware, metal furniture, office equipment, sewing machines, and related products.<sup>13</sup>

U. S. Steel and Armco were interlocked through both Equitable Life and Pullman.<sup>14</sup> Armco is the eighth largest steel company. Its

<sup>10</sup> The two U. S. Steel directors on the board of General Electric were Mr. Nagle and Robert C. Stanley. Mr. Stanley was president and chairman of International Nickel Co. of Canada, Ltd., and a member of the finance committee of U. S. Steel. Youngstown Sheet and Tube was represented on the board of General Electric by Lewis B. Williams, chairman of the board of National City Bank of Cleveland. A director in common between Superior Steel and General Electric was Clarence Stanley, chairman of the executive committee of Mellon National Bank & Trust Co.

<sup>11</sup> Shipments for 1948 to the electrical equipment industry (exclusive of shipments to appliances, utensils, cutlery, or other domestic and commercial equipment companies), were as follows:

	Net tons	Percent of total
(1) Electrical sheets and strip.....	450,893	28.3
(2) Hot-rolled sheets.....	230,652	14.5
(3) Pipe and tubes, standard.....	134,975	8.5
(4) Hot-rolled bars.....	109,706	6.8
Total above products .....	926,226	58.1
Total, all products.....	1,594,700	100.0

See Merrill Lynch, Pierce, Fenner & Bean, op. cit. p. 66.

<sup>12</sup> Merrill Lynch, Pierce, Fenner & Bean, op. cit., p. 52. Youngstown's subsidiary Continental Supply Co., is one of the leading suppliers of oil field equipment; the company also owns 80½ percent in Emsco Derrick & Equipment Co. (a leading manufacturer of oil well drilling equipment), a 37 percent interest in Ozark Chemical (heavy chemicals), and 8 percent in Youngstown Steel Door (railroad equipment).

<sup>13</sup> *Ibid.*, p. 47.

<sup>14</sup> U. S. Steel was represented on the board of Equitable Life by James B. Black, president of Pacific Gas & Electric Co. The common director between U. S. Steel and Pullman was Sewell Avery, chairman of the board of Montgomery Ward & Co. Charles R. Hook, president of Armco, was a director of Equitable Life, while James F. Drake, president of Gulf Oil Corp. and director of Armco, was on the board of Pullman.

finishing capacity is more heavily concentrated in sheet and strip than any other large company. In this field it is especially competitive with U. S. Steel and National Steel. In hot-rolled sheets, these companies rank as follows: U. S. Steel, 24.9 percent; National Steel 13.7 percent; Armco, 12.4 percent. In cold-rolled sheet Armco is second to National, but outranks U. S. Steel. U. S. Steel and Armco are the first and fourth producers in reinforcing bars and in sheared and universal plates.

U. S. Steel and Inland Steel were joined on the boards of two companies, Northern Trust Co. (Chicago) and Atchison, Topeka & Santa Fe.<sup>15</sup> The importance of U. S. Steel as a supplier of steel to railroads has already been indicated. Inland is the sixth largest producer of sheared and universal plates, the third largest in structural shapes and the fifth largest in hot-rolled bars, products of importance to the railroad industry. However, Inland is principally a light steel producer, with 60 percent of its products normally finished into sheet, strip, tin plate, and bars. The company reportedly makes the bulk of its sales within a 500-mile radius of the Chicago area, where its capacity is concentrated.<sup>16</sup>

Through Pullman, U. S. Steel was linked to A. M. Byers Co.,<sup>17</sup> the largest domestic producer of wrought iron, and through Chemical Bank & Trust Co., it was interlocked with two smaller members of the iron and steel industry, namely, Alan Wood Steel Co. and Pittsburgh Coke & Chemical Co.<sup>18</sup> Finally, through other companies U. S. Steel interlocked with Climax Molybdenum and Vanadium Corp.<sup>19</sup> Climax Molybdenum in 1948 produced about 46 percent of the world's

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<sup>15</sup> Sewell L. Avery was on the boards of both U. S. Steel and Northern Trust Co., while the late Thomas W. Lamont was a director of both U. S. Steel and Atchison, Topeka & Santa Fe. E. L. Ryerson, chairman of the board of Inland Steel, was a director of both Northern Trust Co., and Santa Fe.

<sup>16</sup> Merrill Lynch, Pierce, Fenner & Bean, op. cit., p. 36.

<sup>17</sup> Standard & Poor's Industry Surveys, Steel & Iron, Current Analysis, Jan. 12, 1950, p. 53-3. Mr. Avery represented U. S. Steel on the board of Pullman; Alan M. Scaife, vice president of Gulf Oil Corp., was a director of both A. M. Byers and Pullman.

<sup>18</sup> Cason J. Callaway was a common director between U. S. Steel and Chemical Bank & Trust Co. Also on the board of Chemical Bank & Trust Co. was John H. Hillman, Jr., president of Pittsburgh Coke & Chemical and a director of Alan Wood Steel.

<sup>19</sup> Robert C. Stanley was the common director between U. S. Steel and American Metal; the three directors in common between American Metal and Climax Molybdenum were: Otto Sussman, chairman of the board of American Metal Co., Bernard N. Zimmer, vice president of American Metal, and Harold K. Hochschild, president of American Metal and secretary of Climax Molybdenum. Mr. Stanley was on the boards of both U. S. Steel and Mutual Life; while Charles E. Adams was a common director between Vanadium Corp. and Mutual Life. Mr. Adams was chairman of the board of Air Reduction Co.

total output of molybdenum.<sup>20</sup> Vanadium Corp. controls the world's largest and richest vanadium deposits and supplies about three-fourths of the domestic demand for vanadium compound.<sup>21</sup>

### *Interlocks of the Cleveland Group*

The upper portion of chart 13 traces the connections of the Cleveland group of steel companies. The nucleus of this group is four major

### INTERLOCKS OF CLEVELAND, MELLON, AND PEOPLES FIRST NATIONAL-HILLMAN IRON AND STEEL COMPANIES, 1946

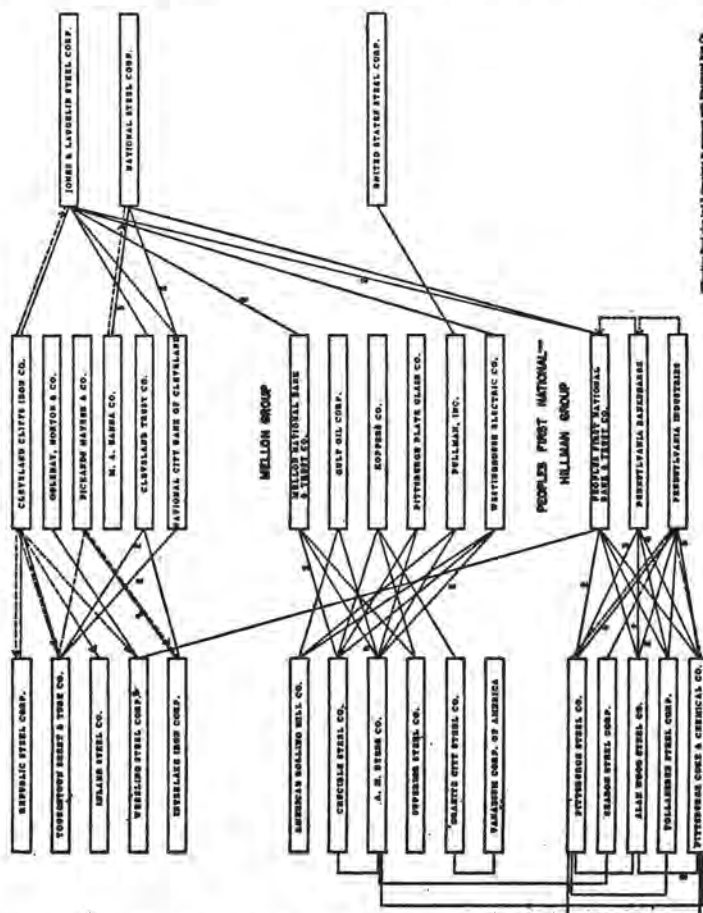


CHART 13.

iron ore companies and two prominent Cleveland banks; the interlocking relationships consist chiefly of directorates and stock ownership. Cleveland-Cliffs Iron Co. is second only to the U. S. Steel in the ownership of ore properties, and has supplied ore to such steel companies as Republic Steel, Wheeling Steel, and Youngstown Sheet & Tube.<sup>22</sup> It also holds substantial stock interests in five major steel

<sup>20</sup> Standard & Poor's Corporation Records, p. 8501.

<sup>21</sup> *Ibid.*, p. 2857.

<sup>22</sup> See TNEC hearings, pt. 18, Iron and Steel Industry: Iron Ore, pp. 10278-10279.



companies. Oglebay, Norton & Co., formerly controlled by Cleveland-Cliffs Iron,<sup>22</sup> is also engaged in the mining and selling of ore. Pickands, Mather & Co. manages mines owned by other companies. Aside from U. S. Steel, it is the largest shipper of iron ore.<sup>24</sup> Pickands, Mather & Co. and Cleveland-Cliffs Iron were organized by branches of the Mather family.<sup>25</sup> M. A. Hanna Co. also is an important factor in the iron ore trade; it is affiliated with National Steel. Cleveland Trust Co. is the largest commercial bank in Cleveland, while National City Bank of Cleveland is the second largest in the area.

Cleveland-Cliffs Iron at the end of 1948 held a substantial stock interest in five prominent steel companies,<sup>26</sup> and in 1946 maintained

<sup>22</sup> Cleveland-Cliffs Iron purchased a 66.7 percent interest in Oglebay, Norton & Co. in 1930, but disposed of it in 1944. The purchase was made in contemplation of a consolidation of a number of steel and iron ore companies sponsored by Cleveland interests. In the words of Crispin Oglebay: "We felt that if there was to be a consolidation, Cleveland Cliffs would play a very prominent part in this consolidation and if we could be seated around the table with them, representing these various properties, it would be to their welfare, and with that in mind, why, we negotiated a sale of this personal service corporation, that is Oglebay, Norton & Co., two-thirds of its interest to the Cleveland-Cliffs Iron Co." (*Ibid.*, p. 10239).

<sup>24</sup> The following tabulation shows the relative position of the various iron ore companies, as measured by ore shipments in 1937:

Company:	Shipments in thousands of gross tons	Industry percentage
Total industry.....	63, 110	100. 0
Oliver Iron Mining Co. (subsidiary of U. S. Steel Corp.) .....	26, 648	42. 2
Pickands, Mather & Co. <sup>a</sup> .....	13, 816	21. 9
The Cleveland-Cliffs Iron Co. <sup>a</sup> .....	5, 734	9. 1
Oglebay, Norton & Co. <sup>a</sup> .....	1, 637	2. 6
M. A. Hanna Co. (affiliated with National Steel Corp.) .....	2, 239	3. 5
Butler Bros. <sup>a</sup> .....	1, 816	2. 9
Seven other ore companies.....	9, 402	14. 9
Steel companies <sup>f</sup> .....		

<sup>a</sup> Tonnages shipped from properties managed by Pickands, Mather & Co.

<sup>b</sup> Includes 181,998 tons sold and shipped from nonmanaged mines.

<sup>c</sup> Tonnages shipped from properties operated, managed, or leased to others by Cleveland-Cliffs Iron Co.

<sup>d</sup> At the time of this compilation, Oglebay, Norton & Co. was 66.7 percent owned by Cleveland-Cliffs Iron Co.

<sup>e</sup> One-half of Butler Bros. ores were under long-term contract to Pickands, Mather & Co.

<sup>f</sup> Other than U. S. Steel. Source: *Ibid.*, p. 10426.

<sup>25</sup> Harlan Hatcher, *A Century of Iron Men*, pp. 168-192.

<sup>26</sup> See Standard & Poor's Corporation Records, June-July, 1949, p. 8381. The ownership in Jones & Laughlin apparently arose out of the merger between the latter company and Otis Steel Co. in 1942. Previously, Cleveland-Cliffs Iron owned a 17.2 percent interest in Otis Steel (TNEC, op. cit., p. 10427) and supplied the company with a substantial portion of its ore requirements under a long-term contract. (*Ibid.*, p. 10279.)



interlocking directorates with three of the five. It owned approximately 6.5 percent of the common stock of Republic Steel and was represented on its board by William G. Mather, chairman of the board of Cleveland-Cliffs Iron.<sup>27</sup> The president of Cleveland-Cliffs Iron, Edward B. Greene, was a director of Jones & Laughlin, and his firm held a 3 percent common stock interest in the steel company.<sup>28</sup> Cleveland-Cliffs Iron owned 5.8 percent of the common stock of Youngstown Sheet & Tube and had two representatives<sup>29</sup> on the board of the company. It had a 5.8 percent interest in Inland Steel and a 5.4 percent interest in Wheeling Steel, but was not represented on their boards.<sup>30</sup>

Oglebay Norton has superintended the operation of mines owned by others, including Wheeling and Armco; the president of the ore house was on the board of Wheeling.<sup>31</sup> Pickands, Mather & Co., has acted as managing agent for such steel companies as Bethlehem Steel, Republic Steel, Youngstown Sheet & Tube, Pittsburgh Steel, Sharon Steel, International Harvester Co., Steel Co. of Canada, and even Carnegie-Illinois Steel Corp., a U. S. Steel subsidiary.<sup>32</sup> It was the principal owner of Interlake Iron Co.;<sup>33</sup> two of its partners served on the board of Interlake Iron, in company with a vice president of Cleveland-Cliffs Iron.<sup>34</sup> Interlake Iron is the country's largest merchant pig-iron producer.

The Cleveland Trust Co. and National City Bank of Cleveland interlocked with a number of these same steel companies. Cleveland Trust Co. and Youngstown Sheet & Tube each had two officials of

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<sup>27</sup> Cleveland-Cliffs Iron also supplied Republic Steel with a substantial portion of its ore requirements. (*Ibid.*, p. 10278.)

<sup>28</sup> Mr. Greene was also a director of Republic Steel in 1930, 1931, and 1933.

<sup>29</sup> These were S. Livingston Mather, vice president, but not a director of Cleveland-Cliffs and N. S. Bolton, director of the ore company. Mr. Bolton died December 28, 1947.

<sup>30</sup> Wheeling Steel had two directors in common with Woodward Iron Co., namely, David A. Burt and Allen H. Woodward. Mr. Burt was a partner in Hazlitt, Burt & Watson. Mr. Woodward was chairman of the board of Woodward Iron. The association between Wheeling and Woodward Iron appears to be one of long standing. Mr. Woodward was born in Wheeling, W. Va., and for many years served as vice chairman of Wheeling Steel.

<sup>31</sup> The late Crispin Oglebay, president of Oglebay, Norton & Co., was a director of Wheeling.

<sup>32</sup> TNEC, op. cit., p. 10226.

<sup>33</sup> See Interlake Iron Co. listing statement, March 18, 1937, p. 2. Pickands Mather also owned a stock interest in Youngstown Sheet & Tube, and acted as agent for it in the sale of pig iron.

<sup>34</sup> Elton Hoyt, 2d, senior partner, and John Sherman, partner of Pickands Mather were on the board of Interlake Iron. S. Livingston Mather was also a director of Interlake Iron.

Cleveland-Cliffs Iron as directors.<sup>35</sup> In addition, Cleveland Trust Co. had a director in common with Interlake Iron.<sup>36</sup> Youngstown Sheet & Tube was a conspicuous meeting point for the Cleveland group: In addition to the interlocks noted, Pickands, Mather & Co. had an ownership interest in the company,<sup>37</sup> and the National City Bank of Cleveland had two directors in common with the steel producer.<sup>38</sup>

The M. A. Hanna Co. ranked fourth in iron ore shipments in 1937. Since 1929 it has been affiliated with National Steel and in 1946 had three directors in common with the steel company. National Steel was linked to the other members of the Cleveland group by the presence of two of its major officials on the board of National City Bank of Cleveland.<sup>39</sup>

In addition to these interlocking relationships, further meeting points for individual steel companies were provided by three industrial concerns. Goodyear Tire & Rubber Co., the country's leading rubber manufacturer, brought together representatives of Republic Steel, Jones & Laughlin, and National City Bank of Cleveland.<sup>40</sup> Industrial Rayon Corp., a leading manufacturer of viscose rayon had among its directors men who were also directors of National Steel, Jones & Laughlin, and National City Bank of Cleveland.<sup>41</sup> The board of Kelly Island Lime & Transport Co. included officials of Cleveland-Cliffs Iron, Oglebay, Norton & Co. and Pickands, Mather & Co.<sup>42</sup>

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<sup>35</sup> These were S. Livingston Mather, vice president, and N. C. Bolton, director, of Cleveland-Cliffs.

<sup>36</sup> This was Fayette Brown, Cleveland corporation official.

<sup>37</sup> In 1937, Mather Iron Co. held 2.8 percent of the common of Youngstown Sheet & Tube. Ownership of Mather Iron, in turn, was divided between Pickands, Mather & Co. and members of the Mather family, including S. Livingston Mather, vice president of Cleveland Cliffs Iron. (See TNEC Monograph No. 29, p. 1437.)

<sup>38</sup> Lewis Blair Williams was chairman of the board and director of National City Bank of Cleveland; Frank Purnell was president and director of Youngstown Sheet & Tube.

<sup>39</sup> George M. Humphrey, president and director, and Robert L. Ireland, Jr., and Joseph H. Thompson, vice presidents and directors of M. A. Hanna, were directors of National Steel Corporation. Messrs. Humphrey and Thompson also served on the board of the National City Bank of Cleveland.

<sup>40</sup> These were Tom M. Girdler, chairman of the board and director of Republic Steel, B. F. Jones, vice president of Jones & Laughlin, and Lewis B. Williams, chairman of the board and director of National City Bank of Cleveland.

<sup>41</sup> These were, respectively, George M. Humphrey; John W. Reavis, partner, Jones, Day, Cockley & Reavis and director of both Jones & Laughlin and National City Bank of Cleveland; and Lewis B. Williams.

<sup>42</sup> These were William G. Mather, chairman of Cleveland-Cliffs; the late Crispin Oglebay, president of Oglebay, Norton & Co., and John Sherman, partner of Pickands, Mather & Co.

## *Interlocks of the Mellon Group*

The core of the Mellon group was the Mellon National Bank & Trust Co. and a number of prominent Pittsburgh industrial corporations in which the Mellon family held stock interests.<sup>43</sup> The Mellon sphere of influence is not industrially integrated, being made up of important constituents in a number of industries. It is concentrated geographically, most of the enterprises having their origin or seat of operation in the Pittsburgh region. The Mellon influence is chiefly of banking, rather than industrial origin, its founder, Thomas Mellon having started in the mercantile and banking business.

In 1946, the Mellon National Bank & Trust Co. had three directors in common with Crucible Steel,<sup>44</sup> four with A. M. Byers,<sup>45</sup> one with Superior Steel<sup>46</sup> and an officer on the board of Vanadium Corp.<sup>47</sup> It also had two directors in common with Jones & Laughlin.<sup>48</sup> Gulf Oil had a director in common with Armco and with A. M. Byers.<sup>49</sup> Koppers had interlocks with Crucible Steel, Granite City Steel,<sup>50</sup> and Superior Steel.<sup>51</sup> Pittsburgh Plate Glass shared a director with Crucible Steel<sup>52</sup> and Pullman interlocked with Armco, A. M. Byers

<sup>43</sup> In 1937 the Mellon family owned 70.2 percent of the stock of Gulf Oil Corp.; 54.2 percent of Koppers Co.; 10.1 percent of Pullman, Inc., 5.4 percent of Pittsburgh Plate Glass Co.; and 0.5 percent of Westinghouse Electric Co. It also held 3.5 percent of the stock of Jones & Laughlin; and a 2.2 percent interest in Bethlehem Steel. TNEC Monograph No. 29, *The Distribution of Ownership in the 200 Largest Nonfinancial Corporations*, p. 124.

<sup>44</sup> Lawrence Newbold Murray, president and member of the executive committee of the Mellon National Bank & Trust Co.; William P. Snyder, Jr., chairman of the board of Crucible Steel; and Henry B. Higgins, chairman of the executive committee and president of Pittsburgh Plate Glass were all directors of both Crucible Steel and the Mellon National Bank & Trust Co.

<sup>45</sup> George A. Blackmore, chairman of the board of Westinghouse Air Brake, J. F. Byers, chairman of the board of A. M. Byers Co., H. B. Higgins, president of Pittsburgh Plate Glass, and Alan M. Scaife, vice president of Gulf Oil, were all directors of A. M. Byers and the Mellon National Bank & Trust Co.

<sup>46</sup> Clarence Stanley, chairman of the executive committee and director of the Mellon National Bank & Trust Co. was a director of Superior Steel.

<sup>47</sup> J. S. Raymond, vice president but not a director of the Mellon National Bank & Trust Co., was a director of the Vanadium Corp.

<sup>48</sup> B. F. Jones, 3d, vice president and secretary of Jones & Laughlin, and W. C. Robinson, president of National Electric Products Corp. were both directors of Jones & Laughlin and the Mellon National Bank & Trust Co.

<sup>49</sup> J. F. Drake, president of Gulf, was a director of Armco and A. M. Scaife, vice president of Gulf Oil, was a director of A. M. Byers.

<sup>50</sup> L. N. Murray, president of the Mellon National Bank & Trust Co. was also on the boards of Koppers and Crucible Steel, while J. N. Marshall was a director of Granite City Steel and Koppers.

<sup>51</sup> Clarence Stanley, chairman of the executive committee of the Mellon National Bank & Trust Co., was also a director of Koppers and Superior Steel.

<sup>52</sup> H. B. Higgins, chairman of the executive committee and president of Pittsburgh Plate Glass, was a director of Crucible Steel.

and U. S. Steel.<sup>54</sup> Westinghouse Electric had directors in common with Jones & Laughlin, Armco and Crucible Steel, and two in common with A. M. Byers.<sup>55</sup> Thus, the Mellon group was closely tied together through both stock ownership and interlocking directorates. One of the steel companies, Jones & Laughlin, was also closely connected with the Cleveland group:

*Interlocks of Peoples First National—Hillman Group*

The Peoples First National—Hillman group centers principally in the Peoples First National Bank & Trust Co. (Pittsburgh) and in corporations in which John H. Hillman, Jr., had a substantial interest.

Among the companies under control of Mr. Hillman were Pennsylvania Industries, Inc., an investment company holding shares in industrial concerns operating chiefly in Pennsylvania; Pennsylvania Bankshares & Securities, an investment company controlled by Pennsylvania Industries, Inc., holding shares principally in banking institutions in the same region; Hillman Coke & Chemical Co.; and Pittsburgh Coke & Chemical Co.<sup>57</sup> Both directly and through these companies, Mr. Hillman held a substantial ownership in both Pittsburgh Steel and in Sharon Steel.<sup>58</sup> Moreover, certain significant commodity relations prevailed among the companies: Hillman Coal & Coke Co., and its subsidiary Emerald Coal & Coke Co., supplied coking coal to Pittsburgh Coke & Chemical, and Pittsburgh Steel. Sharon Steel has purchased a large percentage of its coking require-

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<sup>54</sup> J. F. Drake, president of Gulf Oil and director of Armco; Sewell Lee Avery of Montgomery Ward and a director of U. S. Steel; and A. M. Scaife, vice president of Gulf Oil and director of A. M. Byers, were all on the board of Pullman Co.

<sup>55</sup> W. C. Robinson, president of National Electric Products Corp., a director of Jones & Laughlin; C. R. Hook, president of Armco; H. B. Higgins, president of Pittsburgh Plate Glass and a director of A. M. Byers and Crucible Steel; and G. A. Blackmore, chairman of the board of Westinghouse Air Brake and director of A. M. Byers, were all on the board of Westinghouse Electric Corp.

<sup>57</sup> At the end of 1946, one-third of Pennsylvania Industries' security holdings were concentrated in shares of Sharon Steel and Pittsburgh Steel; three-fourths of the holdings of Pennsylvania Bankshares were in Peoples First National Bank & Trust Co., and Colonial Trust Co. Cf. Moody's Banks—Insurance—Real Estate—Investments Trusts, 1947, pp. 1082-3.

<sup>58</sup> In 1948 the holdings of the various Hillman interests in Pittsburgh Steel aggregated about 23 percent of the company's prior preferred and 26 percent of the common. Another 4 percent of the Pittsburgh Steel common was held by Sharon, while 8 percent of the outstanding voting shares of Sharon was owned by the Hillman interests. Cf. Pittsburgh Steel Co. listing statement, May 6, 1948. Earlier the Sharon holdings in Pittsburgh Steel amounted to 8 percent and the Hillman ownership in Sharon was 11 percent. Cf. Pittsburgh Steel listing statement, Feb. 6, 1942.

ments from Pittsburgh Steel<sup>60</sup> and other raw materials from Hillman Coal & Coke and Pittsburgh Coke & Chemical. Pittsburgh Steel supplied coke byproducts to Pittsburgh Coke & Chemical, and the latter sold sulphuric acid to Pittsburgh Steel.<sup>60</sup>

There was also an ownership connection between Hillman and Peoples First National Bank & Trust Co.<sup>61</sup> Mr. Hillman was a director of Peoples First National Bank & Trust Co., and Frank F. Brooks, chairman of the board of Peoples First National Bank & Trust Co., was a director of a number of companies associated with Mr. Hillman.

Peoples First National (see chart 13) had two common directors with Pittsburgh Steel, one with Alan Wood Steel, one with Follansbee Steel, and one with Pittsburgh Coke & Chemical. Pennsylvania Industries not only had stock interests in Pittsburgh Steel, Sharon Steel, and Pittsburgh Coke & Chemical, but it also had a number of directors in common with several of these steel companies. Finally, Pittsburgh Coke & Chemical had two directors in common with Alan Wood Steel and three with Pittsburgh Steel; and Pittsburgh Steel and Follansbee Steel had one common director.<sup>62</sup>

<sup>60</sup> Merrill Lynch, Pierce, Fenner & Beane, Steel, 1945, p. 42.

<sup>61</sup> See Pittsburgh Steel Co. listing statements, during the years 1942 to 1950.

<sup>62</sup> On December 31, 1948, Pennsylvania Bankshares held 35,271 shares of common stock in Peoples First National Bank & Trust Co., representing a 5.9 percent interest. See Moody's, Banks—Insurance—Real Estate—Investment Trusts, 1949, pp. 796 and 572.

<sup>63</sup> The directors and their affiliations were as follows:

Director and his principal affiliation	Peoples First National Bank & Trust Co., Pittsburgh	Pennsylvania Industries, Inc.	Pennsylvania Bankshares & Securities Corp.	Pittsburgh Steel Co.	Sharon Steel Corp.	Alan Wood Steel Co.	Follansbee Steel Corp.	Pittsburgh Coke & Chemical Corp.
J. H. Hillman, Jr., president, Pittsburgh Coke & Chemical Co.*	X	X	X	(9)	(1)	X		X
F. F. Brooks, chairman, Peoples First National Bank & Trust Co., Pittsburgh	X	X	X	X			X	
W. L. Affelder, vice president, Hillman Coal & Coke Co.		X	X	X		X		X
T. W. Kirkpatrick, secretary, Pittsburgh Coke & Chemical Co.		X	X	X				X
R. M. Marshall, executive vice president, Pittsburgh Coke & Chemical Co.*		X		X				X
T. Watson, vice president of Hillman Coal & Coke Co.*		X	X					X
Joseph V. Smith, executive vice president of the Hubbard & Co.	X			X				

X=director.

\* In 1950 Mr. Hillman was chairman of the board, and Mr. Marshall was president of Pittsburgh Coke & Chemical Co.

† Mr. Hillman resigned from the board of Sharon Steel in 1944. He was not on the Pittsburgh Steel board after 1944 until 1949, when he was again listed as a director; Mr. Brooks was not on the Pittsburgh Steel or the Follansbee Steel boards at the end of 1949; Mr. Affelder resigned from the board of Alan Wood Steel in 1946.

\* Mr. Watson was also a director of A. M. Byers Co. in 1946.



The Peoples First National-Hillman group was also interconnected with both the Cleveland and Mellon groups. Peoples First National Bank & Trust Co. had two directors in common with Jones & Laughlin, one with National Steel, and one with Wheeling Steel.<sup>63</sup> Also, two companies of the Peoples First National-Hillman group, namely Pittsburgh Coke & Chemical and Sharon Steel, were directly interlocked with A. M. Byers, of the Mellon group. A. M. Byers in turn was directly interlocked with Crucible Steel.<sup>64</sup>

### *Interlocking Relationships Between Iron and Steel Companies and Their Customers*

The iron and steel industry is composed largely of fully integrated companies, controlling the sources of their principal raw materials. The large steel companies have also extended their operations forward into the fabrication of steel products, and this trend has been accentuated during the postwar period. In addition, there are certain interlocking directorates maintained between the steel companies and some of their large customers. Iron and steel are, of course, the basic raw materials for production of durable and semidurable goods. In 1948 steel shipments aggregated approximately 66 million tons, and of this total the automotive industry consumed approximately 10 million tons, or 15 percent. About 5.3 million tons of steel was used by the container industry; another 5.2 million tons by the railroad industry; 3.2 million by the industrial machinery industry; nearly 2 million tons in the production of appliances, utensils, and cutlery; and about 1.6 million tons by the electrical machinery equipment industry.<sup>65</sup> In the light of this distribution of steel products, it is of interest to examine the interlocking relations between the steel companies and companies located in these various steel-consuming fields.

In 1946, 25 manufacturers of iron and steel<sup>66</sup> had interlocking directorships with more than 70 companies manufacturing products made largely from iron and steel. The largest steel companies maintained the most interlocks. Thus, U. S. Steel had interlocks with nine

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<sup>63</sup> These were W. L. Jones, Jr., and G. M. Laughlin III, of Jones & Laughlin; E. F. Reed of Thorpe, Bostwick, Reed & Armstrong, and a director of National Steel; and A. J. McFarland, president of Wheeling Steel.

<sup>64</sup> Thomas Watson, vice president of Hillman Coal & Coke Co., was a director of A. M. Byers; L. F. Rains, president and director of A. M. Byers, was also a director of Sharon Steel; Henry B. Higgins, chairman of the Board of Pittsburgh Plate Glass, was a director of both A. M. Byers and Crucible Steel.

<sup>65</sup> Source, American Iron & Steel Institute, Annual Statistical Report, 1948, p. 66. The figures mentioned above refer principally to specific industries. Jobbers, dealers, and distributors took about 11.5 million tons, while the construction industry consumed nearly 10 million tons.

<sup>66</sup> Interlocks of ferro-alloy companies are excluded, inasmuch as they sell chiefly to primary iron and steel companies.



steel-consuming companies; Republic, with nine; Jones & Laughlin, with six; Crucible Steel, with six; American Rolling Mill, with five; and Youngstown Sheet & Tube, Sharon Steel and A. M. Byers, with four each.

Among the iron and steel consumers interlocked directly with U. S. Steel were American Radiator & Standard Sanitary Corp., the country's leading manufacturer of heating apparatus;<sup>67</sup> and Babcock & Wilcox, a manufacturer of steam power plant equipment, including boilers, furnaces, stoking equipment, and auxiliary apparatus.<sup>68</sup> U. S. Steel had two directors in common with General Electric, the largest manufacturer of electrical machinery and apparatus.<sup>69</sup> In the railroad transportation industry it had interlocking directors with Pullman, Inc.,<sup>70</sup> and four railroads—New York Central, Atchison, Topeka & Santa Fe, Southern Pacific, and Northern Pacific.<sup>71</sup> U. S. Steel also had an interlock with Willys-Overland Motors.<sup>72</sup>

Republic Steel Corp., the country's third largest steel manufacturer, had a number of interlocks with companies associated with Victor Emanuel. These included Consolidated Vultee Aircraft Corp., Avco Manufacturing Corp., ACF-Brill Motors Co., and New York Shipbuilding Corp.<sup>73</sup> Republic Steel was also interlocked with International Business Machines Corp., the largest manufacturer of various

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<sup>67</sup> Alexander C. Nagle, president of the First National Bank of the City of New York, was a director of U. S. Steel and American Radiator & Standard Sanitary Corp.

<sup>68</sup> R. C. Stanley, chairman of the board and president of International Nickel, was on the boards of U. S. Steel, Babcock & Wilcox, and General Electric. Mr. Stanley resigned from the Babcock & Wilcox board at the end of 1948 and was replaced by Paul D. Merica, executive vice president and director of International Nickel.

<sup>69</sup> Alexander C. Nagle, president of the First National Bank of the City of New York, and Robert C. Stanley, chairman of the board and president of International Nickel, were both on the boards of U. S. Steel and General Electric.

<sup>70</sup> Sewell Lee Avery, chairman of the board of Montgomery Ward, was on the boards of U. S. Steel and Pullman.

<sup>71</sup> Alexander C. Nagle, president of the First National Bank of the City of New York, was also a director of New York Central; Myron C. Taylor was a director of U. S. Steel and New York Central; Thomas W. Lamont, chairman of the board of J. P. Morgan & Co., was also on the board of U. S. Steel and the Atchison, Topeka & Santa Fe Ry. James Bowers Black, president and chairman of the board of Pacific Gas & Electric Co., was director of U. S. Steel and Southern Pacific. Arthur M. Anderson, vice president and member of the executive committee of J. P. Morgan & Co., was also director of U. S. Steel and Northern Pacific.

<sup>72</sup> William Adolph Irvin, director and member of the finance committee of U. S. Steel, was also a director and member of the executive committee of Willys-Overland Motors.

<sup>73</sup> Victor Emanuel, chairman of Avco Manufacturing, George E. Allen, T. A. O'Hara, all directors of "Emanuel" companies, were also directors of Republic Steel. For further analysis of the Victor Emanuel group, see chapter 10.

kinds of business machines, including tabulating and accounting machines, time recorders and electric time systems and electromatic typewriters,<sup>74</sup> and Bell Aircraft, Seaboard Air Line Railroad Co., General Railway Signal Co., and a foundry company, Buckeye Steel Castings Co.<sup>75</sup>

Jones & Laughlin, Armco, A. M. Byers, and Crucible Steel interlocked directly with Westinghouse Electric, the country's second largest producer of electrical machinery.<sup>76</sup> Jones & Laughlin also interlocked with three transportation equipment companies—Eaton Manufacturing Co., Midland Steel Products Co., and Weatherhead Co.—and with two railroads—New York Central, and Wheeling & Lake Erie.<sup>77</sup>

American Rolling Mill (Armco) also interlocked with Pullman, Inc., National Cash Register, Cincinnati Milling Machine Co., and Rockwell Manufacturing Co.<sup>78</sup>

Crucible Steel also interlocked with two machinery companies—Grinnell Corp., and L. C. Smith & Corona Typewriters, a foundry company—American Brake Shoe Co., and one railroad—New York Central.<sup>79</sup>

Youngstown Sheet & Tube interlocked with General Electric, with Lamson & Sessions Co., a manufacturer of bolts, nuts, and rivets, and

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<sup>74</sup> Drury W. Cooper of Cooper, Kerr & Dunham, was also a director of Republic Steel and International Business Machines.

<sup>75</sup> J. F. Schoellkopf, Jr., president of Niagara Share Corp., was also director of Republic Steel, Bell Aircraft, and General Railway Signal. Alexander C. Brown, first vice president of Cleveland-Cliffs Iron, was also director of Republic Steel and Buckeye Steel Castings. William H. Coverdale, of Coverdale and Colpitts, was a director of Republic Steel and of Seaboard Air Line.

<sup>76</sup> W. C. Robinson, president of National Electric Products, a director of Jones & Laughlin; C. R. Hook, president of Armco; H. B. Higgins, president of Pittsburgh Plate Glass and a director of A. M. Byers and Crucible Steel; and G. A. Blackmore, chairman of the board of Westinghouse Air Brake and director of A. M. Byers, were all on the board of Westinghouse Electric.

<sup>77</sup> Edward B. Greene, president of Cleveland-Cliffs Iron, was a director of Jones & Laughlin, Eaton Manufacturing, and the New York Central. John W. Reavis of Jones, Day, Cockley & Reavis, was on the boards of Jones & Laughlin, Midland Steel Products, and Weatherhead. Elroy J. Kulas, president of Midland Steel Products, was also a director of Jones & Laughlin and the Wheeling & Lake Erie.

<sup>78</sup> James Frank Drake, president of Gulf Oil, was also a director of Armco, Rockwell Manufacturing, and Pullman. Edward A. Deeds, chairman of the board of National Cash Register, was on the board of Armco. Frederick V. Geler, president of Cincinnati Milling Machine, was on the board of Armco.

<sup>79</sup> M. Crouse Klock was a member of the executive committee of both Crucible Steel and Grinnell Corp. H. W. Smith, president of L. C. Smith & Corona Typewriters, was a director of Crucible Steel. Lawrence Newbold Murray, president of the Mellon National Bank & Trust Co., was also on the boards of Crucible Steel, American Brake Shoe, and New York Central.

with Thompson Products, Inc., an automotive and aircraft parts manufacturer as well as Emsco Derrick & Equipment Co.<sup>80</sup>

Sharon Steel Corp. had interlocks with four steel consumers, of which one, Mullins Manufacturing Corp., maintained two directors in common with Sharon Steel.<sup>81</sup> Mullins is a manufacturer of washing machine tubs, a complete line of kitchen equipment, and automobile stampings, and reputed to be Sharon's most important customer.<sup>82</sup> Sharon held one-third of the Mullins' stock in 1946, but sold all but 18.6 percent in that year.

The other interlocks between steel companies and consumers of steel are listed in the accompanying table. Three cases, however, are worthy of further note. Granite City Steel Co. and National Enameling & Stamping Co. had five directors in common.<sup>83</sup> Granite City Steel manufactures basic open hearth steel, ingots, billets, slabs, sheared plates, cold and hot-rolled coils and strip, sheet steel and galvanized sheets, and a number of other steel shapes and forms. National Enameling & Stamping manufactures kitchen and household utensils, kerosene ranges and stoves, room heaters, aluminum pressure cookers, steel drums, and other products. At one time Granite City Steel was wholly owned by National Enameling & Stamping, but the latter company disposed of its ownership in Granite City Steel to its stockholders in June 1928.

Keystone Steel & Wire Co. manufactures semifinished steel chiefly consumed in its own wire mill; it owned 68.43 percent of the stock of, and had five interlocking directorates with National Lock Co. National Lock manufactures a diversified line of locks and hinges as well as radio, piano, phonograph, and aircraft parts.<sup>84</sup> Finally, Sloss-

<sup>80</sup> S. Livingston Mather, vice president of Cleveland-Cliffs Iron, was on the boards of Lamson & Sessions, Thompson Products, and Youngstown Sheet & Tube. Lewis Blair Williams, chairman of the board of the National City Bank of Cleveland, was a director of General Electric and Youngstown Sheet & Tube. Frank Purnell, president and director of Youngstown Sheet & Tube, was a director of Emsco Derrick.

<sup>81</sup> Henry A. Roemer, president and chairman of the board of Sharon Steel, was chairman of the board of Mullins Manufacturing, and George E. Whitlock, president and director of Mullins Manufacturing, was director of Sharon Steel.

<sup>82</sup> Merrill Lynch, Pierce, Fenner & Beane, Steel, 1945, p. 45. Sharon sells approximately one-fourth of its output directly or indirectly to the automobile industry. Moody's Industrials, 1948, p. 586.

<sup>83</sup> Louis Bissell of Chadbourne, Wallace, Park & Whiteside; Erle V. Daveler, vice president of American Zinc, Lead & Smelting; Alfred J. Kleckhefer, president of National Enameling & Stamping; John N. Marshall, and Hayward Niedringhaus, president of Granite City Steel were all directors of Granite City Steel and National Enameling and Stamping.

<sup>84</sup> Moody's Industrials, 1948, p. 278. The following men were officers of Keystone Steel & Wire and also directors of National Lock: Henry B. Sommer, chairman of the board; Reuben E. Sommer, president; Daniel P. Sommer, executive vice president; W. O. Fritze, vice president and treasurer; and Theodore C. Baer, general counsel.

Sheffield Steel & Iron Co., one of the prominent producers of pig iron in the Alabama district, had four directors in common with U. S. Pipe & Foundry Co. The latter manufactured cast iron pipe and special castings, principally for water and gas mains. In December 1942, U. S. Pipe & Foundry purchased from Allied Chemical & Dye Corp. a 54.87 percent voting interest in Sloss-Sheffield Steel.<sup>85</sup>

The other direct interlocks between steel producers and steel consumers require no comment.

TABLE 23.—*Direct interlocks between primary iron and steel products companies and steel consumers (each company had 1 interlock, unless otherwise indicated)*

<i>Steel producers</i>	<i>Steel consumers</i>
U. S. Steel Corp.-----	American Radiator & Standard Sanitary Corp. Babcock & Wilcox. 2, General Electric Co. Pullman, Inc. Willys-Overland Motors, Inc. 2, N. Y. Central R. R. Co. Atchison, Topeka & Santa Fe Ry. Co. Southern Pacific Co. Northern Pacific Ry. Co.
Republic Steel Corp.-----	Buckeye Steel Castings Co. General Railway Signal Co. 2, Consolidated Vultee Aircraft Corp. 2, Avco Manufacturing Corp. ACF-Brill Motor Co. New York Shipbuilding Corp. International Business Machines Co. Bell Aircraft Corp.
Jones & Laughlin Steel Corp.-----	Seaboard Air Line Ry. Co. Westinghouse Electric Corp. Eaton Manufacturing Co. Midland Steel Products Co. Weatherhead Co. N. Y. Central R. R. Co. Wheeling, Lake Erie Ry. Co. (C. & O. System).
Youngstown Sheet & Tube Co.-----	Lamson & Sessions Co. Emsco Derrick & Equipment Co. General Electric Co. Thompson Products, Inc.
American Rolling Mill Co.-----	National Cash Register Co. Cincinnati Milling Machine Co. Rockwell Manufacturing Co. Westinghouse Electric Corp. Pullman, Inc.

<sup>85</sup> W. T. C. Carpenter of Colgate Hoyt & Co., Frederick S. Gordon of Colgate Hoyt & Co., N. F. S. Russell, president of U. S. Pipe & Foundry, and Frank M. Talt, chairman of the board and president of Dayton Power & Light Co., were all directors of Sloss-Sheffield Steel and U. S. Pipe & Foundry. Moody's Industrials, 1948, p. 2744.

TABLE 23.—*Direct interlocks between primary iron and steel products companies and steel consumers (each company had 1 interlock, unless otherwise indicated)—Continued*

<i>Steel producers</i>	<i>Steel consumers</i>
Inland Steel Co.....	International Harvester Co. Atchison, Topeka & Santa Fe Ry. Co.
Wheeling Steel Corp.....	Continental Foundry & Machine Co. Baltimore & Ohio R. R. American Brake Shoe Co.
Crucible Steel Co. of America.....	American Brake Shoe Co. Grinnell Corp. United States Hoffman Machinery Corp. (L. C.) Smith & Corona Typewriters, Inc. Westinghouse Electric Corp. N. Y. Central R. R. Co.
Colorado Fuel & Iron Corp.....	National Can Corp. Marion Power Shovel Co. Great American Industries.
Allegheny Ludlum Steel Corp.....	Radio Corp. of America.
Pittsburgh Steel Co.....	United Engineering & Foundry Co.
Sharon Steel Corp.....	2, Mullins Manufacturing Corp. Florence Stove Co. Seeger Refrigerator Co. Erie Railroad Co.
Granite City Steel Co.....	5, National Enameling & Stamping Co. Allis-Chalmers Manufacturing Co. 2, Mack Trucks, Inc.
Alan Wood Steel Co.....	National Supply Co. York Corp.
Copperweld Steel Co.....	Timken Roller Bearing Co. Thompson Products, Inc.
Byers (A. M.) Co.....	Pittsburgh Screw & Bolt Corp. 2, Westinghouse Electric Corp. Pullman, Inc. 2, Westinghouse Air Brake Co.
Carpenter Steel Co.....	Royal Typewriter Co., Inc.
Continental Steel Corp.....	Diebold, Inc.
Keystone Steel & Wire.....	5, National Lock Co. Prosperity Co., Inc.
Follansbee Steel Corp.....	United Engineering & Foundry Co.
Scullin Steel Co.....	Emerson Electric Manufacturing Co.
Superior Steel Corp.....	Standard Steel Spring Co. Mesta Machine Co. General Electric Co.
<i>Pig-iron producers</i>	<i>Pig-iron consumers</i>
Interlake Iron Corp.....	Marshall-Wells Co. Cleveland-Graphite Bronze Co. American Type Founders, Inc.
Woodward Iron Co.....	Continental Foundry & Machine Co. United Shoe Machinery Corp.
Sloss-Sheffield Steel & Iron Co.....	4, U. S. Pipe & Foundry Co. Cramp Shipbuilding Co. Southern Railway Co.



## *Interlocks Between Iron and Steel Companies and Financial Institutions*

The large capital investment entailed in the establishment of iron and steel companies and the fact that the industry has actively participated in a number of major consolidation movements have resulted in strong and enduring relations between the large steel companies and some of the country's largest financial institutions. In 1946, banking firms, including commercial banks, investment banks and investment trusts, accounted for approximately 20 percent of all the interlocking directorships of the primary iron and steel companies, while insurance companies added another 5 percent. Most of these interlocks were between steel companies and commercial banks. The principal interlocks between primary iron and steel companies and financial institutions are shown in table 24.

U. S. Steel maintained interlocking directorates with several prominent New York banking organizations, including some with which it has been associated for nearly half a century. J. P. Morgan & Co., had two directors in common with U. S. Steel.<sup>86</sup> The First National Bank of the City of New York also had two interlocking directorates with the steel company.<sup>87</sup> U. S. Steel also had directors in common with three other New York banks, namely, Bankers Trust Co., Chemical Bank & Trust Co., and Northern Trust Co.<sup>88</sup> U. S. Steel also had directors in common with two insurance companies—Equitable Life and Mutual Life.<sup>89</sup>

Republic Steel interlocked with two banking corporations—Marine Midland Corp. (a holding company) and Commercial National Bank & Trust Co. of New York.<sup>90</sup> It also had a director on the boards of

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<sup>86</sup> These were Arthur M. Anderson, vice president and director of J. P. Morgan & Co., and the late Thomas W. Lamont, chairman of the board of J. P. Morgan & Co.

<sup>87</sup> The two directors who formed this interlock were Alexander C. Nagle, president and director of First National Bank of the City of New York and Myron C. Taylor, member of the executive committee and director of U. S. Steel.

<sup>88</sup> George A. Sloan was a director on U. S. Steel and the Bankers Trust Co. Cason Jewell Callaway was a director on U. S. Steel and the Chemical Bank & Trust Co. Sewell Lee Avery, chairman of the board of Montgomery Ward, was also on the boards of U. S. Steel and the Northern Trust Co.

<sup>89</sup> James Byers Black, president and chairman of the executive committee of the Pacific Gas & Electric Co. was also on the boards of U. S. Steel and Equitable Life. Robert Crooks Stanley, chairman of the board and president of the International Nickel Co., was also director of U. S. Steel and Mutual Life.

<sup>90</sup> Jacob F. Schoellkopf, Jr., president of the Niagara Share Corp., was a director of Republic Steel and Marine Midland Corp. William H. Coverdale, partner of Coverdale & Colpitts, was also director of Republic Steel and Commercial National Bank & Trust Co. of New York.



General American Investors and Niagara Share Corp.<sup>81</sup> Finally, it had directors in common with Penn Mutual Life and Home Insurance.<sup>82</sup> National Steel interlocked with both National City Bank of Cleveland and Peoples First National Bank & Trust Co. (Pittsburgh).<sup>83</sup> It also had two directors in common with Manufacturers National Bank of Detroit.<sup>84</sup>

Reflecting its long association with the Mellon interests and its orientation toward the Pittsburgh area, Jones & Laughlin Steel had two directors in common with the Mellon National Bank & Trust Co. and two with Peoples National Bank & Trust Co.<sup>85</sup> It also interlocked with Cleveland Trust Co. and National City Bank of Cleveland.<sup>86</sup>

It has been noted that both the Cleveland Trust Co. and the National City Bank of Cleveland appear to be meeting places for the "independent" steel corporations. Youngstown Sheet & Tube had two directors on the board of each of these banks.<sup>87</sup> On the former its directors sat in company with directors of Jones & Laughlin and Interlake Iron, and on the latter with Jones & Laughlin and National Steel.

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<sup>81</sup> James Bruce, vice president of National Dairy Products, was a director of Republic Steel and General American Investors, Inc. Jacob F. Schoellkopf, Jr., was president of Niagara Share Co., was a director of Republic Steel.

<sup>82</sup> George E. Allen, vice president of the Home Insurance Co., was also a director of Republic Steel and Penn Mutual Life.

<sup>83</sup> Joseph H. Thompson, vice president of M. A. Hanna Co., was also on the board of National Steel and National City Bank of Cleveland. George Magoffin Humphrey, president of M. A. Hanna Co., was a director of National Steel and National City Bank of Cleveland. Earl F. Reed of Thorp, Bostwick, Reed & Armstrong was on the board of National Steel and Peoples First National Bank & Trust Co.

<sup>84</sup> Murray W. Sales, president of Murray W. Sales Investment Co., was a director of National Steel and Manufacturers National Bank of Detroit. George R. Fink was president of National Steel and a director of the Manufacturers National Bank of Detroit.

<sup>85</sup> Benjamin F. Jones 3d, vice president, secretary, and director of Jones & Laughlin, was on the board of Mellon National Bank & Trust Co. William C. Robinson, president of National Electric Products Corp., was on the board of Jones & Laughlin and the Mellon National Bank & Trust Co. George M. Laughlin III, vice president and a director of Jones & Laughlin, was a director of Peoples First National Bank & Trust Co. William Larimer Jones, Jr., director and member of the executive committee of Jones & Laughlin, was also a director of the Peoples First National Bank & Trust Co.

<sup>86</sup> Edward B. Greene, president of Cleveland-Cliffs Iron, was on the board of Jones & Laughlin and the Cleveland Trust Co. John W. Reavis of Jones, Day, Cockley & Reavis, was a director of Jones & Laughlin and National City Bank of Cleveland.

<sup>87</sup> N. C. Bolton and Frank Augustus Scott were both members of the boards of Youngstown Sheet & Tube and the Cleveland Trust Co. Frank Purnell, president of Youngstown Sheet & Tube and Lewis Blair Williams, chairman of the board of the National City Bank of Cleveland were both directors of Youngstown Sheet & Tube and the National City Bank of Cleveland.

Primary iron and steel companies	Banks																				
	Chase National Bank, New York	National City Bank, New York	Guaranty Trust Co., New York	First National Bank, Chicago	Bankers Trust Co., New York	Chemical Bank & Trust Co., New York	First National Bank, Boston	Bank of the Man- hattan Co., New York	First National Bank, New York	Marine Midland Corp., Jersey City	Cleveland Trust Co., Cleveland	J. P. Morgan Co., Inc., New York	Northern Trust Co., New York	Mellon National Bank, Pittsburgh	Manufacturers Na- tional Bank, Detroit	National City Bank, Cleveland	First National Bank, St. Louis	Commerce Trust Co., Kansas City	Whitney National Bank, New Orleans	Indiana National Bank, Indianapolis	Commercial National Bank & Trust Co.
U. S. Steel Corp.					1	1			2			2	1								1
Republic Steel Corp.									1						2						
National Steel Corp.										1						2					
Jones & Laughlin Steel Corp.																					
Youngstown Sheet & Tube Co., The	1	1																1			
American Rolling Mill Co.				1									1								
Inland Steel Co.																					
Crucible Steel Co. of America													1	3							
Interlake Iron Co.										1											
Woodward Iron Co.							1														
Wood (Alan) Steel Co.						1													1		
Byers (A. M.) Co.														4							
Lukens Steel Co.								1													
Pittsburgh Coke & Chemical Co.						1															
Carpenter Steel Co.			1																		
Continental Steel Co.																				1	
Vanadium Corp. of America			1											1			1				
Laclede Steel Co.																					
Superior Steel Corp.														1							

Primary iron and steel companies	Banks—Continued						In- vest- ment banks	Investment trusts			Life insurance companies				Fire and casualty insurance com- panies					
	Mississippi Valley Trust Co., St. Louis	Hartford National Bank & Trust Co., Hartford	First National Bank, First Cincinnati	Peoples First National Bank & Trust Co. Pittsburgh	First National Bank, Birmingham	Central Trust Co., Cincinnati	Fidelity Philadelphia Trust Co., Phila- delphia	Lehman Bros.	Massachusetts In- vestors Second Trust	General American In- vestors, Inc.	Adams Express Co.	Niagara Share Corp.	New York Life In- surance Co.	Equitable Life As- surance Society of the United States	Mutual Life Insurance Co., New York	Penn Mutual Life Insurance Co.	Union Central Life Insurance Co.	Fidelity Phenix Fire Insurance Co.	Home Insurance Co.	U. S. Fidelity & Guar- anty Co.
U. S. Steel Corp.										1		1		1	1			1	1	
Republic Steel Corp.				1												1				
National Steel Corp.				2																
Jones & Laughlin Steel Corp.			1			1											1			
American Rolling Mill Co.														1						
Inland Steel Co.													1							
Wheeling Steel Corp.				1																
Pittsburgh Steel Co.				2																
Interlake Iron Co.											1									
Wood (Alan) Steel Co.				1																
Lukens Steel Co.							1													
Pittsburgh Coke & Chemical Co.				1																
Vanadium Corp. of America									1						1					
Follansbee Steel Corp.				1																
Firth-Sterling Steel & Carbide Corp.																				
Scullins Steel Co.	1							1												1
Superior Steel Corp.														1						
Tennessee Products Corp.		1																		
Pittsburgh Forging Co.								1												

<sup>1</sup> Also on Insuranshare Certificates, Inc.  
<sup>2</sup> Also on American International Corp

Other significant interlocks between steel companies and financial institutions included three directors in common between Crucible Steel and Meljlon National Bank & Trust Co.,<sup>88</sup> four directors in common between A. M. Byers and Mellon National Bank & Trust Co.;<sup>89</sup> and two director in common between Pittsburgh Steel and Peoples First National Bank & Trust Co.<sup>1</sup>

Among insurance companies, the interlocks of Equitable Life and Mutual Life were the most significant. Equitable Life, the fourth largest of the life insurance companies, had on its board directors who also served on the boards of U. S. Steel, American Rolling Mill, and Superior Steel.<sup>1a</sup> Mutual Life had a director in common with U. S. Steel and with Vanadium Corp.<sup>2</sup>

### FOUNDRY AND OTHER STEEL PRODUCTS

The foundry and miscellaneous steel products companies had numerous interlocks, some of which indicate communities of interest among producers of similar products. One such group of foundry companies (see chart 14) included American Steel Foundries, General Steel Castings Corp., and Midvale Co. American Steel Foundries had three directors in common with General Steel Castings;<sup>2a</sup> the latter

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<sup>88</sup>Lawrence Newbold Murray, president of the Mellon National Bank & Trust Co.; Wm. P. Snyder, Jr., chairman of the board of Crucible Steel; and Henry B. Higgins, chairman of the executive committee and president of Pittsburgh Plate Glass, were all directors of Crucible Steel Co. and the Mellon National Bank & Trust Co.

<sup>89</sup>George A. Blackmore, chairman of the board of A. M. Byers, Henry B. Higgins, president of Pittsburgh Plate Glass, and Alan M. Scaife, vice president of Gulf Oil, and J. F. Byers, chairman of the board of A. M. Byers Co., were all on the boards of A. M. Byers and the Mellon National Bank & Trust Co.

<sup>1</sup>Frank Faber Brooks, president of the Peoples First National Bank & Trust and Joseph V. Smith, vice president of Hubbard & Co., were directors of Pittsburgh Steel and the Peoples First National Bank & Trust Co.

<sup>1a</sup>James Byers Black, president of the Pacific Gas & Electric Co., was a director of U. S. Steel and the Equitable Life. C. R. Hook, president of Armco, was on the board of Equitable Life. R. J. Dodds of Reed, Smith, Shaw & McClay, was director of Superior Steel and Equitable Life.

<sup>2</sup>R. C. Stanley, chairman of the board and president of International Nickel, was on the boards of U. S. Steel and Mutual Life. Charles E. Adams, chairman of the board of Air Reduction, was a director of Vanadium Corp. and Mutual Life.

<sup>2a</sup>Thomas Drever, president and director, Charles C. Jarchow, and Charles L. Heater, vice presidents and directors, of American Steel Foundries, were all directors of General Steel Castings. At the annual meeting of May 5, 1948, in compliance with a request from the Department of Justice for the elimination of interlocking directorates between the two companies, three new directors, all of whom were officers but not directors of American Steel Foundries, were elected to the board of General Steel Castings to replace Messrs. Drever, Jarchow and Heater.

had two directors in common with Midvale Co.<sup>2b</sup> Both General Steel Castings and Midvale Co. were closely tied to the two principal locomotive manufacturers, and the latter are large users of foundry products. General Steel Castings had two interlocking directors with American Locomotive<sup>3</sup> and two with Baldwin Locomotive.<sup>4</sup> Midvale Co. and Baldwin Locomotive had eight directors in common.<sup>5</sup>

American Steel Foundries manufactures and sells many of the steel castings and fabricated parts used in the building and repair of railway cars and locomotives. The greater part of the business of the company and its subsidiaries comes from the railroads and builders of railroad equipment. General Steel Castings also produces equipment for railroads, consisting of special types of steel castings for use as engine beds, tender and freight cars, under frames, truck frames, passenger-car end-frames, etc. The principal users of these types of castings, such as Baldwin Locomotive, American Locomotive, and American Steel Foundries, control the company through common stock ownership. As of April 10, 1947, the common stock of General Steel Castings was held as follows: American Steel Foundries, 38 percent; Baldwin Locomotive Works, 32 percent; and American Locomotive, 13 percent.<sup>6</sup>

Midvale also produces special types of steel principally for the railroad equipment industry. Its principal products include locomotive and car wheel tires, various types of forgings including turbine and generator shafts, and a long list of other foundry products. The company, as of December 31, 1947, was owned 63.9 percent by Baldwin Locomotive Works.

It has been previously stated that U. S. Pipe & Foundry Co. controlled Sloss-Sheffield Steel. U. S. Pipe & Foundry also interlocked

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<sup>2b</sup> Charles E. Brinley, chairman of the board of Baldwin Locomotive, and Ralph Kelly, president of Baldwin Locomotive, were directors of both General Steel Castings and Midvale Co.

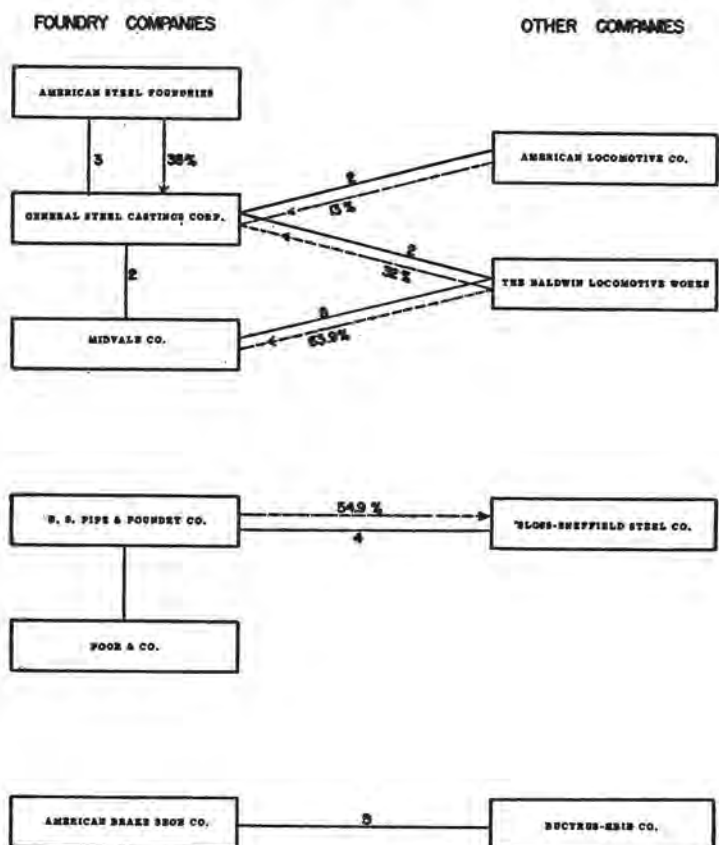
<sup>3</sup> Duncan W. Fraser, chairman of the board of American Locomotive, was a director of General Steel Castings, as was Robert B. McColl, president and director of American Locomotive.

<sup>4</sup> Charles E. Brinley, chairman of the board of Baldwin Locomotive and Ralph Kelly, president of Baldwin Locomotive, were both directors of Midvale Co., and of General Steel Castings. As part of the change in the General Steel Castings directorate already noted, Mr. Brinley and Mr. Kelly were replaced on the General Steel Castings board by Charles E. Acker and John D. Tyson, both vice presidents but not directors, of Baldwin Locomotive.

<sup>5</sup> Charles E. Acker, vice president and secretary of Baldwin Locomotive; Arnold Bernhard, president of Arnold Bernhard Co.; Charles E. Brinley, chairman of the board of Baldwin Locomotive; Joseph E. Ewing, partner of Saul, Ewing, Pemick & Saul; Harry L. Frevert, director of Midvale Co.; Edward Hopkinson, Jr., partner of Drexel & Co.; Ralph Kelly, president of Baldwin Locomotive; and Robert C. Shields, director of Fisher & Co., were all on the boards of both Midvale Co. and Baldwin Locomotive.

<sup>6</sup> Moody's Industrials, 1948, p. 1099.

# SIGNIFICANT INTERLOCKS OF FOUNDRY COMPANIES 1946



Solid lines indicate common directors; broken lines, stock ownership.

CHART 14.

with Poor & Co.<sup>7</sup> The latter and its subsidiaries are engaged in the development, manufacture, purchase and sale of railway supplies.<sup>8</sup> U. S. Pipe & Foundry had also a director in common with Yale & Towne Manufacturing Co., the leading manufacturer of locks and building hardware.<sup>9</sup>

<sup>7</sup> Victor C. Armstrong, chairman of the board of Rail Joint Co., Inc., was a vice president and director of Poor & Co. and director of U. S. Pipe & Foundry.

<sup>8</sup> Moody's Industrials, 1948, p. 1848.

<sup>9</sup> S. Bayard Colgate, chairman of the board and member of the executive committee of Colgate-Palmolive-Peet, was on the boards of U. S. Pipe & Foundry and Yale & Towne.



A number of other interlocks are suggestive of alliances between suppliers and customers. For example, Continental Foundry & Machine Co., a large consumer of pig iron, had an interlock with Woodward Iron Co.,<sup>10</sup> the second largest merchant pig iron company in the country.

American Brake Shoe, which manufactures and sells brake shoes, miscellaneous iron, brass, bronze, manganese and alloy steel castings, railroad track fixtures and accessories, forgings, and automotive friction brake materials, had five directors in common with Bucyrus-Erie Co.<sup>11</sup> Bucyrus-Erie is a leading producer of excavating machinery and other apparatus.

American Brake Shoe and Poor & Co. both had interlocks with two of the country's leading agricultural machinery companies; namely, International Harvester and J. I. Case Co.<sup>12</sup>

Washburn Wire Co. interlocked with Associated Spring Co.<sup>13</sup> Associated Spring manufactures precision springs of all types for mechanical purposes except leaf springs, upholstery or bed springs, and railroad car springs. The company also manufactures metal stamping and spring assemblies. Associated Spring owned 5,000 shares of the common stock of Washburn Wire Co.<sup>14</sup> Although this is a small percentage of the total of 39,600 shares outstanding, it reflects the close relationship of Associated Spring and Washburn Wire.

The foundry industry had a number of interlocks with railroads, logical outlets for many of its products. Midvale Co. had a director in common with Pennsylvania Railroad.<sup>15</sup> American Brake

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<sup>10</sup> David Allan Burt of Hazlett, Burt & Watson, Ltd., was a director of Continental Foundry & Machine and Woodward Iron.

<sup>11</sup> W. W. Coleman, chairman of the board of Bucyrus-Erie, Arthur Vining Davis, chairman of Alcoa, William B. Given, Jr., president of American Brake Shoe, William Greene Pearce, chairman of the board of American Brake Shoe, and Daniel E. Pomeroy, were all on the boards of Bucyrus-Erie and American Brake Shoe.

<sup>12</sup> Edward Larned Ryerson, chairman of the board of Inland Steel was a director of both American Brake Shoe and International Harvester; and Judson F. Stone, manager of McCormick Estates was both a director of Poor & Co. and of International Harvester. W. W. Coleman was on the board of American Brake Shoe and J. I. Case; Fred A. Poor, chairman and president of Poor & Co., was a director of J. I. Case.

<sup>13</sup> Fuller J. Barnes, president of Associated Spring Corp., was also director of Washburn Wire.

<sup>14</sup> Moody's Industrials, 1948, p. 859.

<sup>15</sup> James E. Gowan, president and member of the board of managers of the Girard Trust Co. (Philadelphia) was a director of the Midvale Co. and the Pennsylvania Railroad.

Shoe had a director in common with New York Central and with Atchison, Topeka & Santa Fe.<sup>17</sup>

A number of foundry companies had interlocking directorates with financial institutions. American Brake Shoe had two directors in common with Bankers Trust Co., one with J. P. Morgan & Co., one with New York Trust Co., one with Northern Trust Co., and three with Mellon National Bank & Trust Co.<sup>18</sup> It also had a director in common with New York Life and Northwestern Mutual Life.<sup>19</sup> General Steel Castings, which is affiliated with American Brake Shoe, also had an interlock with J. P. Morgan & Co., as well as one each with Harris Trust & Savings Bank of Chicago, First National Bank in St. Louis, American National Bank & Trust Co. of Chicago, New York Life, and Penn Mutual Life.<sup>20</sup> Blaw-Knox had three directors in common with Peoples First National Bank & Trust Co. (Pittsburgh), and a director on the board of Northwestern Mutual Life.<sup>21</sup>

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<sup>17</sup> Lawrence Newbold Murray, president of the Mellon National Bank & Trust Co., was a director of American Brake Shoe, and the New York Central. Edward L. Ryerson, chairman of the board of Inland Steel, was a director of American Brake Shoe and the Atchison, Topeka & Santa Fe.

<sup>18</sup> William B. Given, Jr., president of American Brake Shoe, was a director of Bankers Trust Co. and the Mellon National Bank & Trust Co. Daniel E. Pomeroy was a director of American Brake Shoe, and Bankers Trust Co. William Frye Cutler, vice president of American Brake Shoe was also director of New York Trust Co. Arthur Vining Davis, chairman of the board of Alcoa, was a director of American Brake Shoe and the Mellon National Bank & Trust Co. E. L. Ryerson, chairman of the board of Inland Steel, was a director of American Brake Shoe and the Northern Trust Co. (Chicago.). L. N. Murray, president of the Mellon National Bank & Trust Co., was also a director of American Brake Shoe. Henry P. Davison, vice president of J. P. Morgan & Co., was director of American Brake Shoe.

<sup>19</sup> W. W. Coleman, chairman of the board of Bucyrus-Erie and a director of American Brake Shoe, was a director of Northwestern Mutual Life. E. L. Ryerson, chairman of the board of Inland Steel and a director of American Brake Shoe, was a director of New York Life.

<sup>20</sup> Thomas Drever, president of American Steel Foundries, was a director of General Steel Castings and the Harris Trust & Savings Bank. Charles A. Liddle, chairman of the board of Pullman-Standard Car Manufacturing Co., was a director of General Steel Castings and the American National Bank & Trust Co. Harry M. Pfleger was a director of General Steel Castings and the First National Bank in St. Louis. Charles Denston Dickey, vice president of J. P. Morgan & Co., was on the board of General Steel Castings and New York Life. Charles E. Brinley, chairman of the board of Baldwin Locomotive, was a director of General Steel Castings and the Penn Mutual Life.

<sup>21</sup> Gwilym A. Price, president of Westinghouse Electric, was a director of Blaw-Knox, the Peoples First National Bank & Trust Co., and the Central Hanover Bank & Trust Co. William Potter Witherow, chairman of the board and president of Blaw-Knox, was also on the board of Peoples First National Bank & Trust Co. and the Northwestern Mutual Life. Robert C. Downie, president of the Peoples First National Bank & Trust Co., was also a director of Blaw-Knox.

## SUMMARY

Interlocking relations within the primary iron and steel industry centered chiefly in four groups. U. S. Steel was the nucleus of one group and this company interlocked indirectly with 11 other members of the industry many of which are directly competitive with it. These interlocks were achieved through some of the largest corporations in the country, including New York Central, General Electric, Equitable Life, Pullman, Northern Trust of Chicago, Atchison, Topeka & Santa Fe, Mutual Life, and Chemical Bank & Trust Co. (New York). The second group centered in prominent iron ore and banking concerns located in Cleveland, and brought together a number of leading so-called independent steel companies. Included in this group were Republic Steel, Youngstown Sheet & Tube, Inland Steel, Wheeling Steel, Interlake Iron, Jones & Laughlin, and National Steel. Jones & Laughlin was also tied in with the third group which centered in the Mellon family and certain companies within the Mellon sphere of influence. Interlocking relations within the Mellon group embraced Bethlehem Steel, Armco Steel, Crucible Steel, A. M. Byers, Superior Steel, Granite City Steel, and Vanadium Corp. of America. U. S. Steel was also linked to the group through Pullman. Finally, the fourth group centered in the Peoples First National Bank & Trust Co. (Pittsburgh) and certain companies controlled by John H. Hillman, Jr. This fourth group included Pittsburgh Steel, Sharon Steel, Alan Wood Steel, Follansbee Steel and Pittsburgh Coke & Chemical Co. The Peoples First National Bank & Trust Co.-Hillman group was linked to the Cleveland group by National Steel and Wheeling and to the Mellon group by direct interlocks between Pittsburgh Coke & Chemical and Sharon on the one hand, and Byers on the other. These interrelations stemming from these four groups encompass such a substantial share of the steel industry and are so complicated that they may form a pattern of control over the industry.

Interlocking relations were also maintained between the steel companies and some of their largest customers. Thus U. S. Steel interlocked directly with nine steel consuming companies; Republic with nine; Jones & Laughlin with six; Crucible Steel with six; Armco with five; and Youngstown Sheet & Tube, Sharon Steel, and A. M. Byers with four each.

Finally, the interlocks with financial institutions were of primary significance in the steel industry. U. S. Steel maintained interlocking directorates with several prominent New York banking organizations, including some with which it has been associated for nearly half a century, such as J. P. Morgan & Co., Inc., and First National Bank of the City of New York. The Mellon National Bank & Trust Co. was interlocked with a large number of steel companies, as were the Cleve-

land Trust Co., the National City Bank of Cleveland, and the Peoples First National Bank & Trust Co. (Pittsburgh). Similarly, close relations were maintained between large steel companies and prominent insurance companies.

The foundry branch of the primary metals industry is notable for the close relationships between many of its members and their major outlets, particularly in the railroad equipment field.

## Chapter 6

### NONFERROUS METALS

The nonferrous industry as analyzed herein consists of 15 primary producers of aluminum, copper, zinc, and lead and nine fabricators of these metals. Most of the primary producers are highly integrated from mining the ore through the production of the raw metal in semi-finished form. The most important producers, especially of copper and aluminum, also produce the finished shapes, wires, sheets, etc., which are used by the numerous businesses that process and use non-ferrous metals. They also manufacture many finished products, ranging from teakettles to transmission-line conductors. The more completely integrated primary producers, therefore, compete in many lines with fabricators to whom they sell crude metals and with processors to whom they sell finished sheets, shapes, wire, and the like.

Copper, aluminum, zinc, and lead, the principal metals produced by the companies listed under the nonferrous classification in this analysis, are important basic components of the products of many manufacturing industries. Copper, for example, provides the metallic base on which the electrical industry and its related service businesses, the electric and communication utilities, have been developed. There is some competitive interchangeability of use of the metals within the industry as in the case of aluminum competing with copper in the transmission of electricity and in other less important uses. There is also considerable competition between the nonferrous metals and the ferrous metals in various applications, depending on relative costs and availability and on service requirements. Copper and brass (an alloy of copper and zinc) are used extensively to replace iron or steel pipe in modern houses because they give better service; aluminum sheet is frequently used in place of steel sheet because it may be more readily procured, because it is lighter and enables transportation equipment to carry a greater pay load, because it resists corrosion better than steel, or because it may even be cheaper on a service basis. Zinc, as a coating on steel sheet, competes with aluminum, and lead also has a similar application.

Producers of other important nonferrous metals, such as tin and magnesium, are not included in the list of the 1,000 largest corporations. The significance of these metals as critical and strategic mate-

rials and the high degree of concentrated control that exists, however, call for some comment.

Tin ore is almost exclusively a foreign product and prior to World War II the smelting was also a foreign operation, with the exception of detinning operations controlled by American Can Co. and Continental Can Co. A large tin smelter was built by the Government at Texas City during the war. The design and construction of the plant was under the direction of the Dutch company, Billiton Maatschappij, which continues to operate the plant under contract, using principally Indonesian and lower-grade Bolivian ores.

Billiton is interlocked with the competitive British and Bolivian tin interests through a complicated set of director relationships, shown in summary form in table 25. There appear to be no interlocks with domestic corporations.

Magnesium, which is lighter than aluminum and competitive with that metal in many respects, was produced on a large scale by various Government-financed plants during the war. Production is now concentrated in plants owned or operated by Dow Chemical Co., which is here classified as a chemical company. There appeared to be no interlocks through directors between that company and any of the companies in the nonferrous metals group.

The interlocks between companies in the nonferrous group and companies in other industry and business groups are shown on tables 26, 27, and 28. The companies in the nonferrous industry are listed in the stub and the companies in other industry groups are listed in the columnar headings. The direct interlocks of any company listed in the stub are shown by the numbers appearing at the intersections of the horizontal lines with the columns corresponding to the company or companies with which interlocks are shown. Thus the numeral "1" indicates that the two companies have one director in common, "2" indicates two directors in common, and so on.

Table 26 shows as of 1946 the direct interlocks between the producing and fabricating companies and corporations in those industries that have a direct interest in nonferrous metals either as processors of the metals and as users of nonferrous metal products or as competitors in the supply of other metals.

There were no direct interlocks between companies within the nonferrous industry except those between American Smelting & Refining Co. and the fabricating companies historically regarded as its affiliates, i. e., Revere Copper & Brass Co. and General Cable Corp. The continuance of the interlocks assures the fabricators of a source of supply of domestic raw copper and safeguards an outlet for the former parent company in periods of reduced demand for the metal. The smelting company does not fabricate copper, and Revere and General Cable produce noncompetitive commodities.



Anaconda Copper Mining Co. interlocked with Anaconda Wire & Cable Co., a subsidiary of the mining company.

Table 26 indicates that there were 101 interlocks between 20 companies in the nonferrous industry and 68 companies that produce, process, or consume metals. Four of the 24 nonferrous companies listed—Reynolds Metals Co., Calumet & Hecla Consolidated Copper Co., Magma Copper Co., and Anaconda Wire & Cable—had no direct interlocks with companies in the industries shown on table 26.

Classified by industries, the 20 nonferrous companies interlocked with nine primary metal producers, seven fabricated metal producers, 13 machinery (except electrical) companies, four electrical machinery companies, 15 transportation equipment companies, two instruments, etc., producers, seven public utilities, and 11 railroads.

Table 27 shows the interlocks between the companies in the nonferrous industry and the companies in other industry groups less closely related by interdependent supply or competitive considerations than the other metals producing and consuming industries listed in table 26. Four of the 24 nonferrous companies listed—St. Joseph Lead Co., Anaconda Wire & Cable, Mueller Brass Co., and Bohn Aluminum & Brass Corp.—had no direct interlocks with the companies in the industry groups shown in table 27.

Nineteen companies in the nonferrous industry interlocked with 57 companies in various nonrelated industry groups, with a total of 60 interlocking directors. On an industry basis, the 19 companies in the nonferrous industry interlocked with 10 companies in food and kindred products, six companies in textile mill products, four companies in paper and allied products, two companies in printing and allied industries, nine companies in chemicals and allied products, eight companies in products of coal and petroleum, three companies in rubber products, and six companies in stone, clay, and glass products.

Table 28 summarizes the interlocks between the companies in the nonferrous industry and various financial institutions. Twenty-one companies in the nonferrous industry interlocked with 55 banks and other financial institutions through a total of 104 interlocking directors.

Three of the 24 nonferrous companies listed—Reynolds Metals, American Zinc, Lead & Smelting Co., and Scovill Manufacturing Co.—had no interlocks with the financial institutions shown in table 28.

By classes of financial institutions, the 21 companies in the nonferrous industry interlocked with 23 banks, two investment banks, 16 investment trust companies, eight life insurance companies, and six casualty and surety insurance companies.

It is apparent from an inspection of these tables that a distinguishing feature of interlocks in the nonferrous industry was the importance

[D—Director. Chr—Chairman of the Board. P—President. V. P.—Vice president. M—Manager. S—Secretary. EC—Member of the Executive Committee.  
C—Member of the Council]

Companies	Officers and directors																												
	Begmann, F. A.	du Boisvourway, Guy	Budd, J. C.	Burgess, G. F. A.	Farquharson, J. R.	Gibson, J. A. W.	de Graeff, A. C. D.	Groothoff, A.	Horner, P. K.	Houwart, F. J.	Hurricane, A. M. S.	de Jende, O. C. A. van L.	Marchwood, Viscount	Mure, W.	Ortiz-Linares, J.	Patiño, Antenor	Patiño, Senora	Pearce, Ernest V.	Pearce, G. C.	Schiet, E. A. E.	van Serooskerken, Baron	Speus, J. Ivan	van Verduynen, Michiels	Vermeulen, J. A.	Walte, C	Weedon, S. J.	Weljerman, A. W. E.	Wijmans, A. M. A.	
Amalgamated Metal Corp., Ltd., <sup>1</sup> leading dealers in tin			D			S					D	D		D							Chr	D							D
Billiton Maatschappij, <sup>2</sup> holding and operating company	D																												
British Metal Corp., Ltd., <sup>3</sup> subsidiary of Amalgamated			M	M		S							D																
British-American Tin Mines, Ltd., <sup>4</sup> holding company				D	D				M							D		Chr											
British Tin Investment Corp., Ltd., <sup>5</sup> holding company		D		D		S								D	D	D		Chr								D			
Consolidated Tin Smelters, Ltd., <sup>6</sup> principal British smelter	D	D											D	D		D		Chr	M							D			D
Eastern Smelting Co., Ltd., <sup>7</sup> Malaya smelters of CTS (20)		D											D	D		D		D	D							M			
G. M. B., Indonesian Government owns 96; Billiton 4							Chr	D				D										D						D	
General Tin Investments, Ltd., <sup>8</sup> holding company		D				S									D	Chr		D								D			
H. M. B., the Arnhem Smelter Co., <sup>10</sup>							Chr	D			D					D						D						D	
London Tin Corp., Ltd., <sup>11</sup> mining finance, etc.				D	M																	Chr					S		
Patiño Mines & Enterprises Consolidated, <sup>12</sup> mining		D												D	D	D	P												
Southern Kinta Consol., Ltd., <sup>13</sup> mining, Malaya				D																		Chr							



Designated industry	Primary	Primary metals producing companies		Metals processing and consuming industries																																						
		Fabricated metal products										Machinery, except electrical										Electrical machinery		Transportation equipment																		
		United States Steel Corp.	National Steel Corp.	Climax Molybdenum Co.	American Brake Shoe Co.	General Steel Castings Corp.	Woodward Iron Co.	Granite City Steel Co.	National-Standard Co.	Warren Foundry & Pipe Corp.	Babcock & Wilcox Co., The	American Chain & Cable Co., Inc.	American Hardware Corp., The	Aluminum Goods Mfg. Co.	National Enameling & Stamping Co.	Detroit Steel Products Co.	Petroleum Heat & Power Co.	Remington Rand, Inc.	United Shoe Machinery Corp.	National Cash Register Co.	Otis Elevator Co.	Continental Motors Corp.	Bucyrus-Erie Co.	Underwood Corp.	Carrier Corp.	United States Hoffman Machinery Corp.	Ex-Cell-O Corp.	Torrington Co. (Maine)	New Britain Machine Co.	Greenfield Tap & Die Corp.	General Electric Co.	Westinghouse Electric Corp.	Wagner Electric Co.	Landers, Frary & Clark	General Motors Corp.	Chrysler Corp.	Pullman, Inc.					
Anaconda Copper Mining Co.																				1																						
Kennecott Copper Corp.						1								2																												
Aluminum Co. of America				1																																						
American Smelting & Refining Co.																																										
Phelps Dodge Corp.		1																																								
National Lead Co.																																										
Reynolds Metals Co.																																										
New Jersey Zinc Co.																																										
American Metal Co., Ltd., The	1		3								1								1												1		1									
United States Smelting, Refining & Mining Co.							1												5													1										
St. Joseph Lead Co.	1																																									
Calumet & Hecla Consolidated Copper Co.	1																																									
Copper Range Co.																	2																									
American Zinc, Lead & Smelting Co.								2		1						3																										
Magma Copper Co.																																										



TABLE 26.—Direct interlocks between nonferrous metals companies and metals producing, processing, and consuming industries—Continued

Designated industry	Metals processing and consuming industries—Continued		Metals consuming industries			
	Transportation equipment—Continued		Utilities		Railroads	Instruments, etc.
Anaconda Copper Mining Co.	Bendix Aviation Corp.		American Telephone & Telegraph Co.		Pennsylvania R. R. Co.	
Kennecott Copper Corp.	Borg-Warner Corp.		Southwestern Bell Telephone Co.		N. Y. Central R. R. Co.	
Aluminum Co. of America	Westinghouse Air Brake Co., The	1	Bell Telephone Co. of Pennsylvania		Union Pacific R. R. Co.	2
American Smelting & Refining Co.	White Motor Co., The	1	New Jersey Bell Telephone Co.		Southern Pacific Co.	2
Phelps Dodge Corp.	Newport News Shipbuilding & Dry Dock Co.		Consolidated Edison Co. of N. Y.	1	Baltimore & Ohio R. R. Co., The	1
National Lead Co.	Houdaille-Hershey Corp.		Brooklyn Edison Co.		Chicago, Milwaukee, St. Paul & Pacific R. R.	1
Reynolds Metals Co.	Kelsey-Hayes Wheel Co.		American Power & Light Co.	2	Northern Pacific Ry. Co.	1
New Jersey Zinc Co.	Kelsey-Hayes Wheel Co.		Union Electric Co. of Mo.		Central of Ga. Rwy. Co.	1
American Metal Co., Ltd., The	Reo Motors, Inc.		Western Union Telegraph Co.	1	N. Y., New Haven & Hartford R. R.	1
United States Smelting & Refining Co.	Republic Aviation Corp.	1	Philadelphia Transportation Co.		Seaboard Air Line Ry. Co.	
St. Joseph Lead Co.	Cramp Shipbuilding Co.		Stone & Webster, Inc.		Long Island R. R. Co.	1
	Noblitt-Sparks Industries, Inc.		Pennsylvania R. R. Co.	1	Veeder-Root, Inc.	1
	McDonnell Aircraft Corp.	1	N. Y. Central R. R. Co.		General Time Instruments Corp.	
	American Telephone & Telegraph Co.	1	Union Pacific R. R. Co.			
	Southwestern Bell Telephone Co.		Southern Pacific Co.			
	Bell Telephone Co. of Pennsylvania	1	Baltimore & Ohio R. R. Co., The			
	New Jersey Bell Telephone Co.		Chicago, Milwaukee, St. Paul & Pacific R. R.			
	Consolidated Edison Co. of N. Y.	1	Northern Pacific Ry. Co.			
	Brooklyn Edison Co.		Central of Ga. Rwy. Co.			
	American Power & Light Co.	2	N. Y., New Haven & Hartford R. R.			
	Union Electric Co. of Mo.		Seaboard Air Line Ry. Co.			
	Western Union Telegraph Co.	1	Long Island R. R. Co.			
	Philadelphia Transportation Co.		Veeder-Root, Inc.			
	Stone & Webster, Inc.		General Time Instruments Corp.			





TABLE 27.—Direct interlocks between nonferrous metals companies and other manufacturing industries

Selected industry	Food									Textile mill products					Paper			Printing				
	National Distillers Products Corp.	General Foods Corp.	National Biscuit Co.	American Sugar Refining Co.	Wilson & Co., Inc.	Continental Baking Co.	Canada Dry Ginger Ale, Inc.	Central Aguirre Associates	Colorado Milling & Elevator Co.	Peter Paul, Inc.	United Merchants & Manufacturers, Inc.	Armstrong Cork Co.	Bigelow-Sanford Carpet Co., Inc.	Kendall Co., The	Plymouth Cordage Co.	Dwight Manufacturing Co.	Container Corporation of America	Robert Gair Co.	United States Envelope Co.	Dixie Cup Co.	American Bank Note Co.	Cuneo Press, Inc.
Primary						1													1		1	
Anaconda Copper Mining Co.																						
Kennecott Copper Corp.																						
Aluminum Co. of America																			1			
American Smelting & Refining Co.		1	1	1																		
Phelps Dodge Corp.																						
National Lead Co.																						
Reynolds Metals Co.																						
New Jersey Zinc Co.																						
American Metal Co., Ltd., The																						
United States Smelting, Refining, & Mining Co.								2			1		1		1	1					1	
St. Joseph Lead Co.																						
Calumet & Hecla Consolidated Copper Co.												1										
Copper Range Co.														1								
American Zinc, Lead & Smelting Co.																		1				
Magma Copper Co.																						
Fabricators																						
Anaconda Wire & Cable Co.											1											
Scovill Manufacturing Co.																						
Revere Copper & Brass, Inc.				1																		
Bridgeport Brass Co.	1						1										1					
Mueller Brass Co.																						
Fansteel Metallurgical Co.					1																	
Bohn Aluminum & Brass Corp.									1											1		1
Doehler-Jarvis Corp.																						
General Cable Corp.				1																		

Selected industry	Chemicals									Petroleum and coal products							Rubber			Stone, clay, and glass products						
	du Pont (E. I.) de Nemours & Co.	Union Carbide & Carbon Corp.	Remell Drug, Inc.	International Minerals & Chemical Corp.	Industrial Rayon Corp.	Mathieson Alkali Works, Inc.	American Enka Corp.	Pennsylvania Salt Co.	Sharpe & Dohme, Inc.	Texas Co.	Gulf Oil Corp.	Shell Union Oil Corp.	Continental Oil Co.	Mid-Continent Petroleum Corp.	Koppers Co., Inc.	Bird & Son, Inc.	Crown Central Petroleum Corp.	United States Rubber Co.	Goodrich (B. F.) Co.	Dewey & Almy Chemical Co.	Pittsburgh Plate Glass Co.	Lone Star Cement Corp.	Celotex Corp., The	Pennsylvania-Dixie Cement Corp.	Missouri Portland Cement Co.	Carborundum Co.
Primary																										
Anaconda Copper Mining Co.	1								1				1	1			1									
Kennecott Copper Corp.											1		2					1								
Aluminum Co. of America												1			1						1					
American Smelting & Refining Co.						1	1						1													
Phelps Dodge Corp.		1		1																						
National Lead Co.								1			1															
Reynolds Metals Co.																										
New Jersey Zinc Co.		1																								
American Metal Co., Ltd., The																										
United States Smelting, Refining & Mining Co.																										
St. Joseph Lead Co.			1													2				1						
Calumet & Hecla Consolidated Copper Co.																										
Copper Range Co.																										
American Zinc, Lead & Smelting Co.																										
Magma Copper Co.													1									1				
Fabricators																										
Anaconda Wire & Cable Co.																										
Scovill Manufacturing Co.																							1			
Revere Copper & Brass, Inc.																										
Bridgeport Brass Co.																										
Mueller Brass Co.				1																				1		
Fansteel Metallurgical Co.																										
Bohn Aluminum & Brass Corp.																										
Doehler-Jarvis Corp.																							1			
General Cable Corp.																										

[illegible]

Selected Industry	Investment trusts															Life insurance companies							Fire and casualty insurance companies								
	Massachusetts Investors Trust	Massachusetts Investors 21	Tri-Continental Corp.	Selected Industries, Inc.	General Shareholders Corp.	Adams Express Co.	American International Corp.	State St. Investment Corp.	First York Corp.	Incorporated Investors	Newmont Mining Corp.	Scudder, Stevens & Clark	Investment Co. of America	Railway & Light Securities Co.	Capitol Managers, Inc.	Tobacco & Allied Stocks, Inc.	Metropolitan Life Insurance Co.	Prudential Insurance Co.	New York Life Insurance Co.	Mutual Life Insurance Co. of New York	John Hancock Mutual Life Insurance Co.	Aetna Life Insurance Co.	Penn Mutual Life Insurance Co.	Mutual Benefit Life Insurance Co.	Aetna Casualty & Surety Co.	Continental Insurance Co.	Fidelity-Phoenix Fire Insurance Co.	American Eagle Fire Insurance Co.	Fidelity & Casualty Co.	Alliance Insurance Co.	
Primary						1	1												2	1											
Anaconda Copper Mining Co.																															
American Smelting & Refining Co.											1																1	1			
Phelps Dodge Corp.																															
National Lead Co.																															
New Jersey Zinc Co.																															
American Metal Co., Ltd., The																															
U. S. Smelting Refining & Mining Co.	2	1	1	1	1		1	1	1	1		1		1	1			1			2										
St. Joseph Lead Co.																															
Copper Range Co.																															
Magma Copper Co.											3						1	1													
Fabricators																															
Bridgeport Brass Co.																								1							
Fansteel Metallurgical Co.																1															
Bohn Aluminum & Brass Corp.													1																		
General Cable Co.																			2												

and frequency of the interlocks with banking and other financial institutions. Second in importance were interlocks with companies that produce, process, and consume metals. The interlocks with companies in other industries (table 27) were in general neither as frequent nor as important as those with financial concerns or with processors or important users of nonferrous metals. An exception in this third group was the large number of interlocks between the larger nonferrous metals producers and certain petroleum producers. These and other details are discussed hereafter.

In sum, 24 companies listed as nonferrous metals producers and fabricators directly interlocked 265 times with 171 companies in other industries or businesses. This large number of direct interlocks between a small number of companies in the nonferrous industry and many companies in other industries and businesses does not appear to follow any clear-cut pattern of interest. For example, there were 49 interlocks with 46 companies in such industries as food, textiles, paper, printing, petroleum, rubber, etc. The companies in such industries are relatively unimportant users of the nonferrous metals in their primary or semifinished forms. They are also unimportant from a competitive standpoint. The companies in these industry groups with which the nonferrous metals producers have direct interlocks are, however, large companies with extensive interconnections with other businesses. They, together with the financial institutions, provided the producers of nonferrous metals with numerous indirect interlocks with other industries in which the supply of the metals is an important factor. Some of the indirect interlocks also provided interconnections between the companies in the nonferrous industry that may have affected competitive relationships within the industry. Such interconnections within the industry are discussed below.

#### INDIRECT INTERLOCKING RELATIONS WITHIN THE INDUSTRY

Table 29 shows only the cases where the direct interlocks of nonferrous metal producers with companies in other industries result in indirect interlocks between the companies in the nonferrous metals industry.

Indirect interlocks between two or more companies in an industry exist when such companies have directors who also appear on the board of directors of a company listed in the columnar headings of the chart. For example, the Big Three of the copper industry, Anaconda Copper, Kennecott Copper, and Phelps Dodge Corp. had directors on the board of Continental Oil Co.; Anaconda Copper and Phelps Dodge met on the board of the National City Bank; and Anaconda Copper and Kennecott Copper met on the Guaranty Trust board. The table thus reveals the numerous indirect inter-



connections between 16 leading companies in the nonferrous metals industry that are effected through common membership on the boards of directors of other companies. Of 61 such interconnections, 38 were through 10 financial institutions and 23 were through nine companies in other industries.

Of the 16 nonferrous companies in this table, 12 are producers of the basic materials. Eight of the latter are highly integrated; four are nonintegrated fabricators. These four companies, Bridgeport Brass, Mueller Brass, Anaconda Wire & Cable, and Doehler-Jarvis Corp., are dependent on the integrated producers of metals for their supplies of raw materials. Actually only three of the fabricators are thus dependent on others, for Anaconda Wire & Cable is a subsidiary of Anaconda Copper, one of the world's largest producers of copper and also an important producer of lead and zinc, essential materials for fabricators.

The indirect interlocks shown by table 29 may fairly be classed, for the most part, as having a tendency to control or limit competition. The interlocking directors from the companies in the nonferrous metals industry met one another in the board rooms of many of the most important banks and industries of the country. Although there were no direct interlocks between nonferrous metals producers, it is apparent from the chart that there were numerous indirect interlocks.

The importance of these interlocks can be appreciated when it is considered that from the mines to the fabricated (processed) materials, the metals producing, smelting and refining companies shown in table 29 represent the bulk of the domestic output of copper, lead, and zinc, and control of most of the imported copper.

Large capital investments characterize the leading companies in the copper industry. Policies that tend to assure high rates of return appear to be of common interest to the producers and the financial houses through which they interlock. Price "stability," for example, has long been a desired goal of the producers of copper and other nonferrous metals.<sup>1</sup>

Testimony before the Temporary National Economic Committee indicated that leaders of the copper industry then considered a price of 18 cents per pound to represent a satisfactory level for price stabilization of copper. The record showed various determined efforts to hold the price at high levels in the face of recurring periods of falling demand for copper and heavy accumulations of inventory. These efforts have included what has appeared to be concerted action to restrict copper output, as in 1921, when the mines belonging to the members of the Copper Export Association and to nonmember pro-

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<sup>1</sup> Report of the Federal Trade Commission on the Copper Industry, 1947, pp. 183-250, chapter VI, Cartels and Combinations to Control Copper Prices.

TABLE 29.—*Indirect interlocks within the nonferrous metal industry*

	Finance												Other																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
	Banks							Investment trusts	Insurance companies																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Chase National, New York	National City, New York	Guaranty Trust Co. New York	Central Hanover & Trust, New York	Bankers Trust Co.	Irving Trust Co., New York	Marine Midland Corp.			J. P. Morgan & Co.	American International Corp.	Newmont Mining Corp.	New York Life Insurance Co.	Mutual Life Insurance Co., New York	United States Steel Corp.	General Electric Co.	American Telephone & Telegraph	Consolidated Edison, New York	American Sugar Refining Co.	American Bank Note Co.	Union Carbide & Carbon	International Mineral & Chemical	Continental Oil Co.	Pennsylvania R. R. Co.	Northern Pacific Ry. Co.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
PRIMARY PRODUCERS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													

ducers who sold through the association were shut down for nearly 10 months.

Four copper producers—Anaconda Copper, Kennecott Copper, Phelps Dodge, and Magma Copper—control over 85 percent of the copper production of the United States. Magma Copper is now of minor importance but it possesses and is developing very large reserves of low-grade ore discovered during the war. Its importance will grow as the reserves of the larger companies shrink. Magma Copper is therefore classed here as one of the "Big Four" in copper.

American Smelting & Refining and American Metal Co. are the principal custom smelters of the country and represent the greater part of the country's smelting capacity. They smelt and refine metals for all comers and customarily sell the resulting products largely through open-market operations. Their primary interest is to keep their plants operating at as high capacity as possible. The products are sold as produced; if no buyers appear at the offering price, the price is dropped until the metal moves. In view of the fact that this policy has been strongly opposed in the past by copper producers, it is interesting to note the high degree of interconnection that existed between the smelter companies and the large copper producers in 1946. This is shown graphically in chart 15.

American Smelting & Refining met Kennecott Copper and American Metal through Chase National Bank. It also met Phelps Dodge through Central Hanover Bank & Trust Co.<sup>2</sup>

American Metal met Anaconda Copper through American Bank Note Co., Kennecott Copper through General Electric Co., and Magma Copper through Newmont Mining Co., with which American Metal was also directly interlocked.<sup>3</sup>

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<sup>2</sup>H. O. Havemeyer, president of Brooklyn Eastern District Terminal, and A. W. Page, director of American Telephone & Telegraph Co., are both directors of Kennecott Copper and the Chase National Bank. F. H. Brownell, chairman of the board of American Smelting & Refining, and H. D. Campbell, vice chairman of the board of Chase National Bank were both directors of American Smelting & Refining and the Chase National Bank. R. C. Stanley, chairman of the board and president of International Nickel Co. of Canada, Ltd., was a director of American Metal Co. and the Chase National Bank.

<sup>3</sup>E. R. Harriman of Brown Bros. Harriman & Co., was also a director of Anaconda Copper and American Bank Note; J. F. Thompson, executive vice president of International Nickel, was a director of American Metal and American Bank Note. C. D. Dickey, vice president of J. P. Morgan & Co., was on the boards of General Electric and Kennecott Copper; R. C. Stanley, chairman of the board and president of International Nickel, was on the boards of General Electric and American Metal. F. Searls, Jr., president and director of Newmont Mining, was a director of American Metal. C. F. Ayer, chairman of the board of Newmont Mining and president of Magma Copper, and H. E. Dodge, secretary and treasurer of Newmont Mining, were directors of both Newmont Mining and Magma Copper. H. DeWitt Smith was a director of Newmont Mining and Phelps Dodge.

# NON-FERROUS METALS INDIRECT INTERLOCKS

WHERE "SMELTERS" AND "COPPERS" MEET

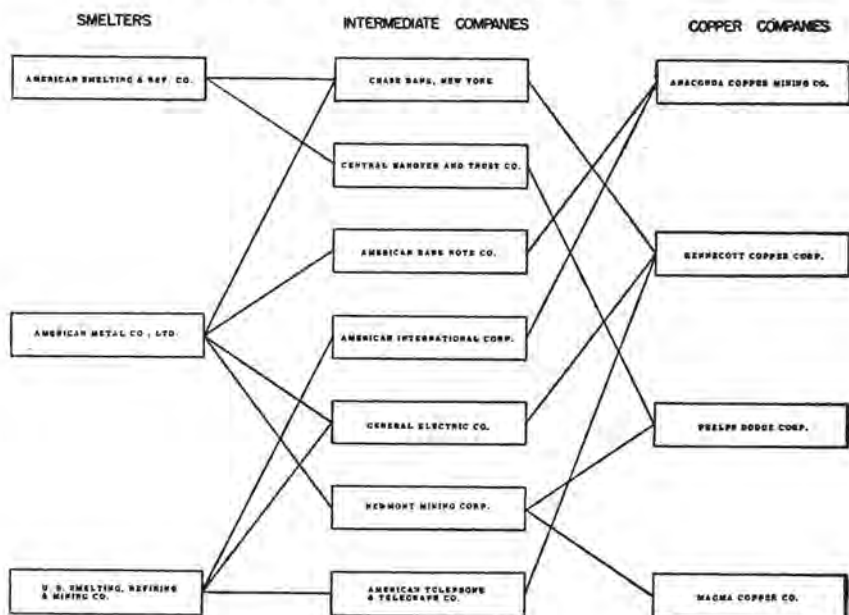


CHART 15.

United States Smelting, Refining & Mining Co. met Kennecott Copper through General Electric and American Telephone & Telegraph. It also was indirectly interlocked with American Metal through General Electric.<sup>4</sup>

No interconnection, direct or indirect, was shown between American Metal and Phelps Dodge. In 1948, however, Phelps Dodge purchased 126,530 common shares, 10.3 percent, of American Metal, one of the largest holdings outside of those of the Hochschild family. Newmont Mining, an investment trust, also provides interconnections between Phelps Dodge, American Metal, Magma Copper, and J. P. Morgan & Co. These connections also embrace the important foreign nonferrous metals operations of Hudson Bay Mining & Smelting Co. in Canada,

<sup>4</sup>C. F. Adams, chairman of the board of the State Street Trust Co., Boston, was a director of American Telephone & Telegraph, General Electric and U. S. Smelting, Refining & Mining Co. A. W. Page, director of American Telephone & Telegraph, was also director of Kennecott Copper. C. D. Dickey, vice president of J. P. Morgan & Co., was a director of General Electric and Kennecott Copper. R. C. Stanley, chairman of the board and president of International Nickel, was a director of American Metal and of General Electric.

and O'Okiep Copper Co. in South Africa and of the great Rhodesian copper producers, Mufulira and Roan Antelope.<sup>5</sup>

The ways in which the "Big Four" in copper met one another through outside interlocking directorates is graphically shown on chart 16. Anaconda Copper met Phelps Dodge through National City Bank of New York, and met Kennecott Copper, Phelps Dodge, and Magma Copper through Continental Oil, and met Kennecott Copper through Consolidated Edison Co. and Guaranty Trust Co.<sup>6</sup> Phelps Dodge met Kennecott Copper through J. P. Morgan & Co. and Continental Oil; it met Magma Copper through Continental Oil and Newmont Mining.<sup>7</sup>

One of the most comprehensive indirect interlocking connections between the copper companies was through the board of directors of Continental Oil. Kennecott Copper's interest in Continental Oil is explained by the fact that the two companies entered into a joint agreement in May 1945, to acquire leaseholds and explore for crude oil, it being Continental Oil's function to carry out the actual oil-field work. There does not appear, however, to be any direct connection between Kennecott Copper's copper business and the oil business. The properties are not even remotely connected physically.

It should be noted that the larger copper producers, with the exception of Magma Copper, are so highly integrated that only a relatively

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<sup>5</sup> C. F. Ayer, president of Magma Copper and chairman of the board of Newmont Mining; H. E. Dodge, secretary and treasurer of Newmont Mining; and A. J. McNab, vice president of Magma Copper, were directors of Magma Copper, Hudson Bay Mining & Smelting, and with the exception of C. F. Ayer, were also directors of O'Okiep Copper. H. DeWitt Smith, mining engineer, director and member of the executive committee of Newmont Mining Co., was a director of Phelps Dodge and O'Okiep Copper; F. Searis, Jr., president of Newmont Mining was a director of American Metal, O'Okiep Copper and Rhodesian Anglo-American, Ltd. T. S. Lamont, vice president of J. P. Morgan & Co., was a director of Phelps Dodge.

<sup>6</sup> J. R. Hobbins, president of Anaconda Copper, was a director of National City Bank of New York. The late G. S. Rentschler, chairman of the board of National City Bank of New York, was a director of Anaconda Copper and of Consolidated Edison. C. E. Dodge, vice president of Phelps Dodge, was a director of National City Bank of New York. W. C. Potter, member of the executive committee of Guaranty Trust Co., was a director of Continental Oil and of Anaconda Copper. A. W. Page, director of American Telephone & Telegraph, was a director of Continental Oil and of Kennecott Copper. George Whitney, president of J. P. Morgan & Co., was a director of Kennecott Copper, Continental Oil and Consolidated Edison. T. S. Lamont, vice president of J. P. Morgan & Co., was a director of Continental Oil and of Phelps Dodge. The late E. T. Stannard was president and director of Kennecott Copper and a director of both Guaranty Trust Co. and J. P. Morgan & Co.

<sup>7</sup> C. F. Ayer, president of Magma Copper, was chairman of the board of Newmont Mining and a director of Continental Oil Co. H. DeWitt Smith was a director of Newmont Mining and of Phelps Dodge.

small proportion of their domestic output of raw copper reaches the open market. The nonintegrated fabricators must compete in the world market for their supply of the essential raw material and again compete in the sale of their products with the fabricating divisions of the integrated producers which control, directly or indirectly, a large proportion of both domestic and foreign production of raw copper. The only interconnection between a nonintegrated fabricator and an integrated copper producer was the indirect interlock between

## NON-FERROUS METALS INDIRECT INTERLOCKS

COMMON MEETING PLACES FOR THE "BIG FOUR" IN COPPER

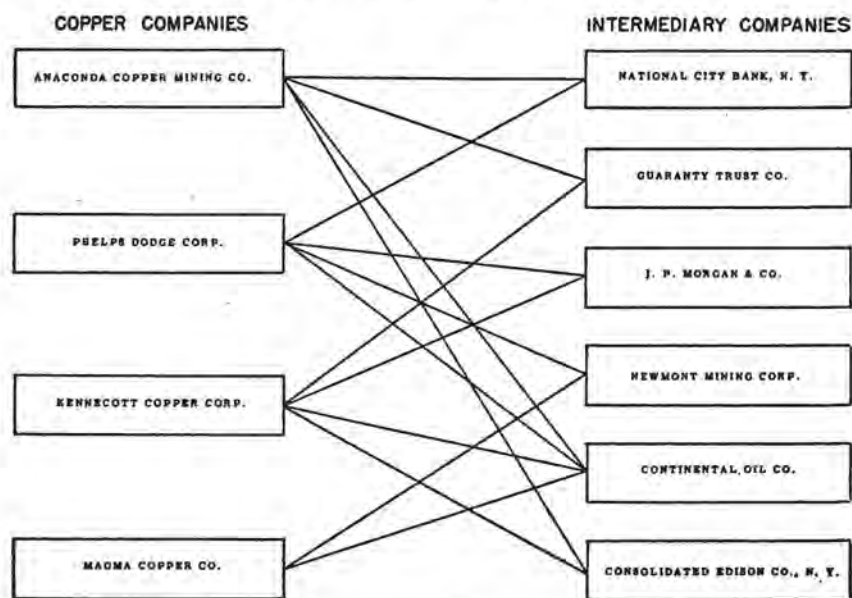


CHART 16.

Bridgeport Brass and Phelps Dodge.<sup>8</sup> Such interlock might be considered as a form of forward integration or as a means whereby the fabricator might obtain a preferred position in bidding for a supply of scarce metals.

The aluminum industry had no important interlocks. Reynolds Metals had neither direct nor indirect interlocks in the area exam-

<sup>8</sup> T. S. Lamont, vice president of J. P. Morgan & Co. was a director of Phelps Dodge and of International Minerals & Chemicals Corp. J. E. Bierwirth, president of New York Trust Co., was a director of Bridgeport Brass and of International Minerals & Chemical.



ined, and Aluminum Co. of America's interlocks did not appear to possess special significance, except in the case of Aluminum Goods Manufacturing Co.

Lead and zinc, frequently associated, constitute the remaining group of nonferrous companies studied. These metals are produced by custom smelters as well as by the concerns that specialize in that field. The indirect connections between all these companies are shown in chart 17. It will be noted that the interlocks were much less exten-

## NON-FERROUS METALS - INDIRECT INTERLOCKS MEETING PLACES FOR THE LEAD-ZINC GROUP

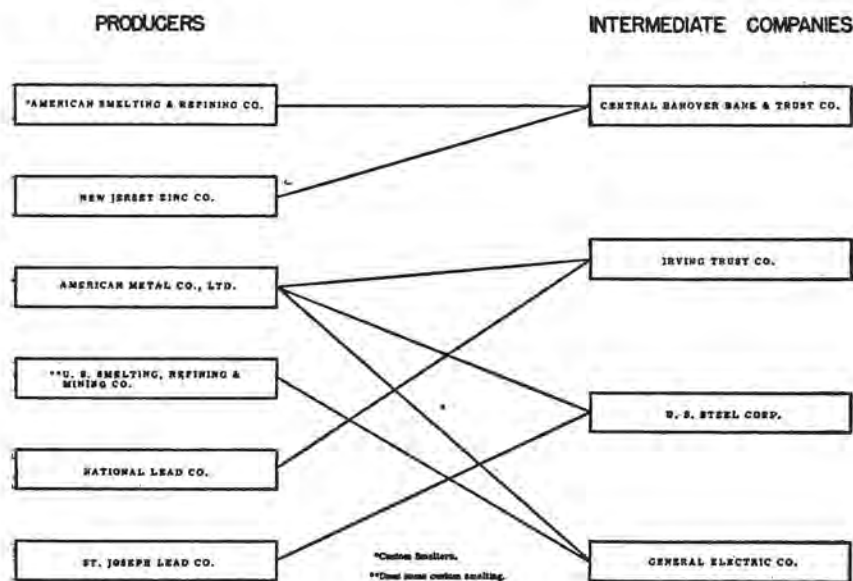


CHART 17.

sive and complicated than the interconnections between the custom smelters and the copper producers.

The occurrence of lead and zinc ores in relatively small lodes, instead of in great bodies of lean, disseminated ores, as is the case in the principal copper operations, is one reason why there is less concentration of control of mines producing lead and zinc. The concentration occurs at the smelting and refining levels, principally in custom smelters and refiners. These companies, such as American Smelting & Refining, American Metal, U. S. Smelting, Refining & Mining, and American Zinc, Lead & Smelting Co. are not so highly integrated as the great copper producers. The greater part of their

products is offered in the open market and the prices of lead and zinc tend to fluctuate in line with changing relations between supply and demand.

### INTERLOCKING RELATIONS OF METALS PRODUCERS AND FABRICATORS

Anaconda Copper had interlocks with two large public utility companies, Consolidated Edison, and American Power & Light Co., that are potential users of its products, especially of copper conductors. American Power & Light had an interest in Montana Power Co., an important source of power supply for Anaconda Copper's Montana operations.<sup>9</sup> Anaconda Copper was also interlocked with the Union Pacific Railroad Co.<sup>10</sup> Anaconda Copper also produces lead, zinc, and other metals. Its own extensive fabricating facilities absorb most of its output.

Kennecott Copper is the largest producer of domestic copper. It also is highly integrated and consumes a large percentage of its own copper. Kennecott Copper's production of other nonferrous metals is relatively small. Kennecott Copper, however, has been associated with New Jersey Zinc Co. in the development of important titanium-iron deposits in Quebec, Canada. Kennecott owns two-thirds of the capital stock of Quebec Iron & Titanium Corp. and New Jersey Zinc owns the remaining third of the stock. There appeared to be no other interlocks between these two large companies.<sup>11</sup> Kennecott Copper was directly interlocked with seven companies that were potential customers for its products, namely, E. I. du Pont de Nemours & Co., General Electric Co., Westinghouse Electric Corp., General Motors Corp., American Telephone & Telegraph, Consolidated Edison, and New York Central Railroad Co.<sup>12</sup>

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<sup>9</sup> Gordon S. Rentschler, chairman and director of National City Bank of New York, was a director of Anaconda Copper and Consolidated Edison until his death. Wm. G. Brady, National City Bank of New York, took his place as an interlocking director. Clyde E. Weed, vice president of Anaconda Copper, and W. D. Thornton, president of Greene Cananea Copper Co., and with Anaconda Copper, were directors of American Power & Light.

<sup>10</sup> E. R. Harriman, a partner of Brown Brothers, Harriman & Co., was a director of Anaconda Copper and the Union Pacific.

<sup>11</sup> No information was available as to interlocks through common directors.

<sup>12</sup> George Whitney, president of J. P. Morgan & Co., was a director of Kennecott Copper, General Motors, Consolidated Edison Co., and New York Central. A. P. Sloan, Jr., chairman of the board of General Motors, was a director of du Pont, General Motors, and Kennecott Copper. Charles D. Dickey, vice president of J. P. Morgan & Co., was a director of General Electric and Kennecott Copper. Arthur W. Page, a director of American Telephone & Telegraph, was a director of Westinghouse Electric, Kennecott Copper, and Chase National Bank.

Aluminum Co. of America is a highly integrated producer of aluminum and aluminum products. Alcoa had direct interlocks of greater or less importance with nine companies. One of the most significant of these interlocks was with Aluminum Goods Manufacturing. This company produces aluminum cooking utensils and is a potential competitor of the Aluminum Cooking Utensil Co., a wholly owned subsidiary of Alcoa. Two directors of Alcoa, its principal officers, provided the interlock with Aluminum Goods Manufacturing Co. in 1946.<sup>13</sup> This interlock provided Aluminum Goods Manufacturing Co. with a preferred position in obtaining a supply of aluminum and at the same time it gave them close relations through Alcoa with their potential competitor, Aluminum Cooking Utensil Co.

Alcoa also had direct interlocks with American Brake Shoe Co. and Bucyrus-Erie Co., both important users of metals. Supply considerations may have been involved in these interlocks, although aluminum is less important than other metals to American Brake Shoe and Bucyrus-Erie.<sup>14</sup>

The interlock between Alcoa and the Carborundum Co. may also have involved a supplier-customer relation.<sup>15</sup>

American Smelting & Refining is a custom smelter and refiner of metals which operates on ores from its own mining properties and from mines owned by others. Its principal products are copper, lead, zinc, and related metals. The general practice of the custom smelters is to sell their products in the open market. This appears to be true with respect to American Smelting & Refining. None of the various direct interlocks between the company and other companies in the metals consuming industries appear to bear direct relations to customer supply. This is not the case in the direct interlocks between the company and two former affiliates, Revere Copper & Brass and General Cable. The interlocks between the three companies indicate

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<sup>13</sup> A. V. Davis, chairman of the board, and Roy A. Hunt, president of Alcoa, were directors of Aluminum Goods Manufacturing in 1946. They gave up their directorships, however, in 1948, and Mr. Davis was succeeded by Gordon W. Cameron, treasurer, but not a director, of Alcoa. Mr. Cameron as an officer of Alcoa was in position to continue the interlocking relationship that had existed for many years between Alcoa and Aluminum Goods Manufacturing. Mr. Hunt, president of Alcoa, was succeeded by Thomas C. Jones as a director of Aluminum Goods Manufacturing. Mr. Jones' other affiliations are not known but the annual report of Aluminum Goods Manufacturing for 1948 states, in referring to the appointment of Messrs. Cameron and Jones as directors, that both have "had many years of experience in the aluminum industry."

<sup>14</sup> A. V. Davis, chairman of the board of Alcoa, was a director of American Brake Shoe and Bucyrus-Erie.

<sup>15</sup> R. K. Mellon, chairman of the board of Mellon National Bank & Trust Co., was a director of Alcoa and Carborundum Co.

a continuing community of interest in the supply of the metals produced by the smelter company.<sup>16</sup>

Phelps Dodge ranks with Anaconda Copper and Kennecott Copper as a leading domestic copper producer. It is also highly integrated, having wire mills and other fabricating plants that consume a large proportion of the company's output of metals. The company produces lead and zinc on a smaller scale than copper. Phelps Dodge's numerous direct interlocks do not appear to include any important users of copper or other metals produced by the company. The most significant direct interlock from the standpoint of competition was with Newmont Mining.<sup>17</sup> Newmont is an investment trust that has important holdings of securities of companies that are also producers of copper and other nonferrous metals. Since this interlock is especially important because of the indirect interlocks that it provides with various potential competitors of Phelps Dodge it is discussed in more detail in the consideration of the indirect interlocks of the industry.

New Jersey Zinc produces zinc and zinc products, an important part being used in producing paint pigments. The joint development by the company and Kennecott Copper, referred to previously, of titanium deposits in Quebec is related to New Jersey Zinc's interest in paint pigments. New Jersey Zinc had a direct interlock with Union Carbide & Carbon.<sup>18</sup> A subsidiary of Union Carbide & Carbon, National Carbon Co., is an important producer of dry batteries which use zinc as an essential component.

American Metal is a custom smelter and refiner of metals. Its operations and its products are similar to those of American Smelting &

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<sup>16</sup> Seven of Revere Copper & Brass' 15 directors were on the American Smelting & Refining board and 7 were on the General Cable board; 8 of General Cable's directors were on the boards of both Revere Copper & Brass and American Smelting & Refining. These interlocks included the heads of the respective companies and other top officers. The interlocks between American Smelting & Refining, a producer and refiner of base metals, and General Cable and Revere Copper & Brass, both fabricators of the metals, may be regarded as a form of forward integration. The smelting company does not fabricate metals; and although, as a custom smelter, it appears to follow a general policy of open market sales of metals, it may be expected to have a special interest in General Cable and Revere Copper & Brass as assured outlets for its base metal products. The two fabricators have a like interest in maintaining a source of supply of raw materials, especially during a period of scarcity. The substantial investments which American Smelting & Refining had in General Cable and Revere Copper & Brass provided further bonds between the producer and the fabricators.

<sup>17</sup> H. DeWitt Smith, director and member of the executive committee of Newmont Mining, was a director of Phelps Dodge.

<sup>18</sup> George W. Davidson, honorary chairman of Central Hanover Bank & Trust Co., was a director of Union Carbide & Carbon and a member of the finance committee of New Jersey Zinc.

Refining. The company has extensive holdings of securities in foreign producers of nonferrous metal, especially in Northern Rhodesia, and other parts of Africa. It is interlocked with Newmont Mining, an investment company, which also has important holdings in Africa, and in the United States and Canada.<sup>19</sup> American Metal had direct interlocks with U. S. Steel, General Electric, and Babcock & Wilcox, all important users of metals.<sup>20</sup> U. S. Steel and General Electric, in particular, consume large quantities of nonferrous metals.

American Metal also had three interlocks with Climax Molybdenum Co., the world's largest producer of molybdenum, an important alloying agent in steel. This interlock has an historical base in American Metal's exploration and development work.<sup>21</sup>

U. S. Smelting, Refining & Mining produces nonferrous metals, also gold and silver, principally from company-owned mines, and does some custom smelting and refining. The principal products are lead and zinc. The company has been New England-financed and through its large board of directors had a large number of direct interlocks, few of which appear to bear any relation to a specific interest in the products of the company. Those with General Electric and American Telephone & Telegraph may have had some significance as supply-outlet relationships.<sup>22</sup>

St. Joseph Lead is an important producer of lead and zinc. Its only significant interlock with a user of such metals was with U. S. Steel.<sup>23</sup>

Bridgeport Brass is an important fabricator of nonferrous metals. Its principal products are brass and copper in various forms such as sheet, tubing, rods, etc. It also manufactures plumbers brass goods and various products made to specification for other industries. The interlocks with Carrier Corp., Torrington Co., General Time Instrument Corp., and with White Motor Co. may have indicated close relations with customer and supplier, for those companies are all important

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<sup>19</sup> Fred Searls, Jr., president of Newmont Mining, was a director of American Metal.

<sup>20</sup> R. C. Stanley, chairman of the board of International Nickel, was a director of General Electric, American Metal, U. S. Steel, and Babcock & Wilcox.

<sup>21</sup> H. K. Hochschild, president, B. M. Zimmer, vice president, and Otto Sussman, chairman of the board, were directors of American Metal and Climax Molybdenum. Mr. Sussman, who died in February 1947, was succeeded by Walter Hochschild, vice president and director of American Metal.

<sup>22</sup> Charles Francis Adams, chairman of State Street Trust Co., was a director of General Electric, American Telephone & Telegraph, and U. S. Smelting, Refining & Mining.

<sup>23</sup> Arthur M. Anderson, chairman of the executive committee, J. P. Morgan & Co., was a trustee of St. Joseph Lead, and a director of U. S. Steel.



users of metals of various kinds.<sup>24</sup> Bridgeport Brass is a nonintegrated fabricator and as such has a difficult problem in obtaining an assured source of supply of the basic metals in time of scarcity. An indirect interlock with Phelps Dodge may have given it a preferred position as a customer of Phelps Dodge.

Doehler-Jarvis is the largest manufacturer of die castings in the country. The company's direct interlocks with Bendix Aviation Corp., Borg-Warner Corp., Houdaille-Hershey Corp., and Noblitt-Sparks Industries, Inc., all important users of die castings in their products, created a supplier-customer relationship.<sup>25</sup>

Doehler-Jarvis also had a direct interlock with National Lead, which lists amongst its products metals for pressure die castings, a basic raw material for Doehler-Jarvis. This interlock is of a forward integration type, for Doehler-Jarvis is one of the largest consumers of metals for die casting.<sup>26</sup>

Scovill Manufacturing is one of the largest nonintegrated fabricators of copper and brass. It had a direct interlock with Landers, Frary & Clark, manufacturers of household appliances and a user of nonferrous metals. Other direct interlocks were with American Hardware Corp., makers of locks and other builders' hardware in which brass is used, and with New Britain Machine Co., also a user of nonferrous metals.<sup>27</sup>

Mueller Brass, also a nonintegrated copper and brass fabricator, had direct interlocks with Continental Motors Corp., and Kelsey-Hayes Wheel Co., and Ex-Cell-O Corp., a manufacturer of machine tools for the automotive industry. Continental Motors uses nonferrous metals in its engines and other automotive parts and hence represents a potential customer. Ex-Cell-O also is a potential cus-

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<sup>24</sup> Herman W. Steinkraus, president and chairman of the board of Bridgeport Brass, was a director of Carrier Corp. L. A. Dibble, president of Risdon Manufacturing Co., was a director of Bridgeport Brass and Torrington. John E. Bierwirth, president of New York Trust Co. (later president of National Distillers Products Co.), was a director of General Time Instrument and Bridgeport Brass. Otis A. Glazebrook, a partner of Hornblower & Weeks, was a director of Bridgeport Brass, and White Motor. Thomas S. Lamont, a vice president of J. P. Morgan & Co., was a director of Phelps Dodge and International Minerals & Chemical. John E. Bierwirth was a director of International Minerals & Chemical and Bridgeport Brass.

<sup>25</sup> Otis A. Glazebrook was a director of Doehler-Jarvis, Borg-Warner, Houdaille-Hershey, Bendix Aviation, and Noblitt-Sparks.

<sup>26</sup> F. W. Rockwell, former president of National Lead, was a director of Doehler-Jarvis. He has since been replaced by J. A. Martino, president of National Lead.

<sup>27</sup> L. P. Sperry, president of Scovill Manufacturing, and J. P. Elton, president of the Colonial Trust Co., of Waterbury, Conn., were directors of Scovill Manufacturing and American Hardware. L. P. Sperry was also a director of New Britain Machine. J. P. Elton was also a director of Landers, Frary & Clark.



tomer. The interest of Kelsey-Hayes Wheel, as a manufacturer of wheels for the automotive industry, in nonferrous metals is not so apparent.<sup>28</sup>

### SUMMARY

The significant interlocks in the nonferrous metals industry appear to conform to three patterns—access to markets, access to supplies of raw materials, and alliances with strong financial interests. The predominant pattern appears to be the alliances with strong financial interests through interlocking directorates. This in turn supplies a substantial degree of interconnection, through indirect interlocks, between competing producers of nonferrous metals.

The primary producers, that is, the companies that mine, smelt, and refine the base metals, as a group have had no marketing problem in the period examined. The demand for the metals since the war has far exceeded supply except for a short time in 1949. The fabricating units of integrated companies such as Anaconda Copper, Kennecott Copper, Aluminum Co. of America, and Phelps Dodge, alone provide substantial markets for the metals produced by the respective companies. Anaconda Copper, for example, is said to use all of its domestic production of copper plus substantial imports of copper in its own fabricating plants. Such interest as Anaconda may have in market outlets appears to lie in uses for finished products. Anaconda Copper's interlock with Consolidated Edison and American Power & Light may have been an expression of that interest.

Kennecott Copper, with its important fabricating plants and its interlocks with General Electric, Westinghouse Electric, General Motors, American Telephone & Telegraph, and Consolidated Edison may have had a similar interest in access to important markets. It must be noted, however, that most of these interlocks were through bankers who may also be interested in seeing that the copper-consuming companies on whose boards they sit enjoy preferential access to the short supplies of metals.

The integrated primary producers, for the most part, have had no interlocks based on attempts to obtain preferential access to raw materials. However, the connections, direct and indirect, between Phelps Dodge, Newmont Mining, American Metal, and Magma Copper may have been effective in staking out claims to future supplies of copper.

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<sup>28</sup> F. J. Kennedy, member of Butzel, Eaman, Long, Gust & Bills, was a director of Mueller Brass, Kelsey-Hayes Wheel, and Continental Motors. Edward Andrae, secretary and treasurer of Yale Woolen Mills, was a director of Mueller Brass and Ex-Cell-O.

The predominance of interlocks with financial institutions may have reflected the primary producers' enormous invested capitals and their recurrent need to go to the money markets for large sums. Such interlocks, especially where they indirectly interconnect the primary producers, may reflect the joint interests of financial institutions and producers in establishing industry policies which will contribute to stability of returns on investments in the industry. The large financial institutions, especially those in the East, provided the predominant pattern of business interlocks for the primary producers of non-ferrous metals.

The fabricators, companies that turn the raw metals into finished forms and in some cases into finished products, have a prime interest in obtaining assured markets for their products and in procuring the necessary raw materials. They are in a difficult position, especially with respect to copper, in having as competitors the companies that produce the bulk of the domestic supply of copper. The continuing interlock between General Cable and Revere Copper & Brass, fabricators, and American Smelting & Refining, a nonintegrated primary metals producer, served to give the fabricators a preferred position in the supply of at least part of their needs for the basic metal.

Bridgeport Brass' indirect interlock with Phelps Dodge may have been another expression of this desire to obtain a safer position in the supply of raw materials.

The strong demand for primary metals that has existed for nearly 10 years has provided little incentive for primary producers to seek markets for the raw metals. The copper producers also find the best market for their metals in their own fabricating shops. Processors of lead and zinc such as Doehler-Jarvis, a leading producer of die castings, had various direct interlocks with important users of these products in the automotive parts industry.

The lead and zinc segment of the nonferrous metals industry is less highly concentrated than the copper industry and to a large extent the products are sold in the open market. The companies in this group also are not highly integrated so a large part of their products is sold in the form of raw or partially processed materials. The significant interlocks with companies in other industries were not numerous and there were few indirect interlocks between producers of lead and zinc.

There were no intraindustry interlocks, either direct or indirect, in the aluminum industry. Aluminum Co. of America was the only aluminum producer that had interlocks with other businesses. The most significant of Alcoa's interlocks from the standpoint of possible effect on competition was with the Aluminum Goods Manufacturing, a manufacturer of aluminum housewares.

The outstanding feature of the interlocks disclosed by this study of the nonferrous industry is the way in which six of the leading producers of copper, lead, and zinc indirectly interlocked through directors on the boards of five of the principal banking houses. The producers of metals were Anaconda Copper, Kennecott Copper, and Phelps Dodge, integrated copper producers; American Smelting & Refining, and American Metal, custom smelters; and New Jersey Zinc, a leading zinc producer. The banks were Chase National Bank, National City Bank of New York, Guaranty Trust Co., Central Hanover Bank & Trust Co., and J. P. Morgan & Co. In this series of interlocks, the very highly integrated copper producers with control of about 85 percent of the domestic supply of new copper met the custom smelters through which flows much of the remainder of copper supply of the country and a very large proportion of the supply of lead and zinc. The financial houses are in a position to exercise a great deal of influence on the policies of an industry that is so marked by the size of the investments in plant and by its recurring need to go to the capital markets for further financing.

## Chapter 7

### FABRICATED METAL PRODUCTS

Among the 1,000 largest manufacturing corporations are 44 from the fabricated metal products industry. The industry, as analyzed herein, consists of six subindustry groups, as follows: tin cans and tinware, three companies; cutlery, hand tools, and general hardware, 11 companies; heating apparatus, except electrical, 10 companies fabricated structural metal products, six companies; metal stamping, coating, and engraving, four companies; fabricated wire products, two companies; miscellaneous fabricated metal products, eight companies. The industry is closely related functionally to the primary metals industry, from which it obtains the metals required to sustain its business. The industry's use of material represents, in general, the next processing step after the production of primary metals. The industry is also closely related functionally to the industry groups that produce finished goods, i. e., machinery except electrical, electrical machinery, and transportation equipment. Fabricated metal products also include many finished commodities that go directly or through usual distribution channels to users in the home and in industry. These range from shelf goods, such as can openers and safety razors, to custom-designed assemblies of processing equipment for heavy industry.

Though supplied by the concerns in the primary metals industry, fabricated metals manufacturers also compete with the fabricating and manufacturing subsidiaries and departments of many of the companies that produce the primary metals, especially steel companies that stamp metals and make fabricated structural metal products, fabricated wire products, and miscellaneous metal products. Under the conditions of serious shortages of metals that have prevailed since the end of the war, the metals-fabricating departments of the integrated primary producers of metals have enjoyed a more favorable competitive position than the nonintegrated fabricators. But the integrated primary metals producers do not compete with one important group of producers of fabricated metals, the manufacturers of tin cans and tinware, such as American Can Co., Continental Can Co., and National Can Co.

The fabricated metals industry is an important consumer of the metals, especially of steel. According to the American Iron & Steel

Institute, in 1946 the industry received around 20 percent of all steel shipped. In general, the industry's members are relatively small concerns. Only 52 companies in the country were among the 1,000 largest manufacturing companies, and only six of these were among the 200 largest concerns. Eight of the companies had no interlocks through directors with other companies, leaving 44 companies to be examined herein. Only four companies in the metals stamping group appear on the list, whereas the 1947 Census of Manufacturers shows at least 4,400 establishments in this group. Similarly, 11 companies appear in the cutlery, hand tools and hardware group, whereas the census shows that there were about 1,900 establishments in this group.

The interlocks through directors common to companies in the fabricated metal products industry and companies in other industry groups are shown in tables 30, 31, 32, and 33.

Table 30 shows the direct interlocks among companies that fabricate metal products and also between companies in the industry and companies in industries that produce the raw materials or use fabricated metals extensively in the production of finished goods. These cases are discussed by industry groups: intraindustry, fabricated metal products, primary metals, machinery except electrical, electrical machinery, and transportation equipment.

#### INTRAINDUSTRY INTERLOCKS

Ten companies that make fabricated metal products had direct interlocks with others in the industry. Most of these interlocks were between companies in different subindustry groups and did not appear to affect competitive relations directly.

Nicholson File Co. and American Screw Co. were closely interlocked by the presence of two officers of Nicholson File on the board of American Screw.<sup>1</sup> An interlock between these two companies may have been due to similar problems of distribution. The products, principally files and screws, are widely used both in industry and in retail merchandising but are not competitive.

An indirect interlock between National Radiator Co. and Struthers Wells Corp. through Buffalo Bolt Co. may have resulted in some elimination of competition.<sup>2</sup> Both National Radiator and Struthers Wells manufacture equipment, such as boilers and heat exchangers, used in the petroleum industry.

<sup>1</sup> The president of Nicholson File, Paul C. Nicholson, was also chairman of the board of American Screw, and another board member was S. F. Hunt, vice president of Nicholson File.

<sup>2</sup> Rudolph Flersherm, president of the Buffalo Bolt, was a director of National Radiator, and David Van Alstyne, Jr., partner Van Alstyne, Noel & Co., was a director of Struthers Wells and Buffalo Bolt.

**TABLE 30.—Direct interlocks between fabricated metal products companies and metals producing, processing, and consuming industries**

Metal products companies	Number of interlocks	Metal producing, processing, and consuming industries	Indicates indirect interlock <sup>1</sup>
American Can Co.	1	Crane Co.	
	1	Metal & Thermit Corp.	
	2	J. I. Case Co.	A
	1	General Electric Co.	B
	2	Pullman, Inc.	C
	1	Republic Aviation Corp.	
Continental Can Co.	1	General Electric Co.	B
National Can Co.	1	Colorado Fuel & Iron Corp.	D
	1	Pittsburgh Steel Co.	
	1	General American Transportation Corp.	
	1	Pressed Steel Car Co., Inc.	
	1	New York Air Brake Co.	
Gillette Safety Razor Co.	1	United-Carr Fastener Corp.	E
	1	Scott & Williams, Inc.	
	1	Raytheon Manufacturing Co.	
Yale & Towne Manufacturing Co.	1	U. S. Pipe & Foundry Co.	
	1	General Electric Co.	B
Stanley Works	2	Fafnir Bearing Co.	
	3	New Britain Machine Co.	F
Marshall-Wells Co.	1	Interlake Iron Corp.	
American Fork & Hoe Co.	1	Sparks-Withington Co.	G
	1	Trailmobile Co.	
American Hardware Corp.	2	Seovill Manufacturing Co.	
	1	New Britain Machine Co.	F
	3	Landers, Frary & Clark	
	1	Arrow-Hart & Hegeman Electric Co.	H
Nicholson File Co.	3	American Screw Co.	
	1	Sparks-Withington Co.	G
National Lock Co.	5	American Zinc, Lead & Smelting Co.	I
	1	Prosperity Co.	
National Screw & Manufacturing Co.	1	Oliver Corp. (The)	
	1	Dresser Industries, Inc.	
	1	Cleveland Graphite Bronze Co.	
	1	Apex Electrical Manufacturing Co.	
	1	White Motor Co. (The)	
	1	Eaton Manufacturing Co.	J
American Radiator & Standard Sanitary Corp.	1	U. S. Steel Corp.	K
	1	General Electric Co.	B
	1	Rome Cable Corp.	L
	1	Eaton Manufacturing Co.	I
Crane Co.	1	American Can Co.	J
	1	International Harvester Co.	
	1	Allis-Chalmers Manufacturing Co.	M
	1	J. I. Case Co.	A
	1	Pullman, Inc.	C
Perfection Stove Co.	1	National Acme Co.	
Mullins Manufacturing Corp.	4	Sharon Steel Corp.	N
Florence Stove Co.	1	United-Carr Fastener Corp.	E
	1	Sharon Steel Corp.	N
	1	Seeger Refrigerator Co.	
Kalamazoo Stove & Furnace Co.	1	Square D Co.	
	1	Avco Manufacturing Co.	
National Radiator Co.	1	Buffalo Bolt Co.	O
	1	Rome Cable Corp.	L
	1	Brockway Motor Co., Inc.	P
Petroleum Heat & Power Co.	2	Copper Range Co.	
Babcock & Wilcox Corp.	1	United States Steel Corp.	K
	1	Colorado Fuel & Iron Corp.	D
	1	Otis Elevator Co.	
	1	Worthington Pump & Machinery Corp.	
	1	General Electric Co.	B
Detroit Steel Products Co.	1	National Steel Corp.	
	1	Bohn Aluminum Corp.	
Struthers Wells Corp.	1	Buffalo Bolt Co.	O
	1	Continental Motors Corp.	Q
	1	Koehring Co.	
	1	Emerson Electric Manufacturing Co.	R
Diebold, Inc.	1	Continental Steel Corp.	
A. O. Smith Corp.	1	Allis-Chalmers Manufacturing Co.	M
	1	Harnischfeger Corp.	
	1	Cherry-Burrell Corp.	
	1	Saco-Lowell Shops	S
Murray Corp.	1	Jack & Heintz Precision Industries, Inc.	
	1	Autocar Co.	
	1	Midland Steel Products Co.	
National Enameling & Stamping Co.	5	Granite City Steel Co.	
	4	American Zinc, Lead & Smelting Co.	I
	1	Vanadium Corp. of America	T
	2	Mack Trucks, Inc.	

See footnote at end of table.



Power Implement and Continental Motors, both manufacturing gas engines, were associated through the Kelsey-Hayes Wheel Co.<sup>23</sup>

### *Engines and Turbines*

The machinery companies classified as engines and turbines manufacturers produce a highly diversified and heterogeneous line of machinery products, many of which overlap into other machinery fields. Hence, the interlocks involving companies so classified may have the effect of reducing competition with respect to other machinery items in addition to engines and turbines.

Although there were no direct or indirect interlocks between any of the companies classified as engine manufacturers, of the nine companies in this group having any interlocks, five maintained indirect interlocking relations with companies in other machinery divisions which produce competing engines. There were 13 other engine producers classified elsewhere, involved in interlocks with competing engine producers. All of these, including those engine producers who were discussed previously as primarily engaged in the production of agricultural equipment, are portrayed in chart 23.

The interlocking relations involving the five major engine manufacturers classified in this group include the following:

(1) Fairbanks, Morse & Co., the largest producer in this subgroup, was linked indirectly with International Harvester, the Nation's leading farm machinery and equipment manufacturer, as well as the largest company in the entire machinery industry. Directors of each of these companies met on the board of Harris Trust & Savings Bank.<sup>24</sup> Both companies produce Diesel and gasoline engines. In addition to engines, Fairbanks, Morse produces several items of farm equipment, such as hammer mills and corn shellers, which compete with the same or similar products in the broad farm machinery and implement line in which International Harvester specializes.

(2) Continental Motors Corp., a leading producer of internal combustion engines and gas-operated engines, was directly interlocked with Struthers Wells Corp.,<sup>25</sup> which also makes gas and oil engines, though primarily a refinery and processing equipment producer in the fabricated metal products industry. Continental Motors was also linked

<sup>23</sup> F. J. Kennedy of Continental Motors and H. S. Bowers, partner in the investment bank, Goldman Sachs & Co. and director of Minneapolis-Moline Power Implement, met on the board of Kelsey-Hayes Wheel. Mr. Kennedy was identified with the Detroit law firm of Butzel, Eaman, Long, Gust & Bills.

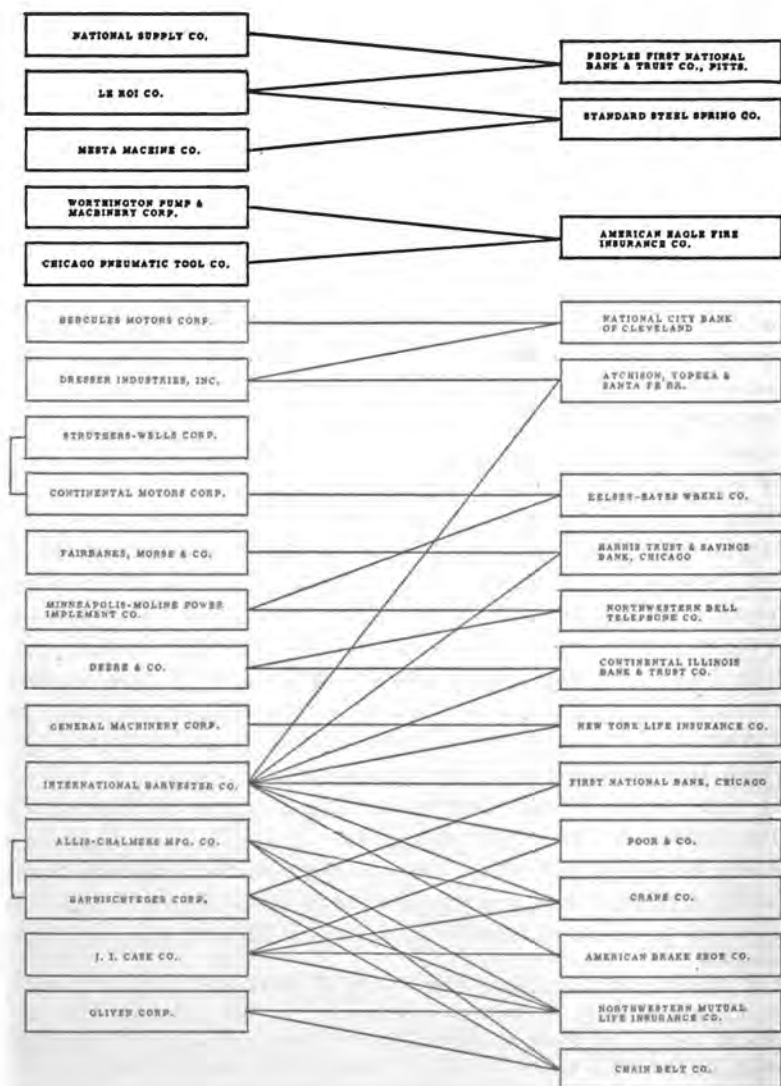
<sup>24</sup> C. H. Morse of Fairbanks, Morse, and S. G. McAllister, director and member of executive committee of International Harvester, were directors of the Harris Trust & Savings Bank.

<sup>25</sup> David Van Alstyne, Jr., a partner in the New York investment firm of Van Alstyne, Noel & Co., was a director of both Continental Motors and Struthers Wells. He appears not to have been a director of the latter company in 1949.

# INTERLOCKS AMONG PRODUCERS OF ENGINES <sup>1/</sup>

## ENGINE PRODUCERS

## INTERMEDIARY COMPANIES



<sup>1/</sup>Includes many different types of engines. Interlocked companies are potentially competitive with respect to any one or more types of internal combustion engines including Diesel, gas or gasoline engines. For type of engine involved in any specific interlock shown, see text.

CHART 23.

<sup>1</sup>Includes many different types of engines. Interlocked companies are potentially competitive with respect to any one or more types of internal combustion engines, including Diesel, gas, or gasoline engines. For type of engine involved in any specific interlock shown, see text.

with Minneapolis-Moline Power Implement through Kelsey-Hayes Wheel.<sup>26</sup> Both produce gas engines.

(3) Hercules Motor Co., of this group, and Dresser Industries, Inc., a leading pump and oil-well drilling equipment producer, both manufacture Diesel engines, and in 1946 both met on the board of the National City Bank, Cleveland.<sup>27</sup>

(4) General Machinery Corp., which in October 1947, was absorbed by Lima Locomotive Works and is now part of the Lima-Hamilton Corp., was associated through New York Life<sup>28</sup> with International Harvester. Both of these machinery manufacturers produce Diesel engines. In addition, General Machinery (Lima-Hamilton) produces a well-known line of machine tools, which is also the principal product of the Cincinnati Milling Machine Co. These companies were linked through representation on the board of directors of Procter & Gamble.<sup>29</sup>

(5) LeRoi Co., another engine producer classified in this group, maintained interlocking relations with National Supply Co., which also manufactures internal combustion engines, through Peoples First National Bank & Trust Co. (Pittsburgh).<sup>30</sup> LeRoi also was associated with the Mesta Machine Co., a leading producer of steel mill machinery. Both companies produce gas engines and met on the board of the Standard Steel Spring Co.<sup>31</sup>

<sup>26</sup> F. J. Kennedy of Continental Motors and H. S. Bowers, partner in Goldman, Sachs & Co. and director of Minneapolis-Moline Power Implement, were also directors of Kelsey-Hayes Wheel.

<sup>27</sup> C. E. Gallagher of Hercules Motor and W. A. McAfee of Dresser Industries, served on the board of the National City Bank of Cleveland. Mr. McAfee was a partner in the Cleveland law firm of McAfee, Grossman, Taplin, Hanning, Newcomer & Hazlett.

<sup>28</sup> J. B. Hollister, director of the Fifth Third Union Trust Co. (Cincinnati), a partner in the law firm of Taft, Stettinius and Hollister, and a director of Lima-Hamilton Corp. and E. L. Ryerson of International Harvester and chairman of the board of Inland Steel met as directors of New York Life.

<sup>29</sup> J. J. Rowe of Lima-Hamilton, and F. V. Geler, president and director of Cincinnati Milling Machine, and C. W. Dupuis, a director of the latter company, were on the board of Procter & Gamble. Mr. Rowe at the same time was president and director of the Fifth Third Union Trust Co., while Mr. Dupuis was president of the Central Trust Co. (Cincinnati).

<sup>30</sup> W. F. Rockwell of Le Roi, and J. H. Hillman, Jr., of National Supply, sat on the board of the Peoples First National Bank & Trust Co. (Pittsburgh). Mr. Rockwell was chairman of the board and president of Rockwell Manufacturing, while Mr. Hillman was president and director of Pittsburgh Coke & Chemical and Pennsylvania Industries among many others.

<sup>31</sup> Robert J. Dodds of Mesta Machine and W. F. Rockwell of Le Roi were directors of Standard Steel Spring. Mr. Dodds was a partner in the Pittsburgh law firm of Reed, Smith, Shaw & McClay, which also served as counsel for U. S. Steel and subsidiaries, the Mellon National Bank, the Philadelphia Co., Pittsburgh Steel, Gulf Oil and its subsidiaries, Crucible Steel, Mesta Machine, Latrobe Electric Steel Co., Superior Steel, and Standard Steel Spring.

In addition to the foregoing interlocks involving competitive engine producers, Manning-Maxwell & Moore, Inc., of this group and Gar Wood Industries, both manufacturers of cranes and hoists among many other products, were indirectly interlocked through Avco Manufacturing Corp.<sup>32</sup>

### *Metal Working Machinery (Including Machine Tools)*

Many of the leading machine tool producers maintained indirect interlocking relations with each other, which could have a significant effect upon the nature and degree of competition in the machine tool industry. In all, 10 of the 18 largest manufacturers in this key industry were interlocked with competitors, as shown on chart 24.

The Cincinnati Milling Machine Co., the largest company in this subgroup was linked with its next largest rival, Rockwell Manufacturing Co., through the American Rolling Mill Co. (now named Armco Steel Corp.).<sup>34</sup> Both Cincinnati Milling Machine and Rockwell Manufacturing produce machine and metal-working tools. Another leading machine tool producer with which Cincinnati Milling Machine was indirectly interlocked was General Machinery (now Lima-Hamilton). As previously noted they met on the board of Procter & Gamble.

The Rockwell Manufacturing Co. maintained indirect interlocking relations with three other producers of the same or similar types of products. The interlock with the Cincinnati Milling Machine Co. has just been described. A second, with Kearney & Trecker Corp., which along with Rockwell Manufacturing produces metal-working and wood-working machine tools, was accomplished through the board of LeRoi.<sup>35</sup> A third linked the Mesta Machine Co., a leading producer of heavy presses and other steel-mill machinery, with Rockwell Manufacturing through Standard Steel Spring.<sup>36</sup> Finally a director of

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<sup>32</sup> A. N. Williams, president and director of Westinghouse Air Brake as well as director of Manning-Maxwell & Moore, and A. W. Herrington, chairman of the board of Marmon-Herrington Co. and director of Gar Wood Industries, met as directors of Avco Manufacturing.

<sup>34</sup> F. V. Geier, president of Cincinnati Milling Machine, and J. F. Drake, president of Gulf Oil and director of Rockwell Manufacturing, were directors of Armco.

<sup>35</sup> W. F. Rockwell, president and chairman of the board of Rockwell Manufacturing, and C. W. Pendock of Kearney & Trecker met on the board of LeRoi, of which Mr. Pendock was president.

<sup>36</sup> Robert J. Dodds, director of Mesta Machine and a member of the Pittsburgh law firm of Reed, Smith, Shaw & McClay, met W. F. Rockwell, president and chairman of the board of Rockwell Manufacturing, on the board of Standard Steel Spring. Though Rockwell Manufacturing specializes in the smaller machine tools in contrast to heavy tools and presses produced by Mesta Machine, the two companies may be potentially competitive with respect to machine tools generally.

# INTERLOCKS AMONG PRODUCERS OF METAL-WORKING AND MACHINE TOOLS

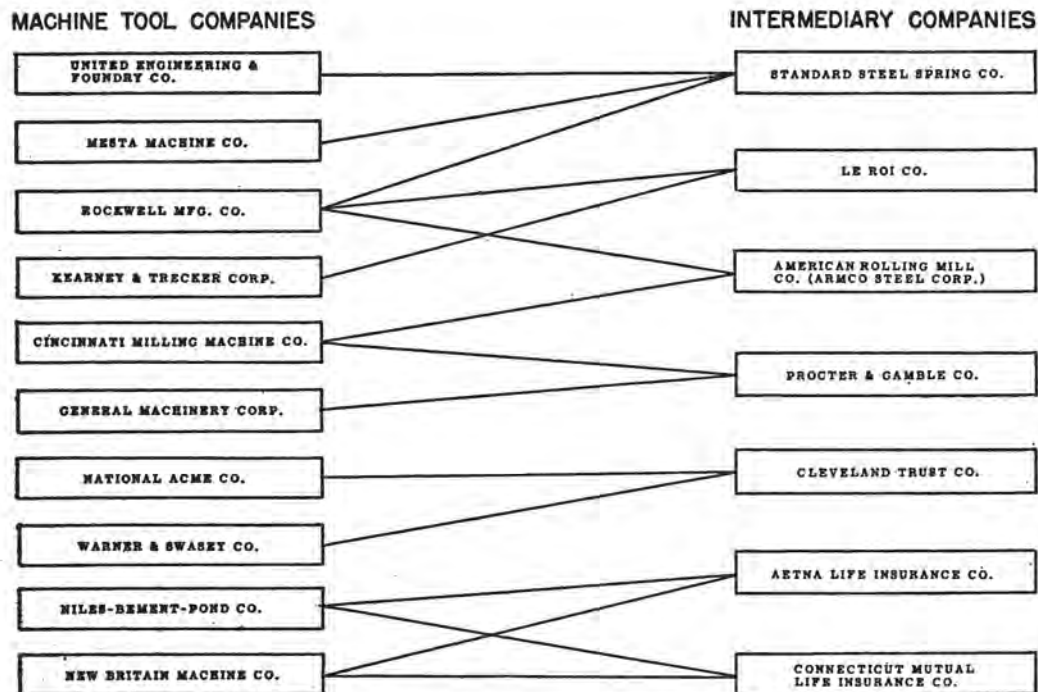


CHART 24.

Rockwell Manufacturing, which also makes cash registers, was an associate of a National Cash Register Co. director, on the board of Armco.<sup>37</sup>

Niles-Bement-Pond Co., a major producer of machine tools and small metal working tools, was indirectly interlocked with another leading machine tool manufacturer, the New Britain Machine Co., through two life insurance companies, the Aetna Life Insurance Co. and the Connecticut Mutual Life Insurance Co.<sup>38</sup>

The National Acme Co. and Warner & Swasey, both leading producers of automatic bar and chucking machines, and had two directors on the board of the Cleveland Trust Co.<sup>39</sup>

In addition, United Engineering & Foundry Co. and Mesta Machine Co., the two largest producers of heavy steel works machinery and equipment, interlocked through Standard Steel Spring.<sup>40</sup>

In all, 10 of the leading machine tool companies maintained interlocking relationships with one or more of the others in 1946.

In addition to these interlocks involving machine tools and metal-working equipment, Mesta Machine also was linked with LeRoi through Standard Steel Spring.<sup>40</sup> Both LeRoi and Mesta Machine make gas engines.

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<sup>37</sup> J. F. Drake of Rockwell Manufacturing and E. A. Deeds, chairman of the board of National Cash Register, were directors of Armco.

<sup>38</sup> C. W. Deeds, president of Niles-Bement-Pond, and E. M. Day of New Britain Machine met on the board of Aetna Life, while J. B. Byrne of Niles-Bement-Pond and P. B. Stanley of New Britain Machine met on the board of Connecticut Mutual Life. Mr. Day was a partner of the Hartford law firm of Day, Berry & Howard, which represents many insurance companies, including Aetna Life and Aetna Casualty & Surety Co. Mr. Byrne was president of the Hartford-Connecticut Trust Co., while Mr. Stanley was vice president of Stanley Securities Co.

<sup>39</sup> F. H. Chapin, chairman of the board, and A. B. Thompson, director of National Acme; and C. J. Stilwell, president, and T. H. Jones, director of Warner & Swasey, met on the board of the Cleveland Trust Co. Mr. Thompson's interest centers in the Cleveland law firm of Thompson, Hine & Flory, of which he is a partner and which represents such clients as National Acme, National City Bank of Cleveland, the Cleveland Trust Co., Goodyear, and the Cleveland Diesel Engine Division of General Motors. Mr. Jones was a member of another Cleveland law firm, Jones, Day, Cockley & Reavis, which serves as counsel for such leading companies as Cleveland-Cliffs Iron, M. A. Hanna, Republic Steel, Jones & Laughlin, Ohio Brass Co., and National Malleable & Steel Castings in the primary metals industry; Timken Roller Bearing, Cleveland Graphite Bronze, and Warner & Swasey in the machinery industry; General Motors, Midland Steel Products, Thompson Products, and Weatherhead in the automotive field; Firestone and Mansfield Tire & Rubber; Cleveland Trust Co. and the National City Bank of Cleveland among the banks; and Industrial Rayon, Sherwin Williams, Wm. Whitman Co., and Ernst & Ernst, among others.

<sup>40</sup> Robert J. Dodds of Mesta Machine and W. F. Rockwell, director of United Engineering and of LeRoi and president and chairman of the board of Rockwell Manufacturing, met as board members of Standard Steel Spring.



The 11 companies in this group maintained more interlocking relations than any other group of machinery companies. They interlocked 109 times with 97 other companies. Moreover, all but three of the 11 were linked directly with other companies making a competitive line of products. These interlocking relations affecting competing companies are summarized in chart 25.

The leading producer of office machines, the International Business Machines Corp., was interlocked with the Royal Typewriter Co., through the Guaranty Trust Co., New York.<sup>41</sup> Both are potentially competitive with respect to typewriters, although IBM specializes in an electric model while Royal produces the standard and portable machines.

Remington-Rand, Inc., was linked with two other office and business machine manufacturers, (1) with the L. C. Smith and Corona Typewriters, Inc., through the Marine Midland Corp., a bank holding company,<sup>42</sup> and (2) with the Underwood Corp. through Selected Industries, Inc., an affiliate of the Tri-Continental Investment Group.<sup>43</sup> Both Remington-Rand and L. C. Smith make typewriters, adding machines, duplicating machines, and office supplies (carbon paper and typewriter ribbons). Similarly, Remington-Rand and Underwood both produce typewriters, accounting and bookkeeping machines, and related office supplies.

The third leading company in this group, the National Cash Register Co., likewise interlocked with the Underwood Corp., with which it is competitive in the production and sale of typewriters, accounting machines, billing and posting machines, and adding machines. National Cash Register and Underwood Corp. met on the boards of General Motors Corp.<sup>44</sup> and the International Paper Co.<sup>45</sup> In addi-

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<sup>41</sup> Thomas J. Watson, president of IBM, was a director, and F. Kunhardt of Royal Typewriter Co., was vice president and director of the Guaranty Trust Co., New York.

<sup>42</sup> J. G. Blaine and B. F. Pope of Remington-Rand, Inc., and Samuel G. H. Turner of L. C. Smith & Corona Typewriter Co. were directors of Marine Midland Corp. Mr. Blaine was president and Mr. Pope vice chairman of the executive committee of the Marine Midland Trust Co. of New York. Mr. Turner was chairman of the Board of the Elmira (N. Y.) Bank & Trust Co.

<sup>43</sup> B. F. Pope of Remington-Rand, Inc., and A. H. Wiggin of Underwood Corp. sat on the board of the Selected Industries, Inc.

<sup>44</sup> Both C. F. Kettering, a director of National Cash Register, and John T. Smith, a director of Underwood Corp., were vice presidents and directors of General Motors.

<sup>45</sup> Charles S. McCain of National Cash Register and A. H. Wiggin of Underwood Corp., were directors of International Paper. As noted previously Mr. McCain was president of Dillon, Read & Co., investment bankers, and Mr. Wiggin was associated with the American Express Co. and several investment trusts.

## INTERLOCKS AMONG BUSINESS MACHINE MANUFACTURERS

## BUSINESS MACHINE COMPANIES

## INTERMEDIARY COMPANIES

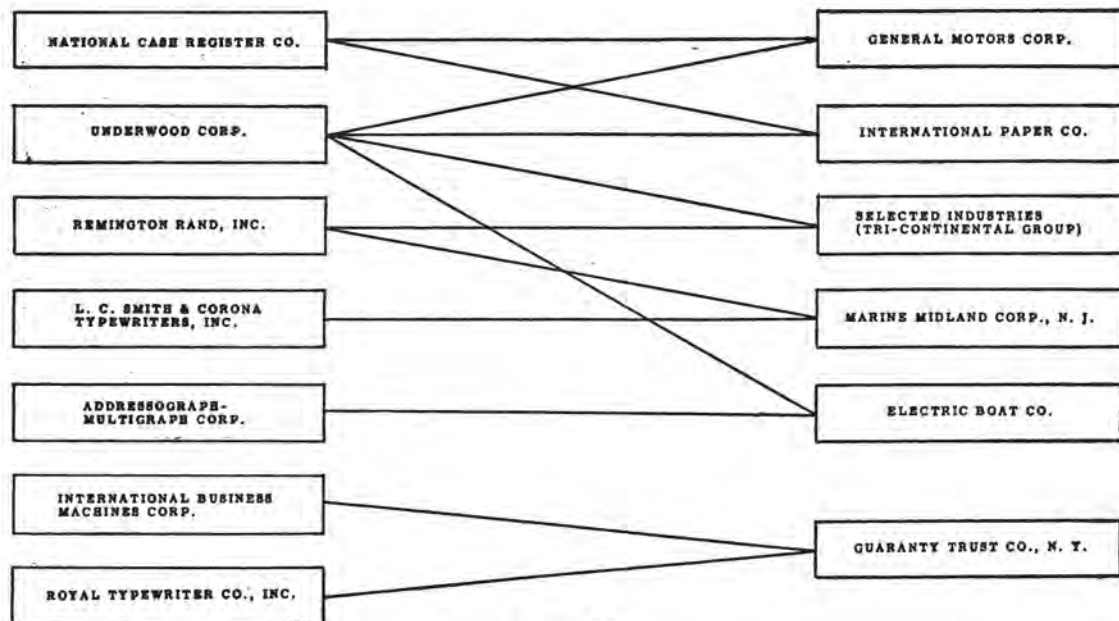


CHART 25.

tion, the National Cash Register Co., as noted above, had interlocking relations with the Rockwell Manufacturing Co., which also produces cash registers, through Armco Steel.<sup>46</sup>

The Underwood Corp., exhibits what is perhaps the most interesting pattern of interlocking relations in the entire machinery industry. It interlocked with no less than 30 other machinery companies, two directly and 28 indirectly. The indirect relations were accomplished through 37 different intermediary companies, 12 of which were financial institutions, including banks, investment trusts and insurance companies. Moreover, the Underwood Corp. was interlocked indirectly with three other producers in its immediate field. Its association with the National Cash Register Co. through General Motors and International Paper has already been indicated, as has its link with Remington-Rand through Tri-Continental (investment trust) group. Through the Electric Boat Co.<sup>47</sup> it also was associated with the Addressograph-Multigraph Co., with which it may be potentially competitive with respect to writing machines.

The interlocking relations of the Royal Typewriter Co. with the International Business Machine Corp., and of L. C. Smith and Corona Typewriters, Inc., with Remington-Rand, all competitive manufacturers, have already been described.

#### *Special-Industry Machinery (Including Textile Machinery)*

The 17 companies comprising this group produce specialized machinery for the use of other industries, such as food processing, textile, paper making, and printing machinery. Normally each company specializes in the manufacture of machinery for a single industry. The only interlocks of any competitive significance are those between textile machinery producers.

In this category, the two largest textile machinery companies, Whitin Machine Works and Draper Corp., were directly linked.<sup>48</sup> Whitin Machine Works was also interlocked with Crompton & Knowles Loom Works, another specialist in textile machinery, through the Second National Bank of Boston.<sup>49</sup> In addition Whitin also was

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<sup>46</sup> J. F. Drake, president and director of Gulf Oil and of Rockwell, and E. A. Deeds, chairman of the board of National Cash Register, served as directors of Armco.

<sup>47</sup> Reeve Schley of Underwood Corp. and G. W. Codrington of Addressograph-Multigraph Co. met as directors of the Electric Boat Co. Mr. Codrington was also a vice president of General Motors and general manager of its Cleveland Diesel Engine Division.

<sup>48</sup> Phillips Ketchum, a partner in Herrick, Smith, Donald, Farley and Ketchum was, and in 1949 still continued, a director of both Whitin Machine Work and Draper Corp.

<sup>49</sup> J. F. Tinsley, president of Crompton & Knowles, and E. K. Swift, chairman of the board of Whitin, were also directors of the Second National Bank of Boston.

## INTERLOCKS AMONG TEXTILE MACHINERY MANUFACTURERS

## TEXTILE MACHINERY COMPANIES

## INTERMEDIARY COMPANIES

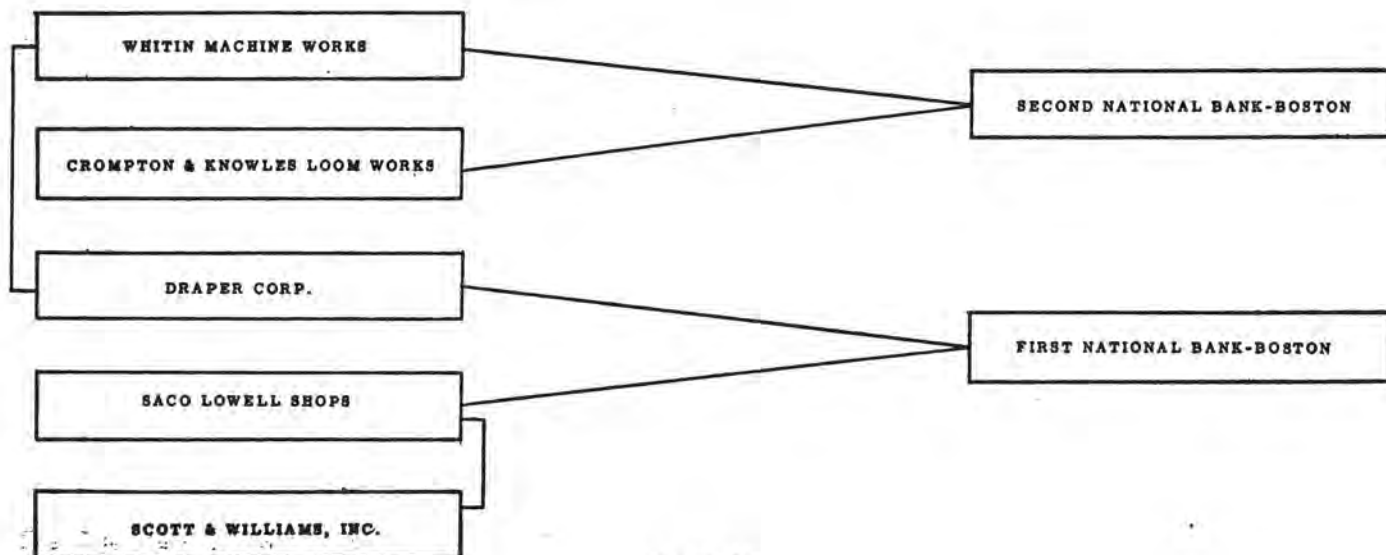


CHART 26.

indirectly associated with Scott & Williams, Inc., a knitting machinery producer through the Pepperell Manufacturing Co.<sup>50</sup>

The Draper Corp., the second largest textile machinery manufacturer, similarly maintained indirect interlocking relations with the Saco-Lowell Shops, another major textile machinery company, through the First National Bank of Boston.<sup>51</sup> Saco-Lowell, in addition, was directly allied with Scott & Williams through three common directors.<sup>52</sup> Thus, as is shown in chart 26, a total of five textile machinery manufacturers maintained interlocking relations with one or more potentially competitive producers, primarily through two Boston banks.

### *Pumps, Pumping, and Drilling Equipment (Oil-Field Machinery)*

The interlocking associations between a number of leading producers of pumps and oil-well drilling and pumping equipment portrayed in chart 27 are of particular interest. Because of the highly diversified product lines of these competing companies, some are classified under General Industrial Machinery and others under Construction and Mining Machinery and Equipment (including oil-field machinery and tools).

In all, six competing producers of pumps and drilling and pumping equipment were involved in one direct and three indirect interlocks. The National Supply Co., the leading oil-well supply and equipment company, was directly interlocked with Robbins & Meyers, Inc.,<sup>53</sup> primarily an electrical machinery company. Both companies produce pumps.

Both Worthington Pump & Machinery Corp. and Dresser Industries, Inc., two leading companies classified under General Industrial Machinery, and interlocked through Servel, Inc.,<sup>54</sup> make a competitive line of pumps, pumping-equipment compressors, gas engines, and rock-drilling equipment. In addition, Dresser, one of the largest

<sup>50</sup> E. K. Swift, chairman of the board and general manager of Whitin, and Amory Coolidge of Scott & Williams met on the board of Pepperell. Mr. Coolidge's primary interest was with Pepperell Manufacturing Co., as executive vice president, and assistant treasurer.

<sup>51</sup> B. H. B. Draper, Jr., treasurer of Draper, and E. S. French and C. F. Mills of Saco-Lowell, sat on the board of the First National Bank of Boston, of which Mr. Mills was vice president. Mr. French was also president of the Boston & Maine Railroad.

<sup>52</sup> Frank J. Hale, Roger D. Hale, and W. Frank Lowell, who was also vice president of Saco-Lowell, were directors of both companies and still held these positions in 1949.

<sup>53</sup> P. J. Shovlin was a director of both National Supply and Robbins & Meyers. He appears to have resigned from the former in 1949.

<sup>54</sup> H. S. Marston of Worthington and W. V. Griffin of Dresser met on the board of Servel, Inc. Mr. Griffin also was chairman of the board of the Brady Security & Realty Co. in New York City.

producers of pumps, pumping and oil-well equipment, met Emsco Derrick & Equipment Co., likewise a specialist in this type of machinery, on the board of the National City Bank of Cleveland.<sup>58</sup> Still another pump, oil drilling and pumping equipment producer (see

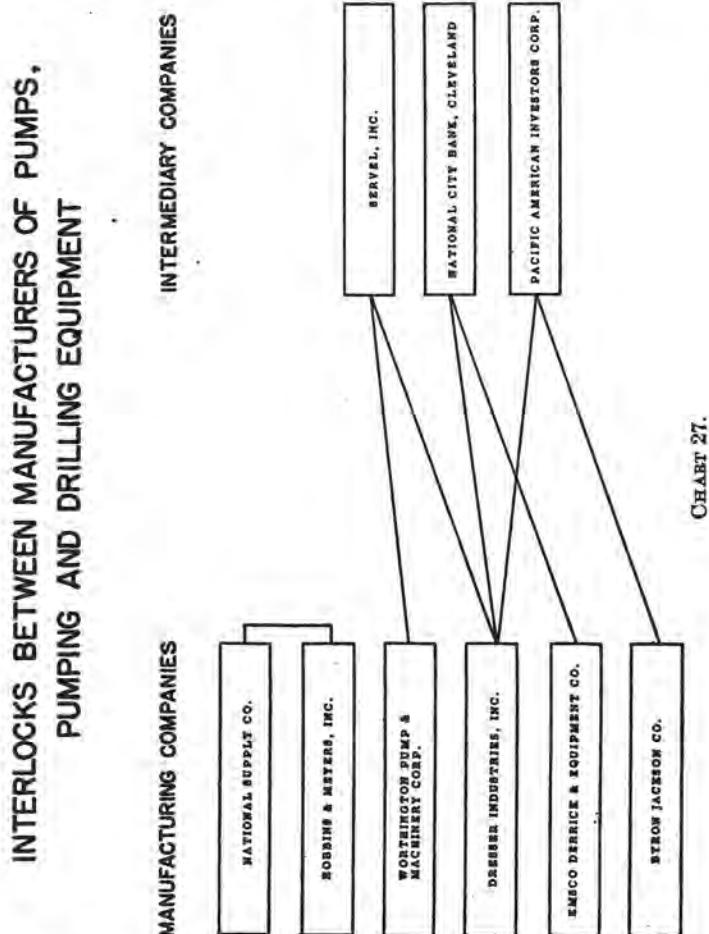


chart 27) with whom Dresser was indirectly interlocked, was the Byron-Jackson Co.; their directors met on the board of the Pacific-American Investors, Inc.<sup>59</sup>

<sup>58</sup> Frank Purnell of Emsco Derrick & Equipment, and Wm. A. McAfee of Dresser Industries, sat on the board of the National City Bank of Cleveland. Mr. Purnell was president of the Youngstown Sheet & Tube Co.; Mr. McAfee was a member of the Cleveland law firm of McAfee, Grossman, Taplin, Hanning, Newcomer & Hazlett.

<sup>59</sup> Norman Chandler (president and publisher of the Los Angeles Times), director of Dresser Industries, and Edgar S. Dulin, president of Byron-Jackson & Co., were directors of Pacific-American Investors.



Interlocking associations between these companies and competitors with respect to other products will be discussed below under the industry division in which they are classified.

*Construction and Mining Machinery and Equipment (Including Road-Building and Earth-Moving Machinery)*

In this heterogeneous though important industry group, one set of interlocking relations deserves particular notice. Four leading producers of road building and similar heavy machinery and equipment were indirectly linked through multiple interlocks with a bank and an insurance company, as shown in chart 28.

The Bucyrus-Erie Co., next to National Supply the largest in this group, and the leading manufacturer of excavating equipment, was indirectly linked with several other producers of the same or similar lines of equipment. Through Northwestern Mutual Life, it was associated with the Harnischfeger Corp., another leading producer of earth-moving machinery. Both companies make such items as power shovels, cranes, drag lines, buckets, etc. Two of Bucyrus-Erie's directors<sup>60</sup> and three of Harnischfeger's<sup>61</sup> sat on the board of Northwestern Mutual Life.

Allis-Chalmers also a producer of road-construction machinery (in addition to its principal line of farm machinery), was indirectly interlocked with Bucyrus-Erie through Northwestern Mutual Life,<sup>62</sup> and had a double direct link with Harnischfeger.<sup>63</sup> Finally, both Harnischfeger and Allis-Chalmers were linked with the Koehring Co., another competitive producer of cranes, draglines, and other earth-moving machinery, through the First Wisconsin National Bank.<sup>64</sup>

Thus, as shown on chart 28, directors of three major producers of road-construction machinery, Harnischfeger, Allis-Chalmers, and

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<sup>60</sup> F. R. Bacon, chairman of the board of Cutler-Hammer, and W. W. Coleman, chairman of the board of Bucyrus-Erie, were directors of both Northwestern Mutual Life and Bucyrus-Erie.

<sup>61</sup> H. S. Falk, Walter Kasten, Louis Quarles, directors of Harnischfeger, were also directors of Northwestern Mutual Life. Mr. Kasten was president of the First Wisconsin National Bank. Mr. Quarles was a partner of the Milwaukee law firm of Lines, Spooner & Quarles and a member of the executive and finance committees and trustee of Northwestern Mutual Life. Mr. Falk was president and director of the Falk Corp.

<sup>62</sup> F. R. Bacon and W. W. Coleman of Bucyrus-Erie, and Walter Kasten and Louis Quarles of Allis-Chalmers served on Northwestern Life's board of directors.

<sup>63</sup> Walter Kasten, president of the First Wisconsin National Bank, and Louis Quarles of the law firm of Lines, Spooner & Quarles, were directors of both Allis-Chalmers and Harnischfeger; they were still on both boards in 1949.

<sup>64</sup> G. E. Long, president of Koehring, met Walter Kasten of Harnischfeger and Allis-Chalmers on the board of the First Wisconsin National Bank, of which Mr. Kasten was president.

# INTERLOCKS AMONG PRODUCERS OF ROAD BUILDING AND EARTH MOVING MACHINERY AND EQUIPMENT

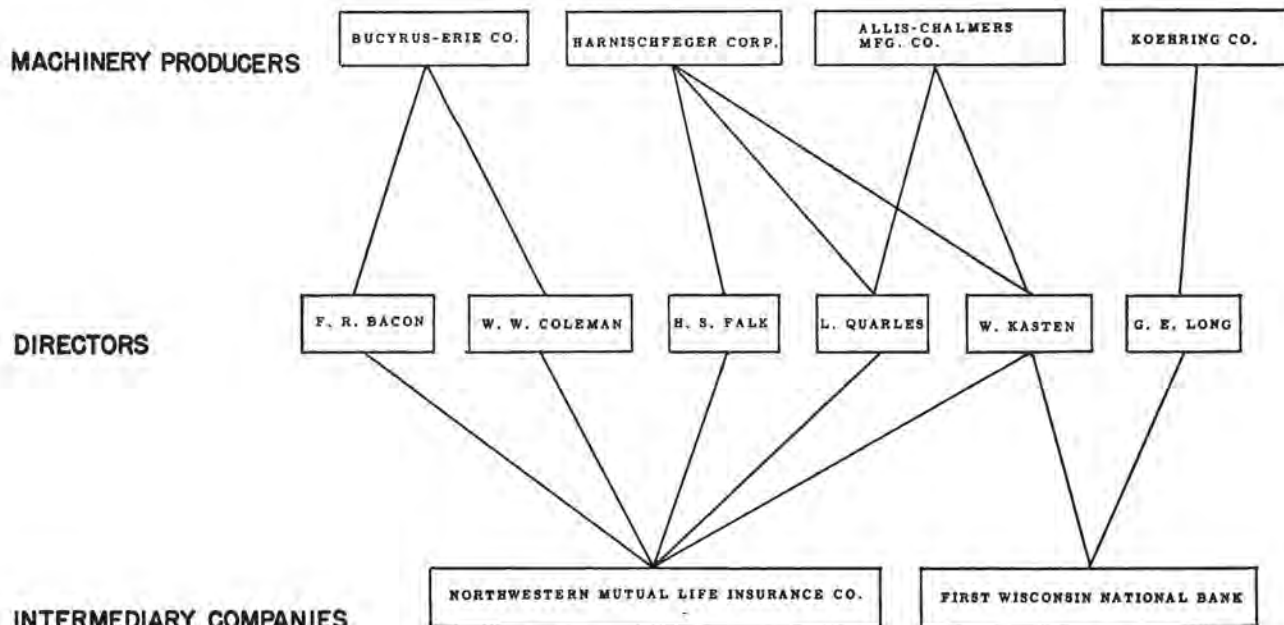


CHART 28.

\*This diagram is a reduced duplicate copy.

Koehring met on the board of the First Wisconsin National Bank. Similarly, Northwestern Mutual Life served as a meeting ground for Bucyrus-Erie, Harnischfeger, and Allis-Chalmers, all leading manufacturers of road-building machinery.

Accounting in large measure for Harnischfeger's position as a primary focal point of interlocks, potentially reducing competition, are three of its directors, Walter Kasten, Louis Quarles, and H. S. Falk, who also held key positions on the boards of several intermediary companies with which the other road-building equipment manufacturers were directly associated. These associations appear on chart 28. Meriting special mention are Mr. Kasten's key position as president of the First Wisconsin National Bank, and Mr. Quarles' partnership in the Milwaukee law firm of Lines, Spooner & Quarles, which served as counsel for Allis-Chalmers, Harnischfeger, and Bucyrus-Erie,<sup>65</sup> three of the four interlocked producers of road-construction machinery.

In addition to these interlocks, companies in this branch of the machinery industry producing other products had ties with competitors. Those of the National Supply Co., the largest in this group, with Robbins & Meyers (pumps); with LeRoi (internal combustion engines); and with Bucyrus Erie (oil-well drills and drilling equipment) have been discussed above, under the appropriate product group. Gar Wood Industries, another producer of road construction and material handling equipment was indirectly interlocked with Manning, Maxwell & Moore, Inc., through the Avco Manufacturing Co.<sup>66</sup> Both Gar Wood and Manning, Maxwell & Moore produce a competitive line of cranes and hoists.

The Harnischfeger Corp. exhibited an uncommonly high incidence of interlocks, both direct and indirect, with other machinery companies. In addition to its links with road-building machinery competitors, Allis-Chalmers (direct) and Koehring (indirect through the First Wisconsin National Bank) as noted above, Harnischfeger was also interlocked directly with the A. O. Smith Corp.,<sup>67</sup> classified in the fabricated metal products industry. Both companies produce welding equipment. As previously noted, another company in this group, Emsco Derrick & Equipment Co., interlocked with Dresser

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<sup>65</sup> *Martendale-Hubbel Law Directory, 1950.*

<sup>66</sup> A. N. Williams, president and director of Westinghouse Air Brake, as well as director of Manning, Maxwell & Moore and A. W. Herrington, chairman of the board of Marmon-Herrington and director of Gar Wood Industries, met on the board of Avco.

<sup>67</sup> Walter Kasten, president of the First Wisconsin National Bank, was also director of both Harnischfeger and A. O. Smith. He was still on both boards in 1949.

Industries (through the National City Bank of Cleveland),<sup>68</sup> both are leading producers of oil well drilling and pumping equipment.

### *General Industrial Machinery*

The general industrial machinery group embraces what is probably the most heterogeneous group of machinery products in the entire industry. The items covered range from pumps and compressors, elevators, conveyors, blowers, and chains to industrial trucks, mechanical power transmission equipment, industrial furnaces, mechanical stokers and a host of miscellaneous machinery and equipment for general industrial use. Many companies classified in this group had interlocking relations with others making competitive products. Those of Worthington Pump, Dresser, and Byron-Jackson, with respect to pumps and oil well drilling and pumping equipment, have been described. However, Worthington and Dresser maintained interlocking relationships with competitors manufacturing other machinery products.

The Worthington Pump and Machinery Corp., one of the largest and most diversified of all machinery producers, had four such interlocking relationships. It was directly linked with Babcock & Wilcox Corp.<sup>69</sup> (in the fabricated metal products industry), which also manufactures steam power equipment.<sup>70</sup> Worthington, like Servel with which it was directly interlocked,<sup>71</sup> is engaged in the manufacture of a potentially competitive, gas-type refrigerating system. Another company in the same group with which Worthington was potentially competitive and which it met on the board of an insurance group,<sup>72</sup> was the Chicago Pneumatic Tool Co. Both produce a complete line

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<sup>68</sup> Frank Purnell of Emsco and W. A. McAfee of Dresser, previously identified, were directors of the National City Bank of Cleveland.

<sup>69</sup> A. G. Pratt was president and director of Babcock & Wilcox and director of Worthington; he still held these offices in 1949.

<sup>70</sup> Though Worthington and Babcock & Wilcox may be competitive as to heat exchangers and certain types of burners, it is also likely that they more often complement each other's activities in supplying the necessary equipment for steam-power-plant installations. While Babcock & Wilcox specializes in such basic steam equipment needs as large boilers and piping and tubing, Worthington supplies the necessary boiler feed and vacuum pumps, condensers, and small steam turbines. Each company may be a potential supplier of the other or work jointly in supplying the equipment required for an industrial or public-utility power-plant installation.

<sup>71</sup> The common director was H. S. Marston who continued on both boards in 1949.

<sup>72</sup> A. G. Pratt, president of Babcock & Wilcox and director of Worthington, and C. J. Schmidlapp, vice president of the Chase National Bank and director of Chicago Pneumatic, were directors of the American Eagle Fire Insurance Co. (one of the America Fire Insurance and Indemnity Group, jointly controlled by Fidelity Phenix Fire Insurance Co. of which Mr. Pratt was a director, and by the Continental Insurance Co. of which Mr. Schmidlapp was a director).

of pneumatic tools (air drills, hammers, etc.), rock-drilling equipment, compressors and gas and Diesel engines. Finally, as previously noted, both Worthington and Dresser Industries, which were interlocked through Servel, Inc.,<sup>73</sup> make many similar products, including pumps and pumping equipment, compressors, gas engines, and rock-drilling equipment.

The Link-Belt Co. and the Gardner-Denver Co. shared a common director.<sup>74</sup> Both are engaged in the manufacture of mechanical loaders.

Dresser Industries, Inc., like Worthington, maintained interlocking relationships with companies producing similar lines of machinery products. Its link with Worthington Pump and Machinery Corp. through Servel, Inc. has been noted, as has its interlock with the International Harvester Co. (also a producer of Diesel engines) through the Atchison, Topeka & Santa Fe Railroad, and its tie with Emsco Derrick & Equipment, an oil-well drilling and pumping equipment competitor, through the National City Bank of Cleveland, and with Byron-Jackson, another specialist in oil-field machinery.

The Chain Belt Co., a member of this group, has been identified as maintaining a direct interlock with Allis-Chalmers;<sup>75</sup> both are producers of elevating machinery.

The two largest companies in this group, the Ingersoll Rand Co., producing a broad line of industrial machinery including pneumatic tools, compressors, oil and gas engines, pumps, condensers, and air conditioning, refrigeration and general mining machinery, and the Otis Elevator Co., the Nation's leading producer of passenger elevators, though indirectly interlocked with each other through Stone & Webster, Inc.<sup>76</sup> had no significant interlocks with companies producing competing products. Nevertheless, Otis Elevator was second only to Underwood Corp. (with whom it shared a common director),<sup>77</sup> in its indirect interlocks with other machinery companies. Its directors sat on the boards of eight different banks and investment trusts,<sup>78</sup>

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<sup>73</sup> H. S. Marston of Worthington and W. V. Griffin of Dresser met as directors of Servel.

<sup>74</sup> Alfred Kauffmann, a director of both Link-Belt and Gardner-Denver, continued to serve both companies in 1949.

<sup>75</sup> Walter Kasten was a director of both Chain Belt and Allis-Chalmers and continued on both boards in 1949.

<sup>76</sup> J. P. Grace, Jr., of Ingersoll Rand and A. H. Wiggin of Otis Elevator met as board members of Stone & Webster. Mr. Grace was president of W. R. Grace & Co.

<sup>77</sup> A. H. Wiggin, was a director of Otis Elevator and Underwood Corp.

<sup>78</sup> Directors of the following banks and investment trusts sat on the board of Otis Elevator; Bankers Trust Co., New York; Bank of the Manhattan Co.; Guaranty Trust Co.; Stone & Webster Securities Corp.; Newmont Mining Corp.; Tri-Continental Corp.; American Superpower Corp.; and National Aviation Corp.



the New York Life Insurance Co., two utilities, a railroad, and 13 leading corporations in other manufacturing industries. Through these it was indirectly linked to no less than 20 other machinery corporations, including most of the leaders in each principal machinery line, such as International Harvester (largest in agricultural machinery), Bucyrus-Erie (largest in excavating equipment), Cincinnati Milling Machine (largest in the machine tool industry), United Shoe Machinery (largest company in special-industry machinery), Ingersoll Rand and Worthington Pump (leaders with Otis Elevator in general industrial machinery), and International Business Machines, Remington Rand, and National Cash Register (top three producers of office and business machines). Thus Otis Elevator served along like Underwood Corp. was a focal point of interlocking relations in the machinery industry.

### *Service Industry and Household Machines*

The service industry and household machines division manufactures products ranging from domestic laundry equipment (washers, ironers, driers, and the like), sewing machines, and vacuum cleaners to refrigerators and refrigeration machinery and air conditioning units, commercial laundry and dry cleaning equipment, and service station dispensing pumps. There were few interlocking directorates of any competitive significance among this heterogeneous group of machinery producers. The interlock of Servel, Inc., directly with the Worthington Pump and Machinery Corp. has been noted.<sup>79</sup> Both companies are potentially competitive with respect to gas refrigerating equipment.

The Maytag Co., in addition to its principal activity as a producer of home washing machines and ironers, also distributes and sells home freezers produced for it by the Art Craft Manufacturing Co.; the latter also manufactures wet- and dry-storage refrigeration and home and office type refrigerators. Maytag (through this manufacturing association with Art Craft) may thus be potentially competitive with the Carrier Corp., a leading producer of air conditioning and refrigerating equipment, with which it was interlocked through Selected Industries, Inc., an affiliate of the Tri-Continental Investment Group.<sup>80</sup>

Finally, the Grinnell Corp. was linked through the Bank of the

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<sup>79</sup> H. S. Marston was and in 1949 continued to be a director of both Servel and Worthington.

<sup>80</sup> B. F. Pope of Carrier Corp. and Cyril J. Quinn of Maytag were directors of Selected Industries, Inc., and Mr. Pope was chairman of the board of the Marine Midland Corp., while Mr. Quinn was a partner in the investment firm of J. & W. Sellman & Co.



Manhattan Co.<sup>88</sup> with Dresser Industries. Both of these companies include piping systems and fittings among their manufacturing activities.

### *Miscellaneous Machinery Parts*

None of the eight companies classified in the miscellaneous machinery division maintained interlocks of a horizontal competition-reducing nature; they were in many instances capable of supplying companies with which they were directly or indirectly interlocked, with component parts such as bearings, valves, and fittings. These supplier-customer relationships are treated in the second section of this chapter.

### **SIGNIFICANT INTERLOCKS WITH POTENTIAL CUSTOMERS AND SUPPLIERS**

Because of the heterogenous nature of the machinery industry, interlocks involving machinery companies either as potential suppliers, customers, or both, are almost infinite in variety. Hence, only the most significant can be discussed; others are listed in summary form only.

Interlocks between machinery companies and their potential customers both within and outside the machinery industry are first considered. The discussion of possible customers outside the industry is limited to those which were directly interlocked with potential suppliers in the machinery industry. Potential customers within the industry include companies both directly or indirectly interlocked with suppliers in the machinery industry.

The second part of this section covers those interlocks involving potential suppliers of machinery producers. Since those suppliers within the machinery industry are covered in the first part of this section (as machinery companies with intraindustry potential customers), the analysis of potential suppliers embraces only suppliers outside the machinery industry.

### *Interlocks With Potential Customers*

Virtually all machinery and other metal-fabricating companies require machine and metal-working tools for their productive processes. Hence, most interlocks of machine tool producers, both within the machinery industry and with metal users and fabricators classified in other industries, involve a potential customer. This relation applies even more broadly to office, business and store machines. Here,

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<sup>88</sup> W. H. Bennett of Grinnell and W. V. Griffin of Dresser sat on the board of the Bank of the Manhattan Co. Mr. Bennett was a trustee of the Emigrant Industrial Savings Bank in New York.

since all companies, whether manufacturing, financial or distributive in character, use such machines, all interlocks may be classified as affecting actual or potential customers, regardless of the nature of the customers' business. At the other extreme are certain specialized parts or machines with limited applicability, so that very few interlocks of the producer involve a potential customer.

*Machine tools.*—Since the potential customers with which 15 of the machine tool producers were directly or indirectly interlocked are too voluminous to list by name, there is tabulated in table 36 the number of potential customers associated with each designated machine tool manufacturer; potential customer listing by name is shown in table 42.

TABLE 36.—*Interlocks between machine tool producers and potential customers*

Machine tool producer	Potential customers			
	Total	Direct interlocks		Indirect interlocks (machinery companies only)
		Machinery companies	Other companies	
National Acme Co.	16	2	5	9
Rockwell Manufacturing Co.	16	1	4	11
Cincinnati Milling Machine Co.	10	1	1	8
Kearney & Trecker Corp.	7	3	1	3
General Machinery Corp.	7	1	2	4
New Britain Machine Co.	6	1	3	2
Van Norman Co.	3	2		1
Jones & Lamson Machine Co.	4	1		3
Greenfield Tap & Die Corp.	4			4
Warner & Swasey Co.	3		2	1
Niles-Bement-Pond Co.	2			2
E. W. Bliss Co.	2			2
Ex-Cell-O Corp.	2		1	1
United Drill & Tool Corp.	2		1	1
Laudis Machine Co.	1	1		
Total	85	13	20	52

In addition, the two largest producers of heavy steel-making equipment, classified as machine tool companies, interlocked directly with several potential customers in the primary metals industry. United Engineering and Foundry, largest steel-mill machinery producer, was linked directly with Pittsburgh Steel and Follansbee Steel,<sup>85</sup> and indirectly through the People's First National Bank & Trust Co., (Pittsburgh) with Alan Wood Steel, Pittsburgh Coke & Chemical and National Supply,<sup>85a</sup> all potential customers for United Engineering's

<sup>85</sup> F. F. Brooks, president and director of the Peoples First National Bank & Trust Co. of Pittsburgh, was a director of United Engineering, Pittsburgh Steel, and Follansbee Steel.

<sup>85a</sup> J. H. Hillman, Jr., a director of Alan Wood Steel, Pittsburgh Coke & Chemical, and National Supply met F. F. Brooks, president of the bank and director of United Engineering, on the board of the Peoples First National Bank & Trust Co., of Pittsburgh. Mr. Hillman was president and director of Pittsburgh Coke & Chemical, Pennsylvania Industries, and Pennsylvania Bankshares & Securities.

steel-mill machinery. Similarly, Mesta Machine, second only to United Engineering in supplying steel-making equipment to steel producers, had a director who also sat on the board of a potential customer, Superior Steel Corp.<sup>28</sup> These direct interlocking relations afford an example of reciprocal supplier-customer relations. Thus, United Engineering and Mesta Machine were directly interlocked with iron and steel producers which are both potential customers for steel mill machinery and potential suppliers of steel.

Other interlocking relations maintained by machine tool companies with potential customers involving other products, included the following:

Machine tool company	Potential customer	Product supplied	Nature of interlock
E. W. Bliss Co.....	General Baking Co.....	Can and container making machinery.	Direct. O. L. Johnston, <sup>1</sup> director of both.
Rockwell Manufacturing Co.	International Harvester Co.	Refrigerator hardware...	Indirect through Armour & Co. <sup>2</sup>
Ex-Cell-O Corp.....	Continental Motors Corp.	Gasoline and Diesel fuel injectors and fuel injector nozzles.	Indirect through Mueller Brass Co. <sup>3</sup>

<sup>1</sup> Mr. Johnston was a partner in the New York law firm of Simpson, Thacher & Bartlett, vice president, secretary and director of Atlas Corp., and secretary and director of both Bonwit Teller and Franklin Simon & Co.

<sup>2</sup> Elisha Walker, of Rockwell Manufacturing, and J. R. Leavell, of International Harvester, met on the board of Armour & Co. Mr. Walker was associated with Kuhn, Loeb & Co., investment bankers.

<sup>3</sup> Edward Andreas, of Ex-Cell-O, and F. J. Kennedy, of Continental Motors, were directors of Mueller Bros. Mr. Andreas was secretary-treasurer of Yale Woolen Mills, while Mr. Kennedy was a partner in the Detroit law firm of Butzel, Eaman, Long, Gust & Bills which served as counsel for Mueller Brass, Bohn Aluminum & Brass, Continental Motors, Burroughs Adding Machine, Kelsey Hayes Wheel Co., Murray Corp., Motor Products Co., Fruehauf Trailer, Detroit Steel, and others.

*Office and store machines.*—Since all companies interlocked with producers of office and store machines are potential customers for their products (typewriters, adding and calculating machines, accounting and other record keeping machines, cash registers and the like), there is no necessity for relisting all of them here. Highly complex and broad patterns of interlocking relations characterize several companies in this machinery group; for example, Underwood Corp., National Cash Register Co., and Remington Rand, Inc., had 48, 21, and 15 direct interlocks, respectively. Moreover, these direct interlocks provided the channel for indirect connections with a larger number of other companies, all of which are potential customers for office and business machines. Nevertheless, further study of this high concentration of joint directorships is required, since it is highly doubtful that market outlet considerations constitute the sole reason for the high incidence of interlocks centering in this particular sector of the machinery industry.

<sup>28</sup> R. J. Dodds, a partner in Reed, Smith, Shaw & McClay, was director of Mesta Machine and Superior Steel. In addition, Mesta may also supply Le Roi and Rockwell (which, as previously noted, it met on the board of Standard Steel Spring) with forging ingots and steel alloy castings.

Bearings of all types, like machine tools and office and store machines, are in almost universal use throughout the metal industries. The five principal bearings producers maintained three direct and six indirect interlocks with potential customers, as shown in table 37 below.<sup>87</sup>

TABLE 37.—*Interlocks between bearings manufacturers and potential customers*

Bearings manufacturer	Potential customer	Nature of interlock
Timken Roller Bearing Co.	Timken-Detroit Axle Co. ....	Messrs. H. H. Timken, Jr., and W. R. Timken were directors of both companies. <sup>1</sup>
	Le Roi Co. ....	Indirect through Timken-Detroit Axle Co. <sup>1</sup>
Torrington Co. (needle bearings).	Rockwell Manufacturing Co. ....	Indirect through Bridgeport Brass Co. <sup>2</sup>
	Carrier Corp. ....	
Fafnir Bearing Co. ....	Stanley Works. ....	Messrs. F. G. Vibberts and R. E. Pritchard were directors of both companies. <sup>3</sup>
	New Britain Machine Co. ....	F. G. Vibberts was a director of both.
Marlin-Rockwell Corp. ....	Joy Manufacturing Co. ....	Indirect through Adams Express investment group. <sup>4</sup>
Bower Roller Bearing Co. ....	American Type Founders, Inc. ....	
	National Cash Register Co. ....	Indirect through B. F. Goodrich Co. <sup>4</sup>

<sup>1</sup> H. H. Timken, Jr., and W. R. Timken, chairman of the board and vice president, respectively, as well as directors of Timken Roller Bearing, met W. F. Rockwell, director of Le Roi and president of Rockwell Manufacturing, on the board of Timken Detroit Axle, of which Mr. Rockwell was chairman of the board.

<sup>2</sup> L. A. Dibble of Torrington and H. W. Steinkraus of Carrier Corp. were director and chairman of the board, respectively, of Bridgeport Brass. In addition Mr. Dibble was president of the Risdon Manufacturing Co.

<sup>3</sup> Mr. Vibberts was president and trustee of the New Britain Trust Co., treasurer and director of Stanley Securities Co. and director of Fafnir, New Britain Machine and Stanley Works. Mr. Pritchard was president and director of Stanley Works and a director of Fafnir. In addition, M. H. Pease, vice president and director of Stanley Works, and P. B. Stanley, director of Stanley Works, and vice president and director of Stanley Securities as well as director of New Britain Trust, were also directors of New Britain Machine.

<sup>4</sup> J. H. Walters, president and director of Marlin-Rockwell was also a director of the Adams Express Co., and American International Corp. (key units of the Adams Express investment trust group), where he met G. M. Gillies, Jr. (president and director of Adams Express Co., and director of American International, and director of Joy Manufacturing), and J. D. A. Morrow, president and director of Joy Manufacturing and director of Adams Express. Mr. Walters also met C. S. Lutkins of American Type Founders (and a partner of the New York investment firm of R. W. Pressprich & Co.) on the boards of Adams Express and American International.

Thus the Adams Express group served as a key interlocking center between Marlin-Rockwell, Joy Manufacturing, and American Type Founders.

<sup>5</sup> Wesson Seyburn of Bower Roller Bearing and C. S. McCain, president of Dillon, Read & Co. and director of National Cash Register, were directors of B. F. Goodrich.

*Textile machinery.*—The four leading textile machinery manufacturers—Whitin Machine Works, Draper Corp., Saco-Lowell Shops and Crompton & Knowles Loom Works—had numerous direct and indirect interlocks with potential customers. As shown in table 38 and chart 29, they interlocked with 12 major textile companies (nine leading cotton textile mills, Pacific Mills, a leading cotton and woolen fabric producer, and Bigelow-Sanford, a leading carpet manufacturer and Ludlow Manufacturing & Sales Co., manufacturers of yarns, threads, and twine made of jute, hemp, and flax). The complex of direct interlocks between two textile machinery producers and their potential customers (Whitin Machine Works with four textile companies, and Saco-Lowell Shops with the Pepperell Manufacturing Co.)

<sup>87</sup> These do not include any interlocks of two of the largest bearing manufacturers, which either are classified in other industries (Hyatt and New Departure Divisions of General Motors) or are omitted because financial data are not publicly available (S. K. F. Industries).

**TABLE 38.—Interlocks between textile machinery manufacturers and potential customers**

Textile machinery producer	Potential customers in textile industry	Nature of interlock
Whitin Machine Works.....	Pepperell Manufacturing Co.....	Direct. <sup>1</sup>
	Bigelow-Sanford Carpet Co.....	Do. <sup>1</sup>
	Wm. Whitman Co., Inc.....	Do. <sup>1</sup>
	Dwight Manufacturing Co.....	Do. <sup>2</sup>
Crompton & Knowles Loom Works.....	United Merchants & Manufacturers, Inc.....	Indirect through the Second National Bank of Boston. <sup>3</sup>
	Pacific Mills.....	
	Ludlow Manufacturing & Sales Co.....	
	Wamsutta Mills.....	
Draper Corp. and Saco-Lowell Shops.....	J. P. Stevens & Co.....	Indirect through the First National Bank of Boston. <sup>4</sup>
	United Merchants & Manufacturers, Inc.....	
	Pacific Mills.....	
	West Point Manufacturing Co.....	
Saco-Lowell Shops..... Crompton & Knowles Loom Works.....	Pepperell Manufacturing Co.....	Direct. <sup>5</sup>
	Nashua Manufacturing Co.....	
	Ludlow Manufacturing & Sales Co.....	
	United Merchants & Manufacturers, Inc.....	
	Bemis Bros. Bag Co.....	Indirect through the Merchants National Bank of Boston. <sup>6</sup>

<sup>1</sup> Elijah Kent Swift, chairman of the board, treasurer and general manager of Whitin was a director of Pepperell, Bigelow-Sanford, and Wm. Whitman (named Arlington Mills prior to Dec. 17, 1946).

<sup>2</sup> N. F. Ayer was a director of both Whitin Machine Works and the Dwight Manufacturing Co., a cotton textile manufacturer. In addition, Whitin Machine Works and Dwight Manufacturing were interlocked through Bigelow-Sanford Carpet Co. Charles Francis Adams, president and director of Dwight Manufacturing Co. met E. K. Swift, chairman of the board and general manager of Whitin, on the board of Bigelow-Sanford.

<sup>3</sup> Elijah Kent Swift of Whitin met William B. Snow, Jr., director of United Merchants & Manufacturers; A. Murray Howe, director of Pacific Mills; Henry M. Bliss, director of both Pacific Mills and Ludlow Manufacturing & Sales; Charles F. Broughton, president and director of Wamsutta Mills; and J. F. Tinsley, president and director of Crompton & Knowles, on the board of the Second National Bank of Boston. Mr. Snow was president of the Suffolk Savings Bank while Mr. Howe was president of the Champion International Co.

<sup>4</sup> B. H. B. Draper, Jr. of Draper Corp. and C. F. Mills and E. S. French of Saco-Lowell met the following textile mill directors on the board of the First National Bank of Boston: Abbott Stevens, vice president and director of J. P. Stevens & Co., Lloyd D. Brace of United Merchants & Manufacturers, Sinclair Weeks of Pacific Mills and West Point Manufacturing, Russell H. Leonard, president of Pepperell, Serge Semenenko of Nashua Manufacturing, and Richard L. Bowditch of Ludlow Manufacturing & Sales. Messrs. Brace and Semenenko were vice presidents of the First National Bank of Boston; Mr. Weeks was chairman of the board of Reed & Barton Corp., and Mr. Bowditch was president of C. H. Sprague & Son. All were directors of the First National Bank of Boston, with the exception of Mr. Semenenko, who was a vice president of the bank.

<sup>5</sup> O. Kelley Anderson, president of Consolidated Investment Trust and director of Saco-Lowell also sat on the board of United Merchants & Manufacturers, Inc.

<sup>6</sup> C. Stetson of Crompton & Knowles Loom Works met F. Gregg Bemis, president of Bemis Bros. Bag Co., on the board of the Merchants National Bank of Boston. Mr. Stetson is a partner in the Boston law firm of Warner, Stackpole, Stetson & Bradlee.

was augmented by three Boston banks which served as connecting links between the textile machinery producers and other major textile mills. Thus, Whitin and Crompton & Knowles each met four additional textile companies through the Second National Bank of Boston, while Draper Corp., and Saco-Lowell Shops interlocked with each other and with seven textile companies through the First National Bank of Boston. A third Boston bank, the Merchant's National Bank, provided an indirect interlock between Crompton & Knowles and the Bemis Bros. Bag Co.

Whitin's interlocks with so many textile mills, both directly and through the Second National Bank of Boston, was effected by Elijah Kent Swift. In addition to being chairman of the board, treasurer and general manager of Whitin, Mr. Swift was also director of Pepperell Manufacturing Co., Inc., Dwight Manufacturing Co., the Bigelow-Sanford Carpet Co., the Second National Bank of Boston

# INTERLOCKS BETWEEN TEXTILE MACHINERY PRODUCERS AND POTENTIAL CUSTOMERS IN THE TEXTILE INDUSTRY

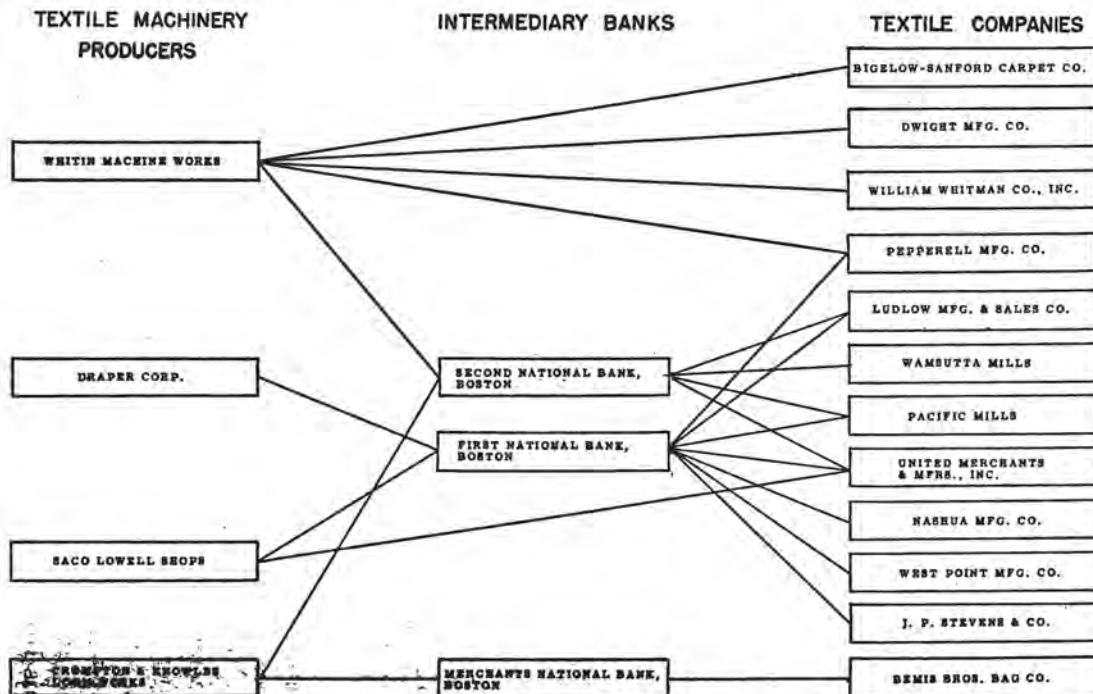


CHART 29.



(where he met directors of three other cotton textile firms), three insurance companies, two smaller banks, a lumber company, and several other firms.

Other key directors in this nexus of Boston banks, textile machinery companies and textile mills included the following:

(1) Henry M. Bliss was president, treasurer, and director of Pacific Mills and director of the Ludlow Manufacturing & Sales Co., as well as director of the Second National Bank of Boston, where he met Elijah K. Swift, whose associations in the textile mill and textile machinery industries have already been described.

(2) O. Kelley Anderson was a director of both Saco-Lowell Shops and United Merchants and Manufacturers Inc. (in addition to three investment trusts and several other financial institutions, operating companies and the United Corp.). Two other Saco-Lowell directors, C. F. Mills and E. S. French, also sat on the board of the First National Bank of Boston where they met directors of seven textile firms.

(3) B. H. B. Draper, Jr., director of Draper Corp., the second largest textile machinery producer, also sat on the board of the First National Bank of Boston where he met C. F. Mills and E. S. French of Saco-Lowell, as well as directors of seven textile firms.

(4) Sinclair Weeks, who, in addition to sitting on the boards of both Pacific Mills and the West Point Manufacturing Co. (both cotton textile producers). As a director of the First National Bank of Boston he also met the directors of seven other textile firms.

The above complex of interlocking directorates between textile machinery manufacturers, their textile mill customers and the banks may have had its origin in the initial or subsequent financing of costly textile machinery purchased by the textile mills. These associations not only may affect competition between the textile machinery manufacturers, but also in the textile industry itself, where the major producers of textile machinery and associated banks are represented directly or indirectly on the boards of many leading textile manufacturers.

*Engines.*—There are a number of producers of internal-combustion engines that interlock directly or indirectly with prospective customers. Continental Motors had indirect interlocking relations through the Struthers-Wells Corp.,<sup>88</sup> with the Koehring Corp., a potential customer for gasoline engines for its power shovels. Similarly, Emsco Derrick & Equipment Co., a producer of oil well drilling and pumping

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<sup>88</sup>David Van Alstyne, Jr., partner in Van Alstyne, Noel & Co., and director of Continental Motors and F. R. Tuerk of Koehring met on the board of Struthers-Wells. Mr. Tuerk was a partner of Crittenden & Co.

equipment, and Hercules Motor Co., an engine manufacturer, met on the board of the National City Bank of Cleveland.<sup>80</sup>

The direct link between Allis-Chalmers and Harnischfeger, referred to previously,<sup>80</sup> also provides a source of potential customer preference based on the interlocking association. Both companies are located in West Allis, Wis., and though potentially competitive with respect to Diesel engines which both produce, Harnischfeger may be a potential customer for Allis-Chalmers gasoline engines for its motor-mounted, earth-moving equipment. Gar Wood is indirectly linked with National Supply through the board of the Pittsburgh Forgings Co.<sup>81</sup> National Supply manufactures Diesel and other engines; Gar Wood uses engines in its line of road construction machinery. Thew Shovel, which uses Diesel power for its excavating shovels, was indirectly interlocked with Dresser Industries, a producer of such engines, through the White Motor Co.<sup>82</sup> Finally, International Harvester, a leading producer of engines, trucks and tractors, was directly linked with Standard Oil of Indiana,<sup>83</sup> which makes use of such products.

*Oil-field machinery.*—Several of the Nation's largest producers of oil-field drilling and pumping equipment, related supplies, and tubular products maintained direct interlocking relations with leading oil companies, which consume large quantities of such materials in their oil and gas drilling, producing and transporting operations.

The National Supply Co., largest producer and distributor of such equipment and supplies, was directly linked with Shamrock Oil & Gas Corp.<sup>84</sup> A leading producer of pumps, pumping engines and equipment, drills, pipeline compressors and engines, and gas and oil meters, Worthington Pump & Machinery Corp., shared a director with the

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<sup>80</sup> C. E. Gallagher of Hercules and Frank Purnell, director and treasurer of Emsco and president of Youngstown Sheet & Tube, were directors of the National City Bank of Cleveland.

<sup>81</sup> Walter Kasten, president of the First Wisconsin National Bank, was a director of both companies.

<sup>82</sup> F. A. Callery of Gar Wood and Edwin Hodge of National Supply sat on the board of the Pittsburgh Forgings Co., of which Mr. Hodge was president and chairman of the board. Mr. Callery was also a member of the executive committee of Consolidated Vultee Aircraft.

<sup>83</sup> David Johnson of Thew Shovel met Wm. A. McAfee of Dresser Industries on the board of the White Motor Co. The latter company may also be a potential supplier of Thew Shovel with respect to heavy-duty gasoline motors. Mr. Johnson was a member of the Cleveland law firm of M. & B. & H. H. Johnson, while Mr. McAfee has been previously identified as a partner of another Cleveland law firm—McAfee, Grossman, Taplin, Hanning, Newcomer & Hazlett.

<sup>84</sup> J. F. Stone, manager of McCormick Estates, was a director of International Harvester and Standard Oil of Indiana.

<sup>85</sup> Ralph S. Euler, senior vice president of the Mellon National Bank & Trust Co., was a director of both National Supply and Shamrock Oil & Gas.

Shell Union Oil Corp.<sup>95</sup> Another leading producer of oil-field derricks, drilling and pumping units, supplies, engines and pipeline compressors, Dresser Industries, maintained direct interlocks with both Continental Oil Co.<sup>96</sup> and the Standard Oil Co. of Ohio.<sup>97</sup> Finally, Rockwell Manufacturing Co., a manufacturer of valves and related specialties for oil transporting and refining equipment, including precision instruments such as orifice gages, chart integrators, etc., was directly interlocked with the Gulf Oil Corp.<sup>98</sup> and Tide Water Associated Oil Co.<sup>99</sup> ranking sixth and thirteenth, respectively in the oil industry.

*Tractors.*—There were four tractor manufacturers which interlocked with potential customers. The Caterpillar Tractor Co. had three common directors<sup>1</sup> with the Soundview Pulp Co., which employs such equipment in its wood cutting and moving operations. The Oliver Corp., in addition to its principal farm-machinery line, also produces industrial tractors; the Thew Shovel requires tractors for mounting its power shovel equipment. These two companies were interlocked through White Motor Co.<sup>2</sup>

Both International Harvester and J. I. Case were connected with Bucyrus-Erie,<sup>3</sup> the largest manufacturer of road building and con-

<sup>95</sup> Lewis L. Clarke was a director of Worthington Pump, Shell Union Oil, and American Locomotive. In the latter company, he was also a member of the executive committee in addition to serving as a member of the executive and finance committees of several leading insurance companies.

<sup>96</sup> W. V. Griffin, chairman of the board and director of Brady Security & Realty Co. in New York, was a director of Continental Oil as well as of Dresser.

<sup>97</sup> W. A. McAfee, previously identified as a partner in the Cleveland law firm of McAfee, Grossman, Taplin, Hanning, Newcomer and Hazlett, was a director of both Dresser and Standard Oil of Ohio.

<sup>98</sup> James F. Drake, president and director of Gulf Oil and director of the Chase National Bank, was also vice president and director of Rockwell Manufacturing.

<sup>99</sup> Elisha Walker of Kuhn Loeb & Co., investment bankers, was a director of both Rockwell Manufacturing and Tide Water Associated Oil.

<sup>1</sup> H. H. Fair, R. C. Force, and Christian O. G. Miller were directors of Caterpillar Tractor and Soundview Pulp Co. Mr. Force was on the executive committee of Caterpillar Tractor, while Mr. Miller was chairman of the board of Pacific Lighting Corp.

<sup>2</sup> F. H. Chapin and W. King White, directors of Oliver, met David L. Johnson of Thew Shovel on the board of the White Motor Co. Mr. Chapin was chairman of the board and president of National Acme (machine tool producer), while Mr. White was a vice president and director of Oliver. Prior to Oliver's acquisition of Cleveland Tractor on October 3, 1944, Mr. White was the latter's president.

<sup>3</sup> William W. Coleman, chairman of the board of Bucyrus-Erie, was also a director of J. I. Case. E. L. Ryerson, chairman of the board of Inland Steel and director of International Harvester met five directors of Bucyrus-Erie (W. W. Coleman, A. V. Davis, W. B. Given, Jr., W. G. Pearce, and D. E. Pomeroy) on the board of the American Brake Shoe Co., of which Mr. Given and Mr. Pearce were president and chairman of the board, respectively. Mr. Davis was chairman of the board of the Aluminum Co. of America, and director and member of the executive committee of the Mellon National Bank and Trust Co. of Pittsburgh.

struction machinery. Bucyrus purchases tractors on which it mounts its bulldozer and other road-making machinery. The possible reciprocal nature of potential customers and suppliers is vividly illustrated in this case. Bucyrus-Erie is a producer of tractor cabs, and purchases tractors. International Harvester and J. I. Case produce tractors. A 1948 stock registration statement<sup>4</sup> describes Bucyrus-Erie bulldozer and other tractor attachments as "primarily designed for mounting on International Harvester tractors." The same source indicates that the trucks and engines purchased by Bucyrus-Erie for its equipment are purchased from several manufacturers.

*Electric motors and other components.*—Allis-Chalmers, a major producer of electric motors, controls, switches and compressors, is directly linked with York Corp.<sup>5</sup> The latter company, a potential customer, manufactures air conditioning and refrigerating equipment.

The Worthington Pump & Machinery Corp., a highly diversified machinery manufacturer, had interlocking associations with several companies which could be customers for its electrical motors and other equipment. It had common directors both with Servel Inc.,<sup>6</sup> a leading refrigerator manufacturer, the Maryland Drydock Co., and the Glenn L. Martin Co.<sup>7</sup> The latter, which like Servel is a prospective customer for electric motors, also purchases fuel pumps for its aircraft. The Maryland Drydock Co. could be a potential customer for Worthington's steam turbine and equipment line. Moreover, Worthington had four directors in common with the U. S. Hoffman Machinery Corp.<sup>8</sup> U. S. Hoffman is a purchaser of electric motors, welding equipment, and a host of other miscellaneous machinery parts.

*Other products.*—There are several other interlocks between machinery producers and potential customers involving various machinery products which deserve specific mention.

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<sup>4</sup> *Bucyrus Erie Stock Registration Statement* of October 26, 1948, pp. 6, 7.

<sup>5</sup> Walter Geist, president and a director of Allis-Chalmers, was a director of York Corp.

<sup>6</sup> H. S. Marston of Worthington was also a director of Servel.

<sup>7</sup> Howard Bruce was chairman of the board of the Baltimore National Bank and chairman of the board, member of the executive committee and director of Worthington, a director of Glenn L. Martin Co., and a director of the Maryland Drydock Co.

<sup>8</sup> H. C. Beaver, LaMonte J. Belnap, A. C. Bruce, and Howard Bruce, were directors of Worthington Pump and U. S. Hoffman. Mr. Beaver was vice chairman of the board of Worthington Pump; Mr. Belnap was president of Consolidated Paper Corp., Ltd., chairman of the board of U. S. Hoffman Machinery, and chairman of the executive committee of Worthington Pump; and Mr. A. C. Bruce was president of U. S. Hoffman Machinery as well as director of the Baltimore National Bank.

(1) Allis-Chalmers had two directors who served on the board of Kimberly-Clark, Corp.,<sup>9</sup> a leading paper producer, and a potential customer for Allis-Chalmers' paper machine drives and logging and wood-processing equipment.

(2) Nekoosa-Edwards Paper Co. and Northern Paper Mills were prospective customers for bulldozers and related equipment in their logging operations. They were directly interlocked with Bucyrus-Erie through a common director.<sup>10</sup>

(3) Along with its diversified line of farm machinery, International Harvester<sup>11</sup> makes dairy machinery and cream separators. Armour & Co. uses such machinery in its production of evaporated milk and butter.

(4) The Harnischfeger Corp. was indirectly interlocked with several leading machinery companies which may be potential customers of Harnischfeger's line of material-handling equipment-shop hoists, cranes and monorail systems. Harnischfeger had two common directors<sup>12</sup> with Allis-Chalmers. It met Oliver on the board of the Northwestern Mutual Life<sup>13</sup>; International Harvester on the board of the First National Bank of Chicago<sup>14</sup>; and the York Corp. on the board of the First Wisconsin National Bank.<sup>15</sup>

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<sup>9</sup> Walter Kasten and E. Mahler were directors of both Allis-Chalmers and Kimberly-Clark. Mr. Mahler was also executive vice president of Kimberly-Clark and chairman of the board of International Cellucotton Products, while Mr. Kasten, as previously noted, was president of the First Wisconsin National Bank. Mr. Kasten also served as a director of Chain-Belt, a manufacturer of elevating and conveying machinery.

<sup>10</sup> A. S. Puelicher was a director of Bucyrus-Erie, Nekoosa-Edwards, and Northern Paper Mills in addition to his position as president of the Marshall & Ilsley Bank in Milwaukee.

<sup>11</sup> J. R. Leavell, president and director of the Continental-Illinois Bank & Trust Co. of Chicago, was a director of both Armour and International Harvester.

<sup>12</sup> Walter Kasten, president of the First Wisconsin National Bank, and Louis Quarles, partner of the Milwaukee law firm of Lines, Spooner & Quarles, were directors of Harnischfeger and Allis-Chalmers.

<sup>13</sup> W. C. Frye of Oliver and H. S. Falk, Walter Kasten, and Louis Quarles of Harnischfeger were directors of the Northwestern Mutual Life Insurance Co. Mr. Falk, as noted previously, was president and director of the Falk Corp. in Milwaukee.

<sup>14</sup> Ralph Budd, C. A. Ranney, and J. P. Wilson, directors of International Harvester, met I. L. Porter of Harnischfeger on the board of the First National Bank, Chicago, of which Mr. Porter was vice president. Mr. Budd was president and chairman of the executive committee of the Chicago, Burlington & Quincy Railroad; Mr. Ranney was chairman of the board of the People's Gas Light & Coke Co., and Mr. Wilson was a partner of the Chicago law firm of Wilson & McIlvaine.

<sup>15</sup> Walter Kasten, a director of Harnischfeger, was president and director of the First Wisconsin National Bank, on which board Walter Geist of the York Corp. also sat. Mr. Geist was president and director of Allis-Chalmers.



(5) Dresser Industries had a common director with Servel, Inc.,<sup>18</sup> which requires compressors for its refrigerators. Dresser was also directly interlocked with Apex Electrical Manufacturing Co.,<sup>17</sup> which uses pumps in the production of washers.

(6) The Cleveland Graphite Bronze Co. produces a major line of engine bearings and bushings. It had a common director with Thompson Products, Inc.,<sup>18</sup> which uses bearings in its production of automotive connecting rods, and another with Eaton Manufacturing Co. which requires bushings and bearings in its varied line of automotive parts (axles, push rods, valve seat inserts, etc.). Cleveland Graphite Bronze also met the Oliver Corp. and Dresser Industries, both users of engine bearings and bushings, on the board of the National Screw & Manufacturing Co.<sup>19</sup>

(7) The direct interlock between the Seeger Refrigerator Co. and Sears-Roebuck & Co. is a particularly significant example of interlocking relations of a customer-supplier nature. E. P. Brooks, a vice president of Sears-Roebuck, was on the board of Seeger Refrigerator Co. Sears is the retail outlet for the "Cold Spot" refrigerator line produced by Seeger.

(8) The Carrier Corp., a leading manufacturer of air conditioning equipment, may have a potential customer in Safety Car Heating & Lighting Co., Inc., with which it was directly interlocked.<sup>20</sup> Safety Car Heating & Lighting Co. includes air conditioning as part of its general line of railroad passenger car equipment. The two companies, rather than maintaining a supplier-customer relation, may be competitive in this field. In 1931 Carrier Corp. and Safety Car Heating and Lighting Co. were reported to have arranged to coordinate their research and development in railway air-conditioning equipment.<sup>21</sup>

The remaining interlocks involving potential customers of machinery manufacturers are listed in table 39.

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<sup>18</sup> W. V. Griffin, chairman and director of the Brady Security & Realty Co. and director of the Bank of the Manhattan Co., was a director of Dresser and Servel.

<sup>17</sup> Wm. A. McAfee, partner of the Cleveland law firm of McAfee, Grossman, Taplin, Hanning, Newcomer & Hazlett, was a director of Dresser and Apex Electrical Manufacturing.

<sup>18</sup> Frederick C. Crawford, president of Thompson Products and director of Cleveland Graphite Bronze. Frederick J. Griffiths was a director of both Cleveland Graphite Bronze and Eaton Manufacturing.

<sup>19</sup> A. W. Lueke of Cleveland Graphite Bronze met C. I. Ochs, president of Eaton Manufacturing Co. and director of Oliver, and Wm. A. McAfee of Dresser on the board of the National Screw & Manufacturing Co.

<sup>20</sup> Walter L. Conwell, president and director of Safety Car Heating & Lighting Co., was a director of Carrier Corp.

<sup>21</sup> *Moody's Industrials*, 1948, p. 884.



TABLE 39.—Other potential customers of machinery companies

Machinery company	Potential customer	Products supplied	Nature of interlock (D=Direct (name of common director) I=Indirect)
Elliott Co.....	National Supply Co.....	Turbochargers for Diesel engines.	I through the Mellon National Bank & Trust Co. (Pittsburgh). <sup>1</sup> D (T. Welsman).
Atlas Imperial Diesel Engine Co.	Hunt Foods, Inc.....	Tin cans.....	I through the Central Hanover Bank Trust Co. <sup>2</sup>
	Worthington Pump & Machinery Corp.	Safety valves, pressure gages, steam recording instruments.	
Manning, Maxwell & Moore, Inc.	New York Ship Building Corp	.....do.....	D (A. N. Williams). <sup>3</sup>
	Avco Mfg. Corp.....	Safety valves, pressure gages, steam recording instruments (for Avco's Spencer Heater Division).	Do.
Marion Power Shovel Co.	Colorado Fuel & Iron Corp.	Excavators and power shovels.	D (Charles G. Terry). <sup>4</sup>
American Type Founders, Inc.	National Cash Register Co.	Printing machinery and printing type.	I through Congoleum-Nairn, Inc. <sup>5</sup>
	Underwood Corp.....	.....do.....	I through Int'l Silver Co. <sup>6</sup>
	Oliver Corp.....	Chain belts, sprockets roller chairs.	D (W. E. Frye). <sup>7</sup>
Chain Belt Co.....	Allis-Chalmers Manufacturing Co.	.....do.....	D (Walter Kasten). <sup>8</sup>
	Harnischfeger Corp.	.....do.....	Do.
DeVilbiss Co.....	Hercules Motor Corp.....	Engine hose and connections.	I through the Toledo Trust Co. <sup>9</sup>
Link Belt Co.....	National Malleable & Steel Castings Co.	Casting and mold handling equipment, coal and coke loaders, conveyors, etc.	D (H. Coonley and H. Whittemore, Jr.) <sup>10</sup>
	National Cash Register, Co.	Foundry products.....	D (W. H. Bennett). <sup>11</sup>
Grinnell Corp.....	Remington Rand Inc.	.....do.....	I through Gorham Manufacturing Co. <sup>12</sup>
	Servel, Inc.....	Valves and fittings etc.	I through Bank of the Manhattan Co. <sup>13</sup>

<sup>1</sup> F. G. Blackburn of the Elliott Co. and Ralph S. Euler of the National Supply Co. were respectively director and senior vice president of the Mellon National Bank, Pittsburgh.

<sup>2</sup> C. M. Chester of Manning, Maxwell & Moore met A. G. Pratt of Worthington on the board of the Central Hanover Bank & Trust Co., New York. Mr. Chester was honorary chairman of the board, director and chairman of the executive committee of General Foods. Mr. Pratt was chairman of the board of Babcock & Wilcox.

<sup>3</sup> A. N. Williams was the president of Westinghouse Air Brake and director of Manning, Maxwell & Moore, New York Shipbuilding Co. and Avco Manufacturing Co.

<sup>4</sup> Charles G. Terry was president of American Securities Co. and director of Marion Power Shovel and Colorado Fuel & Iron.

<sup>5</sup> C. S. Lutkins and G. M. Wells of American Type Founders met C. S. McCain, president of Dillon Read & Co., and director of National Cash Register on the board of the Congoleum-Nairn. Mr. Lutkins was a partner in R. W. Pressprich & Co.

<sup>6</sup> R. D. McGrath of American Type Founders and John M. Hancock of Underwood Corp. were directors of International Silver. Mr. Hancock was a partner in Lehman Brothers; Mr. McGrath was associated with Lazard Freres & Co.

<sup>7</sup> W. C. Frye was a director of Chain Belt and Oliver Corp.

<sup>8</sup> Walter Kasten, president of the First National Bank, was a director of Chain Belt, Allis Chalmers, and Harnischfeger.

<sup>9</sup> Directors B. T. Batsen and John T. Rohr of DeVilbiss and G. M. Mather of Hercules sat on the board of the Toledo Trust Co., of which Mr. Rohr was president. Mr. Mather was president and director of the Mather Spring Co.

<sup>10</sup> Howard Coonley, chairman of the board of Walworth, was also director of Link Belt and National Malleable & Steel Castings. Harris Whittemore, Jr., president of J. H. Whittemore Co., was also director of Link Belt and National Malleable & Steel Castings.

<sup>11</sup> W. H. Bennett, trustee of the Emigrant Industrial Savings Bank, was a director of Grinnell and of National Cash Register.

<sup>12</sup> Russell Grinnell, president of Grinnell Corp., and Henry J. Fuller of Remington Rand were directors of Gorham Manufacturing of which Mr. Fuller was chairman of the board.

<sup>13</sup> W. H. Bennett of Grinnell and National Cash Register and W. V. Griffin of Servel Inc., were board members of the Bank of Manhattan Co. Mr. Griffin was associated with Brady Security & Realty Co. as chairman and director.

### Interlocks with Potential Suppliers

Potential suppliers within the machinery industry have already been discussed (as machinery companies with potential customers); con-

# DIRECT INTERLOCKS BETWEEN STEEL PRODUCERS AND MACHINERY COMPANIES

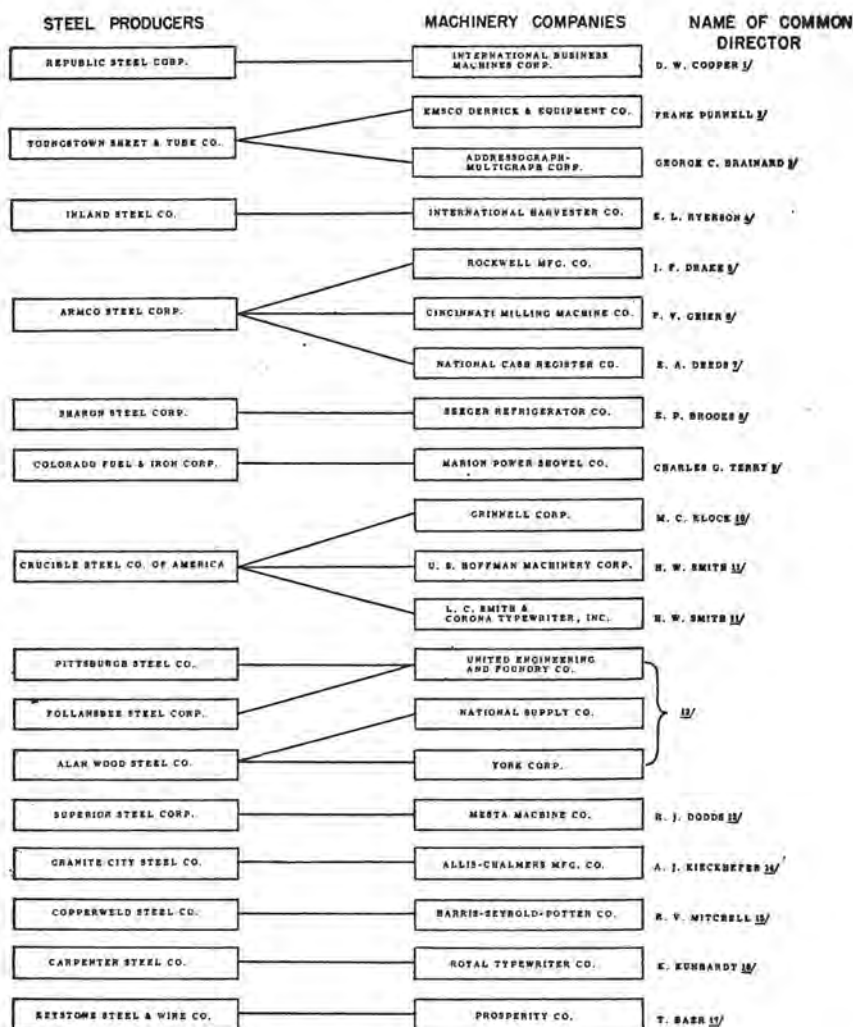


CHART 30.

<sup>1</sup> D. W. Cooper, partner of Cooper, Kerr & Dunham, was on the boards of Republic Steel and International Business Machines.

<sup>2</sup> President as well as director of Youngstown Sheet & Tube and director of Emsco Derrick.

<sup>3</sup> George C. Brainard, president of Addressograph-Multigraph, was a director of Youngstown Sheet & Tube.

<sup>4</sup> Chairman of the board of Inland Steel and director of International Harvester.

<sup>5</sup> J. F. Drake, president of Gulf Oil, was also director of Rockwell and Armco.

<sup>6</sup> President as well as director of Cincinnati Milling Machine Co. and director of Armco.

<sup>7</sup> E. A. Deeds, chairman of the board of National Cash Register, was a director of Armco.

<sup>8</sup> Edward Pennell Brooks, vice president of Sears Roebuck, was a director of Sharon Steel and Seeger Refrigerator.

<sup>9</sup> Charles G. Terry was president of American Securities Co., and director of Marion Power Shovel and Colorado Fuel & Iron.

<sup>10</sup> M. C. Klock was on the executive committees and director of both Crucible Steel and Grinnell Corp.

Power Implement and Continental Motors, both manufacturing gas engines, were associated through the Kelsey-Hayes Wheel Co.<sup>23</sup>

### *Engines and Turbines*

The machinery companies classified as engines and turbines manufacturers produce a highly diversified and heterogeneous line of machinery products, many of which overlap into other machinery fields. Hence, the interlocks involving companies so classified may have the effect of reducing competition with respect to other machinery items in addition to engines and turbines.

Although there were no direct or indirect interlocks between any of the companies classified as engine manufacturers, of the nine companies in this group having any interlocks, five maintained indirect interlocking relations with companies in other machinery divisions which produce competing engines. There were 13 other engine producers classified elsewhere, involved in interlocks with competing engine producers. All of these, including those engine producers who were discussed previously as primarily engaged in the production of agricultural equipment, are portrayed in chart 23.

The interlocking relations involving the five major engine manufacturers classified in this group include the following:

(1) Fairbanks, Morse & Co., the largest producer in this subgroup, was linked indirectly with International Harvester, the Nation's leading farm machinery and equipment manufacturer, as well as the largest company in the entire machinery industry. Directors of each of these companies met on the board of Harris Trust & Savings Bank.<sup>24</sup> Both companies produce Diesel and gasoline engines. In addition to engines, Fairbanks, Morse produces several items of farm equipment, such as hammer mills and corn shellers, which compete with the same or similar products in the broad farm machinery and implement line in which International Harvester specializes.

(2) Continental Motors Corp., a leading producer of internal combustion engines and gas-operated engines, was directly interlocked with Struthers Wells Corp.,<sup>25</sup> which also makes gas and oil engines, though primarily a refinery and processing equipment producer in the fabricated metal products industry. Continental Motors was also linked

<sup>23</sup> F. J. Kennedy of Continental Motors and H. S. Bowers, partner in the investment bank, Goldman Sachs & Co. and director of Minneapolis-Moline Power Implement, met on the board of Kelsey-Hayes Wheel. Mr. Kennedy was identified with the Detroit law firm of Butzel, Eaman, Long, Gust & Bills.

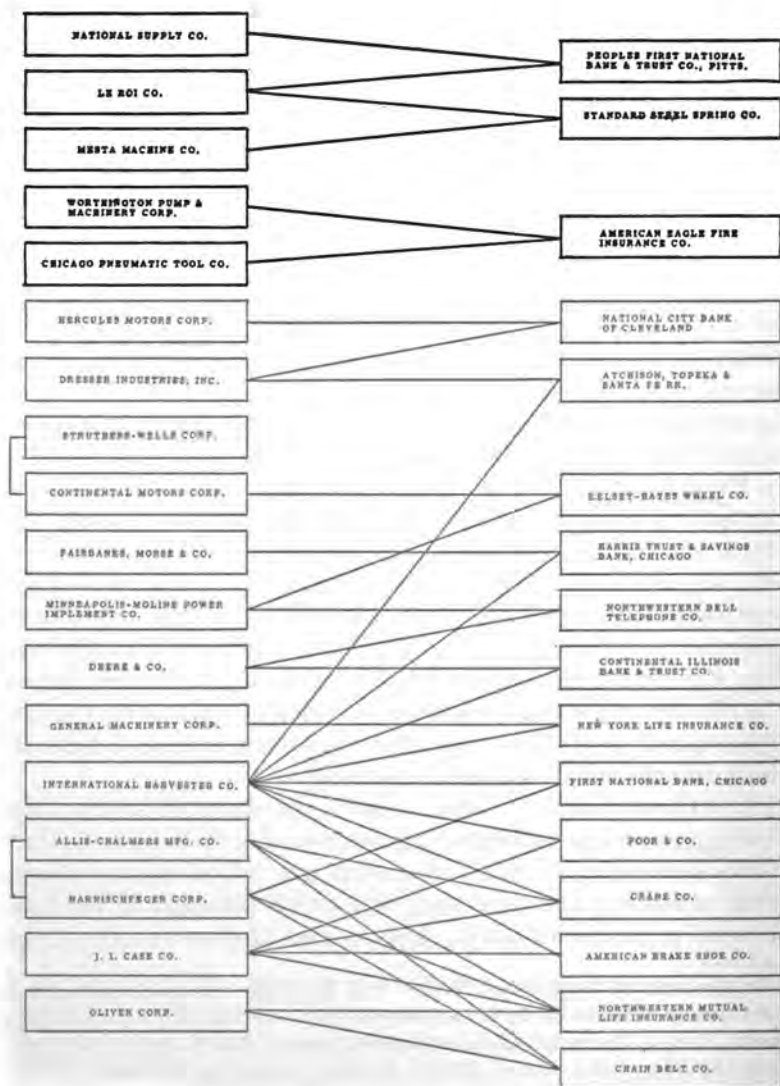
<sup>24</sup> C. H. Morse of Fairbanks, Morse, and S. G. McAllister, director and member of executive committee of International Harvester, were directors of the Harris Trust & Savings Bank.

<sup>25</sup> David Van Alstyne, Jr., a partner in the New York investment firm of Van Alstyne, Noel & Co., was a director of both Continental Motors and Struthers Wells. He appears not to have been a director of the latter company in 1949.

# INTERLOCKS AMONG PRODUCERS OF ENGINES<sup>1</sup>

## ENGINE PRODUCERS

## INTERMEDIARY COMPANIES



<sup>1</sup>/Includes many different types of engines. Interlocked companies are potentially competitive with respect to any one or more types of internal combustion engines including Diesel, gas or gasoline engines. For type of engine involved in any specific interlock shown, see text.

CHART 23.

<sup>1</sup> Includes many different types of engines. Interlocked companies are potentially competitive with respect to any one or more types of internal combustion engines, including Diesel, gas, or gasoline engines. For type of engine involved in any specific interlock shown, see text.

with Minneapolis-Moline Power Implement through Kelsey-Hayes Wheel.<sup>26</sup> Both produce gas engines.

(3) Hercules Motor Co., of this group, and Dresser Industries, Inc., a leading pump and oil-well drilling equipment producer, both manufacture Diesel engines, and in 1946 both met on the board of the National City Bank, Cleveland.<sup>27</sup>

(4) General Machinery Corp., which in October 1947, was absorbed by Lima Locomotive Works and is now part of the Lima-Hamilton Corp., was associated through New York Life<sup>28</sup> with International Harvester. Both of these machinery manufacturers produce Diesel engines. In addition, General Machinery (Lima-Hamilton) produces a well-known line of machine tools, which is also the principal product of the Cincinnati Milling Machine Co. These companies were linked through representation on the board of directors of Procter & Gamble.<sup>29</sup>

(5) LeRoi Co., another engine producer classified in this group, maintained interlocking relations with National Supply Co., which also manufactures internal combustion engines, through Peoples First National Bank & Trust Co. (Pittsburgh).<sup>30</sup> LeRoi also was associated with the Mesta Machine Co., a leading producer of steel mill machinery. Both companies produce gas engines and met on the board of the Standard Steel Spring Co.<sup>31</sup>

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<sup>26</sup> F. J. Kennedy of Continental Motors and H. S. Bowers, partner in Goldman, Sachs & Co. and director of Minneapolis-Moline Power Implement, were also directors of Kelsey-Hayes Wheel.

<sup>27</sup> C. E. Gallagher of Hercules Motor and W. A. McAfee of Dresser Industries, served on the board of the National City Bank of Cleveland. Mr. McAfee was a partner in the Cleveland law firm of McAfee, Grossman, Taplin, Hanning, Newcomer & Hazlett.

<sup>28</sup> J. B. Hollister, director of the Fifth Third Union Trust Co. (Cincinnati), a partner in the law firm of Taft, Stettinius and Hollister, and a director of Lima-Hamilton Corp. and E. L. Ryerson of International Harvester and chairman of the board of Inland Steel met as directors of New York Life.

<sup>29</sup> J. J. Rowe of Lima-Hamilton, and F. V. Geler, president and director of Cincinnati Milling Machine, and C. W. Dupuis, a director of the latter company, were on the board of Procter & Gamble. Mr. Rowe at the same time was president and director of the Fifth Third Union Trust Co., while Mr. Dupuis was president of the Central Trust Co. (Cincinnati).

<sup>30</sup> W. F. Rockwell of Le Roi, and J. H. Hillman, Jr., of National Supply, sat on the board of the Peoples First National Bank & Trust Co. (Pittsburgh). Mr. Rockwell was chairman of the board and president of Rockwell Manufacturing, while Mr. Hillman was president and director of Pittsburgh Coke & Chemical and Pennsylvania Industries among many others.

<sup>31</sup> Robert J. Dodds of Mesta Machine and W. F. Rockwell of Le Roi were directors of Standard Steel Spring. Mr. Dodds was a partner in the Pittsburgh law firm of Reed, Smith, Shaw & McClay, which also served as counsel for U. S. Steel and subsidiaries, the Mellon National Bank, the Philadelphia Co., Pittsburgh Steel, Gulf Oil and its subsidiaries, Crucible Steel, Mesta Machine, Latrobe Electric Steel Co., Superior Steel, and Standard Steel Spring.

In addition to the foregoing interlocks involving competitive engine producers, Manning-Maxwell & Moore, Inc., of this group and Gar Wood Industries, both manufacturers of cranes and hoists among many other products, were indirectly interlocked through Avco Manufacturing Corp.<sup>32</sup>

### *Metal Working Machinery (Including Machine Tools)*

Many of the leading machine tool producers maintained indirect interlocking relations with each other, which could have a significant effect upon the nature and degree of competition in the machine tool industry. In all, 10 of the 18 largest manufacturers in this key industry were interlocked with competitors, as shown on chart 24.

The Cincinnati Milling Machine Co., the largest company in this subgroup was linked with its next largest rival, Rockwell Manufacturing Co., through the American Rolling Mill Co. (now named Armco Steel Corp.).<sup>34</sup> Both Cincinnati Milling Machine and Rockwell Manufacturing produce machine and metal-working tools. Another leading machine tool producer with which Cincinnati Milling Machine was indirectly interlocked was General Machinery (now Lima-Hamilton). As previously noted they met on the board of Procter & Gamble.

The Rockwell Manufacturing Co. maintained indirect interlocking relations with three other producers of the same or similar types of products. The interlock with the Cincinnati Milling Machine Co. has just been described. A second, with Kearney & Trecker Corp., which along with Rockwell Manufacturing produces metal-working and wood-working machine tools, was accomplished through the board of LeRoi.<sup>35</sup> A third linked the Mesta Machine Co., a leading producer of heavy presses and other steel-mill machinery, with Rockwell Manufacturing through Standard Steel Spring.<sup>36</sup> Finally a director of

<sup>32</sup> A. N. Williams, president and director of Westinghouse Air Brake as well as director of Manning-Maxwell & Moore, and A. W. Herrington, chairman of the board of Marmion-Herrington Co. and director of Gar Wood Industries, met as directors of Avco Manufacturing.

<sup>34</sup> F. V. Geler, president of Cincinnati Milling Machine, and J. F. Drake, president of Gulf Oil and director of Rockwell Manufacturing, were directors of Armco.

<sup>35</sup> W. F. Rockwell, president and chairman of the board of Rockwell Manufacturing, and C. W. Pendock of Kearney & Trecker met on the board of LeRoi, of which Mr. Pendock was president.

<sup>36</sup> Robert J. Dodds, director of Mesta Machine and a member of the Pittsburgh law firm of Reed, Smith, Shaw & McClay, met W. F. Rockwell, president and chairman of the board of Rockwell Manufacturing, on the board of Standard Steel Spring. Though Rockwell Manufacturing specializes in the smaller machine tools in contrast to heavy tools and presses produced by Mesta Machine, the two companies may be potentially competitive with respect to machine tools generally.



# INTERLOCKS AMONG PRODUCERS OF METAL-WORKING AND MACHINE TOOLS

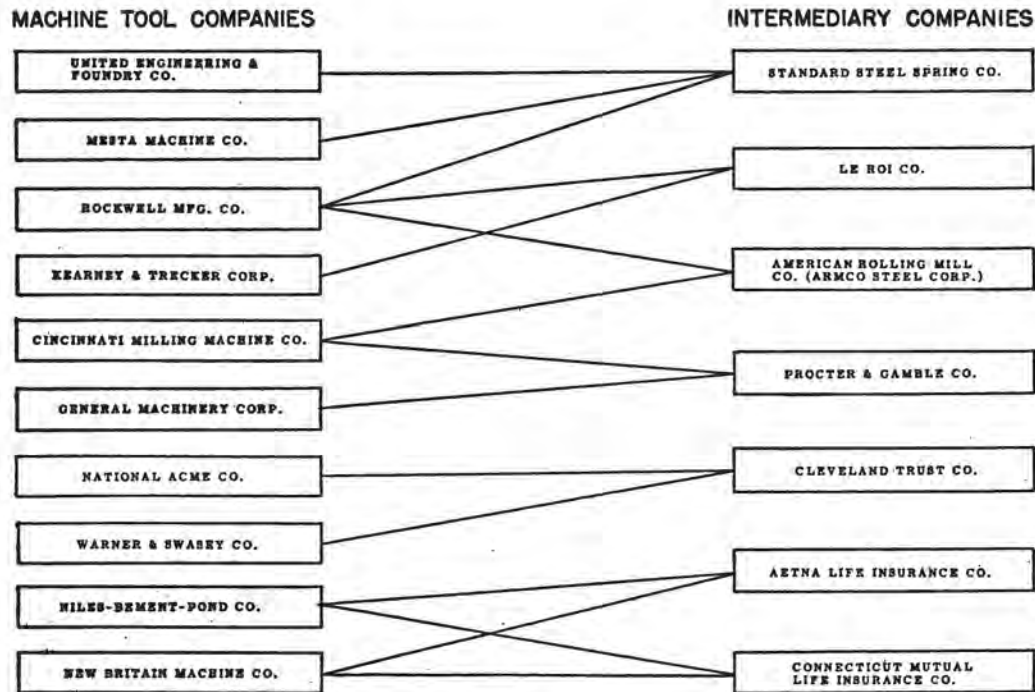


CHART 24.

Rockwell Manufacturing, which also makes cash registers, was an associate of a National Cash Register Co. director, on the board of Armco.<sup>37</sup>

Niles-Bement-Pond Co., a major producer of machine tools and small metal working tools, was indirectly interlocked with another leading machine tool manufacturer, the New Britain Machine Co., through two life insurance companies, the Aetna Life Insurance Co. and the Connecticut Mutual Life Insurance Co.<sup>38</sup>

The National Acme Co. and Warner & Swasey, both leading producers of automatic bar and chucking machines, and had two directors on the board of the Cleveland Trust Co.<sup>39</sup>

In addition, United Engineering & Foundry Co. and Mesta Machine Co., the two largest producers of heavy steel works machinery and equipment, interlocked through Standard Steel Spring.<sup>40</sup>

In all, 10 of the leading machine tool companies maintained interlocking relationships with one or more of the others in 1946.

In addition to these interlocks involving machine tools and metal-working equipment, Mesta Machine also was linked with LeRoi through Standard Steel Spring.<sup>40</sup> Both LeRoi and Mesta Machine make gas engines.

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<sup>37</sup> J. F. Drake of Rockwell Manufacturing and E. A. Deeds, chairman of the board of National Cash Register, were directors of Armco.

<sup>38</sup> C. W. Deeds, president of Niles-Bement-Pond, and E. M. Day of New Britain Machine met on the board of Aetna Life, while J. B. Byrne of Niles-Bement-Pond and P. B. Stanley of New Britain Machine met on the board of Connecticut Mutual Life. Mr. Day was a partner of the Hartford law firm of Day, Berry & Howard, which represents many insurance companies, including Aetna Life and Aetna Casualty & Surety Co. Mr. Byrne was president of the Hartford-Connecticut Trust Co., while Mr. Stanley was vice president of Stanley Securities Co.

<sup>39</sup> F. H. Chapin, chairman of the board, and A. B. Thompson, director of National Acme; and C. J. Stilwell, president, and T. H. Jones, director of Warner & Swasey, met on the board of the Cleveland Trust Co. Mr. Thompson's interest centers in the Cleveland law firm of Thompson, Hine & Flory, of which he is a partner and which represents such clients as National Acme, National City Bank of Cleveland, the Cleveland Trust Co., Goodyear, and the Cleveland Diesel Engine Division of General Motors. Mr. Jones was a member of another Cleveland law firm, Jones, Day, Cockley & Reavis, which serves as counsel for such leading companies as Cleveland-Cliffs Iron, M. A. Hanna, Republic Steel, Jones & Laughlin, Ohio Brass Co., and National Malleable & Steel Castings in the primary metals industry; Timken Roller Bearing, Cleveland Graphite Bronze, and Warner & Swasey in the machinery industry; General Motors, Midland Steel Products, Thompson Products, and Weatherhead in the automotive field; Firestone and Mansfield Tire & Rubber; Cleveland Trust Co. and the National City Bank of Cleveland among the banks; and Industrial Rayon, Sherwin Williams, Wm. Whitman Co., and Ernst & Ernst, among others.

<sup>40</sup> Robert J. Dodds of Mesta Machine and W. F. Rockwell, director of United Engineering and of LeRoi and president and chairman of the board of Rockwell Manufacturing, met as board members of Standard Steel Spring.

## *Office and Business Machines*

The 11 companies in this group maintained more interlocking relations than any other group of machinery companies. They interlocked 109 times with 97 other companies. Moreover, all but three of the 11 were linked directly with other companies making a competitive line of products. These interlocking relations affecting competing companies are summarized in chart 25.

The leading producer of office machines, the International Business Machines Corp., was interlocked with the Royal Typewriter Co., through the Guaranty Trust Co., New York.<sup>41</sup> Both are potentially competitive with respect to typewriters, although IBM specializes in an electric model while Royal produces the standard and portable machines.

Remington-Rand, Inc., was linked with two other office and business machine manufacturers, (1) with the L. C. Smith and Corona Typewriters, Inc., through the Marine Midland Corp., a bank holding company,<sup>42</sup> and (2) with the Underwood Corp. through Selected Industries, Inc., an affiliate of the Tri-Continental Investment Group.<sup>43</sup> Both Remington-Rand and L. C. Smith make typewriters, adding machines, duplicating machines, and office supplies (carbon paper and typewriter ribbons). Similarly, Remington-Rand and Underwood both produce typewriters, accounting and bookkeeping machines, and related office supplies.

The third leading company in this group, the National Cash Register Co., likewise interlocked with the Underwood Corp., with which it is competitive in the production and sale of typewriters, accounting machines, billing and posting machines, and adding machines. National Cash Register and Underwood Corp. met on the boards of General Motors Corp.<sup>44</sup> and the International Paper Co.<sup>45</sup> In addi-

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<sup>41</sup> Thomas J. Watson, president of IBM, was a director, and F. Kunhardt of Royal Typewriter Co., was vice president and director of the Guaranty Trust Co., New York.

<sup>42</sup> J. G. Blaine and B. F. Pope of Remington-Rand, Inc., and Samuel G. H. Turner of L. C. Smith & Corona Typewriter Co. were directors of Marine Midland Corp. Mr. Blaine was president and Mr. Pope vice chairman of the executive committee of the Marine Midland Trust Co. of New York. Mr. Turner was chairman of the Board of the Elmira (N. Y.) Bank & Trust Co.

<sup>43</sup> B. F. Pope of Remington-Rand, Inc., and A. H. Wiggin of Underwood Corp. sat on the board of the Selected Industries, Inc.

<sup>44</sup> Both C. F. Kettering, a director of National Cash Register, and John T. Smith, a director of Underwood Corp., were vice presidents and directors of General Motors.

<sup>45</sup> Charles S. McCain of National Cash Register and A. H. Wiggin of Underwood Corp., were directors of International Paper. As noted previously Mr. McCain was president of Dillon, Read & Co., investment bankers, and Mr. Wiggin was associated with the American Express Co. and several investment trusts.

## INTERLOCKS AMONG BUSINESS MACHINE MANUFACTURERS

## BUSINESS MACHINE COMPANIES

## INTERMEDIARY COMPANIES

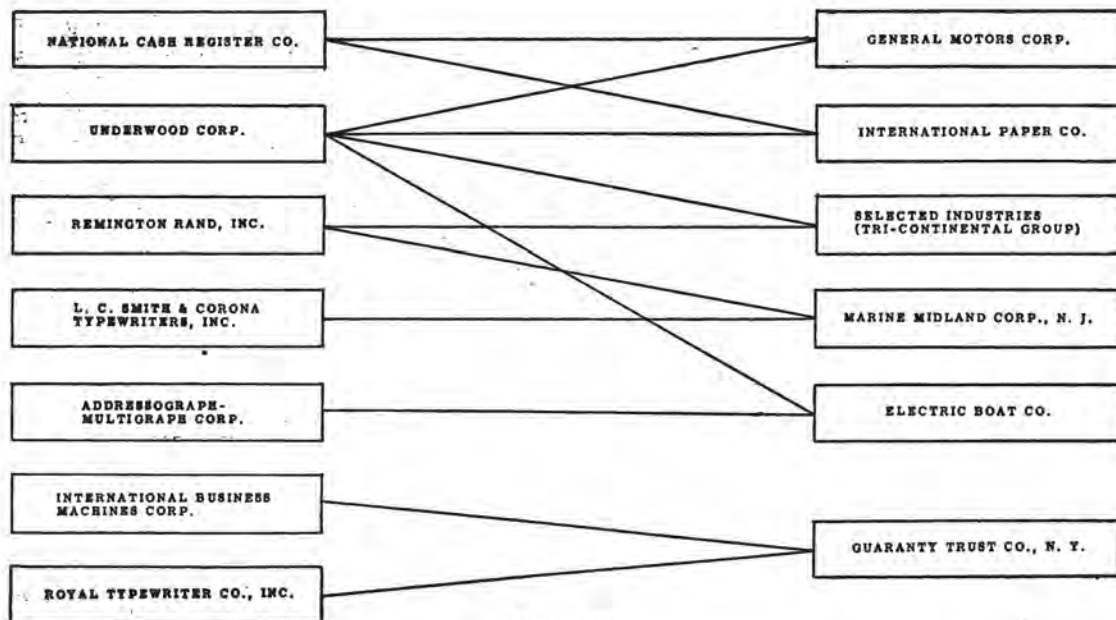


CHART 25.

tion, the National Cash Register Co., as noted above, had interlocking relations with the Rockwell Manufacturing Co., which also produces cash registers, through Armco Steel.<sup>46</sup>

The Underwood Corp., exhibits what is perhaps the most interesting pattern of interlocking relations in the entire machinery industry. It interlocked with no less than 30 other machinery companies, two directly and 28 indirectly. The indirect relations were accomplished through 37 different intermediary companies, 12 of which were financial institutions, including banks, investment trusts and insurance companies. Moreover, the Underwood Corp. was interlocked indirectly with three other producers in its immediate field. Its association with the National Cash Register Co. through General Motors and International Paper has already been indicated, as has its link with Remington-Rand through Tri-Continental (investment trust) group. Through the Electric Boat Co.<sup>47</sup> it also was associated with the Addressograph-Multigraph Co., with which it may be potentially competitive with respect to writing machines.

The interlocking relations of the Royal Typewriter Co. with the International Business Machine Corp., and of L. C. Smith and Corona Typewriters, Inc., with Remington-Rand, all competitive manufacturers, have already been described.

#### *Special-Industry Machinery (Including Textile Machinery)*

The 17 companies comprising this group produce specialized machinery for the use of other industries, such as food processing, textile, paper making, and printing machinery. Normally each company specializes in the manufacture of machinery for a single industry. The only interlocks of any competitive significance are those between textile machinery producers.

In this category, the two largest textile machinery companies, Whitin Machine Works and Draper Corp., were directly linked.<sup>48</sup> Whitin Machine Works was also interlocked with Crompton & Knowles Loom Works, another specialist in textile machinery, through the Second National Bank of Boston.<sup>49</sup> In addition Whitin also was

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<sup>46</sup> J. F. Drake, president and director of Gulf Oil and of Rockwell, and E. A. Deeds, chairman of the board of National Cash Register, served as directors of Armco.

<sup>47</sup> Reeve Schley of Underwood Corp. and G. W. Codrington of Addressograph-Multigraph Co. met as directors of the Electric Boat Co. Mr. Codrington was also a vice president of General Motors and general manager of its Cleveland Diesel Engine Division.

<sup>48</sup> Phillips Ketchum, a partner in Herrick, Smith, Donald, Farley and Ketchum was, and in 1949 still continued, a director of both Whitin Machine Work and Draper Corp.

<sup>49</sup> J. F. Tinsley, president of Crompton & Knowles, and E. K. Swift, chairman of the board of Whitin, were also directors of the Second National Bank of Boston.

## INTERLOCKS AMONG TEXTILE MACHINERY MANUFACTURERS

## TEXTILE MACHINERY COMPANIES

## INTERMEDIARY COMPANIES

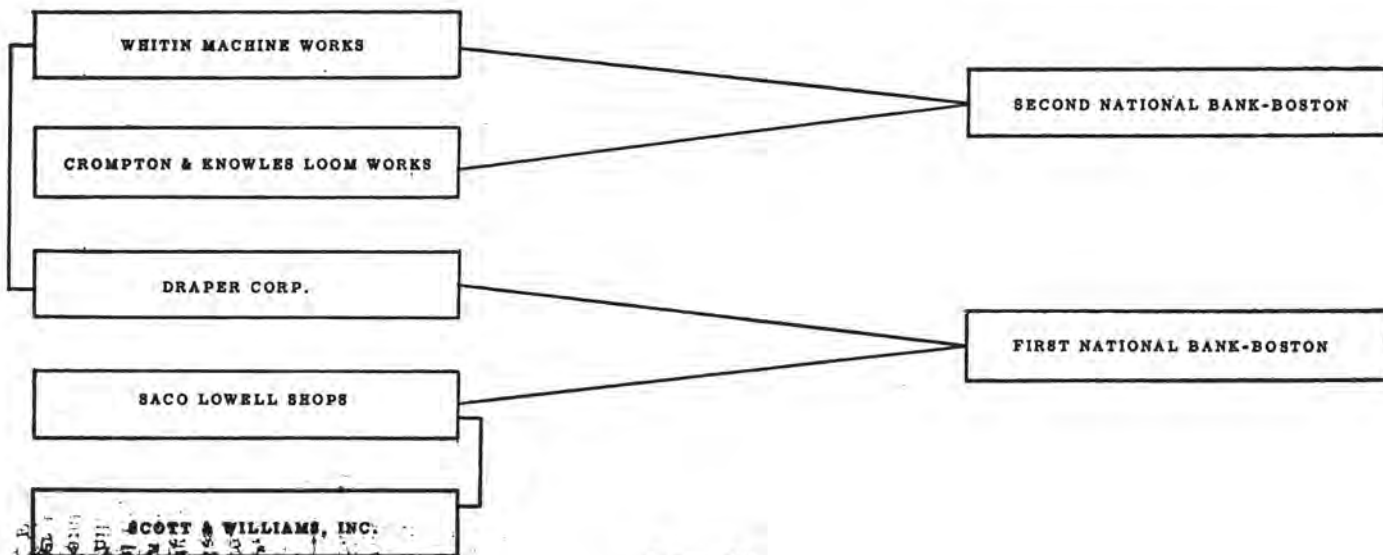


CHART 28.



indirectly associated with Scott & Williams, Inc., a knitting machinery producer through the Pepperell Manufacturing Co.<sup>60</sup>

The Draper Corp., the second largest textile machinery manufacturer, similarly maintained indirect interlocking relations with the Saco-Lowell Shops, another major textile machinery company, through the First National Bank of Boston.<sup>61</sup> Saco-Lowell, in addition, was directly allied with Scott & Williams through three common directors.<sup>62</sup> Thus, as is shown in chart 26, a total of five textile machinery manufacturers maintained interlocking relations with one or more potentially competitive producers, primarily through two Boston banks.

### *Pumps, Pumping, and Drilling Equipment (Oil-Field Machinery)*

The interlocking associations between a number of leading producers of pumps and oil-well drilling and pumping equipment portrayed in chart 27 are of particular interest. Because of the highly diversified product lines of these competing companies, some are classified under General Industrial Machinery and others under Construction and Mining Machinery and Equipment (including oil-field machinery and tools).

In all, six competing producers of pumps and drilling and pumping equipment were involved in one direct and three indirect interlocks. The National Supply Co., the leading oil-well supply and equipment company, was directly interlocked with Robbins & Meyers, Inc.,<sup>65</sup> primarily an electrical machinery company. Both companies produce pumps.

Both Worthington Pump & Machinery Corp. and Dresser Industries, Inc., two leading companies classified under General Industrial Machinery, and interlocked through Servel, Inc.,<sup>67</sup> make a competitive line of pumps, pumping-equipment compressors, gas engines, and rock-drilling equipment. In addition, Dresser, one of the largest

<sup>60</sup> E. K. Swift, chairman of the board and general manager of Whitin, and Amory Coolidge of Scott & Williams met on the board of Pepperell. Mr. Coolidge's primary interest was with Pepperell Manufacturing Co., as executive vice president, and assistant treasurer.

<sup>61</sup> B. H. B. Draper, Jr., treasurer of Draper, and E. S. French and C. F. Mills of Saco-Lowell, sat on the board of the First National Bank of Boston, of which Mr. Mills was vice president. Mr. French was also president of the Boston & Maine Railroad.

<sup>62</sup> Frank J. Hale, Roger D. Hale, and W. Frank Lowell, who was also vice president of Saco-Lowell, were directors of both companies and still held these positions in 1949.

<sup>63</sup> P. J. Shovlin was a director of both National Supply and Robbins & Meyers. He appears to have resigned from the former in 1949.

<sup>67</sup> H. S. Marston of Worthington and W. V. Griffin of Dresser met on the board of Servel, Inc. Mr. Griffin also was chairman of the board of the Brady Security & Realty Co. in New York City.

producers of pumps, pumping and oil-well equipment, met Emsco Derrick & Equipment Co., likewise a specialist in this type of machinery, on the board of the National City Bank of Cleveland.<sup>58</sup> Still another pump, oil drilling and pumping equipment producer (see

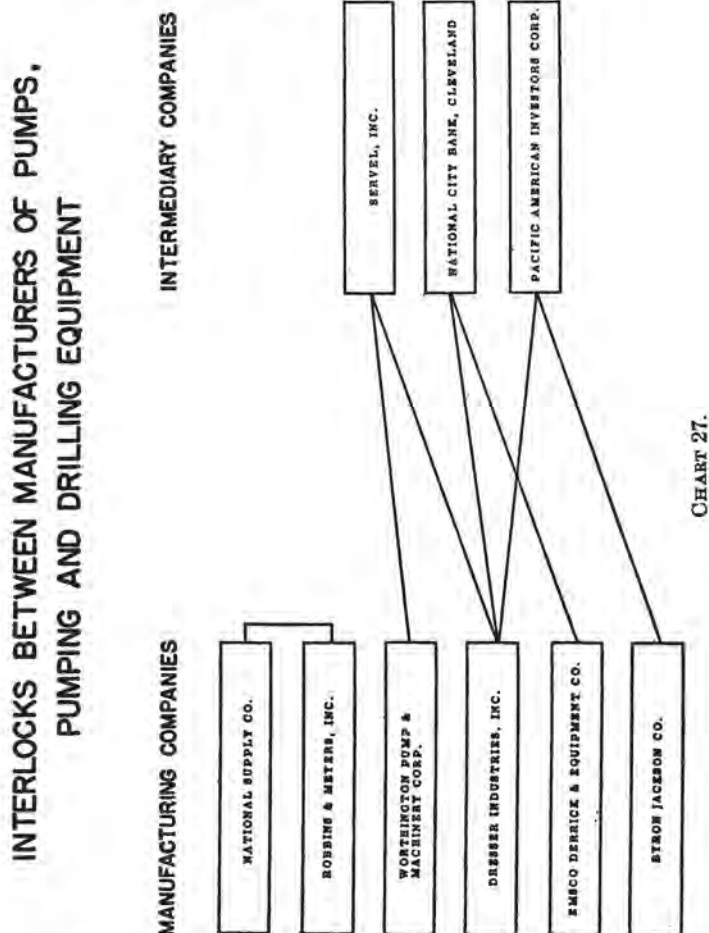


chart 27) with whom Dresser was indirectly interlocked, was the Byron-Jackson Co.; their directors met on the board of the Pacific-American Investors, Inc.<sup>59</sup>

<sup>58</sup> Frank Purnell of Emsco Derrick & Equipment, and Wm. A. McAfee of Dresser Industries, sat on the board of the National City Bank of Cleveland. Mr. Purnell was president of the Youngstown Sheet & Tube Co.; Mr. McAfee was a member of the Cleveland law firm of McAfee, Grossman, Taplin, Hanning, Newcomer & Hazlett.

<sup>59</sup> Norman Chandler (president and publisher of the Los Angeles Times), director of Dresser Industries, and Edgar S. Dulin, president of Byron-Jackson & Co., were directors of Pacific-American Investors.

Interlocking associations between these companies and competitors with respect to other products will be discussed below under the industry division in which they are classified.

*Construction and Mining Machinery and Equipment (Including Road-Building and Earth-Moving Machinery)*

In this heterogeneous though important industry group, one set of interlocking relations deserves particular notice. Four leading producers of road building and similar heavy machinery and equipment were indirectly linked through multiple interlocks with a bank and an insurance company, as shown in chart 28.

The Bucyrus-Erie Co., next to National Supply the largest in this group, and the leading manufacturer of excavating equipment, was indirectly linked with several other producers of the same or similar lines of equipment. Through Northwestern Mutual Life, it was associated with the Harnischfeger Corp., another leading producer of earth-moving machinery. Both companies make such items as power shovels, cranes, drag lines, buckets, etc. Two of Bucyrus-Erie's directors<sup>60</sup> and three of Harnischfeger's<sup>61</sup> sat on the board of Northwestern Mutual Life.

Allis-Chalmers also a producer of road-construction machinery (in addition to its principal line of farm machinery), was indirectly interlocked with Bucyrus-Erie through Northwestern Mutual Life,<sup>62</sup> and had a double direct link with Harnischfeger.<sup>63</sup> Finally, both Harnischfeger and Allis-Chalmers were linked with the Koehring Co., another competitive producer of cranes, draglines, and other earth-moving machinery, through the First Wisconsin National Bank.<sup>64</sup>

Thus, as shown on chart 28, directors of three major producers of road-construction machinery, Harnischfeger, Allis-Chalmers, and

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<sup>60</sup> F. R. Bacon, chairman of the board of Cutler-Hammer, and W. W. Coleman, chairman of the board of Bucyrus-Erie, were directors of both Northwestern Mutual Life and Bucyrus-Erie.

<sup>61</sup> H. S. Falk, Walter Kasten, Louis Quarles, directors of Harnischfeger, were also directors of Northwestern Mutual Life. Mr. Kasten was president of the First Wisconsin National Bank. Mr. Quarles was a partner of the Milwaukee law firm of Lines, Spooner & Quarles and a member of the executive and finance committees and trustee of Northwestern Mutual Life. Mr. Falk was president and director of the Falk Corp.

<sup>62</sup> F. R. Bacon and W. W. Coleman of Bucyrus-Erie, and Walter Kasten and Louis Quarles of Allis-Chalmers served on Northwestern Life's board of directors.

<sup>63</sup> Walter Kasten, president of the First Wisconsin National Bank, and Louis Quarles of the law firm of Lines, Spooner & Quarles, were directors of both Allis-Chalmers and Harnischfeger; they were still on both boards in 1949.

<sup>64</sup> G. E. Long, president of Koehring, met Walter Kasten of Harnischfeger and Allis-Chalmers on the board of the First Wisconsin National Bank, of which Mr. Kasten was president.

# INTERLOCKS AMONG PRODUCERS OF ROAD BUILDING AND EARTH MOVING MACHINERY AND EQUIPMENT

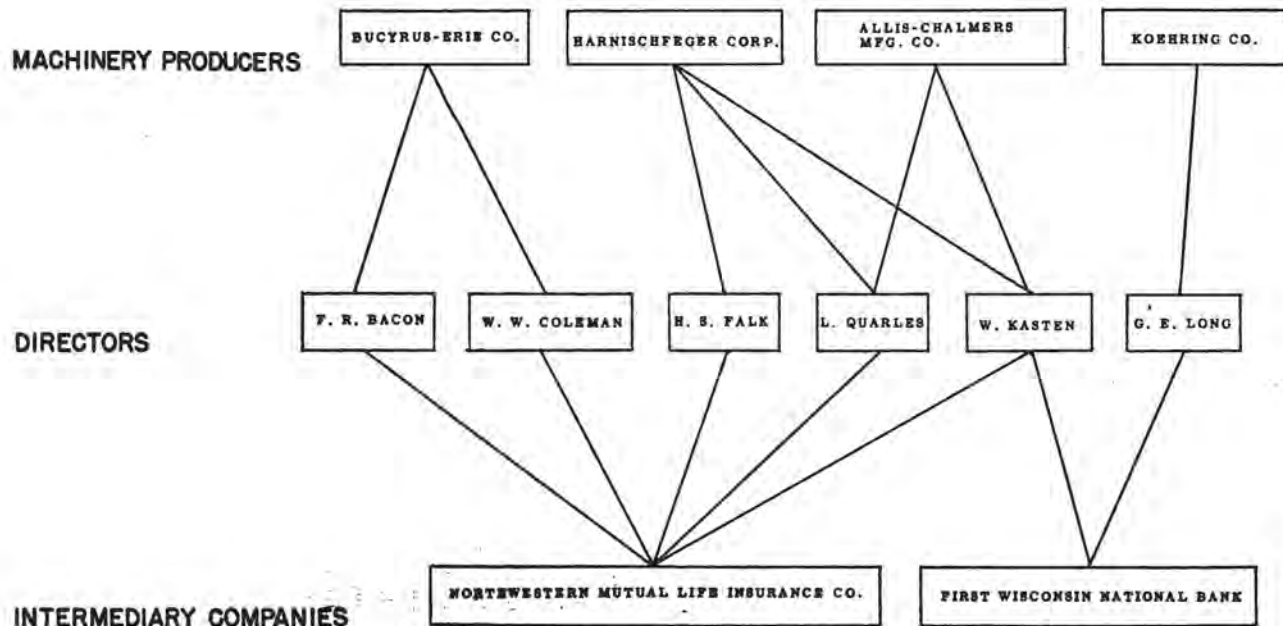


CHART 28.

\*This company is a railroad equipment company.

Koehring met on the board of the First Wisconsin National Bank. Similarly, Northwestern Mutual Life served as a meeting ground for Bucyrus-Erie, Harnischfeger, and Allis-Chalmers, all leading manufacturers of road-building machinery.

Accounting in large measure for Harnischfeger's position as a primary focal point of interlocks, potentially reducing competition, are three of its directors, Walter Kasten, Louis Quarles, and H. S. Falk, who also held key positions on the boards of several intermediary companies with which the other road-building equipment manufacturers were directly associated. These associations appear on chart 28. Meriting special mention are Mr. Kasten's key position as president of the First Wisconsin National Bank, and Mr. Quarles' partnership in the Milwaukee law firm of Lines, Spooner & Quarles, which served as counsel for Allis-Chalmers, Harnischfeger, and Bucyrus-Erie,<sup>65</sup> three of the four interlocked producers of road-construction machinery.

In addition to these interlocks, companies in this branch of the machinery industry producing other products had ties with competitors. Those of the National Supply Co., the largest in this group, with Robbins & Meyers (pumps); with LeRoi (internal combustion engines); and with Bucyrus Erie (oil-well drills and drilling equipment) have been discussed above, under the appropriate product group. Gar Wood Industries, another producer of road construction and material handling equipment was indirectly interlocked with Manning, Maxwell & Moore, Inc., through the Avco Manufacturing Co.<sup>66</sup> Both Gar Wood and Manning, Maxwell & Moore produce a competitive line of cranes and hoists.

The Harnischfeger Corp. exhibited an uncommonly high incidence of interlocks, both direct and indirect, with other machinery companies. In addition to its links with road-building machinery competitors, Allis-Chalmers (direct) and Koehring (indirect through the First Wisconsin National Bank) as noted above, Harnischfeger was also interlocked directly with the A. O. Smith Corp.,<sup>67</sup> classified in the fabricated metal products industry. Both companies produce welding equipment. As previously noted, another company in this group, Emsco Derrick & Equipment Co., interlocked with Dresser

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<sup>65</sup> *Martindale-Hubbel Law Directory, 1950.*

<sup>66</sup> A. N. Williams, president and director of Westinghouse Air Brake, as well as director of Manning, Maxwell & Moore and A. W. Herrington, chairman of the board of Marmon-Herrington and director of Gar Wood Industries, met on the board of Avco.

<sup>67</sup> Walter Kasten, president of the First Wisconsin National Bank, was also director of both Harnischfeger and A. O. Smith. He was still on both boards in 1949.

Industries (through the National City Bank of Cleveland),<sup>68</sup> both are leading producers of oil well drilling and pumping equipment.

### *General Industrial Machinery*

The general industrial machinery group embraces what is probably the most heterogeneous group of machinery products in the entire industry. The items covered range from pumps and compressors, elevators, conveyors, blowers, and chains to industrial trucks, mechanical power transmission equipment, industrial furnaces, mechanical stokers and a host of miscellaneous machinery and equipment for general industrial use. Many companies classified in this group had interlocking relations with others making competitive products. Those of Worthington Pump, Dresser, and Byron-Jackson, with respect to pumps and oil well drilling and pumping equipment, have been described. However, Worthington and Dresser maintained interlocking relationships with competitors manufacturing other machinery products.

The Worthington Pump and Machinery Corp., one of the largest and most diversified of all machinery producers, had four such interlocking relationships. It was directly linked with Babcock & Wilcox Corp.<sup>69</sup> (in the fabricated metal products industry), which also manufactures steam power equipment.<sup>70</sup> Worthington, like Servel with which it was directly interlocked,<sup>71</sup> is engaged in the manufacture of a potentially competitive, gas-type refrigerating system. Another company in the same group with which Worthington was potentially competitive and which it met on the board of an insurance group,<sup>72</sup> was the Chicago Pneumatic Tool Co. Both produce a complete line

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<sup>68</sup> Frank Purnell of Emsco and W. A. McAfee of Dresser, previously identified, were directors of the National City Bank of Cleveland.

<sup>69</sup> A. G. Pratt was president and director of Babcock & Wilcox and director of Worthington; he still held these offices in 1949.

<sup>70</sup> Though Worthington and Babcock & Wilcox may be competitive as to heat exchangers and certain types of burners, it is also likely that they more often complement each other's activities in supplying the necessary equipment for steam-power-plant installations. While Babcock & Wilcox specializes in such basic steam equipment needs as large boilers and piping and tubing, Worthington supplies the necessary boiler feed and vacuum pumps, condensers, and small steam turbines. Each company may be a potential supplier of the other or work jointly in supplying the equipment required for an industrial or public-utility power-plant installation.

<sup>71</sup> The common director was H. S. Marston who continued on both boards in 1949.

<sup>72</sup> A. G. Pratt, president of Babcock & Wilcox and director of Worthington, and C. J. Schmidlapp, vice president of the Chase National Bank and director of Chicago Pneumatic, were directors of the American Eagle Fire Insurance Co. (one of the America Fore Insurance and Indemnity Group, jointly controlled by Fidelity Phenix Fire Insurance Co. of which Mr. Pratt was a director, and by the Continental Insurance Co. of which Mr. Schmidlapp was a director).



of pneumatic tools (air drills, hammers, etc.), rock-drilling equipment, compressors and gas and Diesel engines. Finally, as previously noted, both Worthington and Dresser Industries, which were interlocked through Servel, Inc.,<sup>73</sup> make many similar products, including pumps and pumping equipment, compressors, gas engines, and rock-drilling equipment.

The Link-Belt Co. and the Gardner-Denver Co. shared a common director.<sup>74</sup> Both are engaged in the manufacture of mechanical loaders.

Dresser Industries, Inc., like Worthington, maintained interlocking relationships with companies producing similar lines of machinery products. Its link with Worthington Pump and Machinery Corp. through Servel, Inc. has been noted, as has its interlock with the International Harvester Co. (also a producer of Diesel engines) through the Atchison, Topeka & Santa Fe Railroad, and its tie with Emsco Derrick & Equipment, an oil-well drilling and pumping equipment competitor, through the National City Bank of Cleveland, and with Byron-Jackson, another specialist in oil-field machinery.

The Chain Belt Co., a member of this group, has been identified as maintaining a direct interlock with Allis-Chalmers;<sup>75</sup> both are producers of elevating machinery.

The two largest companies in this group, the Ingersoll Rand Co., producing a broad line of industrial machinery including pneumatic tools, compressors, oil and gas engines, pumps, condensers, and air conditioning, refrigeration and general mining machinery, and the Otis Elevator Co., the Nation's leading producer of passenger elevators, though indirectly interlocked with each other through Stone & Webster, Inc.,<sup>76</sup> had no significant interlocks with companies producing competing products. Nevertheless, Otis Elevator was second only to Underwood Corp. (with whom it shared a common director),<sup>77</sup> in its indirect interlocks with other machinery companies. Its directors sat on the boards of eight different banks and investment trusts,<sup>78</sup>

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<sup>73</sup> H. S. Marston of Worthington and W. V. Griffin of Dresser met as directors of Servel.

<sup>74</sup> Alfred Kauffmann, a director of both Link-Belt and Gardner-Denver, continued to serve both companies in 1949.

<sup>75</sup> Walter Kasten was a director of both Chain Belt and Allis-Chalmers and continued on both boards in 1949.

<sup>76</sup> J. P. Grace, Jr., of Ingersoll Rand and A. H. Wiggin of Otis Elevator met as board members of Stone & Webster. Mr. Grace was president of W. R. Grace & Co.

<sup>77</sup> A. H. Wiggin, was a director of Otis Elevator and Underwood Corp.

<sup>78</sup> Directors of the following banks and investment trusts sat on the board of Otis Elevator; Bankers Trust Co., New York; Bank of the Manhattan Co.; Guaranty Trust Co.; Stone & Webster Securities Corp.; Newmont Mining Corp.; Tri-Continental Corp.; American Superpower Corp.; and National Aviation Corp.

the New York Life Insurance Co., two utilities, a railroad, and 13 leading corporations in other manufacturing industries. Through these it was indirectly linked to no less than 20 other machinery corporations, including most of the leaders in each principal machinery line, such as International Harvester (largest in agricultural machinery), Bucyrus-Erie (largest in excavating equipment), Cincinnati Milling Machine (largest in the machine tool industry), United Shoe Machinery (largest company in special-industry machinery), Ingersoll Rand and Worthington Pump (leaders with Otis Elevator in general industrial machinery), and International Business Machines, Remington Rand, and National Cash Register (top three producers of office and business machines). Thus Otis Elevator served along like Underwood Corp. was a focal point of interlocking relations in the machinery industry.

### *Service Industry and Household Machines*

The service industry and household machines division manufactures products ranging from domestic laundry equipment (washers, ironers, driers, and the like), sewing machines, and vacuum cleaners to réfrigerators and refrigeration machinery and air conditioning units, commercial laundry and dry cleaning equipment, and service station dispensing pumps. There were few interlocking directorates of any competitive significance among this heterogeneous group of machinery producers. The interlock of Servel, Inc., directly with the Worthington Pump and Machinery Corp. has been noted.<sup>79</sup> Both companies are potentially competitive with respect to gas refrigerating equipment.

The Maytag Co., in addition to its principal activity as a producer of home washing machines and ironers, also distributes and sells home freezers produced for it by the Art Craft Manufacturing Co.; the latter also manufactures wet- and dry-storage refrigeration and home and office type réfrigerators. Maytag (through this manufacturing association with Art Craft) may thus be potentially competitive with the Carrier Corp., a leading producer of air conditioning and refrigerating equipment, with which it was interlocked through Selected Industries, Inc., an affiliate of the Tri-Continental Investment Group.<sup>80</sup>

Finally, the Grinnell Corp. was linked through the Bank of the

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<sup>79</sup> H. S. Marston was and in 1949 continued to be a director of both Servel and Worthington.

<sup>80</sup> B. F. Pope of Carrier Corp. and Cyril J. Quinn of Maytag were directors of Selected Industries, Inc., and Mr. Pope was chairman of the board of the Marine Midland Corp., while Mr. Quinn was a partner in the investment firm of J. & W. Seligman & Co.

Manhattan Co.<sup>88</sup> with Dresser Industries. Both of these companies include piping systems and fittings among their manufacturing activities.

### *Miscellaneous Machinery Parts*

None of the eight companies classified in the miscellaneous machinery division maintained interlocks of a horizontal competition-reducing nature; they were in many instances capable of supplying companies with which they were directly or indirectly interlocked, with component parts such as bearings, valves, and fittings. These supplier-customer relationships are treated in the second section of this chapter.

## **SIGNIFICANT INTERLOCKS WITH POTENTIAL CUSTOMERS AND SUPPLIERS**

Because of the heterogenous nature of the machinery industry, interlocks involving machinery companies either as potential suppliers, customers, or both, are almost infinite in variety. Hence, only the most significant can be discussed; others are listed in summary form only.

Interlocks between machinery companies and their potential customers both within and outside the machinery industry are first considered. The discussion of possible customers outside the industry is limited to those which were directly interlocked with potential suppliers in the machinery industry. Potential customers within the industry include companies both directly or indirectly interlocked with suppliers in the machinery industry.

The second part of this section covers those interlocks involving potential suppliers of machinery producers. Since those suppliers within the machinery industry are covered in the first part of this section (as machinery companies with intraindustry potential customers), the analysis of potential suppliers embraces only suppliers outside the machinery industry.

### *Interlocks With Potential Customers*

Virtually all machinery and other metal-fabricating companies require machine and metal-working tools for their productive processes. Hence, most interlocks of machine tool producers, both within the machinery industry and with metal users and fabricators classified in other industries, involve a potential customer. This relation applies even more broadly to office, business and store machines. Here,

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<sup>88</sup> W. H. Bennett of Grinnell and W. V. Griffin of Dresser sat on the board of the Bank of the Manhattan Co. Mr. Bennett was a trustee of the Emigrant Industrial Savings Bank in New York.

since all companies, whether manufacturing, financial or distributive in character, use such machines, all interlocks may be classified as affecting actual or potential customers, regardless of the nature of the customers' business. At the other extreme are certain specialized parts or machines with limited applicability, so that very few interlocks of the producer involve a potential customer.

**Machine tools.**—Since the potential customers with which 15 of the machine tool producers were directly or indirectly interlocked are too voluminous to list by name, there is tabulated in table 36 the number of potential customers associated with each designated machine tool manufacturer; potential customer listing by name is shown in table 42.

TABLE 36.—*Interlocks between machine tool producers and potential customers*

Machine tool producer	Potential customers			
	Total	Direct interlocks		Indirect interlocks (machinery companies only)
		Machinery companies	Other companies	
National Acme Co.	16	2	5	9
Rockwell Manufacturing Co.	16	1	4	11
Cincinnati Milling Machine Co.	10	1	1	8
Kearney & Trecker Corp.	7	3	1	3
General Machinery Corp.	7	1	2	4
New Britain Machine Co.	6	1	3	2
Van Norman Co.	3	2		1
Jones & Lamson Machine Co.	4	1		3
Greenfield Tap & Die Corp.	4			4
Warner & Swasey Co.	3		2	1
Niles-Bement-Pond Co.	2			2
E. W. Bliss Co.	2			2
Ex-Cold-O Corp.	2		1	1
United Drill & Tool Corp.	2		1	1
Landis Machine Co.	1	1		
Total	85	13	20	52

In addition, the two largest producers of heavy steel-making equipment, classified as machine tool companies, interlocked directly with several potential customers in the primary metals industry. United Engineering and Foundry, largest steel-mill machinery producer, was linked directly with Pittsburgh Steel and Follansbee Steel,<sup>85</sup> and indirectly through the People's First National Bank & Trust Co., (Pittsburgh) with Alan Wood Steel, Pittsburgh Coke & Chemical and National Supply,<sup>85a</sup> all potential customers for United Engineering's

<sup>85</sup> F. F. Brooks, president and director of the Peoples First National Bank & Trust Co. of Pittsburgh, was a director of United Engineering, Pittsburgh Steel, and Follansbee Steel.

<sup>85a</sup> J. H. Hillman, Jr., a director of Alan Wood Steel, Pittsburgh Coke & Chemical, and National Supply met F. F. Brooks, president of the bank and director of United Engineering, on the board of the Peoples First National Bank & Trust Co., of Pittsburgh. Mr. Hillman was president and director of Pittsburgh Coke & Chemical, Pennsylvania Industries, and Pennsylvania Bankshares & Securities.

steel-mill machinery. Similarly, Mesta Machine, second only to United Engineering in supplying steel-making equipment to steel producers, had a director who also sat on the board of a potential customer, Superior Steel Corp.<sup>86</sup> These direct interlocking relations afford an example of reciprocal supplier-customer relations. Thus, United Engineering and Mesta Machine were directly interlocked with iron and steel producers which are both potential customers for steel mill machinery and potential suppliers of steel.

Other interlocking relations maintained by machine tool companies with potential customers involving other products, included the following:

Machine tool company	Potential customer	Product supplied	Nature of interlock
E. W. Bliss Co.....	General Baking Co.....	Can and container making machinery.	Direct. O. L. Johnston, <sup>1</sup> director of both.
Rockwell Manufacturing Co.	International Harvester Co.	Refrigerator hardware....	Indirect through Armour & Co. <sup>2</sup>
Ex-Cell-O Corp.....	Continental Motors Corp.	Gasoline and Diesel fuel injectors and fuel injector nozzles.	Indirect through Mueller Brass Co. <sup>3</sup>

<sup>1</sup> Mr. Johnston was a partner in the New York law firm of Simpson, Thacher & Bartlett, vice president, secretary and director of Atlas Corp., and secretary and director of both Bonwit Teller and Franklin Simon & Co.

<sup>2</sup> Elisha Walker, of Rockwell Manufacturing, and J. R. Leavell, of International Harvester, met on the board of Armour & Co. Mr. Walker was associated with Kuhn, Loeb & Co., investment bankers.

<sup>3</sup> Edward Andreas, of Ex-Cell-O, and F. J. Kennedy, of Continental Motors, were directors of Mueller Bros. Mr. Andreas was secretary-treasurer of Yale Woolen Mills, while Mr. Kennedy was a partner in the Detroit law firm of Butzel, Eaman, Long, Gust & Bills which served as counsel for Mueller Brass, Bohn Aluminum & Brass, Continental Motors, Burroughs Adding Machine, Kelsey Hayes Wheel Co., Murray Corp., Motor Products Co., Fruehauf Trailer, Detroit Steel, and others.

*Office and store machines.*—Since all companies interlocked with producers of office and store machines are potential customers for their products (typewriters, adding and calculating machines, accounting and other record keeping machines, cash registers and the like), there is no necessity for relisting all of them here. Highly complex and broad patterns of interlocking relations characterize several companies in this machinery group; for example, Underwood Corp., National Cash Register Co., and Remington Rand, Inc., had 48, 21, and 15 direct interlocks, respectively. Moreover, these direct interlocks provided the channel for indirect connections with a larger number of other companies, all of which are potential customers for office and business machines. Nevertheless, further study of this high concentration of joint directorships is required, since it is highly doubtful that market outlet considerations constitute the sole reason for the high incidence of interlocks centering in this particular sector of the machinery industry.

<sup>86</sup> R. J. Dodds, a partner in Reed, Smith, Shaw & McClay, was director of Mesta Machine and Superior Steel. In addition, Mesta may also supply Le Roi and Rockwell (which, as previously noted, it met on the board of Standard Steel Spring) with forging ingots and steel alloy castings.



Bearings of all types, like machine tools and office and store machines, are in almost universal use throughout the metal industries. The five principal bearings producers maintained three direct and six indirect interlocks with potential customers, as shown in table 37 below.<sup>87</sup>

TABLE 37.—*Interlocks between bearings manufacturers and potential customers*

Bearings manufacturer	Potential customer	Nature of interlock
Timken Roller Bearing Co..	Timken-Detroit Axle Co.....	Messrs. H. H. Timken, Jr., and W. R. Timken were directors of both companies. <sup>1</sup>
	Le Roi Co.....	Indirect through Timken-Detroit Axle Co. <sup>1</sup>
	Rockwell Manufacturing Co.....	
Torrington Co. (needle bearings).	Carrier Corp.....	Indirect through Bridgeport Brass Co. <sup>2</sup>
	Stanley Works.....	Messrs. F. G. Vibberts and R. E. Pritchard were directors of both companies. <sup>3</sup>
Fafnir Bearing Co.....	New Britain Machine Co.....	F. G. Vibberts was a director of both.
Marlin-Rockwell Corp.....	Joy Manufacturing Co.....	Indirect through Adams Express investment group. <sup>4</sup>
Bower Roller Bearing Co....	American Type Foundry, Inc.....	
	National Cash Register Co.....	Indirect through B. F. Goodrich Co. <sup>5</sup>

<sup>1</sup> H. H. Timken, Jr., and W. R. Timken, chairman of the board and vice president, respectively, as well as directors of Timken Roller Bearing, met W. F. Rockwell, director of Le Roi and president of Rockwell Manufacturing, on the board of Timken Detroit Axle, of which Mr. Rockwell was chairman of the board.

<sup>2</sup> L. A. Dibble of Torrington and H. W. Steinkraus of Carrier Corp. were director and chairman of the board, respectively, of Bridgeport Brass. In addition Mr. Dibble was president of the Risdon Manufacturing Co.

<sup>3</sup> Mr. Vibberts was president and trustee of the New Britain Trust Co., treasurer and director of Stanley Securities Co. and director of Fafnir, New Britain Machine and Stanley Works. Mr. Pritchard was president and director of Stanley Works and a director of Fafnir. In addition, M. H. Pease, vice president and director of Stanley Works, and P. B. Stanley, director of Stanley Works, and vice president and director of Stanley Securities as well as director of New Britain Trust, were also directors of New Britain Machine.

<sup>4</sup> J. H. Walters, president and director of Marlin-Rockwell was also a director of the Adams Express Co., and American International Corp. (key units of the Adams Express investment trust group), where he met G. M. Gillies, Jr. (president and director of Adams Express Co., and director of American International, and director of Joy Manufacturing), and J. D. A. Morrow, president and director of Joy Manufacturing and director of Adams Express. Mr. Walters also met C. S. Lutkins of American Type Foundry (and a partner of the New York investment firm of R. W. Pressprich & Co.) on the boards of Adams Express and American International.

<sup>5</sup> Thus the Adams Express group served as a key interlocking center between Marlin-Rockwell, Joy Manufacturing, and American Type Foundry.

<sup>6</sup> Wesson Seyburn of Bower Roller Bearing and C. S. McCain, president of Dillon, Read & Co. and director of National Cash Register, were directors of B. F. Goodrich.

*Textile machinery.*—The four leading textile machinery manufacturers—Whitin Machine Works, Draper Corp., Saco-Lowell Shops and Crompton & Knowles Loom Works—had numerous direct and indirect interlocks with potential customers. As shown in table 38 and chart 29, they interlocked with 12 major textile companies (nine leading cotton textile mills, Pacific Mills, a leading cotton and woolen fabric producer, and Bigelow-Sanford, a leading carpet manufacturer and Ludlow Manufacturing & Sales Co., manufacturers of yarns, threads, and twine made of jute, hemp, and flax). The complex of direct interlocks between two textile machinery producers and their potential customers (Whitin Machine Works with four textile companies, and Saco-Lowell Shops with the Pepperell Manufacturing Co.)

<sup>87</sup> These do not include any interlocks of two of the largest bearing manufacturers, which either are classified in other industries (Hyatt and New Departure Divisions of General Motors) or are omitted because financial data are not publicly available (S. K. F. Industries).



**TABLE 38.—Interlocks between textile machinery manufacturers and potential customers**

Textile machinery producer	Potential customers in textile industry	Nature of interlock
Whitin Machine Works	Pepperell Manufacturing Co.	Direct. <sup>1</sup>
	Bigelow-Sanford Carpet Co.	Do. <sup>1</sup>
	Wm. Whitman Co., Inc.	Do. <sup>1</sup>
	Dwight Manufacturing Co.	Do. <sup>1</sup>
Crompton & Knowles Loom Works	United Merchants & Manufacturers, Inc.	Indirect through the Second National Bank of Boston. <sup>2</sup>
	Pacific Mills	
	Ludlow Manufacturing & Sales Co.	
	Wamsutta Mills	
	J. P. Stevens & Co.	
Draper Corp. and Saco-Lowell Shops	United Merchants & Manufacturers, Inc.	Indirect through the First National Bank of Boston. <sup>3</sup>
	Pacific Mills	
	West Point Manufacturing Co.	
	Pepperell Manufacturing Co.	
	Nashua Manufacturing Co.	
Saco-Lowell Shops	Ludlow Manufacturing & Sales Co.	Direct. <sup>2</sup>
	United Merchants & Manufacturers, Inc.	
	Bemis Bros. Bag Co.	
Crompton & Knowles Loom Works		Indirect through the Merchants National Bank of Boston. <sup>3</sup>

<sup>1</sup> Elijah Kent Swift, chairman of the board, treasurer and general manager of Whitin was a director of Pepperell, Bigelow-Sanford, and Wm. Whitman (named Arlington Mills prior to Dec. 17, 1946).

<sup>2</sup> N. F. Ayer was a director of both Whitin Machine Works and the Dwight Manufacturing Co., a cotton textile manufacturer. In addition, Whitin Machine Works and Dwight Manufacturing were interlocked through Bigelow-Sanford Carpet Co. Charles Francis Adams, president and director of Dwight Manufacturing Co. met E. K. Swift, chairman of the board and general manager of Whitin, on the board of Bigelow-Sanford.

<sup>3</sup> Elijah Kent Swift of Whitin met William B. Snow, Jr., director of United Merchants & Manufacturers; A. Murray Howe, director of Pacific Mills; Henry M. Bliss, director of both Pacific Mills and Ludlow Manufacturing & Sales; Charles F. Broughton, president and director of Wamsutta Mills; and J. F. Tinsley, president and director of Crompton & Knowles, on the board of the Second National Bank of Boston. Mr. Snow was president of the Suffolk Savings Bank while Mr. Howe was president of the Champion International Co.

<sup>4</sup> B. H. B. Draper, Jr. of Draper Corp. and C. F. Mills and E. S. French of Saco-Lowell met the following textile mill directors on the board of the First National Bank of Boston: Abbott Stevens, vice president and director of J. P. Stevens & Co.; Lloyd D. Brace of United Merchants & Manufacturers, Sinclair Weeks of Pacific Mills and West Point Manufacturing, Russell H. Leonard, president of Pepperell, Serge Semenenko of Nashua Manufacturing, and Richard L. Bowditch of Ludlow Manufacturing & Sales. Messrs. Brace and Semenenko were vice presidents of the First National Bank of Boston; Mr. Weeks was chairman of the board of Reed & Barton Corp., and Mr. Bowditch was president of C. H. Sprague & Son. All were directors of the First National Bank of Boston, with the exception of Mr. Semenenko, who was a vice president of the bank.

<sup>5</sup> O. Kelley Anderson, president of Consolidated Investment Trust and director of Saco-Lowell also sat on the board of United Merchants & Manufacturers, Inc.

<sup>6</sup> C. Stetson of Crompton & Knowles Loom Works met F. Gregg Bemis, president of Bemis Bros. Bag Co., on the board of the Merchants National Bank of Boston. Mr. Stetson is a partner in the Boston law firm of Warner, Stackpole, Stetson & Bradley.

was augmented by three Boston banks which served as connecting links between the textile machinery producers and other major textile mills. Thus, Whitin and Crompton & Knowles each met four additional textile companies through the Second National Bank of Boston, while Draper Corp., and Saco-Lowell Shops interlocked with each other and with seven textile companies through the First National Bank of Boston. A third Boston bank, the Merchant's National Bank, provided an indirect interlock between Crompton & Knowles and the Bemis Bros. Bag Co.

Whitin's interlocks with so many textile mills, both directly and through the Second National Bank of Boston, was effected by Elijah Kent Swift. In addition to being chairman of the board, treasurer and general manager of Whitin, Mr. Swift was also director of Pepperell Manufacturing Co., Inc., Dwight Manufacturing Co., the Bigelow-Sanford Carpet Co., the Second National Bank of Boston

# INTERLOCKS BETWEEN TEXTILE MACHINERY PRODUCERS AND POTENTIAL CUSTOMERS IN THE TEXTILE INDUSTRY

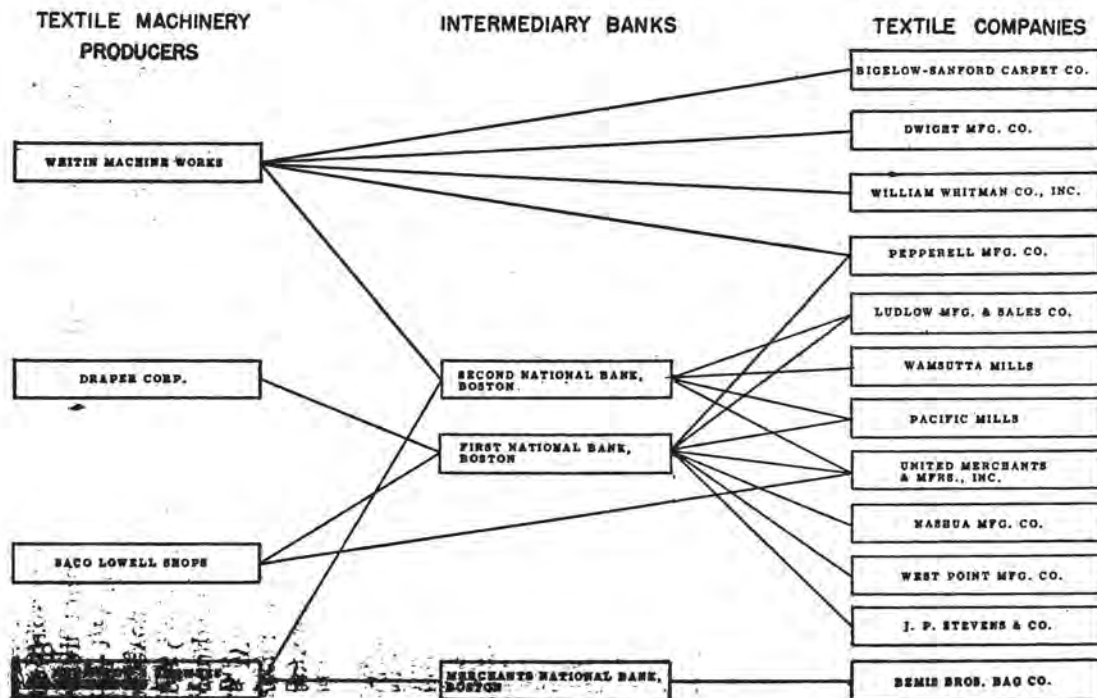


CHART 29.

(where he met directors of three other cotton textile firms), three insurance companies, two smaller banks, a lumber company, and several other firms.

Other key directors in this nexus of Boston banks, textile machinery companies and textile mills included the following:

(1) Henry M. Bliss was president, treasurer, and director of Pacific Mills and director of the Ludlow Manufacturing & Sales Co., as well as director of the Second National Bank of Boston, where he met Elijah K. Swift, whose associations in the textile mill and textile machinery industries have already been described.

(2) O. Kelley Anderson was a director of both Saco-Lowell Shops and United Merchants and Manufacturers Inc. (in addition to three investment trusts and several other financial institutions, operating companies and the United Corp.). Two other Saco-Lowell directors, C. F. Mills and E. S. French, also sat on the board of the First National Bank of Boston where they met directors of seven textile firms.

(3) B. H. B. Draper, Jr., director of Draper Corp., the second largest textile machinery producer, also sat on the board of the First National Bank of Boston where he met C. F. Mills and E. S. French of Saco-Lowell, as well as directors of seven textile firms.

(4) Sinclair Weeks, who, in addition to sitting on the boards of both Pacific Mills and the West Point Manufacturing Co. (both cotton textile producers). As a director of the First National Bank of Boston he also met the directors of seven other textile firms.

The above complex of interlocking directorates between textile machinery manufacturers, their textile mill customers and the banks may have had its origin in the initial or subsequent financing of costly textile machinery purchased by the textile mills. These associations not only may affect competition between the textile machinery manufacturers, but also in the textile industry itself, where the major producers of textile machinery and associated banks are represented directly or indirectly on the boards of many leading textile manufacturers.

*Engines.*—There are a number of producers of internal-combustion engines that interlock directly or indirectly with prospective customers. Continental Motors had indirect interlocking relations through the Struthers-Wells Corp.,<sup>88</sup> with the Koehring Corp., a potential customer for gasoline engines for its power shovels. Similarly, Emsco Derrick & Equipment Co., a producer of oil well drilling and pumping

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<sup>88</sup> David Van Alstyne, Jr., partner in Van Alstyne, Noel & Co., and director of Continental Motors and F. R. Tuerk of Koehring met on the board of Struthers-Wells. Mr. Tuerk was a partner of Crittenden & Co.

equipment, and Hercules Motor Co., an engine manufacturer, met on the board of the National City Bank of Cleveland.<sup>80</sup>

The direct link between Allis-Chalmers and Harnischfeger, referred to previously,<sup>80</sup> also provides a source of potential customer preference based on the interlocking association. Both companies are located in West Allis, Wis., and though potentially competitive with respect to Diesel engines which both produce, Harnischfeger may be a potential customer for Allis-Chalmers gasoline engines for its motor-mounted, earth-moving equipment. Gar Wood is indirectly linked with National Supply through the board of the Pittsburgh Forgings Co.<sup>81</sup> National Supply manufactures Diesel and other engines; Gar Wood uses engines in its line of road construction machinery. Thew Shovel, which uses Diesel power for its excavating shovels, was indirectly interlocked with Dresser Industries, a producer of such engines, through the White Motor Co.<sup>82</sup> Finally, International Harvester, a leading producer of engines, trucks and tractors, was directly linked with Standard Oil of Indiana,<sup>83</sup> which makes use of such products.

*Oil-field machinery.*—Several of the Nation's largest producers of oil-field drilling and pumping equipment, related supplies, and tubular products maintained direct interlocking relations with leading oil companies, which consume large quantities of such materials in their oil and gas drilling, producing and transporting operations.

The National Supply Co., largest producer and distributor of such equipment and supplies, was directly linked with Shamrock Oil & Gas Corp.<sup>84</sup> A leading producer of pumps, pumping engines and equipment, drills, pipeline compressors and engines, and gas and oil meters, Worthington Pump & Machinery Corp., shared a director with the

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<sup>80</sup> C. E. Gallagher of Hercules and Frank Purnell, director and treasurer of Emeco and president of Youngstown Sheet & Tube, were directors of the National City Bank of Cleveland.

<sup>81</sup> Walter Kasten, president of the First Wisconsin National Bank, was a director of both companies.

<sup>82</sup> F. A. Callery of Gar Wood and Edwin Hodge of National Supply sat on the board of the Pittsburgh Forgings Co., of which Mr. Hodge was president and chairman of the board. Mr. Callery was also a member of the executive committee of Consolidated Vultee Aircraft.

<sup>83</sup> David Johnson of Thew Shovel met Wm. A. McAfee of Dresser Industries on the board of the White Motor Co. The latter company may also be a potential supplier of Thew Shovel with respect to heavy-duty gasoline motors. Mr. Johnson was a member of the Cleveland law firm of M. & B. & H. H. Johnson, while Mr. McAfee has been previously identified as a partner of another Cleveland law firm—McAfee, Grossman, Taplin, Hanning, Newcomer & Hazlett.

<sup>84</sup> J. F. Stone, manager of McCormick Estates, was a director of International Harvester and Standard Oil of Indiana.

<sup>85</sup> Ralph S. Euler, senior vice president of the Mellon National Bank & Trust Co., was a director of both National Supply and Shamrock Oil & Gas.

Shell Union Oil Corp.<sup>95</sup> Another leading producer of oil-field derricks, drilling and pumping units, supplies, engines and pipeline compressors, Dresser Industries, maintained direct interlocks with both Continental Oil Co.<sup>96</sup> and the Standard Oil Co. of Ohio.<sup>97</sup> Finally, Rockwell Manufacturing Co., a manufacturer of valves and related specialties for oil transporting and refining equipment, including precision instruments such as orifice gages, chart integrators, etc., was directly interlocked with the Gulf Oil Corp.<sup>98</sup> and Tide Water Associated Oil Co.<sup>99</sup> ranking sixth and thirteenth, respectively in the oil industry.

*Tractors.*—There were four tractor manufacturers which interlocked with potential customers. The Caterpillar Tractor Co. had three common directors<sup>1</sup> with the Soundview Pulp Co., which employs such equipment in its wood cutting and moving operations. The Oliver Corp., in addition to its principal farm-machinery line, also produces industrial tractors; the Thew Shovel requires tractors for mounting its power shovel equipment. These two companies were interlocked through White Motor Co.<sup>2</sup>

Both International Harvester and J. I. Case were connected with Bucyrus-Erie,<sup>3</sup> the largest manufacturer of road building and con-

<sup>95</sup> Lewis L. Clarke was a director of Worthington Pump, Shell Union Oil, and American Locomotive. In the latter company, he was also a member of the executive committee in addition to serving as a member of the executive and finance committees of several leading insurance companies.

<sup>96</sup> W. V. Griffin, chairman of the board and director of Brady Security & Realty Co. in New York, was a director of Continental Oil as well as of Dresser.

<sup>97</sup> W. A. McAfee, previously identified as a partner in the Cleveland law firm of McAfee, Grossman, Taplin, Hanning, Newcomer and Hazlett, was a director of both Dresser and Standard Oil of Ohio.

<sup>98</sup> James F. Drake, president and director of Gulf Oil and director of the Chase National Bank, was also vice president and director of Rockwell Manufacturing.

<sup>99</sup> Elisha Walker of Kuhn Loeb & Co., investment bankers, was a director of both Rockwell Manufacturing and Tide Water Associated Oil.

<sup>1</sup> H. H. Fair, B. C. Force, and Christian O. G. Miller were directors of Caterpillar Tractor and Soundview Pulp Co. Mr. Force was on the executive committee of Caterpillar Tractor, while Mr. Miller was chairman of the board of Pacific Lighting Corp.

<sup>2</sup> F. H. Chapin and W. King White, directors of Oliver, met David L. Johnson of Thew Shovel on the board of the White Motor Co. Mr. Chapin was chairman of the board and president of National Acme (machine tool producer), while Mr. White was a vice president and director of Oliver. Prior to Oliver's acquisition of Cleveland Tractor on October 3, 1944, Mr. White was the latter's president.

<sup>3</sup> William W. Coleman, chairman of the board of Bucyrus-Erie, was also a director of J. I. Case. E. L. Ryerson, chairman of the board of Inland Steel and director of International Harvester met five directors of Bucyrus-Erie (W. W. Coleman, A. V. Davis, W. B. Given, Jr., W. G. Pearce, and D. E. Pomeroy) on the board of the American Brake Shoe Co., of which Mr. Given and Mr. Pearce were president and chairman of the board, respectively. Mr. Davis was chairman of the board of the Aluminum Co. of America, and director and member of the executive committee of the Mellon National Bank and Trust Co. of Pittsburgh.



struction machinery. Bucyrus purchases tractors on which it mounts its bulldozer and other road-making machinery. The possible reciprocal nature of potential customers and suppliers is vividly illustrated in this case. Bucyrus-Erie is a producer of tractor cabs, and purchases tractors. International Harvester and J. I. Case produce tractors. A 1948 stock registration statement<sup>4</sup> describes Bucyrus-Erie bulldozer and other tractor attachments as "primarily designed for mounting on International Harvester tractors." The same source indicates that the trucks and engines purchased by Bucyrus-Erie for its equipment are purchased from several manufacturers.

*Electric motors and other components.*—Allis-Chalmers, a major producer of electric motors, controls, switches and compressors, is directly linked with York Corp.<sup>5</sup> The latter company, a potential customer, manufactures air conditioning and refrigerating equipment.

The Worthington Pump & Machinery Corp., a highly diversified machinery manufacturer, had interlocking associations with several companies which could be customers for its electrical motors and other equipment. It had common directors both with Servel Inc.,<sup>6</sup> a leading refrigerator manufacturer, the Maryland Drydock Co., and the Glenn L. Martin Co.<sup>7</sup> The latter, which like Servel is a prospective customer for electric motors, also purchases fuel pumps for its aircraft. The Maryland Drydock Co. could be a potential customer for Worthington's steam turbine and equipment line. Moreover, Worthington had four directors in common with the U. S. Hoffman Machinery Corp.<sup>8</sup> U. S. Hoffman is a purchaser of electric motors, welding equipment, and a host of other miscellaneous machinery parts.

*Other products.*—There are several other interlocks between machinery producers and potential customers involving various machinery products which deserve specific mention.

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<sup>4</sup> *Bucyrus Erie Stock Registration Statement* of October 26, 1948, pp. 6, 7.

<sup>5</sup> Walter Geist, president and a director of Allis-Chalmers, was a director of York Corp.

<sup>6</sup> H. S. Marston of Worthington was also a director of Servel.

<sup>7</sup> Howard Bruce was chairman of the board of the Baltimore National Bank and chairman of the board, member of the executive committee and director of Worthington, a director of Glenn L. Martin Co., and a director of the Maryland Drydock Co.

<sup>8</sup> H. C. Beaver, LaMonte J. Belnap, A. C. Bruce, and Howard Bruce, were directors of Worthington Pump and U. S. Hoffman. Mr. Beaver was vice chairman of the board of Worthington Pump; Mr. Belnap was president of Consolidated Paper Corp., Ltd., chairman of the board of U. S. Hoffman Machinery, and chairman of the executive committee of Worthington Pump; and Mr. A. C. Bruce was president of U. S. Hoffman Machinery as well as director of the Baltimore National Bank.



(1) Allis-Chalmers had two directors who served on the board of Kimberly-Clark, Corp.,<sup>9</sup> a leading paper producer, and a potential customer for Allis-Chalmers' paper machine drives and logging and wood-processing equipment.

(2) Nekoosa-Edwards Paper Co. and Northern Paper Mills were prospective customers for bulldozers and related equipment in their logging operations. They were directly interlocked with Bucyrus-Erie through a common director.<sup>10</sup>

(3) Along with its diversified line of farm machinery, International Harvester<sup>11</sup> makes dairy machinery and cream separators. Armour & Co. uses such machinery in its production of evaporated milk and butter.

(4) The Harnischfeger Corp. was indirectly interlocked with several leading machinery companies which may be potential customers of Harnischfeger's line of material-handling equipment-shop hoists, cranes and monorail systems. Harnischfeger had two common directors<sup>12</sup> with Allis-Chalmers. It met Oliver on the board of the Northwestern Mutual Life<sup>13</sup>; International Harvester on the board of the First National Bank of Chicago<sup>14</sup>; and the York Corp. on the board of the First Wisconsin National Bank.<sup>15</sup>

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<sup>9</sup> Walter Kasten and E. Mahler were directors of both Allis-Chalmers and Kimberly-Clark. Mr. Mahler was also executive vice president of Kimberly-Clark and chairman of the board of International Cellucotton Products, while Mr. Kasten, as previously noted, was president of the First Wisconsin National Bank. Mr. Kasten also served as a director of Chain-Belt, a manufacturer of elevating and conveying machinery.

<sup>10</sup> A. S. Puelicher was a director of Bucyrus-Erie, Nekoosa-Edwards, and Northern Paper Mills in addition to his position as president of the Marshall & Ilsley Bank in Milwaukee.

<sup>11</sup> J. R. Leavell, president and director of the Continental-Illinois Bank & Trust Co. of Chicago, was a director of both Armour and International Harvester.

<sup>12</sup> Walter Kasten, president of the First Wisconsin National Bank, and Louis Quarles, partner of the Milwaukee law firm of Lines, Spooner & Quarles, were directors of Harnischfeger and Allis-Chalmers.

<sup>13</sup> W. C. Frye of Oliver and H. S. Falk, Walter Kasten, and Louis Quarles of Harnischfeger were directors of the Northwestern Mutual Life Insurance Co. Mr. Falk, as noted previously, was president and director of the Falk Corp. in Milwaukee.

<sup>14</sup> Ralph Budd, C. A. Ranney, and J. P. Wilson, directors of International Harvester, met I. L. Porter of Harnischfeger on the board of the First National Bank, Chicago, of which Mr. Porter was vice president. Mr. Budd was president and chairman of the executive committee of the Chicago, Burlington & Quincy Railroad; Mr. Ranney was chairman of the board of the People's Gas Light & Coke Co., and Mr. Wilson was a partner of the Chicago law firm of Wilson & McIlvaine.

<sup>15</sup> Walter Kasten, a director of Harnischfeger, was president and director of the First Wisconsin National Bank, on which board Walter Geist of the York Corp. also sat. Mr. Geist was president and director of Allis-Chalmers.

(5) Dresser Industries had a common director with Servel, Inc.,<sup>18</sup> which requires compressors for its refrigerators. Dresser was also directly interlocked with Apex Electrical Manufacturing Co.,<sup>17</sup> which uses pumps in the production of washers.

(6) The Cleveland Graphite Bronze Co. produces a major line of engine bearings and bushings. It had a common director with Thompson Products, Inc.,<sup>18</sup> which uses bearings in its production of automotive connecting rods, and another with Eaton Manufacturing Co. which requires bushings and bearings in its varied line of automotive parts (axles, push rods, valve seat inserts, etc.). Cleveland Graphite Bronze also met the Oliver Corp. and Dresser Industries, both users of engine bearings and bushings, on the board of the National Screw & Manufacturing Co.<sup>19</sup>

(7) The direct interlock between the Seeger Refrigerator Co. and Sears-Roebuck & Co. is a particularly significant example of interlocking relations of a customer-supplier nature. E. P. Brooks, a vice president of Sears-Roebuck, was on the board of Seeger Refrigerator Co. Sears is the retail outlet for the "Cold Spot" refrigerator line produced by Seeger.

(8) The Carrier Corp., a leading manufacturer of air conditioning equipment, may have a potential customer in Safety Car Heating & Lighting Co., Inc., with which it was directly interlocked.<sup>20</sup> Safety Car Heating & Lighting Co. includes air conditioning as part of its general line of railroad passenger car equipment. The two companies, rather than maintaining a supplier-customer relation, may be competitive in this field. In 1931 Carrier Corp. and Safety Car Heating and Lighting Co. were reported to have arranged to coordinate their research and development in railway air-conditioning equipment.<sup>21</sup>

The remaining interlocks involving potential customers of machinery manufacturers are listed in table 39.

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<sup>18</sup> W. V. Griffin, chairman and director of the Brady Security & Realty Co. and director of the Bank of the Manhattan Co., was a director of Dresser and Servel.

<sup>17</sup> Wm. A. McAfee, partner of the Cleveland law firm of McAfee, Grossman, Taplin, Hanning, Newcomer & Hazlett, was a director of Dresser and Apex Electrical Manufacturing.

<sup>18</sup> Frederick C. Crawford, president of Thompson Products and director of Cleveland Graphite Bronze. Frederick J. Griffiths was a director of both Cleveland Graphite Bronze and Eaton Manufacturing.

<sup>19</sup> A. W. Lueke of Cleveland Graphite Bronze met C. I. Ochs, president of Eaton Manufacturing Co. and director of Oliver, and Wm. A. McAfee of Dresser on the board of the National Screw & Manufacturing Co.

<sup>20</sup> Walter L. Conwell, president and director of Safety Car Heating & Lighting Co., was a director of Carrier Corp.

<sup>21</sup> *Moody's Industrials*, 1948, p. 884.

TABLE 39.—Other potential customers of machinery companies

Machinery company	Potential customer	Products supplied	Nature of interlock (D=Direct (name of common director) I=indirect)
Elliott Co.....	National Supply Co.....	Turbochargers for Diesel engines.	I through the Mellon National Bank & Trust Co. (Pittsburgh). <sup>1</sup> D (T. Weisman).
Atlas Imperial Diesel Engine Co.	Hunt Foods, Inc.....	Tin cans.....	I through the Central Hanover Bank Trust Co. <sup>2</sup>
	Worthington Pump & Machinery Corp.	Safety valves, pressure gages, steam recording instruments.	
Manning, Maxwell & Moore, Inc.	New York Ship Building Corp	do.....	D (A. N. Williams). <sup>3</sup>
	Avco Mfg. Corp.....	Safety valves, pressure gages, steam recording instruments (for Avco's Spencer Heater Division).	Do.
Marion Power Shovel Co.	Colorado Fuel & Iron Corp.	Excavators and power shovels.	D (Charles G. Terry). <sup>4</sup>
American Type Founders, Inc.	National Cash Register Co.	Printing machinery and printing type.	I through Congoleum-Nairn, Inc. <sup>5</sup>
	Underwood Corp.....	do.....	I through Int'l Silver Co. <sup>6</sup>
	Oliver Corp.....	Chain belts, Sprockets roller chairs.	D (W. E. Frye). <sup>7</sup>
Chain Belt Co.....	Allis-Chalmers Manufacturing Co.	do.....	D (Walter Kasten). <sup>8</sup>
	Harnischfeger Corp.....	do.....	Do.
DeVilbiss Co.....	Hercules Motor Corp.....	Engine hose and connections.	I through the Toledo Trust Co. <sup>9</sup>
Link Belt Co.....	National Malleable & Steel Castings Co.	Casting and mold handling equipment, coal and coke loaders, conveyors, etc.	D (H. Coonley and H. Whittemore, Jr.). <sup>10</sup>
	National Cash Register, Co.	Foundry products....	D (W. H. Bennett). <sup>11</sup>
Grinnell Corp.....	Remington Rand Inc.....	do.....	I through Gorham Manufacturing Co. <sup>12</sup>
	Servel, Inc.....	Valves and fittings etc.	I through Bank of the Manhattan Co. <sup>13</sup>

<sup>1</sup> F. G. Blackburn of the Elliott Co. and Ralph S. Euler of the National Supply Co. were respectively director and senior vice president of the Mellon National Bank, Pittsburgh.

<sup>2</sup> C. M. Chester of Manning, Maxwell & Moore met A. G. Pratt of Worthington on the board of the Central Hanover Bank & Trust Co., New York. Mr. Chester was honorary chairman of the board, director and chairman of the executive committee of General Foods. Mr. Pratt was chairman of the board of Babcock & Wilcox.

<sup>3</sup> A. N. Williams was the president of Westinghouse Air Brake and director of Manning, Maxwell & Moore, New York Shipbuilding Co. and Avco Manufacturing Co.

<sup>4</sup> Charles G. Terry was president of American Securities Co. and director of Marion Power Shovel and Colorado Fuel & Iron.

<sup>5</sup> C. S. Lutkins and G. M. Wells of American Type Founders met C. S. McCain, president of Dillon Read & Co., and director of National Cash Register on the board of the Congoleum-Nairn. Mr. Lutkins was a partner in R. W. Pressprich & Co.

<sup>6</sup> R. D. McGrath of American Type Founders and John M. Hancock of Underwood Corp. were directors of International Silver. Mr. Hancock was a partner in Lehman Brothers; Mr. McGrath was associated with Lazard Freres & Co.

<sup>7</sup> W. C. Frye was a director of Chain Belt and Oliver Corp.

<sup>8</sup> Walter Kasten, president of the First National Bank, was a director of Chain Belt, Allis Chalmers, and Harnischfeger.

<sup>9</sup> Directors B. T. Batsen and John T. Rohr of DeVilbiss and G. M. Mather of Hercules sat on the board of the Toledo Trust Co., of which Mr. Rohr was president. Mr. Mather was president and director of the Mather Spring Co.

<sup>10</sup> Howard Coonley, chairman of the board of Walworth, was also director of Link Belt and National Malleable & Steel Castings. Harris Whittemore, Jr., president of J. H. Whittemore Co., was also director of Link Belt and National Malleable & Steel Castings.

<sup>11</sup> W. H. Bennett, trustee of the Emigrant Industrial Savings Bank, was a director of Grinnell and of National Cash Register.

<sup>12</sup> Russell Grinnell, president of Grinnell Corp., and Henry J. Fuller of Remington Rand were directors of Gorham Manufacturing of which Mr. Fuller was chairman of the board.

<sup>13</sup> W. H. Bennett of Grinnell and National Cash Register and W. V. Griffin of Servel Inc., were board members of the Bank of Manhattan Co. Mr. Griffin was associated with Brady Security & Realty Co. as chairman and director.

### Interlocks with Potential Suppliers

Potential suppliers within the machinery industry have already been discussed (as machinery companies with potential customers); con-

# DIRECT INTERLOCKS BETWEEN STEEL PRODUCERS AND MACHINERY COMPANIES

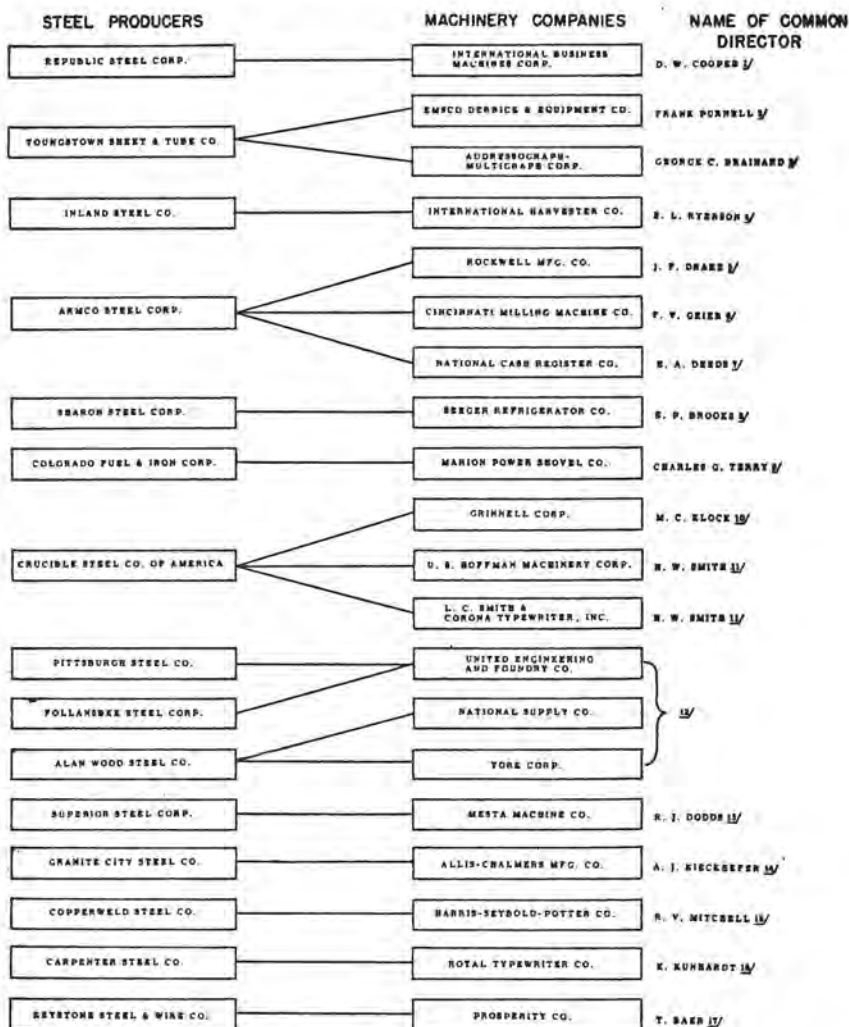


CHART 30.

<sup>1</sup> D. W. Cooper, partner of Cooper, Kerr & Dunham, was on the boards of Republic Steel and International Business Machines.

<sup>2</sup> President as well as director of Youngstown Sheet & Tube and director of Emsco Derrick.

<sup>3</sup> George C. Brainard, president of Addressograph-Multigraph, was a director of Youngstown Sheet & Tube.

<sup>4</sup> Chairman of the board of Inland Steel and director of International Harvester.

<sup>5</sup> J. F. Drake, president of Gulf Oil, was also director of Rockwell and Armco.

<sup>6</sup> President as well as director of Cincinnati Milling Machine Co. and director of Armco.

<sup>7</sup> E. A. Deeds, chairman of the board of National Cash Register, was a director of Armco.

<sup>8</sup> Edward Pennell Brooks, vice president of Sears Roebuck, was a director of Sharon Steel and Seeger Refrigerator.

<sup>9</sup> Charles G. Terry was president of American Securities Co., and director of Marion Power Shovel and Colorado Fuel & Iron.

<sup>10</sup> M. C. Klock was on the executive committees and director of both Crucible Steel and Grinnell Corp.

sideration is given here only to potential suppliers outside the industry that were directly interlocked with machinery producers.

Potential suppliers of machinery companies fall into two general categories: (1) primary metal producers, and (2) producers of metal parts, components, and assemblies. In the first category were 14 steel companies, four pig-iron producers, five producers of castings, forgings, etc., and nine nonferrous metal companies.

The steel companies directly interlocked with prospective steel purchasers in the industry are shown in chart 30. In two cases, the interlocking association reflected a direct financial interest of the steel producer in the machinery company. Thus Youngstown Sheet & Tube Co., the sixth largest steel producer, owned 81.18 percent of the voting stock of Emsco Derrick & Equipment Co.,<sup>23</sup> a leading producer of oil-well derricks, drilling machinery, and equipment. Similarly Pittsburgh Steel acquired in November 1938, 120,000 shares of National Supply Co., one of the largest oil well equipment producers. This represents over 8 percent of the currently outstanding common stock of the National Supply. The interlocking associations shown involving Pittsburgh, Follansbee, and Alan Wood Steel with machinery producers are part of the Hillman interest group described in detail in the chapter on the steel industry.

Potential suppliers of pig iron, forgings and castings, and nonferrous metals and alloys to interlocked machinery companies are listed in table 40.

In addition to the foregoing metallics which may be supplied by companies directly interlocked with machinery manufacturers, there are many other materials, parts, and components, that may be subject to preferential buying on the basis of direct interlocking associations between potential suppliers and machinery company purchasers. Their variety and multiplicity does not admit of individual discussion here, but a list for convenient reference appears in table 41. Many

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<sup>23</sup> Youngstown and its wholly owned subsidiary, Continental Supply Co., owned 57.2 percent of Emsco's voting power and 81.18 percent of Emsco's outstanding common stock as of the end of 1948. (*Moody's Industrials, 1949*, pp. 2086, 2070).

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<sup>24</sup> Director of Crucible Steel and U. S. Hoffman Machinery and president and director of L. C. Smith & Corona Typewriters.

<sup>25</sup> This complex of multiple interlocks is part of the Hillman Interest group. It was accomplished as follows: J. H. Hillman, Jr., was a director of Alan Wood Steel and National Supply. F. F. Brooks was a director of Pittsburgh Steel, Follansbee Steel, and United Engineering & Foundry. C. W. Fenniger sat on the board of Alan Wood Steel and the York Corp.

<sup>26</sup> R. J. Dodds of the Pittsburgh law firm, Reed, Smith, Shaw & McClay, was a director of Superior Steel and Mesta.

<sup>27</sup> A. J. Kleckhefer, president of National Enameling and Stamping, was also on the boards of Granite City Steel and Allis-Chalmers.

<sup>28</sup> R. V. Mitchell, chairman of the board of Harris-Seybold-Potter, was a director of Copperweld Steel.

<sup>29</sup> K. Kunhardt, vice president of Guaranty Trust, was a director of Carpenter Steel and of Royal Typewriter.

<sup>30</sup> T. Baer, general counsel of Keystone Steel and Wire was a special counsel and director of Prosperity Co.



**TABLE 40.—Direct interlocks between machinery companies and potential suppliers of pig iron, forgings, castings, and nonferrous metals and alloys**

Materials	Machinery company	Potential suppliers	Common directors
<i>Pig iron</i>			
Pig iron	American Type Founders, Inc.	Interlake Iron Corp.	C. S. Lutkins. <sup>1</sup>
Do	United Shoe Machinery Corp.	Woodward Iron Co.	Fred Ayer. <sup>2</sup>
Do	National Supply Co.	Pittsburgh Coke & Chemical Co.	J. H. Hillman, Jr. <sup>3</sup>
<i>Forgings and castings</i>			
Iron and steel forgings	do	Pittsburgh Forgings Co.	Edwin Hodge, Jr. <sup>4</sup>
Forgings and steel castings	J. I. Case Co.	Poor & Co.	F. A. Poor. <sup>5</sup>
Do	International Harvester Co.	do	J. F. Stone. <sup>6</sup>
Gray iron, bronze and brass castings	do	American Brake Shoe Co.	E. L. Ryerson. <sup>7</sup>
Do	J. I. Case Co.	do	W. W. Coleman. <sup>8</sup>
Do	Bucyrus-Erie Co.	do	5 common directors. <sup>9</sup>
Steel castings	Otis Elevator Co.	General Steel Castings Corp.	D. W. Fraser. <sup>1</sup>
Malleable and steel castings	Link-Belt Co.	National Malleable & Steel Castings Co.	H. Conoley & H. Whittemore, Jr. <sup>3</sup>
Do	Walworth Co.	do	H. Conoley. <sup>4</sup>
Steel and alloy castings	do	Symington-Gould Corp.	J. J. Minot. <sup>5</sup>
Do	Van Norman Co.	do	Do. <sup>6</sup>
<i>Nonferrous metals</i>			
Aluminum	Bucyrus Erie Co.	Aluminum Co. of America	A. V. Davis. <sup>9</sup>
Copper, zinc	National Cash Register Co.	Anaconda Copper Mining Co.	G. S. Rentschler. <sup>10</sup>
Zinc	United Shoe Machinery Co.	N. J. Zinc Co.	W. Woodward. <sup>11</sup>
Do	Greenfield Tap & Die Corp.	do	J. K. Olyphant, Jr. <sup>12</sup>
Nonferrous metals	Otis Elevator Co.	American Smelting & Refining Co.	C. D. Hiles. <sup>13</sup>
Do	Underwood Corp.	do	E. B. Schley. <sup>14</sup>
Do	U. S. Hoffman Machinery Corp.	do	F. J. Leary. <sup>15</sup>
Do	United Shoe Machinery Corp.	U. S. Smelting, Refining, & Mining Co.	5 common directors. <sup>16</sup>
Do	New Britain Machine Co.	Seovill Manufacturing Co.	L. P. Sperry. <sup>17</sup>
Do	Continental Motors Corp.	Mueller Brass Co.	F. J. Kennedy. <sup>18</sup>
Do	Ex-Cell-O-Corp.	do	E. Andrene. <sup>19</sup>
Do	Torrington Co.	Bridgeport Brass Co.	L. A. Dibble. <sup>10</sup>
Copper and brass tubing and sheets	Carrier Corp.	do	H. W. Steinkraus. <sup>11</sup>
Wire and cable	Otis Elevator Co.	General Cable Corp.	C. D. Hiles. <sup>12</sup>

<sup>1</sup> C. S. Lutkins of R. W. Pressprich & Co. was on the boards of ATF Inc. and Interlake Iron.

<sup>2</sup> Frederick Ayer was on the boards of United Shoe Machinery, Woodward Iron, and U. S. Smelting, Refining & Mining.

<sup>3</sup> J. H. Hillman, Jr. president of Pittsburgh Coke & Chemical, was also director of National Supply Co. Edwin Hodge, Jr., president of Pittsburgh Forgings was also a director of National Supply.

<sup>4</sup> Fred A. Poor, chairman of the board and president of Poor & Co. was a director of J. I. Case.

<sup>5</sup> Judson F. Stone, manager of the McCormick estates, was a director of International Harvester and Poor & Co. Edward Larned Ryerson, chairman of the board of Inland Steel, was on the boards of International Harvester and American Brake Shoe.

<sup>6</sup> W. W. Coleman, chairman of the board of Bucyrus Erie, was also director of J. I. Case, American Brake Shoe and Cutler Hammer. Arthur Vinning Davis, chairman of the board of Aluminum Co. of America, William B. Olven, Jr. president of American Brake Shoe, William Greene Pearce, chairman of the board of American Brake Shoe, and Daniel E. Pomeroy were all represented on the boards of Bucyrus Erie and American Brake Shoe.

<sup>7</sup> D. W. Fraser, chairman of the board of American Locomotive, was a director of Otis Elevator and General Steel Castings.

<sup>8</sup> H. Conoley, chairman of the board of Walworth Co. was a director of Link Belt and National Malleable & Steel Castings Co. Harris Whittemore, Jr., president of J. H. Whittemore Co. was a director of National Malleable & Steel Castings and Link Belt.

<sup>9</sup> J. J. Minot, cosenior partner of Palmer, Webber, Jackson & Curtis, was a director of Walworth, Van Norman, and Symington-Gould.

<sup>10</sup> G. S. Rentschler, chairman of the board of the National City Bank of New York, was a director of National Cash Register and Anaconda Copper.

<sup>11</sup> William Woodward, trustee of the Central Hanover Bank & Trust, was on the boards of New Jersey Zinc and United Shoe Machinery.

<sup>12</sup> J. K. Olyphant, Jr., vice president of the Central Hanover Bank & Trust Co., was a director of Greenfield Tap and Die and New Jersey Zinc.

<sup>13</sup> C. D. Hiles, vice chairman, U. S. executive committee and New York advisory director of Employers Liability Assurance Corp., Ltd., was a director of Otis Elevator, American Smelting & Refining Co., and General Cable Co. E. B. Schley, president of Howe Sound Co., was a director of Underwood and



of the products involved in such potential purchases are automotive or electrical in character. These are required by engine or agricultural machinery manufacturers for incorporation in their final products. Other components, subject to such preferential purchasing by machinery companies based on interlocking associations with potential suppliers, include such universally used items as nuts, bolts, screws, fasteners, valves, and pipes.

These tabulations by no means exhaust all of the instances of, or opportunities for, customer-supplier selection based on interlocking relationships. The absence of detailed information restricts this analysis to published or generally known facts and does not cover such areas as purchasing agreements, contract work, and contract subletting affecting metal producing, using, and fabricating companies.

### SUMMARY

From the foregoing analysis of interlocking directorates involving the largest machinery companies, it is evident that such ties linking competitors, or suppliers and customers (actual or potential) are numerous and significant. No quantitative measurement of the competitive effects of these interlocking associations upon the industry and the economy is attempted. However, the interlocking pattern itself focuses attention on those industry areas where the complex of interlocking relations threatens not only the independence of the smaller producers, but also the free, competitive forces both within the machinery industry and other related industries.

The machinery industry had more members (184) among the thousand largest manufacturing corporations in 1946, and more interlocking companies (112) than any other major industry. Over half of these interlocking machinery companies were linked directly with banks, one-third with primary metal producers, and one-fourth or more with companies in the transportation and electrical machinery industries. Over 40 percent maintained intraindustry interlocks in addition to their interlocking associations outside the industry.

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American Smelting and Refining. F. J. Leary, vice president of the Central Hanover Bank & Trust Co., was also director of U. S. Hoffman Machinery and American Smelting and Refining.

<sup>14</sup> Frederick Ayer (see ?); George R. Brown, vice president of United Shoe Machinery; J. R. Macomber of the First Boston Corp.; Neil W. Rice, chairman of the board and president of U. S. Smelting, Refining and Mining, and Sidney W. Winslow, Jr., chairman of the board of United Shoe Machinery, were all represented on the boards of United Shoe Machinery and U. S. Smelting & Refining.

<sup>15</sup> L. P. Sperry, president of Scovill Manufacturing Co., was a director of New Britain Machine.

<sup>16</sup> F. J. Kennedy of Butzel, Eaman, Long, Gust & Bills, was on the boards of Kelsey Hayes Wheel, Mueller Brass, and Continental Motors.

<sup>17</sup> Edward Andrese, secretary and treasurer of Yale Woolen Mills, was a director of Ex-Cell-O Corp. and Mueller Brass.

<sup>18</sup> L. A. Dibble, president of Rison Manufacturing Co., was on the boards of Torrington Manufacturing Co. and Bridgeport Brass.

<sup>19</sup> H. W. Steinkraus, president and chairman of the board of Bridgeport Brass, was also director of Carrier Corp.

**TABLE 41.—Direct interlocks between machinery companies and potential suppliers (other than primary metals)**

Machinery company	Possible suppliers	Significant products	Common directors
<i>Subgroup 351</i>			
Continental Motors Corp.	Emerson Elec. Manufacturing Co.	Arc welders and power tools.	D. Van Alstyne, Jr. <sup>1</sup>
Do.	Struthers Wells Corp.	Crankshafts.	Do.
Do.	Buffalo Bolt Co.	Nuts, bolts, screws, etc.	Do.
Manning, Maxwell, & Moore, Inc.	Avco Manufacturing Corp.	Tools, jigs, etc.	A. N. Williams. <sup>2</sup>
Le Roi Co.	Hupp Corp.	Parts and subassemblies	W. F. Rockwell. <sup>3</sup>
<i>Subgroup 352</i>			
International Harvester Co.	General Electric Co.	Auto light bulbs, head-lights, and other electrical equipment.	J. P. Wilson. <sup>4</sup>
Do.	American Brake Shoe Co.	Brake lining	E. L. Ryerson. <sup>5</sup>
Do.	Crane Co.	Valves and fittings	S. G. McAllister. <sup>6</sup>
Allis-Chalmers Manufacturing Co.	do.	do.	J. H. Collier. <sup>7</sup>
J. I. Case Co. <sup>1A</sup>	do.	do.	A. O. Choate. <sup>8</sup>
Do.	American Brake Shoe Co.	Brake lining	W. W. Coleman. <sup>9</sup>
Do.	Cutler-Hammer, Inc.	Automatic electrical equipment, switches, etc.	Do.
Oliver Corp.	Eaton Manufacturing Co.	Auto parts, axles, transmissions.	C. I. Ochs. <sup>10</sup>
Do.	National Screw & Manufacturing Co.	Nuts, bolts, and screws	Do.
Minneapolis-Moline Power Implement Co.	Kelsey-Hayes Wheel Co.	Tractor wheels, hubs, brake drums, stampings, etc.	H. S. Bowers. <sup>11</sup>
<i>Subgroup 353</i>			
Bucyrus-Erie Co.	Westinghouse Air Brake Co.	Brake equipment.	William B. Given. <sup>12</sup>
Do.	American Brake Shoe Co.	Brake lining	5 common directors. <sup>13</sup>
Do.	Cutler-Hammer, Inc.	Automatic electrical equipment, etc.	2 common directors. <sup>14</sup>
Joy Manufacturing Co.	Reliance Electric & Engineering Co.	Mine motors	A. S. Knoizen. <sup>15</sup>
Gar Wood Ind., Inc.	Avco Manufacturing Corp.	Tools, jigs, etc.	A. W. Herrington. <sup>16</sup>
Koehring Co.	Struthers Wells Corp.	Crankshafts, cylinders, etc.	F. R. Tuerk. <sup>17</sup>
Thew Shovel Co.	White Motor Co.	Heavy duty motors, etc.	David L. Johnson. <sup>18</sup>
<i>Subgroup 354</i>			
United Drill & Tool Corp.	Buffalo Bolt Co.	Nuts, bolts, screws, etc.	A. D. Armitage. <sup>19A</sup>

<sup>1A</sup> J. I. Case is the Nation's fourth largest, long-line farm machinery producer. Hence it is analyzed along with other agricultural equipment manufacturers.

<sup>1</sup> David Van Alstyne Jr., of Van Alstyne, Noel & Co., was on the boards of the following companies: Struthers-Wells, Emerson Electric Manufacturing, Continental Motors, and Buffalo Bolt.

<sup>2</sup> A. N. Williams, president of Westinghouse Air Brake, was director of Manning, Maxwell & Moore Inc., and of Avco.

<sup>3</sup> W. F. Rockwell, chairman of the board and president of Rockwell Manufacturing Co., was a director of Le Roi Co. and of Hupp Corp.

<sup>4</sup> John P. Wilson of Wilson & McIlvaine, was on the boards of General Electric and International Harvester.

<sup>5</sup> Edward Larned Ryerson, chairman of the board of Inland Steel, was on the boards of International Harvester and American Brake Shoe.

<sup>6</sup> Sidney G. McAllister, member of the executive committee of International Harvester, was also director of Crane Co.

<sup>7</sup> J. H. Collier, chairman of the board of Crane Co., was a director of Allis-Chalmers.

<sup>8</sup> A. O. Choate of Clark, Dodge & Co., was a director of Crane Co., and J. I. Case.

<sup>9</sup> W. W. Coleman, chairman of the board of Bucyrus-Erie, was director of J. I. Case and of American Brake Shoe.

<sup>10</sup> Clarence I. Ochs, president of Eaton Manufacturing Co., was a director of the Oliver Corp. and National Screw & Manufacturing.

<sup>11</sup> Henry S. Bowers, of Goldman, Sachs & Co., was a director of Minneapolis-Moline Power Implement Co. and Kelsey-Hayes Wheel.

<sup>12</sup> William B. Given, Jr., president of American Brake Shoe, was director of Bucyrus-Erie, and Westinghouse Air Brake, W. W. Coleman, chairman of the board of Bucyrus-Erie, A. V. Davis, chairman of the board of Aluminum Co. of America, W. G. Pearce, chairman of the board of American Brake Shoe, and D. E. Pomeroy were directors of Bucyrus-Erie and American Brake Shoe.

<sup>13</sup> F. R. Bacon, chairman of the board of Cutler-Hammer, and W. W. Coleman, chairman of the board of Bucyrus Erie, were directors of both Cutler-Hammer and Bucyrus Erie. See also footnote 6, table 40.

<sup>14</sup> A. S. Knoizen, executive vice president and director of Joy Manufacturing, was also director of Reliance Electric & Engineering Co.

<sup>15</sup> A. W. Herrington, chairman of the board of Marmon-Herrington, was a director of Gar Wood Industries and the Avco Manufacturing Corp.

<sup>16</sup> F. R. Tuerk, partner, Crutenden Co., was a director of Struthers Wells and Koehring Co.

<sup>17</sup> David L. Johnson, partner of M. & B. & H. H. Johnson, was a director of White Motor Co. and Thew Shovel.

<sup>18A</sup> Andrew D. Armitage, president of J. H. Williams Co., was a director of both United Drill & Tool Corp. and Buffalo Bolt.

TABLE 41.—*Direct interlocks between machinery companies and potential suppliers (other than primary metals)*—Continued

Machinery company	Possible suppliers	Significant products	Common directors
<i>Subgroup 355</i>			
United Shoe Machinery Corp.	United-Carr Fastener Corp.	Fasteners, locks, nuts.....	C. E. Spencer, Jr. <sup>18</sup>
Saco-Lowell Shops.....	do.....	do.....	D. F. Edwards. <sup>19</sup>
Cherry-Burrell Corp.....	A. O. Smith Corp.....	Glass-lined tanks and pressure vessels.	Anthony von Wening. <sup>20</sup>
<i>Subgroup 356</i>			
Dresser Industries, Inc.....	National Screw & Manufacturing Co.	Nuts, bolts, and screws.....	William A. McAfee. <sup>21</sup>
<i>Subgroup 357</i>			
International Business Machines Corp.	Okonite Co.....	Insulated wire and cable..	N. H. Green. <sup>22</sup>
Do.....	Weston Electrical Instrument Co.	Electrical indicating equipment and instruments.	W. H. Booth. <sup>23</sup>
National Cash Register Co.	General Motors Corp.....	Fractional electric motors.	C. F. Kettering. <sup>24</sup>
Do.....	Mead Corp.....	Paper. <sup>25</sup>	Do.
Do.....	International Paper Co.	do.....	C. S. McCain. <sup>26</sup>
Underwood Corp.....	do.....	do.....	A. H. Wiggin. <sup>27</sup>
Do.....	Kimberly-Clark Corp.....	do.....	J. M. Hancock. <sup>28</sup>
Do.....	General Motors Corp.....	Fractional electric motors.	J. T. Smith. <sup>29</sup>
<i>Subgroup 358</i>			
Electrolux Corp.....	P. R. Mallory & Co.....	Switches and other electrical equipment.	R. C. Hunt. <sup>30</sup>
Hoover Co.....	Midland Steel Products Co.	Metal stampings.....	Percy Brown. <sup>31</sup>
Seeger Refrigerator Co.....	Florence Stove Co.....	Enameled steel sheets.....	E. P. Brooks. <sup>32</sup>
Apex Electrical Manufacturing Co.	National Screw & Manufacturing Co.	Nuts, bolts, and screws...	William A. McAfee. <sup>33</sup>

<sup>18</sup> Charles Eldridge Spencer, Jr., president of the First National Bank of Boston, was a director of United Carr Fastener and of United Shoe Machinery Corp.

<sup>19</sup> D. F. Edwards, president of Saco Lowell, was also director of United Carr Fastener.

<sup>20</sup> Anthony von Wening, vice president and director of A. O. Smith Corp., was a director of Cherry-Burrell Corp.

<sup>21</sup> William A. McAfee, partner of McAfee, Grossman, Taplin, Hanning, Newcomer & Hazlett, was a director of Dresser Industries, National Screw & Manufacturing, and Apex Electrical Manufacturing Co.

<sup>22</sup> N. H. Green, president of Westboro Realty Co., was a director of International Business Machines and of Okonite Co.

<sup>23</sup> Willis H. Booth was on the boards of International Business Machines and Weston Electrical Instrument Corp.

<sup>24</sup> C. F. Kettering, vice president of General Motors, was a director of National Cash Register and the Mead Corp.

<sup>25</sup> Charles S. McCain, president of Dillon, Read & Co., was a director of International Paper and National Cash Register Co.

<sup>26</sup> Albert H. Wiggin sat on the boards of both International Paper and Underwood.

<sup>27</sup> John M. Hancock, a partner of Lehman Bros., was a director of Underwood and Kimberly Clark.

<sup>28</sup> John Thomas Smith, vice president, director, and general counsel of General Motors, was a director of Underwood.

<sup>29</sup> Richard C. Hunt, of Chadbourne, Hunt, Jaekel & Brown, a New York law firm, was a director of Electrolux and P. R. Mallory Co.

<sup>30</sup> Percy Brown, of Hornblower & Weeks, was a director of Midland Steel Products and the Hoover Co.

<sup>31</sup> Edward P. Brooks, vice president of Sears, Roebuck & Co., was a director of both Seeger Refrigerator and Florence Stove Co. On July 1, 1947, Sears, Roebuck held 107,525 shares of Florence Stove Co. common stock.

<sup>32</sup> Paper for stationery needs of office and business machines and record-keeping systems for packaging and wrapping, and for carbon paper production.

## *Interlocks Between Competing Machinery Producers*

In all, there are seven major machinery sectors characterized by a high incidence of interlocking directorships involving producers of a significant proportion of the output.

1. The farm machinery sector contributed the most extensive set of interlocking relations to be found in the entire machinery industry. The six largest farm machinery manufacturers, accounting for over

80 percent of the industry's output, had indirect interlocks with each other. International Harvester (the largest of all machinery companies as well as the Nation's leading agricultural equipment producer), Allis-Chalmers (the third largest farm machinery manufacturer), and J. I. Case (the fourth largest in this field), each were linked with three of the "big six" producers in this field, including each other. The fifth largest producer, Oliver Corp., was indirectly interlocked with two other farm machinery companies; while the second and sixth in size, Deere & Co. and Minneapolis-Moline Power Implement Co., respectively, were indirectly interlocked with each other. Such interlocking of the largest agricultural machinery corporations raises serious doubts as to the nature and extent of competition in this important industrial area, which so intimately affects the welfare of our agricultural economy. Moreover, all six of these leading agricultural machinery corporations were involved in the interlocks with competing engine producers. Playing key roles in linking these major farm machinery producers were a midwestern bank, insurance company, and utility.

2. Five of the nine "largest" machinery corporations classified as engine producers were linked indirectly with companies producing a competitive line of engines. The companies with which they interlocked included some classified in other branches of the machinery industry and others outside the industry entirely, indicative of the highly diversified product lines manufactured by many of the producers of heavy machinery.

A total of 18 competing engine producers were interlocked with each other, five classified under "engines and turbines" and 13 elsewhere.<sup>24</sup> Continental Motors, one of the five principally engaged in engine production, was directly linked with a competing producer of gas engines, Struthers-Wells Corp., which is classified in the fabricated-metal products industry. Allis-Chalmers and Harnischfeger Corp., both producers of Diesel engines, had two common directors. Finally, the largest of the five engine producers, Fairbanks, Morse & Co., was indirectly linked with the Nation's leading agricultural machinery manufacturer, International Harvester, with which it is potentially competitive in gasoline and Diesel engines as well as in certain farm equipment items. Among the 16 intermediary companies that served as connecting links between these 18 engine producers, were five banks, three insurance companies, a utility, and a railroad.

3. The machine tool group likewise exhibited a high incidence of potential competition-reducing interlocks, with 10 of the 18 largest

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<sup>24</sup> Of these 13, six were farm equipment manufacturers, six were primarily engaged in the production of other types of machinery, and one was not classified in the machinery industry.

machine tool producers indirectly linked with competitors. Cincinnati Milling Machine and Rockwell Manufacturing Co., the two largest companies classified in this division, maintained indirect interlocking associations with each other. In addition, each was linked with another large machine tool producer. Two other leading machine tool companies, Niles-Bement-Pond Co. and New Britain Machine, met on the boards of two different life insurance companies, while National Acme and Warner & Swasey, also leading members of the machine tool industry, met on the board of the Cleveland Trust Co.

4. The seven largest of the 11 office and business machines companies maintained a series of interlocks with each other. International Business Machines, the leading company in this group, was tied through the Guaranty Trust Co. to Royal Typewriter. Multiple links between National Cash Register and Underwood, competitive producers of typewriters and accounting machines, were effected through General Motors and International Paper, each the largest in its industry. Underwood was also linked to Remington, a major competitor in the typewriter and bookkeeping machine field, through an investment trust; while Remington met one of its largest competitors in typewriters, L. C. Smith and Corona, on the board of Marine-Midland Corp. There can be little doubt as to the competition-reducing effects flowing from such multiple interlocking associations between such competing producers.

5. The two largest producers of textile machinery, Whitin Machine Works and Draper Corp. were directly linked, while the four largest including these two were interlocked with each other through two Boston banks. Whitin Machine Works, the largest, met Crompton-Knowles, the fourth largest, on the board of the Second National Bank of Boston, while the First National Bank of Boston served as a link between Draper Corp. and Saco-Lowell Shops, the second and third leading textile machinery producers, respectively. These two Boston banks, together with the Merchants National Bank of Boston, also provided the connecting link between these four textile machinery companies and nine of the largest textile companies, all major customers for textile machinery.

6. In the field of pumps, and pumping and drilling equipment, there was a direct link between National Supply Co., the largest company in this field, and Robbins & Myers, both of which produce pumps for a common market. In addition, four major producers of this machinery line had indirect ties with one or more competitors. The interlocking associations between such leading oil well drilling and pumping equipment producers as Worthington Pump & Machinery, Dresser Industries, Inc., Emsco Derrick & Equipment and Byron-Jackson deserve particular notice. Of the three intermediary com-



panies serving as links between these competing producers, one was a bank and one an investment trust.

7. In the road-building and earth-moving machinery sector of the industry, two of the four leading producers were directly interlocked and all were indirectly associated through multiple interlocks with a bank and an insurance company. The First Wisconsin National Bank served as a meeting ground for three road-machinery producers, Harnischfeger, Koehring, and Allis-Chalmers. Similarly, Northwestern Mutual Life linked Bucyrus-Erie, the largest excavating equipment manufacturer, with Harnischfeger and Allis-Chalmers.

#### *Interlocks Between Potential Suppliers and Potential Customers*

Interlocks between potential suppliers and potential customers in the machinery industry can be presented only on an illustrative basis. By the very nature of the industry's technology, almost any company can serve as a supplier or customer of another industry member with which it is interlocked. The analysis has cited, therefore, only the most obvious and apparent cases where the interlocking companies actually produce or buy the type of product in question.

Suppliers within the machinery industry interlocking with potential customers included 15 major tool producers who were directly linked with 23, and indirectly with 52 potential customers. All 97 companies directly interlocked with the 11 largest producers of office and business machines were potential customers for such machines. In addition, five ball and roller bearing producers had three direct and six indirect interlocks with potential customers. The four leading producers of textile machinery were involved in a series of direct and indirect ties with 12 large textile companies, the indirect links being maintained through three Boston banks, as noted above. Similar large-scale interlocks with potential customers presumably affected competitive selling of engines, tractors, electric motors, and a host of other machinery products enumerated above.

The analysis of interlocks between machinery companies and potential suppliers in other industries was limited to direct ties. Most important, of course, were the interlocks with steel producers. Twenty of the largest machinery companies had directors of 15 steel companies sitting on their boards. Eight of these 15 interlocking steel companies ranked among the Nation's leaders in steel production capacity, and included Republic Steel, Youngstown Sheet & Tube, Armco, Inland Steel, Sharon Steel, Colorado Fuel & Iron, Crucible Steel, and Pittsburgh Steel Co.

Similarly, three potential suppliers of pig iron, seven of forgings and castings, and five of nonferrous metals maintained direct interlocking relations with machinery companies. In addition, there are a host of important products and components which may be supplied to



**TABLE 42.—Interlocks between machine tool producers and potential customers**

Machine tool producers	Potential customers	Nature of interlock (name of common director) D=direct. I=indirect.
	Oliver Corp.....	D (F. H. Chapin). <sup>1</sup>
	Addressograph-Multigraph Corp.....	D (G. W. Codrington). <sup>2</sup>
	Perfection Stove Co.....	D (A. B. Thompson). <sup>3</sup>
	Robbins & Myers, Inc.....	D (A. B. Breeze).
	White Motor Co.....	D (F. H. Chapin). <sup>1</sup>
	Eaton Manufacturing Co.....	D (J. O. Eaton). <sup>4</sup>
	Electric Boat Co.....	D (G. W. Codrington). <sup>2</sup>
	Hercules Motors Corp.....	I through the National City Bank of Cleveland. <sup>5</sup>
National Aerm Co.....	Emsco Derrick & Equipment Co.....	Do.
	Dresser Industries, Inc.....	Do.
	do.....	I through White Motor Co. <sup>6</sup>
	Apex Electrical Manufacturing Co.....	I through National City Bank of Cleveland. <sup>5</sup>
	do.....	I through White Motor Co. <sup>6</sup>
	Thew Shovel Co.....	Do.
	National Supply Co.....	I through Robbins & Myers, Inc. <sup>7</sup>
	Cleveland Graphite Bronze Co.....	I through Eaton Manufacturing Co. <sup>8</sup>
	Chain Belt Co.....	I through Oliver Corp. <sup>9</sup>
	Underwood Corp.....	I through Electric Boat Co. <sup>10</sup>
	Le Roi Co.....	D (W. F. Rockwell). <sup>11</sup>
	Standard Steel Spring Co.....	Do.
	Timken-Detroit Axle Co.....	Do.
	Hupp Corp.....	Do.
	Pullman, Inc.....	D (J. F. Drake). <sup>12</sup>
Rockwell Manufacturing Co.	Manning, Maxwell & Moore, Inc.....	I through Chase National Bank. <sup>13</sup>
	International Harvester Co.....	I through Armour & Co. <sup>14</sup>
	Chicago Pneumatic Tool Co.....	I through Chase National Bank. <sup>13</sup>
	Remington Rand, Inc.....	Do.
	Bucyrus-Erie Co.....	I through Mellon National Bank & Trust Co. <sup>15</sup>
	J. I. Case Co.....	I through Pullman, Inc. <sup>16</sup>
	Underwood Corp.....	I through Hac Corp. of America. <sup>17</sup>
	National Cash Register Co.....	I through Armco Steel Corp. <sup>18</sup>
	Timken Roller Bearing Co.....	I through Timken-Detroit Axle Co. <sup>19</sup>
	Maytag Co.....	D (C. J. Quinn). <sup>20</sup>
	American Locomotive Co.....	D (C. J. Quinn).
	Otis Elevator Co.....	I through Tri-Continental Group. <sup>21</sup>
	do.....	I through American Locomotive Co. <sup>22</sup>
	Worthington Pump & Machinery Corp.....	Do.
Cheinnati Milling Machine Co.	Underwood Corp.....	Do.
	do.....	I through Tri-Continental Group. <sup>21</sup>
	Remington Rand, Inc.....	Do.
	Carrier Corp.....	Do.
	National Cash Register Co.....	I through Armco Steel Corp. <sup>18</sup>
	Hobart Mfg. Co.....	I through First National Bank (Cincinnati). <sup>23</sup>
	Lunkheimer Co.....	I through Central Trust Co. (Cincinnati). <sup>24</sup>
	Le Roi Co.....	D (C. W. Pendock). <sup>25</sup>
	Harnischfeger Corp.....	D (I. L. Porter). <sup>26</sup>
	Chain Belt Co.....	D (R. W. Baird). <sup>26</sup>
	Chicago Mill & Lumber Co.....	D (I. L. Porter). <sup>26</sup>
Kearney & Trecker Corp.	International Harvester Co.....	I through First National Bank of Chicago. <sup>27</sup>
	Allis-Chalmers Mfg. Co.....	I through Harnischfeger Corp. <sup>28</sup>
	do.....	I through Chain Belt Co. <sup>28</sup>
	Oliver Corp.....	Do. <sup>29</sup>
	Black-Clawson Co.....	D (C. H. Helvey).
	United Aircraft Corp.....	D (P. B. Rentschler).
	Motor Wheel Corp.....	D (G. A. Rentschler). <sup>30</sup>
	International Harvester Co.....	I through New York Life Insurance Co. <sup>31</sup>
General Machinery Corp.	Otis Elevator Co.....	I through New York Life Insurance Co. <sup>31</sup>
	Underwood Corp.....	I through United Aircraft Corp. <sup>32</sup>
	do.....	I through Hartford National Bank & Trust Co. <sup>33</sup>
	American Laundry Machinery Co.....	I through Fifth-Third Union Trust Co. (Cincinnati). <sup>34</sup>
	Fafnir Bearing Co.....	D (F. G. Vibberts). <sup>35</sup>
	Seavill Manufacturing Co.....	D (L. P. Sperry). <sup>36</sup>
	Stanley Works.....	D (P. B. Stanley). <sup>37</sup>
	do.....	D (F. G. Vibberts). <sup>35</sup>
	do.....	D (M. H. Pease). <sup>38</sup>
New Britain Machine Co.	American Hardware Corp.....	D (L. P. Sperry). <sup>36</sup>
	American Type Founders, Inc.....	I through A. G. Spalding & Bros., Inc. <sup>39</sup>
	Underwood Corp.....	I through Aetna Life Insurance Co. <sup>40</sup>
	do.....	I through Aetna Casualty & Surety Co. <sup>41</sup>

See footnotes at end of table.

**TABLE 42.—Interlocks between machine tool producers and potential customers—Con.**

Machine tool producers	Potential customers	Nature of interlock (name of common director) D=direct. I=indirect.
Jones & Lamson Machine Co.	Saco-Lowell Shops..... Scott & Williams, Inc..... United Shoe Machinery Corp..... Draper Corp..... United Shoe Machinery Corp..... Manning Maxwell & Moore, Inc.....	D (E. S. French). <sup>11</sup> I through Saco-Lowell Shops. <sup>11</sup> I through First National Bank of Boston. <sup>11</sup> Do. I through New Jersey Zinc Co. <sup>11</sup> I through Central Hanover Bank & Trust Co. <sup>11</sup> Do.
Greenfield Tap & Die Corp.	Worthington Pump & Machinery Corp..... Walworth Co..... Symington-Gould Corp..... Link-Belt Co..... Reliance Electric & Engineering Co..... Glenn L. Martin Co.....	D (J. J. Minoli). <sup>11</sup> Do. I through Walworth Co. <sup>11</sup> D (C. J. Stillwell). <sup>11</sup> D (T. H. Jones). <sup>11</sup> I through Glenn L. Martin Co. <sup>11</sup>
Warner & Swasey Co.	Worthington Pump & Machinery Corp..... Underwood Corp..... National Cash Register Co..... do.....	I through Glenn L. Martin Co. <sup>11</sup> I through Aetna Life Insurance Co. <sup>11</sup> Do. <sup>11</sup> I through Mead Corp. <sup>11</sup>
Niles-Bement-Pond Co.	Manning, Maxwell & Moore, Inc..... Underwood Corp..... Buffalo Bolt Co..... Continental Motors Corp..... Mueller Brass Co..... Continental Motors Corp..... Frick Co., Inc.....	I through Manufacturers Trust Co. <sup>11</sup> I through Atlas Corp. <sup>11</sup> D (A. D. Armitage). <sup>11</sup> I through Buffalo Bolt Co. <sup>11</sup> D (E. Andrae). <sup>11</sup> I through Mueller Brass Co. <sup>11</sup> D (D. N. Benedict). <sup>11</sup>
E. W. Bliss Co.		
United Drill & Tool Corp.		
Ex-Cell-O Corp.		
Landis Machine Co.		

<sup>1</sup> Mr. Chapin was president, chairman of the board and director of National Acme as well as director of Oliver Corp. and White Motor Co.

<sup>2</sup> Mr. Coddington was vice president and general manager of General Motors' Cleveland Diesel Engine Division as well as director of National Acme, Addressograph-Multigraph and Electric Boat Co.

<sup>3</sup> Mr. Thompson, previously identified as a partner in the Cleveland law firm of Thompson, Hine & Flory was a director of both National Acme and Perfection Stove.

<sup>4</sup> Mr. Eaton was chairman of the board and director of Eaton Manufacturing and also a director of National Acme.

<sup>5</sup> E. L. Gelsmer of National Acme met O. E. Gallagher of Hercules Motors, J. Purnell of Emeco Derrick & Equipment, and W. A. McAfee of Dresser and Apex Electrical Manufacturing on the board of the National City Bank of Cleveland. As previously identified Mr. Purnell was president of Youngstown Sheet & Tube and Mr. McAfee was a partner in the Cleveland law firm of McAfee, Grossman, Taplin, Hanning, Newcomer & Hazlett.

<sup>6</sup> F. H. Chapin of National Acme met W. A. McAfee of Dresser and Apex Electrical Manufacturing and D. L. Jonsson of the Thew Shovel Co. on the board of the White Motor Co. Mr. Jonsson was partner in the Cleveland law firm of M. & B. & H. H. Jonsson.

<sup>7</sup> A. B. Breeze of National Acme and P. J. Shovlin of National Supply were directors of Robbins & Myers.

<sup>8</sup> J. O. Eaton of National Acme and F. J. Griffiths of Cleveland Graphite Bronze met on the board of Eaton Manufacturing Co., of which Mr. Eaton was chairman of the board. Mr. Griffiths was associated with Chromium Mining & Smelting Corp., Ltd. of Ontario, Canada.

<sup>9</sup> F. H. Chapin of National Acme and W. C. Frye of Chain Belt were directors of Oliver.

<sup>10</sup> G. W. Coddington of National Acme and Reeve Schley of Underwood sat on the board of the Electric Boat Co. Mr. Schley was vice president, member of the executive committee and director of Howe Sound Co. and chairman of the board and director of Sunstrand Corp. as well as member of the executive committee and director of Electric Boat.

<sup>11</sup> Mr. Rockwell's center of interest was as chairman of the board and president of the Rockwell Manufacturing Co.

<sup>12</sup> Mr. Drake was president and director of Gulf Oil as well as director of Rockwell Manufacturing and Pullman.

<sup>13</sup> J. F. Drake of Rockwell, C. M. Chester of Manning, Maxwell & Moore, H. J. Fuller of Remington Rand, and C. J. Schmidlapp of Chicago Pneumatic Tool all met on the board of the Chase National Bank, of which Mr. Schmidlapp was vice president. Mr. Chester was honorary chairman of the board, chairman of the executive committee and director of General Foods.

<sup>14</sup> E. Walker of Rockwell and J. R. Leavell of International Harvester sat on the board of Armour. Mr. Walker was with the investment bank of Kuhn, Loeb & Co. while Mr. Leavell was president of the Continental Illinois Bank & Trust Co.

<sup>15</sup> H. A. Phillips of Rockwell was a director of the Mellon National Bank along with A. V. Davis of Bucyrus-Erie. Mr. Phillips was with the Penn-Pittsburgh Corp.; Mr. Davis was chairman of the board and director of the Aluminum Co. of America.

<sup>16</sup> J. F. Drake of Rockwell and A. O. Choate of J. I. Case met on the board of Pullman, Inc. Mr. Choate was a special partner of Clark, Dodge & Co.

<sup>17</sup> Elisha Walker of Kuhn, Loeb & Co. and Rockwell and Mr. Wertheim, senior partner of Wertheim & Co. and director of Underwood met on the board of the Hat Corp. of America.

<sup>18</sup> J. F. Drake, president of Gulf Oil and director of Rockwell met E. A. Deeds, chairman of the board of National Cash Register on the board of Armco.

<sup>19</sup> W. J. Rockwell of Rockwell Manufacturing Co. sat on the board of Timken Detroit Axle along with H. H. Timken, Jr. and W. R. Timken of Timken Roller Bearing Co., of which both H. H. and W. R. Timken were vice presidents.

<sup>20</sup> C. J. Quinn, partner of the underwriting and brokerage firm of J. & W. Seligman & Co. and director of Cincinnati Milling Machine and Maytag met A. H. Wiggin, director of American Express and of Otis Elevator and Underwood, and L. L. Clarke of Worthington Pump, on the board of American Locomotive. Selected Industries, Inc., part of the Tri-Continental investment trust group, also served as a common meeting

ground between Mr. Quinn and Mr. Wiggins as well as between Mr. Quinn and B. F. Pope of Remington Rand and Carrier Corp. Mr. Quinn was vice president and member of the executive committee of both Selected Industries and Tri-Continental Corp.; Mr. Pope, a member of executive committee and director, and Mr. Wiggins a director of Selected Industries.

<sup>11</sup> F. V. Geier, president and director of Cincinnati Milling Machine, and E. A. Deeds, chairman of the board of National Cash Register, were also directors of Armco.

<sup>12</sup> P. O. Geier of Cincinnati Milling Machine and R. McEvilly of Hobart met at the First National Bank, Cincinnati, of which Mr. McEvilly was vice president and director.

<sup>13</sup> F. V. Geier, president and director of Cincinnati Milling Machine, sat on the board of the Central Trust Co., Cincinnati, where he met Wm. H. Mitchell, director, and F. P. Rhame, president, general manager, and director of Lunkenheimer Co.

<sup>14</sup> Mr. Pendock was president of Le Roi and director of Kearney & Trecker.

<sup>15</sup> Mr. Porter was vice president of the First National Bank of Chicago.

<sup>16</sup> Mr. Baird was president and director of the Wisconsin Co. as well as director of Kearney & Trecker and Chain Belt.

<sup>17</sup> I. L. Porter of Kearney & Trecker was vice president and director of the First National Bank of Chicago where he met R. Budd and G. A. Ranney of International Harvester. As previously identified Mr. Budd was president, chairman of the executive committee and director of the Chicago, Burlington & Quincy Railroad as well as associated with numerous other railroads, while Mr. Ranney was chairman and director of Peoples Gas, Light & Coke Co. in Chicago, as well as a member of the executive committee of the First National Bank of Chicago.

<sup>18</sup> I. L. Porter of Kearney & Trecker and W. Kasten of Allis-Chalmers and president of the First Wisconsin National Bank sat on the board of Harnischfeger, while R. W. Baird of Kearney & Trecker and W. Kasten met on the board of Chain Belt.

<sup>19</sup> R. W. Baird of Kearney & Trecker and W. C. Frye of Oliver were directors of the Chain Belt Co.

<sup>20</sup> Mr. George A. Rentschler was chairman of the board of General Machinery as well as director of Motor Wheel Corp.

<sup>21</sup> J. B. Hollister of General Machinery and E. L. Ryerson of International Harvester met on the board of New York Life Insurance. Mr. Hollister was partner in the Cincinnati law firm of Taft, Stettinius & Hollister while Mr. Ryerson was chairman of the board of Inland Steel.

<sup>22</sup> Both J. B. Hollister of General Machinery and C. D. Hilles of Otis Elevator were directors of the New York Life Insurance Co. Mr. Hilles was a member of the executive committee of Otis Elevator.

<sup>23</sup> F. B. Rentschler of General Machinery and M. B. Brainard of Underwood met on the boards of United Aircraft and the Hartford National Bank. Mr. Brainard was president and director of Aetna Life Insurance Co.

<sup>24</sup> J. B. Hollister, G. A. Rentschler and J. J. Rowe of General Machinery and C. H. M. Atkins a director and E. B. Stanley, chairman of the board and director of American Laundry Machinery, met on the board of the Fifth Third Union Trust Co. (Cincinnati) of which Mr. Rowe was also president.

<sup>25</sup> Mr. Vibberts was president and trustee of the New Britain Trust Co.

<sup>26</sup> Mr. Sperry was president, general manager and treasurer as well as director of Scovill Manufacturing.

<sup>27</sup> Mr. P. B. Stanley was vice president and director of Stanley Securities Co. of New Britain, Conn.

<sup>28</sup> Mr. Pease was vice president of Stanley Works.

<sup>29</sup> Mr. M. H. Pease of New Britain Machine and Thomas Roy Jones, chairman of the board, president, and director of A. T. F. Inc. were also directors of A. G. Spalding.

<sup>30</sup> E. M. Day of New Britain Machine and M. B. Brainard of Underwood met on the boards of the Aetna Life and Aetna Casualty Insurance Companies. Mr. Day was a partner in the Hartford law firm of Day, Berry & Howard.

<sup>31</sup> Mr. French was president and director of the Boston & Maine Railroad.

<sup>32</sup> E. S. French of Jones & Lamson sat on the board of Saco-Lowell along with W. F. Lowell, F. J. Hale, and R. D. Hale of Scott & Williams. Mr. Lowell was a vice president of Saco-Lowell.

<sup>33</sup> The board of the First National Bank of Boston served as a common meeting ground between E. S. French of Jones & Lamson and B. H. B. Draper, Jr., treasurer of Draper Corp. and the following directors of United Shoe Machinery: S. W. Winslow, Jr., chairman of the board, George R. Brown, vice president, Frederick Ayer, C. E. Spencer, Jr., president and director of the First National Bank of Boston, and N. W. Rice, chairman of the board, president, member of the executive committee and director of U. S. Smelting, Refining & Mining Co.

<sup>34</sup> J. K. Olyphant, Jr., of Greenfield Tap & Die and W. Woodward of United Shoe Machinery met as directors of the New Jersey Zinc Co. Also at the Central Hanover Bank, of which Mr. Olyphant was a vice president, he met C. M. Chester of Manning, Maxwell & Moore, A. G. Pratt of Worthington Pump & Machinery. Mr. Woodward was trustee of Central Hanover Bank & Trust Co. Mr. Chester was previously identified as honorary chairman of the board, chairman of the executive committee and director of General Foods; Mr. Pratt as president and director of Babcock & Wilcox.

<sup>35</sup> J. J. Minot, cosenior partner of Paine, Webber, Jackson & Curtis and director of Van Norman and H. Coonley of Link Belt both sat on the board of Walworth, of which Mr. Coonley was chairman of the board, and Mr. Minot was member of the executive committee and director.

<sup>36</sup> Mr. Stillwell was president and director of Warner & Swasey.

<sup>37</sup> Mr. Jones, partner in the Cleveland law firm of Jones, Day, Cokerley & Reavis and director of Warner & Swasey, met Howard Bruce, president of Worthington Pump & Machinery on the board of Glenn L. Martin.

<sup>38</sup> C. W. Deeds, president and director of Niles-Bement-Pond, and M. B. Brainard of Underwood were both on the board of the Aetna Life Insurance Co.

<sup>39</sup> G. H. Day, partner in the Hartford, Conn., firm of Shipman & Goodwin and director of Niles-Bement-Pond, and C. S. McCain of National Cash Register met at the board of Aetna Insurance Co. Mr. McCain was president of the Investment banking firm of Dillon, Read & Co.

<sup>40</sup> C. W. Deeds, president and director of Niles-Bement-Pond, and C. F. Kettering, a director of National Cash Register (in addition to his position as vice president of General Motors) met on the board of the Mead Corp.

<sup>41</sup> O. L. Johnston of the E. W. Bliss Co. met A. N. Williams of Manning, Maxwell & Moore on the board of the Manufacturers Trust Co. (New York); and H. N. Durning of Underwood on the board of Atlas Corp. Mr. Johnston was a partner in the New York law firm of Simpson, Thatcher & Bartlett. Mr. Williams was president and director of Westinghouse Air Brake Co. and Mr. Durning was a partner in the New York firm of Moore & Schley.

<sup>42</sup> A. D. Armitage, president of the J. H. Williams Co. and director of United Drill & Tool, and D. Van Alstyne, Jr., of Continental Motors both sat on the board of Buffalo Bolt. Mr. Van Alstyne was a partner in the Wall Street investment firm of Van Alstyne, Noel & Co.

<sup>43</sup> Edward Andrae of Ex-Cell-O Corp. and F. J. Kennedy of Continental Motors met on the board of Mueller Brass. Mr. Andrae was secretary, treasurer, and director of Yale Woolen Mills while Mr. Kennedy was a member of the Detroit law firm of Butzel, Faman, Long, Gust & Bills.

<sup>44</sup> Mr. Benedict was president, general manager, and director of the Frick Co.

machinery companies by nonmachinery manufacturers with which the former were directly linked. These products include a wide variety of automotive equipment and components, nuts, bolts and screws, wire and cable, fractional horsepower motors, and paper items.

All in all, the high concentration of interlocking associations between and among producers of competing products and between potential suppliers and customers characterizing the machinery industry must result in an attenuation of the competitive forces which are so vital for the preservation of our free private enterprise system.

## Chapter 9

### ELECTRICAL MACHINERY

There were 53 electrical machinery companies listed among the thousand largest manufacturing corporations in 1946. Thirty-seven of these electrical machinery companies maintained interlocking directors with 240 other companies, manufacturing and nonmanufacturing, among those selected for study. There were in all 315 directors serving on the boards of two or more of the manufacturing and nonmanufacturing companies selected.

Approximately one-third of the interlocking directorates tied electrical machinery companies to banks and insurance companies. Then in order of the frequency of the interlocks came machinery (except electrical), primary metals, transportation equipment, food and kindred products, chemicals and allied products, fabricated metal products, and public utilities. These nine groups of companies accounted for approximately three-fourths of the interlocking relations stemming from electrical machinery manufacturers.

#### INTERLOCKING RELATIONS AMONG ELECTRICAL MACHINERY MANUFACTURERS

Interlocking relations among manufacturers in the same industry whether maintained on a direct or indirect basis are of particular significance in an industry with distinct price lines and highly advertised trade-marks. Interlocking relations may be an effective means of diverting competitive rivalries to advertising and sales promotion, of minimizing price competition, of formulating and of maintaining a common industry policy in other matters. Where the inter-related companies are not currently engaged in the manufacture of directly competing products, interlocking directors may be an effective means of forestalling the invasion of one company's markets by another.

A highly significant pattern of interlocking directorates indirectly linked the "Big Four"—General Electric Co., Westinghouse Electric Corp., Western Electric Co., and Radio Corporation of America. In addition there were other instances where direct or indirect interlocking directorates between electrical equipment manufacturers may have had the effect of reducing, minimizing, or eliminating competi-

tion. Within the electrical machinery industry, certain interlocking relations existed between suppliers of components and their actual or potential customers. Moreover, certain ties were found on the one hand between members of the industry and suppliers of metals, plastics, etc., and on the other hand between members of the industry and potential customers, notably railroads. Such interlocking relationships may have established lines of preference, preferential access to supplies or markets, or similar effects. Finally, significant interlocking relationships existed between electrical machinery companies and financial institutions. The largest companies maintained especially strong ties with the largest metropolitan commercial banks and insurance companies, while smaller electrical manufacturers were usually interlocked with local banks.

### *The Directorship Relations of the Big Four*

The four leading electrical manufacturers—General Electric, Westinghouse Electric, Western Electric, and RCA—dominate the industry. In 1946 the combined assets of these four manufacturers totaled \$2,070 million and their sales totaled \$2,130 million. The aggregate assets for the next 49 electrical machinery companies totaled \$880 million, or only 97 percent of the assets of the largest manufacturing company, General Electric. The aggregate sales of the 44 largest manufacturing companies below the "big four" amounted to \$1,295 million, or 1 percent more than the combined sales of the two largest companies, General Electric and Westinghouse Electric.<sup>1</sup>

General Electric, the leading manufacturer of electrical equipment, produces a vast array of products, from small household appliances to electric locomotives, huge motors, generators, turbines, and complete utility power plants. It operates over 90 plants. Westinghouse Electric also carries on highly diversified manufacturing operations in 27 different plants. Its products include not only all forms of electrical equipment but also related mechanical equipment required by power companies, railroads, and industrial plants. Through its subsidiary, Westinghouse Radio Stations, Inc., it operates six radio stations. Western Electric, the third largest manufacturer of electrical equipment, is a subsidiary of American Telephone & Telegraph Co. It is the largest manufacturer of telephone and related equipment. RCA was organized by General Electric and acquired patent rights for various radio devices and systems from General Electric, Westinghouse Electric, American Telephone & Telegraph, and others. In its manufacturing operations it produces all types of radio equipment, both for home use and for broadcasting and communications, phonographs and phonograph records, electronic equipment, and the

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<sup>1</sup> Sales data were not available for five of the 49 companies.



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like. It is also extensively engaged in communications through the National Broadcasting Co. and the Radiomarine Corporation of America. More than 375 manufacturers were licensed under its various patents at the close of 1947.

The interconnections between the four largest manufacturers of electrical equipment are illustrated on chart 3. These interlocking relations were of an indirect character, through the presence of directors of electrical machinery manufacturers on the boards of six of the country's largest commercial banks, two of the largest insurance companies, the largest public utility, the second largest railroad, and one of the largest United States copper producers.

General Electric had indirect interlocking relations with Westinghouse Electric through the Chase National Bank of the City of New York, the Mellon National Bank & Trust Co. (Pittsburgh, Pa.), American Telephone & Telegraph, and Kennecott Copper Corp. On the board of Chase National Bank were four directors who served as directors of Westinghouse Electric and one who sat on the board of General Electric.<sup>2</sup>

The Mellon National Bank & Trust Co. had three Westinghouse Electric directors and one from General Electric.<sup>3</sup> American Telephone & Telegraph, had two General Electric directors and three who

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<sup>2</sup>The General Electric director on the board of Chase National Bank was Robert C. Stanley, president of International Nickel Co. of Canada, Ltd., and chairman of its board.

Four Westinghouse directors also sat on the board of the Chase National Bank—Andrew W. Robertson, chairman of the board of Westinghouse Electric, Winthrop W. Aldrich, chairman of the board of Chase National Bank, Arthur W. Page, and Thomas I. Parkinson. In addition Mr. Aldrich was a director American Telephone & Telegraph, International Paper Co., and Metropolitan Life Insurance Co. He was also a trustee of the Rockefeller Foundation. Mr. Page was also director of American Telephone & Telegraph, Kennecott Copper, Prudential Insurance Co. of America, and Continental Oil Co. (It is believed that Mr. Page retired from American Telephone & Telegraph in 1947; in 1950 he was listed as a director of Southern Bell Telephone & Telegraph Co.) Mr. Parkinson was president and director of Equitable Life Assurance Society of the United States; he was also a director of American Telephone & Telegraph, Pittsburgh Consolidation Coal Co., and the Long Island Railroad Co.

<sup>3</sup>The indirect interlocking relation through the Mellon National Bank & Trust Co., was accomplished through Clarence Stanley, a General Electric director, and George A. Blackmore, H. B. Higgins, and William C. Robinson, directors of Westinghouse Electric. Mr. Stanley was chairman of the executive committee of the Mellon National Bank & Trust Co., serving also as a director of Superior Steel Corp., Koppers Co., and Diamond Alkali Co. Mr. Blackmore was chairman of the board of Westinghouse Air Brake Co. He also served as director of A. M. Byers Co., and Pittsburgh Screw & Bolt Corp. Mr. Higgins was president of Pittsburgh Plate Glass Co. Mr. Robinson was president of National Electric Products Co.

were directors of Westinghouse Electric.<sup>4</sup> Kennecott Copper had one director from General Electric and one from Westinghouse Electric.<sup>5</sup>

The primary channel of interlocking relations between Western Electric and the other large electrical manufacturers was through American Telephone & Telegraph which owns 99 percent of the common stock of Western Electric. General Electric, as noted, had two directors on the board of American Telephone & Telegraph and Westinghouse Electric had three. In addition, General Electric and Western Electric were indirectly interlocked through the First National Bank of Chicago.<sup>6</sup>

General Electric was interlocked with RCA indirectly through the Chase National Bank, the Guaranty Trust Co. of New York, Bankers Trust Co. (New York), New York Life Insurance Co., and the New York Central Railroad Co. Chase National Bank had one director on its board from General Electric and one from RCA.<sup>7</sup> Guaranty Trust Co. had two General Electric directors and one RCA director on its board.<sup>8</sup> The Bankers Trust Co. also had two General Electric directors and one from RCA, as did the New

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<sup>4</sup>The interlocking relations through American Telephone & Telegraph were effected through Charles Francis Adams, and G. Peabody Gardner, directors of General Electric, and Messrs. Aldrich, Page, and Parkinson, directors of Westinghouse Electric. Mr. Adams was chairman of the board of the State Street Trust Co. He was also a director of some of the country's largest corporations, including John Hancock Mutual Life Insurance Co., New York, New Haven & Hartford Railroad Co., United States Smelting, Refining & Mining Co., United Drug Co., and Bigelow-Sanford Carpet Co. He was a member of the executive committee of the American Telephone & Telegraph.

<sup>5</sup>Kennecott Copper linked General Electric and Westinghouse Electric through Charles D. Dickey, director of General Electric, and Mr. Page, a director of Westinghouse Electric. Mr. Dickey was vice president and director of J. P. Morgan & Co. His other directorships included New York Life Insurance Co., American Brake Shoe Co., General Steel Castings Corp., and Sharp & Dohme, Inc. Mr. Dickey, and Mr. Henry S. Morgan, a partner in Morgan-Stanley Co., were the current Morgan representatives on the board of General Electric.

<sup>6</sup>J. P. Wilson of General Electric and C. J. Whipple of Western Electric were directors of the First National Bank of Chicago.

<sup>7</sup>Robert C. Stanley was a director of General Electric and Chase National Bank. Bertram Cutler was a director of both RCA and Chase National Bank. Mr. Cutler was associated with John D. Rockefeller, Jr., and also served as a director of Equitable Life Assurance Society of the United States.

<sup>8</sup>Charles E. Wilson, president and director of General Electric, was a director of Guaranty Trust Co. Robert T. Stevens, chairman of the board of J. P. Stevens & Co., was a director of both General Electric and Guaranty Trust Co.; in addition, he was a director of the Mutual Life Insurance Co., the New York Telephone Co., and Yale & Towne Manufacturing Co. Gano Dunn, president and director of J. G. White Engineering Co. of New York, served as a director of both RCA and the Guaranty Trust Co.

York Life.<sup>9</sup> The New York Central had one director from General Electric and another from RCA.<sup>10</sup>

Westinghouse Electric and Western Electric were indirectly interlocked through American Telephone & Telegraph and the Chemical Bank & Trust Co. (New York).<sup>11</sup>

The indirect interlocking relations established between Westinghouse Electric and RCA were through the directorate of Equitable Life.<sup>12</sup>

RCA and Western Electric interlocked indirectly through American Telephone & Telegraph and Equitable Life.<sup>13</sup>

The pattern of relationships among the four leading electrical manufacturers acquires particular significance in historical perspective. General Electric and Westinghouse Electric have occupied their preeminent positions from the beginning of the industry. General Electric was organized in 1892 as a merger of three early companies and soon entered on a program of expansion, in part by internal growth and in part by acquisition of other companies. Westinghouse Electric began business in 1886 and followed a similar pattern of growth, acquiring both operating companies and properties as it expanded the base of its operations. Western Electric owes its position largely to the fact that, as a subsidiary of American Telephone & Telegraph, it has had preferential access to the world's largest purchases of telephone equipment. It is, in consequence, the largest manufacturer of such equipment.

<sup>9</sup> Philip D. Reed, chairman of the board of General Electric, was a director of the Bankers Trust. He was also a director of Metropolitan Life Insurance Co. S. Sloan Colt, president of Bankers Trust Co., was a General Electric director. James G. Harbord, chairman of the board of RCA, was a director of both New York Life and of Bankers Trust Co.; he died in August of 1947. Owen D. Young, honorary chairman and director of General Electric, was a director of New York Life. He was formerly a director of National Broadcasting Co. and, subsequently, of the American Broadcasting Co. Charles D. Dickey, vice president of J. P. Morgan & Co., was a director of General Electric and of New York Life.

<sup>10</sup> Alexander C. Nagle, president of the First National Bank of the City of New York, was a director of General Electric and the New York Central. Bertram Cutler, a director of RCA, was also on the board of the New York Central Railroad.

<sup>11</sup> It has already been noted that three Westinghouse Electric directors—Messrs. Aldrich, Page, and Parkinson—were also directors of the telephone company. The indirect connection through the Chemical Bank & Trust Co. involved Robert T. Swaine of Westinghouse Electric and Clarence G. Stoll, president of Western Electric, both of whom served on the bank's board.

<sup>12</sup> Charles R. Hook and Thomas I. Parkinson, Westinghouse Electric directors, served on the Equitable Life board in company with Bertram Cutler of RCA.

<sup>13</sup> Thomas I. Parkinson, President of Equitable Life and a director of the telephone company, served on the board of Equitable Life in company with Bertram Cutler of RCA.

RCA was organized by General Electric in 1919. It acquired various radio patents and other rights which had been developed by General Electric, Westinghouse Electric, American Telephone & Telegraph, and others. In addition, it acquired the assets of the Marconi Wireless Telegraph Co. of America. It thus represented a joining of forces by leading communications companies and by the two manufacturers of electrical equipment which dominated the new field of radio communications. RCA organized the National Broadcasting Co. as a subsidiary in 1926 and the Radiomarine Corporation of America in 1928. It acquired a substantial interest in Radio-Keith-Orpheum Corp. in 1928; and in 1929 it acquired the Victor Talking Machine Co., with which it merged its earlier subsidiary, RCA Photophone, Inc., which had been concerned with sound motion pictures.

The relations between RCA and General Electric and Westinghouse Electric attracted the attention of the Antitrust Division and led to the filing in May 1930 of a petition alleging a conspiracy to restrain and monopolize interstate commerce in radio communication and radio manufacture.<sup>14</sup> This led to a consent decree, which was entered on November 21, 1932, requiring General Electric and Westinghouse Electric to dispose of their stock interest in RCA and enjoining them from restraining trade by dividing markets under exclusive patent license agreements and similar arrangements. General Electric and Westinghouse Electric were also enjoined from having any officers or directors serving as officers and directors of RCA, and the latter and its subsidiaries were likewise enjoined from having common officers or directors with electrical manufacturing companies.

In another antitrust suit, filed in 1941 and decided in 1949 by the District Court of New Jersey, General Electric, Westinghouse Electric and others were found to have monopolized the incandescent lamp industry, establishing and maintaining a number of supporting monopolies and embracing patents. The court found that the distributing agencies of General Electric and Westinghouse Electric had been enmeshed through the office of supervisor created by General Electric, and that this was an unlawful restraint of competition.<sup>15</sup>

The pattern of indirect interlocking relations herein described may have had the effect of preserving a common point of view and mutual-ity of interests between the electrical and radio manufacturers and the communications companies.

The pattern of interlocking relations among the "big four" electrical manufacturers overshadows other interlocks within the indus-

<sup>14</sup> *United States v. Radio Corp. of America*, EQ. 793.

Preliminary to the consent decree the action as amended was dismissed as to General Motors Corp., American Telephone & Telegraph, and Western Electric.

<sup>15</sup> *United States v. General Electric Co.*, Civil 1364, Commerce Clearing House No. 575, pp. 234-235, January 15, 1949.



try, both because of the predominant position occupied by the companies and because of the historical record of their collaborative activities. Their connections through directors in 1946, however, were of an indirect character and thus less subject to legal remedy.

Other interlocks within the electrical machinery industry, direct or indirect, may have been potentially competition-reducing in that they brought together producers of similar products; other interlocks may have provided preferential access to suppliers or markets within the industry or with members of other industries; while still others may have reflected a miscellaneous range of factors, including the grouping together of organizations in particular communities.

### *Interlocks Among Potential Competitors*

The most significant of the direct interlocking relations among electrical machinery companies involved General Electric and Weston Electrical Instrument Corp. Willis H. Booth, the honorary chairman of the board of Hotpoint, Inc., a 100-percent-owned subsidiary of General Electric, was also a director and member of the executive committee of Weston.<sup>16</sup> Weston Electrical Instrument produces a variety of electrical instruments: "Laboratory, standard, portable, and panel switchboards and aircraft electrical indicating instruments; test equipment for operating and maintenance use, relay and control equipment for industrial applications, light measuring, and control equipment; bimetal and electrical thermometer and photographic exposure meters."<sup>17</sup> Its products are used in laboratories, by power companies and manufacturing companies, and in transportation and communications equipment. Apparently there is no direct competition between its products and those of Hotpoint, Inc., which produces household appliances, prominent among which are electric ranges, water heaters, dish washers, and the like. However, General Electric produces indicating and control equipment, instruments, and meters, many of which are in direct competition with products manufactured by Weston. Moreover, the incidence of competition between the two companies might be increased if one or the other of the companies broadened its line of products.

Where one of the interlocking manufacturers is one of the two largest companies, its operations so largely blanket the field as to make it competitive, actually or potentially, with almost every other electrical machinery manufacturer. Nevertheless, General Electric Co. maintained indirect interlocking relations with three smaller electrical manufacturers. (See table 43.)

<sup>16</sup> In 1949, Mr. Booth remained honorary chairman and director of Hotpoint, Inc., as well as director and member of the executive committee of Weston Electrical Instrument.

<sup>17</sup> Standard & Poors, Corporation Records, T-Z, June-July, 1949, p. 2811.

TABLE 43.—*Indirect interlocks between electrical machinery companies, 1946*

Electrical machinery company and directors	Intermediate companies	Other electrical companies and directors
General Electric Co.: S. J. Weinberg..... L. B. Williams.....	Sears, Roebuck & Co..... Goodyear Tire & Rubber Co..... American Radiator & Standard Sanitary Corp.....	McGraw Electric Co.: R. E. Wood..... Rome Cable Corp.: J. Inglis.....
General Electric Co.: A. C. Nagle.....		
General Electric Co. (through its wholly owned subsidiary, Hotpoint, Inc.): W. H. Booth. <sup>1</sup>	International Business Machines Co.....	Okonite Co.: N. H. Green.....
Electric Auto-Lite Co.: H. E. Talbot.....	Chrysler Corp.....	The Electric Storage Battery Co.: J. D. Brady..... Wagner Electric Corp.: P. B. Postlewaite..... Landers, Frary & Clark:
Emerson Electric Manufacturing Co.: D. R. Calhoun, Jr..... Arrow Hart & Hegeman Electric Co.:	St. Louis Public Service Co.....	
A. P. Day.....	Aetna Insurance Co..... Connecticut General Life Insurance Co..... American Hardware Corp.....	C. P. Cooley..... R. L. White.....
Cutler-Hammer, Inc.: F. R. Bacon..... W. W. Coleman..... Edmund Fitzgerald.....	Northwestern Mutual Life Insurance Co.....	Line Material Co.: Louis Quarles.....
Farnsworth Television & Radio Corp.: J. F. Wharton.....	Tobacco & Allied Stocks, Inc.....	Mallory (P. R.) & Co., Inc.: J. T. Foster.....
Emerson Radio & Phonograph Co.: R. C. Hunt.....	Servel, Inc., Electrolux Corp.....	Mallory (P. R.) & Co., Inc.: R. C. Hunt..... Robbins & Myers, Inc.: M. H. March.....
Sparks-Withington Co.: D. L. Johnson.....	White Motor Co.....	

<sup>1</sup> Mr. Booth although not on the board of General Electric Co. was a director of Hotpoint, Inc., a wholly owned subsidiary of General Electric.

Another important direct interlock brought together General Electric and International Harvester Co.<sup>18</sup> These two companies are the leaders in their respective fields, yet have recently become competitors in the manufacture of refrigeration equipment. International Harvester is the largest producer of farm implements and farm tractors, a principal producer of heavy motortrucks and one of the leading competitors in the industrial power field. In 1946 the company acquired a plant in Evansville, Ind., formerly used for airplane manufacture and is manufacturing milk coolers, freezers, and household refrigerators. General Electric is second only to General Motors' Frigidaire Division in the manufacture and sale of domestic refrigerators.

General Electric and McGraw Electric Co. were brought together through the boards of Sears, Roebuck & Co. and Goodyear Tire & Rubber Co.<sup>19</sup> McGraw Electric manufactures such electrical apparatus as waffle irons, stoves, water heaters, buss fuses, circuit protec-

<sup>18</sup> J. P. Wilson, of the Chicago law firm of Wilson & McIlvaine, was a director of both General Electric and International Harvester in 1946. He resigned from the board of General Electric on December 19, 1947, having been a director of the company since 1938. He was still on the board of International Harvester in 1950.

<sup>19</sup> Sidney J. Weinberg, a partner of Goldman Sachs & Co., was director of General Electric and of Sears, Roebuck & Co. L. B. Williams, chairman of the board of National City Bank of Cleveland, was a director of General Electric and of Goodyear. Robert E. Woods, chairman of the board of Sears, Roebuck & Co., was a director of McGraw Electric and of Goodyear.

tors, and the like. Sears, Roebuck & Co., of course, handles many such electrical items.

General Electric and Rome Cable Corp. had indirect interlocking directors through the American Radiator & Standards Sanitary Corp.<sup>20</sup> Rome Cable Corp. manufactures copper wire and cables used chiefly in public utility construction and electrical manufacturing; it also makes hot-rolled rods.

General Electric's indirect interlocking relations with Okonite Co. was affected through International Business Machines. The Okonite Co. manufactures insulated cables.<sup>21</sup>

Electric Storage Battery Co. had an indirect interlocking of directors with the Electric Auto-Lite Co.<sup>22</sup> Electric Storage Battery produces "Exide" and "Willard" batteries for automobiles. It also manufactures battery parts and components, ignition parts, and electric and auto accessories. Electric Auto-Lite is a leading manufacturer of lighting, starting, and ignition equipment for motorcars, tractors, and boats; it also produces various other automobile accessories and other products. Its storage batteries are sold under the trade name "Auto-Lite" and "Prest-O-Lite." Chrysler Corp. is said to be Electric Auto-Lite's largest single customer.<sup>23</sup> Electric Storage Battery, however, concentrates largely on the replacement market for its batteries.<sup>24</sup>

Emerson Electric Manufacturing Co. was indirectly associated with Wagner Electric Corp. through the medium of the St. Louis Public Service Co.<sup>25</sup> Both manufacturers are located in St. Louis. Like Emerson Electric Manufacturing, Wagner Electric manufactures electric motors. It also produces transformer hydraulic brakes and air brakes for use on automobiles.

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<sup>20</sup> Alexander C. Nagle, president of the First National Bank of the City of New York, and a General Electric director, was also a director of American Radiator & Standard Sanitary Corp. Also on the board of American Radiator was James Inglis, chairman of the Board of American Blower Corp. and a director of Rome Cable.

<sup>21</sup> W. H. Booth, a director of Hotpoint, Inc., a General Electric subsidiary, was also a director of International Business Machines. N. H. Green, president of Westboro Realty Corp., was a director of both Okonite and International Business Machines. Since Mr. Booth was a director of Weston, there also arose an indirect interlocking relation between that company and Okonite.

<sup>22</sup> J. C. Brady of Electric Storage Battery served as a Chrysler director in company with H. E. Talbot, chairman of the finance committee of the Electric Auto-Lite. Mr. Brady was president of Brady Security and Realty Corp. Mr. Talbot was a partner in H. E. Talbot & Co.

<sup>23</sup> Standard and Poor's Corporation Records, June-July, 1949, p. 9049.

<sup>24</sup> Ibid, p. 9035.

<sup>25</sup> P. B. Postlewaite, the president of Wagner Electric, served on the board of the utility with D. R. Calhoun, Jr., president of the St. Louis Trust Co. and a director of Emerson Electric Manufacturing.

## RELATIONS BETWEEN ELECTRICAL MACHINERY COMPANIES AND POTENTIAL SUPPLIERS AND CUSTOMERS

The electrical machinery industry is a large consumer of industrial raw materials and semifinished products, particularly of metals, plastics, and components. Its manufactures range from heavy equipment, such as generators and transmission equipment for electric utilities, electric and Diesel electric locomotives for railroads, and electric motors for industrial machinery, to consumer goods, such as refrigerators, air-conditioning units, radios, and household electric appliance.<sup>25</sup>

### *Supplier-Customer Relations Within the Industry*

There is a substantial flow of electrical machinery items within the industry itself, as many producers, both large and small, supply components which are used by other electrical machinery manufacturers. Thus, certain interlocking directorates may reflect efforts to strengthen supplier-customer ties.

P. R. Mallory & Co. manufactures a number of electrical products—such as condensers, contact assemblies, electrodes, spot-welding accessories, etc.—used largely in the radio and electronic fields.<sup>27</sup> The company was interlocked with two radio manufacturers, Emerson Radio & Phonograph Corp.,<sup>28</sup> and Farnsworth Television & Radio Corp.<sup>29</sup> Hence, Mallory & Co. was linked to two possible outlets.

Also there was a direct interlock between Stromberg-Carlson Co.,

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<sup>25</sup> Also many electrical items are produced by companies that are classified outside of the electrical machinery industry. For example, Allis-Chalmers Manufacturing Co., produces generating equipment.

A number of the leading appliance manufacturers are classified in other industries. General Motors' Frigidaire Division is a leading producer of refrigerators. Bendix Aviation Corp., Borg-Warner Corp., Motor Products Corp., and Stewart-Warner Corp., are all manufacturers of automobile parts, but they also produce electrical appliances.

The electrical machinery equipment and supplies industry includes the manufacture of electrical household appliances, but machinery and equipment powered by built-in or detachable electric motors is classified in the machinery (except electrical) industry. (See Bureau of the Budget, *Standard Industrial Classification Manual*, vol. 1, p. 62, November 1945.)

<sup>27</sup> *Moody's Industrials*, 1949, p. 923.

<sup>28</sup> R. C. Hunt was a director of both Mallory & Co. and Emerson Radio & Phonograph. Mr. Hunt was a member of the legal firm Chadbourne, Hunt, Jaeckel & Brown of New York, attorneys for both Mallory & Co., and Emerson Radio & Phonograph. He also served as a director of Servel, Inc., and Electrolux Corp.

<sup>29</sup> J. T. Foster, a Mallory & Co. director, was a director of Tobacco & Allied Stocks, Inc., in company with J. F. Wharton, director of Farnsworth Television & Radio. Mr. Foster was a vice president of Lee Higginson Corp.; Mr. Wharton was a partner in Paul Weiss, Wharton & Garrison.

which, among other things, produces relay equipment,<sup>30</sup> and General Railway Signal Co., which manufactures and installs mechanical, electrical, and pneumatic systems for traffic control on railroads and subways.<sup>31</sup>

### *Interlocking Relations With Potential Suppliers in Other Industries*

Interlocking directorates between manufacturers of electrical machinery and the metal producers are summarized in table 44. Ten electrical machinery companies had interlocking relations with 20 producers of metals.

General Electric shared two directors with United States Steel Corp. and one with Youngstown Sheet & Tube Co. It also interlocked with Superior Steel Corp., a producer of electric steel sheets, and with General Steel Castings. Among the nonferrous metal producers, General Electric had directors in common with Kennecott Copper, American Metal Co., Ltd., and U. S. Smelting, Refining & Mining Co. These companies are producers of copper, zinc and lead ingots, alloys, wire, wire bars, tubing, plates, sheets, and strips.<sup>32</sup> In every instance but one the interlocking director was a banker.<sup>33</sup>

Westinghouse Electric had directors who interlocked with four primary metal producers: Jones & Laughlin Steel Corp., the American Rolling Mill Co., Crucible Steel Co. of America, and A. M. Byers. These interlocking relations were accomplished largely through directors who were operating executives of companies located in the Pittsburgh area.<sup>34</sup> Jones & Laughlin Steel produces a diversified list

<sup>30</sup> Stromberg-Carlson also manufactures switchboards, telephones, radios, television sets, sound systems, and electrical accessories; it operates two radio stations at Rochester, N. Y.; and it distributes products manufactured by others including telephone apparatus and household appliances (Moody's Industrials, 1949, p. 879).

<sup>31</sup> Frank W. Moffett, vice president and director of General Railway Signal, was a director of Stromberg-Carlson; both companies have their home offices in Rochester, N. Y.

<sup>32</sup> General Electric also had directors in common with Babcock & Wilcox Co., producers of boiler equipment, Koppers, and Anchor Hocking Glass Corp.

<sup>33</sup> A. C. Nagle, president of the First National Bank of New York, was a director of U. S. Steel; R. C. Stanley, chairman of International Nickel Co. of Canada, was also a director of U. S. Steel and of American Metal; C. F. Adams, State Street Trust Co., was a director in U. S. Smelting, Refining & Mining; L. B. Williams, National City Bank of Cleveland, was a director of Youngstown Sheet & Tube; Clarence Stanley, Mellon National Bank & Trust Co., was a director of Superior Steel; C. D. Dickey, J. P. Morgan & Co., Inc., was a director in both General Steel Castings, and Kennecott Copper.

<sup>34</sup> William C. Robinson, president, National Electric Products Corp., was a director of Jones & Laughlin Steel; C. R. Hook was president of American Rolling Mill; H. B. Higgins, president of the Pittsburgh Plate Glass, was a director of both Crucible Steel and A. M. Byers; G. A. Blackmore, chairman of the board of Westinghouse Air Brake, and a Westinghouse Electric director, was also a director of A. M. Byers.



TABLE 44.—Interlocks between electrical machinery companies and potential suppliers of metals

Electrical Machinery companies	Iron and steel producers									Nonferrous metals producers				Foundry products producers						
	U. S. Steel Corp.	Republc Steel Corp.	Jones & Laughlin Steel Corp.	Youngstown Sheet & Tube Co.	American Rolling Mill Co.	Crucible Steel Co.	Allegheny Ludlum Steel Co.	Byers (A. M.) Co.	Scullin Steel Co.	Superior Steel Corp.	Kennecott Copper Corp.	American Metal Co., Ltd.	U. S. Smelting, Refining & Mining Co.	St. Joseph Lead Co.	Copper Steel Co.	American Brake Shoe Co.	General Steel Castings Corp.	U. S. Pipe & Foundry Co.	Blaw-Knox Co.	National Malleable & Steel Castings Co.
General Electric Co.....	2			1						1	1	1	1				1			
Westinghouse Electric Co.....			1		1	1		2			1								1	
Radio Corp. of America.....							1													
Electric Storage Battery Co.....																		1		
Wagner Electric Corp.....														1						
Landers, Frary & Clark.....																				
Cutler-Hammer, Inc.....																1				1
General Railway Signal Co.....		1																		
Emerson Electric Manufacturing Co.....									1											
Cornell-Dubilier Electric Corp.....															1					

NOTE.—Figures indicate number of interlocking directorates.



of iron and steel products; Crucible Steel is a producer of high-grade alloy steels; and A. M. Byers is a producer of wrought-iron products and alloy carbon steels.

Westinghouse Electric also interlocked with Kennecott Copper, Blaw-Knox Co., a producer of steel-fabricated equipment for use in manufacturing, and Pittsburgh Screw & Bolt Corp.<sup>35</sup>

Other electrical machinery manufacturers had only occasional interlocking directors with companies manufacturing items of possible interest to electrical machinery companies. Western Electric was interlocked with Tennessee Corp., a producer of chemicals and plastics.<sup>36</sup> RCA and the Allegheny Ludlum Steel Corp., had a director in common,<sup>37</sup> as did Electric Storage Battery and United States Pipe & Foundry Co.<sup>38</sup> Wagner Electric Corp. and St. Joseph Lead Co. were interlocked.<sup>39</sup> Landers, Frary & Clark, manufacturers of electrical appliances, and National Malleable & Steel Castings Co. had a common director.<sup>40</sup> Cutler-Hammer, which manufactures electrical control apparatus, was interlocked with American Brake Shoe.<sup>41</sup> General Railway Signal and Republic Steel were also interlocked.<sup>42</sup> Farnsworth Television & Radio shared a director with the United States Plywood Corp.<sup>43</sup> Arrow-Hart & Hegeman Electric Co. had a director in common with Standard Screw Co.;<sup>44</sup> Emerson Electric was interlocked with Scullin Steel Co.<sup>45</sup>

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<sup>35</sup> A. W. Page of American Telephone & Telegraph was a common director with Kennecott Copper. G. A. Price, president of Westinghouse Electric, sat on the board of Blaw-Knox. George A. Blackmore, of Westinghouse Air Brake, was a director of both Westinghouse Electric and Pittsburgh Screw & Bolt.

<sup>36</sup> The common director was William B. Joyce, president of William B. Joyce & Co., New York, N. Y.

<sup>37</sup> The common director was Arthur E. Braun, chairman of the board of Farmers Deposit National Bank, Pittsburgh, Pa.

<sup>38</sup> The common director was J. C. Brady, president and director of Brady Security & Realty Corp., New York, N. Y.

<sup>39</sup> The common director was James H. Grover, chairman of the board of St. Louis Union Trust Co.

<sup>40</sup> The common director was Harris Whittemore, Jr., president and director of J. H. Whittemore Co., Naugatuck, Conn.

<sup>41</sup> The common director was William W. Coleman, chairman of the board of Bucyrus-Erie Co.

<sup>42</sup> The common director was Jacob F. Schoellkopf, Jr., president and director of Niagara Share Corp., Buffalo, N. Y.

<sup>43</sup> The common director was Lloyd S. Gilmour, a partner in Eastman, Dillon & Co., New York, N. Y.

<sup>44</sup> The common director was Mitchell S. Little, president and director of M. S. Little Manufacturing Co., Hartford, Conn.

<sup>45</sup> The common director was Hord Hardin, director of Mississippi Valley Trust Co. (St. Louis, Mo.).

### *Interlocking Relations With Possible Customers in Other Industries*

In the past there have been long-enduring and close ties between electrical machinery manufacturers and those using their products. General Electric controlled Electric Bond & Share Co., from its organization in 1905 until, in the face of a pending investigation of the electric power industry, it voted to divest itself of the stock on December 30, 1924. Western Electric, a wholly owned subsidiary of American Telephone & Telegraph, has become the largest manufacturer of telephone equipment by virtue of its preferential access to the Bell System market; it was to bring about competition in the telephone equipment market that the Antitrust Division of the Department of Justice on January 14, 1949, filed a complaint looking toward a divorce of Western Electric by American Telephone & Telegraph.<sup>45a</sup> RCA was essentially a patent-holding company purchasing virtually all of its apparatus from General Electric and Westinghouse Electric until 1930, when it acquired its manufacturing facilities primarily from those two corporations.

The demand for electrical equipment falls into five categories. The first includes power generating, transforming, and control equipment, used principally by utilities, railroads, steel, and other heavy industries. The second group includes industrial motors and controls, used directly in many industries and as component parts for industrial equipment. The third group consists of small motors and equipment, primarily for use as components for such consumer goods as refrigerators, washing machines, vacuum cleaners, and the like. The fourth group includes household and commercial electrical appliances, including electric ranges, toasters, water heaters, irons and mixers. Finally, there are electronic goods, such as radios, television sets, and their components.

Interlocking relations between electrical machinery manufacturers and public utility companies (see table 45) in 1946 included two interlocking directors between General Electric and American Telephone & Telegraph and three directors common to Westinghouse Electric and American Telephone & Telegraph.<sup>46</sup> Railroad companies are large consumers of electrical equipment. General Electric had a director<sup>47</sup> that was on the board of the New York Central. Westinghouse Electric had a director<sup>48</sup> on the board of the Long Island Railroad Co., a subsidiary of the Pennsylvania Railroad Co., and on the board of the New York, New Haven & Hartford.<sup>49</sup> The New

<sup>45a</sup> Civil 17-49.

<sup>46</sup> See Chart 31.

<sup>47</sup> This was Alexander C. Nagle, president of the First National Bank of New York.

<sup>48</sup> This was Thomas I. Parkinson, president of Equitable Life.

<sup>49</sup> This was John Loomer Hall, senior partner, Choate, Hall and Stewart, Boston.

**TABLE 45.—Interlocks between electrical machinery companies and potential consumers: utilities and railroads**

Electrical machinery companies	Utilities							Railroads							
	American Telephone & Telegraph Co.	New York, Pennsylvania, New Jersey Utility Co. (subsidiary of Associated Gas & Electric Corp.)	Wisconsin Electric Power Co. (subsidiary of North American Co.)	Cities Service Co.	Duquesne Light Co. (subsidiary of Standard Gas & Electric Co.)	Consolidated Gas Electric Light & Power Co. of Baltimore	Philadelphia Transportation Co.	St. Louis Public Service Co.	Pennsylvania R. R. Co.	New York Central R. R. Co.	Atchison, Topeka & Santa Fe Ry. Co.	Northern Pacific Ry. Co.	Illinois Central R. R. Co.	Chesapeake & Ohio R. R. Co.	New York, New Haven & Hartford R. R. Co.
General Electric Co.	1 2								1						
Westinghouse Electric Corp.	3								1						
Western Electric Co.				1											
Radio Corp. of America					1										
Sylvania Electric Products, Inc.						1									
Electric Storage Battery Co.							1								
International Detrola Corp.															
Wagner Electric Corp.	1							1							
Stromberg-Carlson Co.		1													1
Cutler-Hammer, Inc.			1												
National Battery Co.												1			
Emerson Electric Manufacturing Co.			1					1							
McGraw Electric Co.														1	
Weston Electric Instrument Corp.	1														
Robbins & Myers, Inc.														1	

<sup>1</sup> One of these represents a director on New York Telephone Co., a subsidiary of American Telephone & Telegraph Co.

<sup>2</sup> Represents a directorship on Long Island R. R. Co., a subsidiary of Pennsylvania R. R. Co.

<sup>3</sup> Represents a directorship on Michigan Central R. R. Co., a subsidiary of New York Central R. R. Co.

<sup>4</sup> Represents a directorship on Southwestern Bell Telephone Co., a subsidiary of American Telephone & Telegraph Co.

<sup>5</sup> Represents a directorship on New Jersey Bell Telephone Co., a subsidiary of American Telephone & Telegraph Co.

<sup>6</sup> Represents a directorship on Wheeling & Lake Erie Ry. Co., controlled by Chesapeake & Ohio R. R. Co.

York Central is a large user of General Electric equipment—both in the electrification of parts of its system and in its Diesel electric locomotives.<sup>50</sup> The Pennsylvania Railroad and New York, New Haven & Hartford are largely electrified with Westinghouse equipment.<sup>51</sup> Western Electric had directors who sat on the boards of Atchison, Topeka & Santa Fe Railway, and Chesapeake & Ohio Railway Co.<sup>52</sup> Other similar interlocking relations are noted in table 45.

<sup>50</sup> General Electric and American Locomotive collaborate in the production of Diesel locomotives, General Electric furnishing the electrical units and American Locomotive being responsible for the assembly of the locomotive itself.

<sup>51</sup> Westinghouse Electric collaborates with Baldwin Locomotive; it owns a large minority interest in Baldwin Locomotive.

<sup>52</sup> These were Charles John Whipple, chairman of the board of Hibbard, Spencer, Bartlett & Co., Chicago, and Harvey D. Gibson, president of the Manufacturers Trust Co., New York, respectively.

Other interlocking relations between electrical manufacturing companies and railroads<sup>53</sup> included National Battery Co., and Northern Pacific Railway;<sup>54</sup> McGraw Electric and Illinois Central Railroad Co.;<sup>55</sup> and Robbins & Myers and Wheeling & Lake Erie Railway Co.<sup>56</sup>

There were a few other interlocks between electrical machinery companies and possible customers in other industries. Westinghouse Electric interlocked with Curtiss-Wright Corp. Electric Auto-Lite and Electric Storage Battery, as has been indicated were interlocked with Chrysler. Both concerns produce batteries and other automotive electrical equipment. Sparks-Withington Co. had a common director with the White Motor Co.<sup>57</sup> In addition to radio and television equipment, Sparks-Withington produces automobile parts and appliances. White Motor is one of the nation's largest bus manufacturers. Avco Manufacturing Corp. and Square D Co. were interlocked.<sup>58</sup> Square D produces such items as contacts and switches and aircraft instruments. Avco Manufacturing manufactures a wide variety of consumers goods and industrial products, such as radios, refrigerators, aircraft engines, etc. Finally, Cutler-Hammer and Bucyrus-Erie were interlocked.<sup>59</sup> Cutler-Hammer produces electrical controls, etc.; Bucyrus-Erie is a leading producer of excavating machinery.

#### *Other Interlocks*

In addition to the other factors suggested, certain interlocking directorates appear explicable principally as an association among prominent corporate officials in particular communities. It has already been noted that Emerson Electric and Wagner Electric (both motor producers) are both St. Louis companies, and that Stromberg-Carlson and General Railway Signal (supplier-customers) are located in Rochester, N. Y.

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<sup>53</sup> Mr. Daniel M. Sheaffer, assistant to the vice president in charge of operations of the Pennsylvania Railroad (but not a director of the railroad) was a director of International Detrola.

<sup>54</sup> The common director was Philip L. Ray, chairman of the executive committee, First Trust Co., of St. Paul, Minn.

<sup>55</sup> The common director was Robert E. Wood, chairman of the board of Sears, Roebuck & Co.

<sup>56</sup> Maynard H. Murch, president of Maynard H. Murch & Co., Cleveland, was a director of Robbins & Myers and a director and member of the executive committee of Wheeling & Lake Erie.

<sup>57</sup> D. L. Johnson, secretary and director of Sparks-Withington, was a director of White Motor.

<sup>58</sup> The common director was Carlton P. M. Higbie, president of Carlton M. Higbie Corp., Detroit, Mich.

<sup>59</sup> The common director was William W. Coleman, chairman of Bucyrus-Erie.

Two Connecticut electrical manufacturers, Arrow-Hart & Hageman, and Landers, Frary & Clark were indirectly associated on the boards of three other Connecticut firms, Aetna Insurance Co., Connecticut General Life Insurance Co., and American Hardware Corp. A. P. Day,<sup>60</sup> director of Arrow-Hart & Hageman, was a director of all three companies—Aetna Life, Connecticut General Life, and American Hardware. On the first two he sat with C. P. Cooley,<sup>61</sup> and on the third with R. L. White. Mr. White was president and director and Mr. Cooley was director of Landers, Frary & Clark. Under the brand name "Universal," Landers, Frary & Clark manufactures toasters, percolators, electric irons, washing machines, and electric ranges, and such nonelectrical products as cutlery, meat choppers, scales, vacuum bottles, and pressure cookers. Arrow-Hart & Hageman manufactures electrical control apparatus and wiring devices.

Cutler-Hammer had three directors, and the Line Material Co., one, on the board of Northwestern Mutual Life. All three of these companies are located in Milwaukee.<sup>62</sup> Cutler-Hammer manufactures electrical control apparatus, including light switches, safety switches, wiring devices, and numerous other products. Line Material manufactures electrical transmission and distribution equipment, including switches, fuses, street-lighting fixtures, circuit breakers, connectors, capacitors, and transformers.

#### INTERLOCKING RELATIONS BETWEEN ELECTRICAL MACHINERY COMPANIES AND FINANCIAL INSTITUTIONS

Interlocking directorates between electrical machinery companies and banking and insurance companies have been of unusual significance, not only because of the close relations thereby maintained with financial institutions, but also because these directors give rise to many of the indirect interlocking relations which have been described. Table 46 summarizes these interlocking directorates with commercial banks, investment banks, investment trusts, and insurance companies.

Twenty-one electrical machinery manufacturers had one or more directors who were also on the boards of 28 commercial banks. Eleven of these banks are located in New York City and include the largest in

<sup>60</sup> Mr. Day was chairman of the trustees of the Hartford-Connecticut Trust Co.

<sup>61</sup> Mr. Cooley was a trustee of the Society for Savings, Hartford, and director of the Hartford National Bank & Trust Co.

<sup>62</sup> F. R. Bacon, chairman of the board of Cutler-Hammer, Inc., W. W. Coleman, chairman of the board of Bucyrus-Erie, and Edmund Fitzgerald, vice president of Northwestern Mutual Life, were directors of Cutler-Hammer and Northwestern Mutual Life. Louis Quarles, a partner in Lines, Spooner & Quarles, was a director of Northwestern Mutual Life and of Line Material Co.



TABLE 46.—Interlocks between electrical machinery companies and financial institutions

Electrical machinery companies	Commercial banks																											
	Chase National Bank, New York	Guaranty Trust Co., New York	First National Bank, Chicago	Manufacturers Trust Co., New York	Central Hanover Bank & Trust Co., New York	Bankers Trust Co., New York	Chemical Bank & Trust Co., New York	First National Bank, Boston	National Bank of Detroit	First National Bank, New York	Marine Midland Corp., Jersey City, N. J.	Cleveland Trust Co., Cleveland	American Trust Co., San Francisco	J. P. Morgan & Co., Inc., New York	Philadelphia National Bank	Mellon National Bank & Trust Co., Pittsburgh	National City Bank, Cleveland	First National Bank, St. Louis	Fidelity Union Trust Co., New York	First National Bank, Minneapolis	First National Bank, St. Paul	Commercial National Bank & Trust Co., New York	Fifth Third Union Trust Co., Cincinnati	Mississippi Valley Trust Co., St. Louis	Hartford National Bank & Trust Co.	Peoples First National Bank & Trust Co., Pittsburgh	Merchants National Bank, Boston	Lincoln Rochester Trust Co., Rochester, N. Y.
General Electric Co.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Westinghouse Electric Corp.	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Western Electric Co., Inc.	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Radio Corp. of America	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Electric Auto-Lite Co.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Philon Corp.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Electric Storage Battery Co.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
International Detroit Corp.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Wagner Electric Corp.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Landers, Fry & Clark	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Stromberg-Carlson Co.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Cutler-Hammer, Inc.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Line Material Co.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Jack & Heintz Precision Industries, Inc.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
National Battery Co.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
General Railway Signal Co.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Farnsworth Television & Radio Corp.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mallory (P. R.) & Co., Inc.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Rome Cable Corp.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Arrow-Hart & Hageman Electric Co.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Emerson Electric Manufacturing Co.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
McGraw Electric Co.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Weston Electrical Instrument Corp.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Reliance Electric & Engineering Co.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Robbins & Myers, Inc.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



Electrical machinery companies

Electrical machinery companies	Investment banks				Investment trusts				Life insurance												Fire and casualty insurance									
	Kuhn, Loeb & Co.	Goldman, Sachs & Co.	Harris Hall & Co., Inc.	Eastman Dillon & Co.	Massachusetts Investors Trust	Adams Express Group <sup>1</sup>	Calvin Bullock Group <sup>1</sup>	Schoellkopf Group (Buffalo) <sup>1</sup>	Chemical Fund, Inc.	Tobacco and Allied Stocks, Inc.	Central Illinois Securities	Metropolitan Life Insurance Co.	Prudential Insurance Co. of America	New York Life Insurance Co.	Equitable Life Assurance Society of United States	Northwestern Mutual Life Insurance Co.	Mutual Life Insurance Co. of N. Y.	John Hancock Mutual Life Insurance Co.	Travelers Insurance Co.	Aetna Life Insurance Co.	Mutual Life Insurance Co.	Provident Mutual Life Insurance Co.	Connecticut General Life Insurance Co.	Travelers Indemnity Co.	Hartford Fire Insurance Co.	Aetna Casualty & Surety Co.	Home Insurance Co.	America Fire Insurance Group <sup>1</sup>	Aetna Insurance Co.	
General Electric Co.		1			1							1	1	1			3	1												
Westinghouse Electric Corp.	1																													
Western Electric Co., Inc.						1									2														1	
Radio Corp. of America														1	1															
Electric Auto-Lite Co.																1														
Philco Corp.																														
Electric Storage Battery Co.																					1	1								
International Detroit Corp.											1																			
Wagner Electric Corp.																														
Landers, Frary & Clark																			1											
Stromberg-Carlson Co.																														
Cutler-Hammer, Inc.																														
Line Material Co.																														
Jack & Helntz Precision Industries, Inc.																														
National Battery Co.																														
General Railway Signal Co.																														
Farnsworth Television & Radio Corp.																														
Mallory (P.R.) & Co., Inc.										1																				
Rome Cable Corp.										1																				
Arrow-Hart & Hegeman Electric Co.																					1									
Emerson Electric Manufacturing Co.																														
McGraw Electric Co.			1																											
Weston Electrical Instrument Corp.							1		1				1																	
Reliance Electric & Engineering Co.																														
Robbins & Myers, Inc.																														

<sup>1</sup> Includes: Adams Express Co., American International Corp., Petroleum Corp of America, National Aviation Corp. Mr. E. S. Bloom, director, Western Electric Co. was a director of 2 members of the Adams Express group: Adams Express Co. and American International Corp.

<sup>2</sup> Includes: Dividend Shares, Inc., Carriers & General Corp., Nation-Wide Securities, Bullock Fund, Inc., Canadian Investment Fund, Aeronautical Securities. Mr. W. H. Booth, director, Weston Electric Instrument Co. was a director of Dividend Shares, Inc.

<sup>3</sup> Includes: Niagara Share Corp., Insurance Shares Certificates, Inc. Mr. J. F. Schoell-

kopf, Jr., director, General Ry., Signal Co., was director of both Niagara Shares Corp. and Insurance Shares Certificates, Inc.

<sup>4</sup> Includes: Continental Insurance Co., Fidelity Phoenix Fire Insurance Co., American Eagle Fire Insurance Co., Fidelity & Casualty Co., N. Y., First American Fire Insurance Co., Niagara Fire Insurance Co., and Maryland Insurance Co. American Fire Insurance & Indemnity Group is jointly owned by Continental and Fidelity Phoenix. Mr. T. I. Parkinson, director, Westinghouse Electric Corp., was also a director of Continental Insurance Co.

the country; the others are more regional in their operations. The Big Four—General Electric, Westinghouse Electric, Western Electric, and RCA—account for a large proportion of the interlocking relations. Indeed, with a single exception, they were the only electrical manufacturers having interlocking relations with more than one bank. General Electric had one interlocking directorship with each of 10 banks—Chase National Bank, Guaranty Trust Co., First National Bank of Chicago, Bankers Trust Co., First National Bank of Boston, First National Bank of New York, J. P. Morgan & Co., Mellon National Bank & Trust Co., National City Bank of Cleveland, and the First National Bank of Minneapolis.<sup>63</sup>

Westinghouse Electric maintained multiple interlocking directors with three of the six banks with which it is linked. Thus it had four directors in common with Chase National Bank, three with the Mellon National Bank & Trust Co., and two with the Peoples First National Bank & Trust Co. (Pittsburgh) <sup>64</sup> It also had a director in common with Central Hanover Bank & Trust Co., New York, the Chemical Bank & Trust Co., New York, and the Merchants National Bank of Boston.<sup>65</sup>

Western Electric shared directors with three banks, the First National Bank of Chicago, the Chemical Bank & Trust Co., and the Manufacturers Trust Co., having three directors in common with the latter.<sup>66</sup>

RCA had directors in common with Chase National Bank, Guaranty Trust Co., and Bankers Trust Co.<sup>67</sup>

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<sup>63</sup> General Electric was represented on the First National Bank of Chicago by John P. Wilson; on First National Bank of Boston by G. Peabody Gardner; on First National of New York by Alexander C. Nagle, president of the bank; on National City of Cleveland by Lewis B. Williams, chairman of the board of the bank; and on First National of Minneapolis by John Cowles, president of the Minneapolis Star Journal. Other General Electric interlocks with banks are shown in chart 31.

<sup>64</sup> The Westinghouse Electric directors on the board of Peoples First National Bank & Trust Co. were: George H. Bucher, vice-chairman of the board of Westinghouse Electric, and G. A. Price, president of Westinghouse Electric. For the interlocks with other banks see chart 31.

<sup>65</sup> These were, in order mentioned: Mr. Price; Robert T. Swaine, partner, Cravath, Swaine & Moore, and John L. Hall.

<sup>66</sup> These were on First National Bank of Chicago—C. J. Whipple; on Chemical Bank & Trust—Clarence G. Stoll, president of Western Electric; and on Manufacturers Trust—Harvey D. Gibson, chairman of the board and president of the bank; Edgar Selden Bloom, chairman of the board of Atlantic Gulf & West Indies Steamship Lines; and Guy W. Vaughan, president of Curtiss-Wright.

<sup>67</sup> See chart 31.

Other members of the electrical machinery industry had interlocking directors principally with their local banks.<sup>68</sup>

Four interlocking directors were found linking electrical machinery manufacturers and the larger investment banks. Sidney J. Weinberg, of Goldman, Sachs & Co., sat on the board of General Electric. John M. Schiff, a partner in Kuhn, Loeb & Co., was a director of Westinghouse Electric. Farnsworth Television & Radio was similarly associated with Eastman, Dillon & Co.,<sup>69</sup> and McGraw Electric was interlocked with Harris, Hall & Co.<sup>70</sup> There were eight interlocking directors tying electrical equipment companies to large investment trusts. General Electric was interlocked with Massachusetts Investors Trust;<sup>71</sup> Western Electric, with Adams Express;<sup>72</sup> International Detrola, with Central Illinois Securities;<sup>73</sup> General Railway Signal, with the Schoellkopf Group of Buffalo;<sup>74</sup> Farnsworth Television & Radio, with Tobacco & Allied Stocks, Inc.;<sup>75</sup> Mallory & Co. with

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<sup>68</sup> The Philco Corp., which shared a director with the Philadelphia National Bank, also interlocked with J. P. Morgan & Co. Wagner Electric and Emerson Electric Manufacturing Co., both of St. Louis, had directors in common with the First National Bank of St. Louis, and the Mississippi Valley Trust Co., respectively. Landers, Frary & Clark had a director, and Arrow-Hart & Hegeman Electric Co. had two directors, in common with the Hartford National Bank & Trust Co. Stromberg-Carlson had two directors in common with the Lincoln Rochester Trust Co. (Rochester, N. Y.). National Battery shared a director with the First National Bank of St. Paul. McGraw Electric of Elgin, Ill., had a director who served on the board of the First National Bank of Chicago. Reliance Electric & Engineering Co. had an interlocking director with the Cleveland Trust Co.; Farnsworth Television & Radio, with the American Trust Co., of San Francisco; General Railway & Signal, with Marine Midland Corp., of Jersey City; Robbins & Myers, with the Fifth Third Union Trust Co., of Cincinnati. Weston Electrical Instrument had 2 directors in common with the Fidelity Union Trust Co. of New York.

<sup>69</sup> Lloyd S. Gilmoure, a partner in Eastman, Dillon and Co., was a director of Farnsworth Television & Radio.

<sup>70</sup> Gene B. Heywood, vice-president and director of Harris, Hall & Co., Chicago, was a director of McGraw Electric.

<sup>71</sup> Charles F. Adams, chairman of the State Street Trust Co., was a director of General Electric and of Massachusetts Investors Trust.

<sup>72</sup> Edgar S. Bloom, chairman of the board of Atlantic Gulf & West Indies Steamship Lines, was a director of Western Electric and Adams Express.

<sup>73</sup> C. Russell Feldmann, chairman of the board and president of International Detrola Corp., was a director of Central Illinois Securities.

<sup>74</sup> Jacob F. Schoellkopf, Jr., president of Niagara Share Corp., was a director of General Railway Signal.

<sup>75</sup> John F. Wharton, partner of Paul Weiss, Wharton & Garrison, New York, N. Y. was a director of Farnsworth Television & Radio and of Tobacco & Allied Stocks.

Tobacco & Allied Stocks;<sup>76</sup> Weston Electrical Instrument with Dividend Shares, Inc.,<sup>77</sup> and the Chemical Fund, Inc.<sup>78</sup>

The interlocking relations with insurance companies were more numerous and, in view of the increasing frequency with which the insurance companies are providing capital to industry, perhaps more significant. General Electric had three directors in common with Mutual Life Insurance Co.,<sup>79</sup> and one each with New York Life<sup>80</sup> and John Hancock Mutual Life Insurance Co.<sup>81</sup> Westinghouse Electric shared two directors with the Equitable Life<sup>82</sup> and had directors also on the boards of Metropolitan Life and Prudential Insurance.<sup>83</sup> Western Electric had an interlocking director with Northwestern Mutual Life.<sup>84</sup> RCA was similarly tied to New York Life and Equitable Life.<sup>85</sup> Philco Corp. had directors on Penn Mutual Life Insurance Co. and Provident Mutual Life Insurance Co. of Philadelphia.<sup>86</sup> Landers, Frary & Clark had directors associated with Trav-

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<sup>76</sup> J. Taylor Foster, vice president and director of Lee Higginson Corp., New York, N. Y., was a director of P. R. Mallory and Tobacco & Allied Stocks.

<sup>77</sup> Willis H. Booth, member of the executive committee of Hotpoint, Inc. (subsidiary of General Electric), was a director of Weston Electrical Instrument and of Dividend Shares.

<sup>78</sup> Richard W. Seabury, chairman of the board of Aircraft Radio Corp., Boonton, N. J., was a director of Weston Electrical Instrument and Chemical Fund, Inc.

<sup>79</sup> Sloan Colt, president of Bankers Trust Co., was a director of General Electric and Mutual Life. Robert T. Stevens, chairman of the board of J. P. Stevens & Co., was a director of General Electric and Mutual Life. Robert C. Stanley, chairman and president of International Nickel of Canada, Ltd., was a director of General Electric and Mutual Life.

<sup>80</sup> Charles D. Dickey, vice president of J. P. Morgan & Co., Inc., was a director of General Electric and New York Life.

<sup>81</sup> Charles Francis Adams, chairman of the board of State Street Trust, was a director of General Electric and John Hancock Mutual Life.

<sup>82</sup> Charles R. Hook, president of American Rolling Mill Co., was a director of Westinghouse Electric Co. and Equitable Life. Thomas I. Parkinson, president and director of Equitable Life, was a director of Westinghouse Electric.

<sup>83</sup> Winthrop W. Aldrich, chairman of the board of Chase National Bank of New York, was a director of Westinghouse Electric and Metropolitan Life. Arthur W. Page, director of American Telephone & Telegraph Co., was a director of Westinghouse Electric and of Prudential Insurance.

<sup>84</sup> Charles J. Whipple, chairman of the board of Hibbard, Spencer, Bartlett and Co., was a director of Western Electric and of Northwestern Mutual Life.

<sup>85</sup> James G. Harbord, chairman of the board of RCA, was a director of New York Life. Bertram Cutler, associate of John D. Rockefeller, Jr., was a director of both RCA and Equitable Life.

<sup>86</sup> William Fulton Kurtz, president of Pennsylvania Co. for Insurance on Lives and Granting Annuities (Philadelphia), was a director of Philco and of Penn Mutual Life. Charles S. Cheston, member of the board of managers of Western Savings Fund Society, Philadelphia, and a director of J. P. Morgan & Co., was a director of both Philco and Provident Mutual Life.

elers Insurance Co. and Connecticut General Life;<sup>87</sup> Arrow-Hart & Hegeman, with Aetna Life and Connecticut General Life.<sup>88</sup>

There were also a number of interlocking relations with fire and casualty insurance companies: Arrow-Hart & Hegeman had two directors in common with Hartford Fire Insurance Co.,<sup>89</sup> one with Aetna Casualty & Surety Co.,<sup>90</sup> and one with Aetna Insurance Co.<sup>91</sup> Westinghouse Electric was associated with the Continental Insurance Co.<sup>92</sup> Western Electric and Home Insurance Co. of New York had a common director.<sup>93</sup> Electric Storage Battery and Franklin Fire Insurance Co., subsidiary of Home Insurance, had a director in common.<sup>94</sup>

### SUMMARY

The most significant interlocking directorates in the electrical machinery industry are those which indirectly link together the Big Four—General Electric, Westinghouse Electric, Western Electric, and RCA. Directors of these corporations came together on the boards of six of the country's largest commercial banks—Chase National Bank, Guaranty Trust Co., First National Bank of Chicago, Bankers Trust Co., Chemical Bank & Trust Co., and Mellon National Bank & Trust Co.; on two of the largest life insurance companies—New York Life and Equitable Life; on the country's largest utility—American Telephone & Telegraph; on the board of one of the country's leading railroads—New York Central, and on one of the largest industrials—Kennecott Copper. Of primary interest is the fact that although the Big Four were specifically prohibited from maintaining direct inter-

<sup>87</sup> James L. Howard, vice president and director of Travelers Insurance, was also a director of Landers, Frary & Clark. Charles P. Cooley, trustee of the Society for Savings, Hartford, Conn., was a director of both Landers, Frary & Clark and Connecticut General Life.

<sup>88</sup> M. S. Little, president of M. S. Little Manufacturing Co., was a director of Arrow-Hart & Hegeman and Aetna Life. Arthur P. Day, chairman of the board of trustees of Hartford Connecticut Trust Co., was a director of both Arrow-Hart & Hegeman and Connecticut General Life.

<sup>89</sup> Samuel Ferguson, chairman of the board, president and director of Hartford Electric Light Co., and George S. Stevenson, president of New Haven Savings Bank, were directors of both Arrow-Hart & Hegeman and Hartford Fire Insurance.

<sup>90</sup> M. S. Little was a director of both Arrow-Hart & Hegeman and Aetna Casualty.

<sup>91</sup> A. P. Day was a director of both Arrow-Hart & Hegeman and Aetna Insurance.

<sup>92</sup> T. I. Parkinson, president of Equitable Life, was a director of both Westinghouse Electric and Continental Insurance.

<sup>93</sup> Harvey D. Gibson, chairman of the board and president of Manufacturers Trust Co., was a director of Western Electric and of Home Insurance.

<sup>94</sup> Percy Childs Madeira, Jr., president of Land Title Bank and Trust Co., Philadelphia, was a director of Electric Storage Battery and Franklin Fire Insurance.



locking directorates by a consent decree in 1932, they have continued to maintain indirect interlocks. In an industry already highly concentrated in the hands of the major companies, such close relationships may seriously affect the competitive rivalries of the Big Four and oppose their combined strength against other smaller members of the industry. Indeed multiple indirect interlocks may be just as effective in implementing anticompetitive activities among companies as direct interlocks.

General Electric, the largest factor in the electrical machinery industry, maintained direct interlocks with Weston Electrical Instrument and International Harvester, and indirect interlocks with McGraw Electric, Rome Cable, and Okonite. It is a competitor of Weston in the manufacture and sale of electrical measuring instruments, of International Harvester in refrigeration equipment, of McGraw Electric in smaller electrical appliances, and of Rome Cable and Okonite in wire and insulated cable.

Electric Auto-Lite and Electric Storage Battery, two of the largest suppliers of lighting equipment for automobiles came together on the board of Chrysler Corp. Chrysler is reported to be Electric Auto-Lite's largest single customer. Electric Storage Battery, however, has concentrated on the replacement market for the sale of its batteries. Such a relationship between two suppliers and a large potential outlet raises the question of a suppression of competitive rivalry between the two companies. Another indirect interlock between competitors was found between Emerson Electric Manufacturing and Wagner Electric. These companies, both located in St. Louis, manufacture electric motors.

Within the electrical-machinery industry, there were certain interlocks between suppliers of components and potential customers, such as that between Mallory & Co., Emerson Radio & Phonograph, and Farnsworth Television and Radio. Mallory, a producer of condensers, contacts, assemblies, etc., used largely in the radio and electronic fields, was directly interlocked with Emerson Radio & Phonograph and indirectly interlocked with Farnsworth Television and Radio. Another direct interlock existed between Stromberg-Carlson, which produces relay equipment, and General Railway Signal, which manufactures and installs traffic controls on railroads and subways.

Interlocks existed between members of the electrical machinery industry and suppliers of metals, plastics, and the like. General Electric shared two directors with U. S. Steel, one with Youngstown Sheet & Tube and one with Superior Steel. Both U. S. Steel and Youngstown Sheet & Tube are important sources of sheet steel, while Superior Steel is a producer of electric steel sheets. General Electric was also interlocked with Kennecott Copper, American Metal Co., and U. S. Smelting, Refining & Mining Co., sources of important non-



ferrous metals. Westinghouse Electric similarly interlocked with metals producers, including Jones & Laughlin, Armco, Crucible Steel, A. M. Byers, and Kennecott. Western Electric interlocked with Tennessee Corp., producer of chemicals and plastics. RCA interlocked with Allegheny Ludlum Steel Corp., and Farnsworth Television and Radio had a director in common with U. S. Plywood, a source of materials for radio cabinets.

Interlocking relationships also existed between electrical machinery manufacturers and potential customers in other industries, notably between General Electric and New York Central and between Westinghouse Electric and a subsidiary of the Pennsylvania Railroad and with the New York, New Haven & Hartford. The New York Central is a large user of General Electric equipment, and the Pennsylvania Railroad and New York, New Haven & Hartford roads are largely electrified with Westinghouse equipment.

Similarly, significant interlocks existed between electrical machinery companies and financial institutions. The Big Four electrical machinery companies maintained especially close relationships with the larger metropolitan banks. In fact, only one other important electrical machinery company, aside from the Big Four, maintained interlocks with more than one bank. Several interlocks existed between the large electrical machinery companies and the large insurance companies.

## Chapter 10

### TRANSPORTATION EQUIPMENT

The transportation-equipment industry includes establishments engaged primarily in manufacturing equipment for transportation of passengers and cargo by rail, air, and water. The important subgroups of the industry are motor vehicles and motor-vehicle equipment, aircraft and parts, ship and boat building and repairing, and railroad equipment.

Ninety companies among the 1,000 largest manufacturing corporations were transportation-equipment companies. These 90 companies were further classified as follows: motor vehicles and motor vehicle equipment, 48; aircraft and parts, 18; railroad equipment, 15; ship and boat building and repairing, 9.

Within the general transportation-equipment industry are companies making different products and having quite dissimilar patterns of production. Companies in the motor-vehicle field, for example, produce for a mass-consumption market; whereas companies that produce ships and aircraft have a limited market, and their products are fabricated under contract, largely on a custom-made basis. The products of the industry range from ocean-going vessels and railroad locomotives to the smallest spring and bolt going into an automobile. Some of the companies are highly integrated, while others are specialists.

#### GENERAL ASPECTS OF INTERLOCKING DIRECTORATES IN THE TRANSPORTATION EQUIPMENT INDUSTRY

Of the 90 companies in the transportation-equipment industry, 53 were directly or indirectly interlocked with other transportation-equipment companies. Thus intra-industry interlocks characterized almost 60 percent of the companies in the industry. If interlocks with companies outside the transportation-equipment industry are included, 78 of the 90 transportation-equipment companies, or about 87 percent of the companies in the industry, had interlocks.

The prevalence of interlocking directorates appears in the following tabulation of interlocked companies by divisions of the industry.

Division	Number of companies in division	Companies interlocked	
		Number	Percent
Motor vehicles and motor-vehicle equipment.....	48	41	85
Aircraft and parts.....	18	16	89
Railroad equipment.....	15	14	93
Ship and boat building and repairing.....	9	7	78
Total.....	90	78	87

The 78 interlocked transportation-equipment companies maintained 720 interlocks with 389 companies in various industries.

The transportation-equipment industry had more interlocks with banks than with any industry group. A total of 55 transportation-equipment companies had 108 interlocks with 42 banks. Following banks, the most important industry having interlocks with transportation equipment companies was the transportation equipment industry itself. The companies within the industry choose to maintain close relations with each other.

The following tabulation gives a summary of the more important interlocking relations of the transportation equipment industry with other industries. The table shows (a) the number of transportation-equipment companies interlocked with the designated industry, (b) the number of companies interlocked in the designated industry with transportation-equipment companies, and (c) the number of interlocks with the designated industry.

TABLE 47.—*Interlocks between transportation equipment companies and other industries*

Designated industry	Number of transportation-equipment companies interlocked with companies in the designated industry	Number of companies in designated industry interlocked with transportation equipment companies	Number of interlocks with the designated industry
Commercial banks.....	55	42	108
Transportation equipment.....	49	49	79
Primary metals.....	37	35	78
Machinery, except electrical.....	27	32	57
Chemical and allied products.....	28	22	52
Utilities.....	25	16	41
Food and kindred products.....	21	22	32
Railroads.....	25	13	31
Investment trusts.....	19	11	27
Products of petroleum and coal.....	18	15	22
Electrical machinery.....	16	18	22
Fabricated metal products.....	16	16	22
Total of above industries.....	(1)	291	371
All other.....		98	149
Grand total.....	78	389	720

<sup>1</sup> Companies are duplicated and total would be meaningless.

## INTERLOCKING DIRECTORATES OF SPECIAL GROUPS IN THE TRANSPORTATION EQUIPMENT INDUSTRY

The interlocking relations of two groups in the transportation equipment industry are singled out for separate discussion. These are General Motors Corp., which manufactures motor vehicles and parts, aircraft parts, and railroad equipment, and the Victor Emanuel interest group, which controls companies that manufacture equipment for the aircraft, motor vehicle, and shipbuilding industries. Production by these groups cuts across all branches of the transportation-equipment industry. The interlocking relations of General Motors are relatively simple, while those of the Victor Emanuel companies are quite complex.

### *Interlocking directorates of General Motors Corp.*

In 1946 General Motors was the largest transportation-equipment company in the industry and the third largest manufacturing company in the United States. This corporate giant is controlled by the du Pont family and is considered one of the key companies in the du Pont complex of companies. The E. I. du Pont de Nemours Co. held 22.7 percent of the stock in General Motors, the largest single stock interest, which is sufficient to give working control over the company. General Motors and du Pont had seven directors in common.<sup>1</sup> The du Pont family also owns a substantial stock interest in U. S. Rubber Co. A director of General Motors was also a director of U. S. Rubber. Thus, through the du Pont interests, General Motors was interlocked with two important suppliers. U. S. Rubber supplies General Motors with a large portion of its tire and tube requirements, and there are many products used in the manufacture of automobiles which General Motors purchases from du Pont, such as lacquers, paints, lacquer thinners, synthetic fabrics for automobile seats, anti-freeze solutions, sulfuric acid, cleaners, waxes and polishing compounds, and other chemicals. General Motors is also an important manufacturer of refrigerators and refrigeration equipment, and du Pont is the exclusive manufacturer of a patented nontoxic refrigerant, Freon. The close management relations between du Pont and General Motors and the ability of du Pont to supply products which General Motors can use explains why General Motors is one of du Pont's best customers.<sup>2</sup>

General Motors also maintained direct interlocks with Kennecott

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<sup>1</sup> These were Alfred P. Sloan, Jr., Henry B. du Pont, Donaldson Brown, Henry F. du Pont, A. B. Echols, W. S. Carpenter, Jr., and Lamont du Pont Copeland.

<sup>2</sup> See Fortune, December 1934, p. 81 et seq.

Copper Corp.<sup>3</sup> and Continental Oil Co.<sup>4</sup> Kennecott is a large producer of fabricated copper and General Motors uses substantial quantities of copper in the production of automotive radiators and other automotive parts. Continental Oil uses engines and trucks in its oil business and General Motors is the leading manufacturer of trucks and engines.

Through indirect interlocking directorates, General Motors was linked to a large number of important automotive parts suppliers, including such companies as Eaton Manufacturing Co.,<sup>5</sup> Briggs Manufacturing Co.,<sup>6</sup> Thompson Products, Inc.,<sup>7</sup> ACF-Brill Motors Co.,<sup>8</sup> and Detroit Steel Products Co.<sup>10</sup> Although General Motors is highly integrated with respect to its automotive business it has never been the company's policy to produce its entire parts requirements. Not only does General Motors buy parts from independent parts suppliers, but the parts divisions of General Motors also sell parts to other vehicle manufacturers. Therefore, it is difficult to determine in some instances whether the interlocks which General Motors had with motor vehicle parts companies were with competitors or were of the customer-supplier pattern. Automotive parts manufacturers may find it to their interest to have a close tie with General Motors as an outlet for portions of their products. General Motors may find such relationships to its advantage in that the independent parts manufacturers are able to supply parts which it does not want to purchase from its various operating divisions.

So far as relationships with other automobile manufacturers are concerned, General Motors was indirectly interlocked with Packard

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<sup>3</sup> Alfred P. Sloan, Jr., chairman of the board and director of General Motors, was a director of Kennecott Copper. George Whitney, president of J. P. Morgan & Co., was a director of General Motors and of Kennecott Copper.

<sup>4</sup> Mr. Whitney was also a director of Continental Oil.

<sup>5</sup> George Whitney, president of J. P. Morgan & Co. and a director of General Motors, served on the board of the New York Central Railroad Co. with E. B. Greene, president of Cleveland-Cliffs Iron Co., and a director of Eaton Manufacturing.

<sup>6</sup> Charles E. Wilson, president and director of General Motors, and Charles T. Fisher, Jr., a director of Briggs Manufacturing, were both directors of the National Bank of Detroit.

<sup>7</sup> Frederick C. Crawford, president and director of Thompson Products, served on the board of the Mutual Life Insurance Co. of New York with Lewis W. Douglas, president of Mutual Life Insurance, and a director of General Motors.

<sup>8</sup> Mr. Whitney was also a director of Consolidated Edison Co. of New York, along with N. D. Becker, president of Intertype Corp. and a director of ACF-Brill.

<sup>10</sup> Charles E. Wilson, president and director of General Motors, served on the board of the National Bank of Detroit with Walter Scott McLucas, chairman of the board of the National Bank of Detroit and a director of Detroit Steel Products.

Motor Car Co. through the National Bank of Detroit,<sup>11</sup> with Ford Motor Co. through North American Aviation, Inc.,<sup>12</sup> and with Chrysler Corp. through Mead Corp.<sup>13</sup>

General Motors also had indirect ties with United Aircraft<sup>14</sup> and Republic Aviation,<sup>15</sup> and a direct tie with North American Aviation.<sup>16</sup> In 1946, General Motors owned 29.11 percent of the outstanding common stock of North American Aviation and 18.9 percent of the voting stock of Bendix Aviation Corp., but subsequently disposed of its stock interest in both of these companies. General Motors' interlocks with aviation and aircraft companies had potential competitive significance in that the Allison Division of General Motors is an important manufacturer of aircraft engines, including propellers and jet-propulsion engines.

In the railway-equipment field, General Motors was directly interlocked with Pullman, Inc.,<sup>17</sup> and New York Central<sup>18</sup> and indirectly with American Locomotive Co. through Underwood<sup>19</sup> and with General American Transportation Corp. through U. S. Rubber.<sup>20</sup> The

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<sup>11</sup> Charles E. Wilson, president and director of General Motors, served on the board of the National Bank of Detroit with Henry E. Bodman, vice president and director of Packard Motor Car.

<sup>12</sup> Ernest R. Breech, executive vice president and director of Ford Motor, was a director of North American Aviation.

Henry B. du Pont, vice president of du Pont, was a director of General Motors and of North American Aviation.

<sup>13</sup> Charles F. Kettering, director and general manager, Research Laboratories Division, General Motors, was a director in common on the board of the Mead Corp. with H. E. Talbott, partner in H. E. Talbott & Co., New York, and a director of Chrysler.

<sup>14</sup> John T. Smith, vice president, general counsel, and director of General Motors, served on the board of Underwood Corp. with M. B. Brainard, president of Aetna Life Insurance Co. and a director of United Aircraft Corp.

<sup>15</sup> R. L. Clarkson, chairman of the board and president of Amerex Holding Corp., and a director of Republic Aviation, also served on the board of Underwood, with John T. Smith, a director of General Motors.

<sup>16</sup> Henry B. du Pont, vice president, member of the executive committee and director of du Pont, was also a director of General Motors and of North American Aviation. Although General Motors disposed of its stock interest in North American Aviation in 1948, Mr. du Pont was still a director of General Motors and North American Aviation in 1949.

<sup>17</sup> Alfred P. Sloan, Jr., chairman of the board and director of General Motors, was also a director of Pullman, Inc.

<sup>18</sup> George Whitney, president and director of J. P. Morgan & Co., was a director of General Motors and of the New York Central.

<sup>19</sup> John T. Smith, vice president, general counsel and director of General Motors, served on the board of Underwood, with A. H. Wiggin, a director of American Locomotive.

<sup>20</sup> Lammot du Pont Copeland, director of General Motors and du Pont, sat on the board of U. S. Rubber with L. L. Strauss, partner in Kuhn Loeb & Co., and a director of General American Transportation.



interlock with American Locomotive could have had competition-reducing effects; for the major business of American Locomotive is the manufacturing of steam, Diesel, Diesel-electric, and electric locomotives. These products are competitive with the products produced by the Electro-Motive Division of General Motors, which specializes in the manufacturing of Diesel locomotives for the railroad industry. The interlocking of the New York Central with General Motors gave the latter a voice on the board of a potential customer.

General Motors also had interlocks with important financial institutions: J. P. Morgan & Co., Mutual Life Insurance Co., and the Wilmington Trust Co. The interlocks with J. P. Morgan & Co. and the Wilmington Trust Co. are explained by the fact that J. P. Morgan & Co. has participated in General Motors financing, while the Wilmington Trust Co. is within the du Pont sphere of influence.

The interlocks of General Motors with other transportation equipment companies appear on Chart 32.

### *Interlocking Directorates of the Victor Emanuel Group*

The Victor Emanuel group is significant in that it depicts the complexity and ramifications of interlocking directorates centering around an investment banking house. The complex of companies is composed of the following: Avco Manufacturing Corp., Consolidated Vultee Aircraft Corp., ACF-Brill, and the New York Shipbuilding Corp. At the apex of this group is Avco Manufacturing, with Victor Emanuel as chairman of its board of directors. In 1946 Avco Manufacturing owned a 21 percent stock interest in New York Shipbuilding, a 48 percent interest in ACF-Brill, and a 26.1 percent interest in Consolidated Vultee Aircraft. Consolidated Vultee, in turn, owned a 48 percent interest in ACF-Brill.

The Victor Emanuel interest group dates back to the middle 1930's when Victor Emanuel headed a group of financiers that bought out the holdings of E. L. Cord in The Aviation Corporation. The Cord holdings at that time included the Lycoming, Vultee, and Stinson aircraft companies, Auburn Automobile Co., and New York Shipbuilding. Subsequently, through his holdings in Vultee, Victor Emanuel purchased an interest in Consolidated Aircraft Co., which was later merged with Vultee to form Consolidated Vultee Aircraft. In 1945, through the Aviation Corp., Emanuel purchased New Idea, Inc., and all of the Crosley Corporation's radio broadcasting and radio and appliance manufacturing business. In 1947, the name of the Aviation Corp., was changed to Avco Manufacturing Corp.

Avco Manufacturing operates eight divisions and produces a variety of products, as follows:

(1) Crosley Division: refrigerators, radio receivers, gas and electric ranges, and food-storage units.

# INTERLOCKING DIRECTORATES OF GENERAL MOTORS CORPORATION WITH OTHER TRANSPORTATION EQUIPMENT COMPANIES, 1946

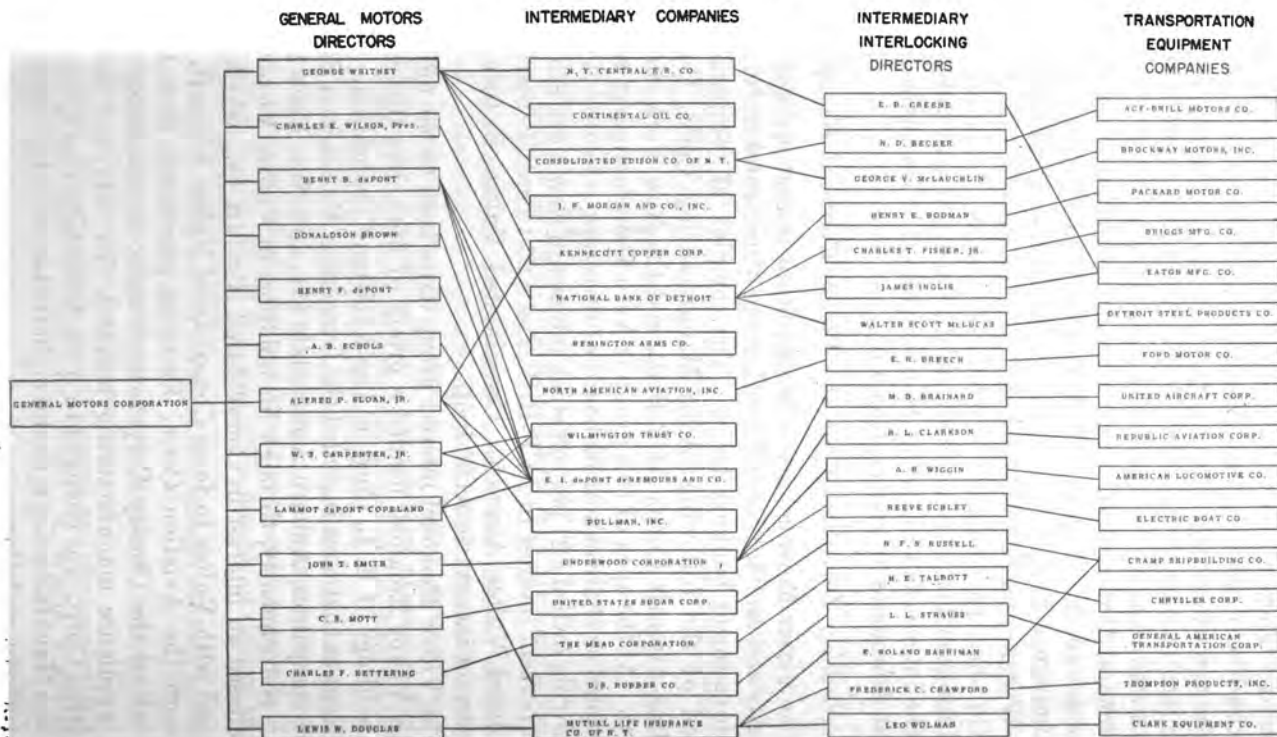


CHART 32.

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# INTERLOCKING DIRECTORATES OF GENERAL MOTORS CORPORATION

VICTOR EMANUEL COMPANIES

VICTOR

AVCO MANUFACTURING CORP.

AVCO

26.14 %

CONSOLIDATED VULTEX  
AIRCRAFT CORP.

VULTEX

20.94 %

48 %

ACF-BRILL MOTORS CO.

ACF-BRILL

NEW YORK REPAIRING CORP.

NEW YORK REPAIRING

NOTE: Broken lines indicate Stock Ownership.

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2) New Idea Division: farm implements of various types, such as hay rakes and loaders, farm wagons, et cetera.

3) American Central Division: steel kitchen cabinets and sinks, refrigeration cabinets, and jeep bodies.

4) Lycoming Division: airplane engines.

5) Spencer Heating Division: household steel boilers for home heating.

6) Republic Aircraft Products Division: aircraft engines and propeller parts.

7) Horton Manufacturing Division: automatic door operating equipment.

8) Avco Tool and Machine Division: tools, jigs, and fixtures.

Consolidated Vultee Aircraft is one of the largest manufacturers of completed aircraft for military and commercial use. ACF-Brill manufactures motorized transit equipment and engines for busses, trucks, ships, and other purposes. New York Shipbuilding builds and repairs ships and boats of various types.

Chart 33 shows the complexity of the interrelations of the Victor Emanuel group of companies.

The key directors of the Victor Emanuel interest group were Victor Emanuel, chairman of the board of Avco Manufacturing, and a member of the board of directors of Consolidated Vultee Aircraft, ACF-Brill, and New York Shipbuilding; Irving B. Babcock, chairman of the board of ACF-Brill, president of Avco Manufacturing and director of Consolidated Vultee and New York Shipbuilding; C. Coburn Darling, director of Avco Manufacturing, Consolidated Vultee, ACF-Brill, and New York Shipbuilding; T. A. O'Hara, on the board of Avco Manufacturing, ACF-Brill, and New York Shipbuilding; George E. Allen, director of Avco Manufacturing, Consolidated Vultee, and ACF-Brill; R. S. Pruitt, vice president and secretary of Avco Manufacturing, and secretary of New York Shipbuilding, and director of Consolidated Vultee; Albert N. Williams, on the board of Avco Manufacturing and New York Shipbuilding; and Harry Woodhead, president of Consolidated Vultee and director of ACF-Brill. This does not complete the list of directors of these companies, but these men appeared to comprise the group which dominated their activities.

In addition to the network of interlocking directorates which existed between these four corporations, directors also interlocked the Victor Emanuel companies with competitive and related companies. George Allen, Victor Emanuel, and T. A. O'Hara also sat on the board of Republic Steel Corp., which is capable of being an important steel supply source for the four Victor Emanuel companies. The interlock with Republic Steel also gave Consolidated Vultee and Avco Manufacturing an indirect tie with a potential competitor, Bell Aircraft Corp.

Avco Manufacturing also had an indirect interlock with Bendix Aviation.<sup>21</sup> Both companies are manufacturers of aircraft parts. Consolidated Vultee and Avco Manufacturing had direct interlocks with Roosevelt Field, Inc.,<sup>22</sup> a potential customer. Roosevelt Field operates a landing field equipped with hangars and storage buildings. It also conducts a flying school and repairs aircraft. Consolidated Vultee and Avco Manufacturing were also indirectly interlocked with Pan American Airways Corp.<sup>23</sup> Pan American operates commercial airlines and was a potential, if not actual, customer of Avco Manufacturing and Consolidated Vultee.

Five of the directors who sat on the boards of one or more of the four Victor Emanuel companies were also directors of General Aniline & Film Corp.<sup>24</sup> On the Board of General Aniline & Film was William F. Carey, a director of Curtiss-Wright Corp. Thus, through General Aniline & Film, Avco Manufacturing Co. and Consolidated Vultee Aircraft were indirectly interlocked with Curtiss-Wright.

Consolidated Vultee also had an indirect interlock with General Motors,<sup>25</sup> an important manufacturer of aircraft engines.

ACF-Brill, which manufactures motorized transit equipment and engines for buses, trucks, ships, and other uses, had interlocking relations with the following potential competitors, suppliers and customers:<sup>26</sup>

1. Checker Cab Manufacturing Corp., which manufactures taxicabs, and owns 61.75 percent of Parmelee Transportation Co. The lat-

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<sup>21</sup> Albert N. Williams, president of Westinghouse Air Brake Co. and a director of Avco Manufacturing, was a director in common on the board of Bendix-Westinghouse Automotive Air Brake Co. with Malcolm P. Ferguson, president, and William H. Houghton, treasurer, of Bendix Aviation.

<sup>22</sup> C. Coburn Darling, president and director, New England Distillers, Inc., and a director of Avco Manufacturing, served on the board of Roosevelt Field with Rudolph H. Deetjen, partner in Emanuel Deetjen and Co. and a director of Consolidated Vultee Aircraft.

<sup>23</sup> Samuel F. Pryor, Jr., vice president and director, Pan American Airways, served on the board of New York Shipbuilding with Victor Emanuel, Irving Babcock, C. Coburn Darling, and R. S. Pruitt, all directors of Avco Manufacturing and Consolidated Vultee Aircraft. The New York Times of May 24, 1950, reported that Avco Manufacturing had sold its entire holdings of 366,954 shares of stock in Pan American for \$3,439,193.

<sup>24</sup> These were George E. Allen, N. D. Becker, Thomas O'Hara, Albert N. Williams, and L. A. Johnson.

<sup>25</sup> George Whitney, president and director J. P. Morgan & Co., Inc., and a director of General Motors, was a director in common on the board of Consolidated Edison with N. D. Becker, director of Consolidated Vultee Aircraft, and president and director of Intertype Corp.

<sup>26</sup> Chart 33 shows the names of the directors and the companies through which these interlocks were effected.



ter operates taxicabs in New York City, Pittsburgh, and Minneapolis. Though a subsidiary, Parmelee owns and operates cabs in Chicago.<sup>27</sup>

2. Chicago Motor Coach Co., which owns and operates motor coaches in Chicago and Cook County.<sup>28</sup>

3. Gar Wood Industries, Inc., a manufacturer of truck and tractor equipment, such as bulldozers, road machinery, and truck patrol apparatus.<sup>29</sup>

4. Marmon-Herrington Co., Inc., a manufacturer of heavy duty all-wheel-drive trucks, trolley coaches, and light delivery trucks.<sup>30</sup>

5. Bendix-Westinghouse Automotive Air Brake, which manufactures air brake equipment for busses, trucks, and other automotive lines.<sup>31</sup>

6. Sterling Motor Truck Co., Inc., a producer of motor trucks.<sup>32</sup>

7. Waukesha Motor Co., a manufacturer of engines for trucks, busses, farm equipment, and for industrial use.<sup>33</sup>

8. Brockway Motor Co., which produces a complete line of motor-trucks, school busses, bodies, and cabs.<sup>34</sup>

9. Mack Trucks, Inc., a manufacturer of motortrucks, busses, marine engines, and fire apparatus.<sup>35</sup>

10. General Motors, which manufactures all types of motorized transportation equipment.

New York Shipbuilding, another of the Victor Emanuel companies, was indirectly interlocked with Newport News Shipbuilding & Drydock Co., the significance of which is discussed in the section on the shipbuilding group.

A significant interlock with a possible supply source was a common director shared by the Square D Co. and Avco Manufacturing.<sup>36</sup> The Square D Co. is a leading manufacturer of industrial safety switches and small service entrance switches for home use. Avco Manufacturing makes automatic door operating equipment. Square D also manufactures pressure, vacuum, and float switches, which open or close their contacts with changes in temperature or liquid level. They are used on refrigerators, air-conditioning equipment, and hydraulic machinery. Avco Manufacturing produces refrigerators and food storage units. Other products manufactured by Square D are

<sup>27</sup> Moody's Industrials, 1948, p. 1624-1625.

<sup>28</sup> Moody's Public Utilities, 1948, p. 644.

<sup>29</sup> Moody's Industrials, 1948, p. 497.

<sup>30</sup> Moody's Industrials, 1948, p. 943.

<sup>31</sup> Moody's Industrials, 1948, p. 2895.

<sup>32</sup> Moody's Industrials, 1948, p. 1339.

<sup>33</sup> Moody's Industrials, 1948, p. 1921.

<sup>34</sup> Moody's Industrials, 1948, p. 882.

<sup>35</sup> Moody's Industrials, 1948, p. 2136.

<sup>36</sup> Carleton M. Higbie, president of Carlton M. Higbie Corp., was a director of Square D and of Avco Manufacturing Co.

porcelain insulators, bakelite products, and aircraft precision instruments. The latter are used in the production of aircraft instruments. Avco Manufacturing produces aircraft engines and parts as well as electric ranges and radios.

The Victor Emanuel companies were also interlocked with such financial institutions as Lehman Bros.,<sup>37</sup> Manufacturers Trust Co. (New York),<sup>38</sup> Continental Bank & Trust Co. of New York,<sup>39</sup> Blythe and Co. Inc.,<sup>40</sup> Penn Mutual Life Insurance Co., and Home Insurance Co. of New York.<sup>41</sup> Each of these financial interlocks was a tie between the Emanuel companies and a potential supplier of money and credit.

The network of interlocking directorates of the Emanuel group extended to include such utilities as Standard Power & Light Corp., Standard Gas & Electric Co., Consolidated Edison, and Western Union Telegraph Co.<sup>42</sup>

The interlocking directorates of the Victor Emanuel companies illustrate the complexity of corporate interrelationships. The number and variety of ties demonstrate how interlocking directorates may bring together competitors, suppliers, and customers, and achieve many of the corporate advantages of vertical and horizontal integration without corresponding responsibilities and risks.

#### INTERLOCKING DIRECTORATES OF THE RAILROAD EQUIPMENT GROUP

The railroad equipment group includes establishments primarily engaged in building and rebuilding locomotives of all types (including frames and parts), and establishments primarily engaged in building and rebuilding railroad freight and passenger cars, street-cars, transit cars, trackless trolley buses, and car equipment for operation on rails. Railroad repair shops are not included. Of the 15

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<sup>37</sup> John Daniel Hertz, partner in Lehman Bros., was a director of Avco Manufacturing and of Consolidated Vultee Aircraft.

<sup>38</sup> Albert N. Williams, director of Manufacturers Trust Co., was a director of Avco Manufacturing and of New York Shipbuilding.

<sup>39</sup> Frederick E. Hasler, chairman of the board and director of Continental Bank & Trust Co., was a director of New York Shipbuilding.

<sup>40</sup> Donald N. McDonnell, vice president and director of Blythe & Co., was on the board of Consolidated Vultee Aircraft.

<sup>41</sup> George E. Allen, vice president and secretary but not a director of Home Life Insurance Co., was a director of Penn Mutual Life Insurance, Avco Manufacturing, Consolidated Vultee Aircraft, and ACF-Brill.

<sup>42</sup> Victor Emanuel was president and director of Standard Power & Light, and a director of Standard Gas & Electric. N. D. Becker was a director of Consolidated Edison of New York, Consolidated Vultee Aircraft, and ACF-Brill. Albert N. Williams, president of Westinghouse Air Brake, was a director of Western Union Telegraph, Avco Manufacturing and New York Shipbuilding.

companies in this group, 14, or 93 percent, had interlocking relations with other companies. Moreover, 12 of the 14 companies maintained interlocking relations with other railroad equipment companies. Some also had interlocks with railroads.<sup>43</sup>

*Interlocking Directorates of Westinghouse Air Brake Co.*

The railroad equipment company having the largest number of indirect interlocks with other railroad equipment manufacturers was Westinghouse Air Brake, which was indirectly interlocked with American Car & Foundry,<sup>44</sup> American Locomotive Co.,<sup>45</sup> H. K. Porter Co.,<sup>46</sup> Baldwin Locomotive Works,<sup>47</sup> General Steel Castings Corp.,<sup>48</sup> General American Transportation,<sup>49</sup> New York Air Brake Co.,<sup>50</sup> Pullman, Inc.,<sup>51</sup> Lima Locomotive Works, Inc., and Superheater Co.<sup>52</sup> In addition, Westinghouse Air Brake was directly interlocked

<sup>43</sup> Section 10 of the Clayton Act is applicable to these interlocks. Section 10 provides that no common carrier that has interlocking directorates with another corporation can have dealings with that corporation to the amount of more than \$50,000 in the aggregate, in any one year, unless such dealings between the companies are awarded on the basis of competitive bids, submitted in accordance with regulations prescribed by the Interstate Commerce Commission.

<sup>44</sup> Walter J. Cummings, chairman of the board and director of Continental Illinois National Bank & Trust Co., was a director of American Car & Foundry Co. and of Western Union Telegraph Co. Albert N. Williams, president and director of Westinghouse Air Brake, was a director of Western Union Telegraph Co.

<sup>45</sup> Albert H. Wiggin, a director of American Locomotive, also served on the board of Western Union Telegraph with Mr. Williams.

<sup>46</sup> Q. Sheldon Snyder, vice president and director of Blaw-Knox Co., was a director of H. K. Porter. William Porter Witherow, president and director of Blaw-Knox, was a director of Westinghouse Air Brake.

<sup>47</sup> Ralph Kelly, president and director of Baldwin Locomotive, was a director of The Bell Telephone Co. of Pennsylvania. William Porter Witherow, a director of Westinghouse Air Brake, was also a director of Bell Telephone Co. of Pennsylvania.

<sup>48</sup> Ralph Kelly was also a director of General Steel Castings.

<sup>49</sup> Cyrus L. Phillip, president of Union Refrigerator Transit Co., and a vice president and director of General American Transportation, served on the board of Northwestern Mutual Life Insurance with William Porter Witherow, director of Westinghouse Air Brake.

<sup>50</sup> Joseph V. Smith, executive vice president of Hubbard & Co., and a director of New York Air Brake, served on the board of Peoples National Bank & Trust Co. of Pittsburgh with Mr. Witherow.

<sup>51</sup> Alan M. Scaife, vice president and director of Gulf Oil Corp., was a director of Pullman, Inc., and of Mellon National Bank & Trust Co. (Pittsburgh, Pa.). R. K. Mellon, chairman of the board of Gulf Oil, was a director of Westinghouse Air Brake and of Mellon National Bank & Trust Co.

<sup>52</sup> Samuel G. Allen, chairman of the board of Franklin Railway Supply, was a director of Lima Locomotive, Superheater, and American Brake Shoe. William B. Given, Jr., president and director of American Brake Shoe, was a director of Westinghouse Air Brake.

with American Brake Shoe,<sup>53</sup> A. M. Byers Co.,<sup>54</sup> Blaw-Knox,<sup>55</sup> and Safety Car Heating & Lighting Co.<sup>56</sup>

The interlock between Westinghouse Air Brake and New York Air Brake had competition-reducing significance. Westinghouse Air Brake is the largest manufacturer of railroad air brake and control equipment; New York Air Brake is the second largest manufacturer of railroad air brakes and maintains a cross-licensing agreement with Westinghouse Air Brake with respect to patents.<sup>57</sup> Apparently these two companies manufacture all of the railroad air brakes made in the United States.<sup>58</sup>

It is also noteworthy that Westinghouse Air Brake and New York Air Brake were indirectly interlocked through two different intermediary companies.<sup>59</sup> The interlocking directorates of Westinghouse Air Brake with other railroad equipment companies appear on chart 34. Reference to the chart reveals that Baldwin Locomotive was also indirectly interlocked with Westinghouse Air Brake through two intermediary companies. The chart brings out the fact that Ralph Kelly, president and director of Baldwin Locomotive, was also a director of General Steel Castings. Thus, Mr. Kelly not only directly interlocked Baldwin Locomotive and General Steel Castings, but he indirectly interlocked these two companies with Westinghouse Air Brake, in that he and William Porter Witherow were directors on the board of Bell Telephone of Pennsylvania.

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<sup>53</sup> William B. Given, Jr., president and director of American Brake Shoe, was a director of Westinghouse Air Brake.

<sup>54</sup> J. Frederick Byers, chairman of the board and director of A. M. Byers, was a director of Westinghouse Air Brake. George A. Blackmore, chairman of the board and director of Westinghouse Air Brake, was a director of A. M. Byers.

<sup>55</sup> William Porter Witherow, president and director of Blaw-Knox, was a director of Westinghouse Air Brake.

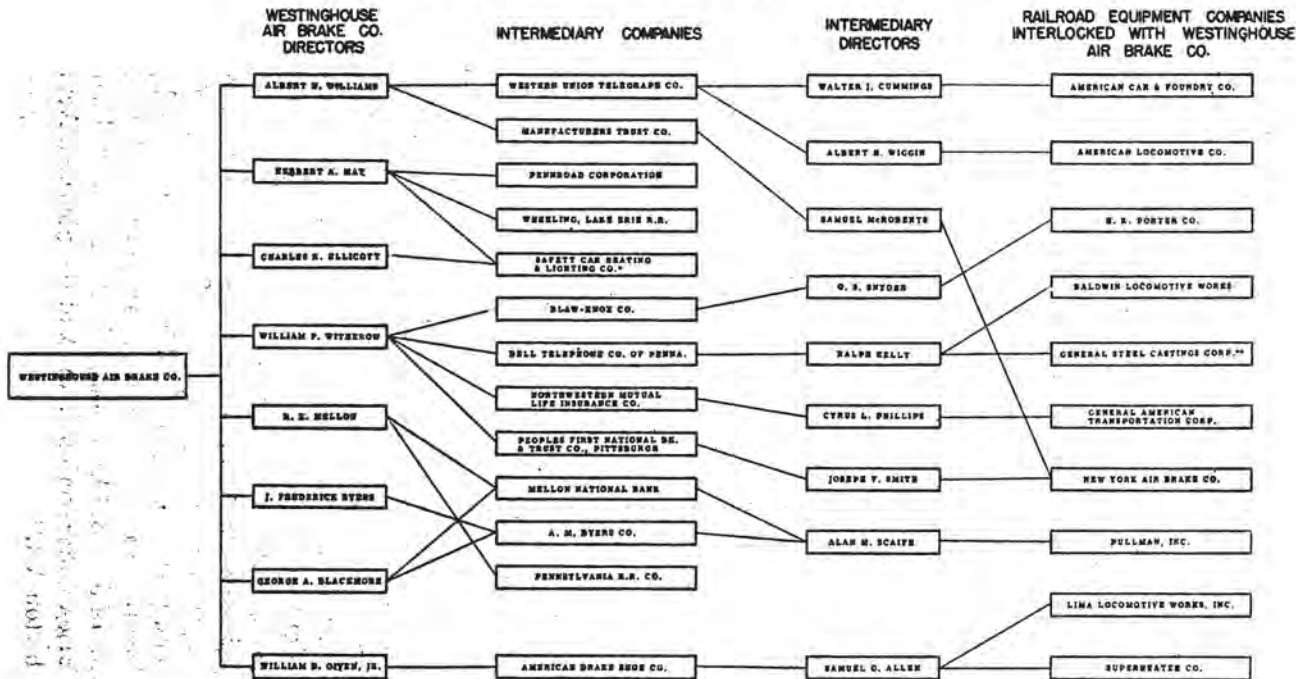
<sup>56</sup> Charles R. Ellicott, vice president of Westinghouse Air Brake, and Herbert A. May, assistant to the president and director of Westinghouse Air Brake, were both directors of Safety Car Heating and Lighting. Mr. Ellicott was not on the board of Westinghouse Air Brake on December 31, 1949, but he was still a director of Safety Car Heating and Lighting. Mr. May, on the other hand, retained his directorship in both companies on December 31, 1949.

<sup>57</sup> Moody's Industrials, 1948, p. 2767.

<sup>58</sup> See TNEC Monograph No. 21, Competition and Monopoly in American Industry, p. 107, and Fortune, March 1937, p. 115.

<sup>59</sup> Albert N. Williams, president of Westinghouse Air Brake, was a director of Manufacturers Trust in company with Samuel McRoberts of New York Air Brake. The other interlocking relation between these companies was through Peoples First National Bank & Trust Co. (Pittsburgh). William Porter Witherow, chairman of the board, president and director of Blaw-Knox, and a director of Westinghouse Air Brake, sat on the board of Peoples First National Bank & Trust Co. (Pittsburgh), with Joseph V. Smith, executive vice president and director of Hubbard & Co., and a director of New York Air Brake.

# INTERLOCKING DIRECTORATES OF WESTINGHOUSE AIR BRAKE CO. WITH OTHER RAILROAD EQUIPMENT COMPANIES, 1946



\*This company is a railroad equipment company.

\*\*Note: This company is listed as a primary metals company, but it is primarily a manufacturer of special steel castings for the railroad equipment industry.

CHART 84.



Except for the interlocks with Safety Car Heating & Lighting and New York Air Brake, all of the interlocks of Westinghouse Air Brake linked it with potential customers or suppliers. Among the former were American Car and Foundry, a large manufacturer of railway passenger and freight cars; American Locomotive, a major manufacturer of Diesel-electric, steam, electric, and streamlined passenger Diesel locomotives; H. K. Porter Co., a manufacturer of industrial locomotives and railroad locomotives for switching purposes; Baldwin Locomotive, one of the largest manufacturers of steam, electric, and Diesel locomotives; General American Transportation, a firm which manufactures, purchases, sells, and repairs all kinds of railway freight cars, tank cars, express, refrigerator and gondola cars; Pullman, Inc., which in addition to passenger and sleeping cars, produces freight cars, street cars, and trolley coaches; Lima Locomotive, a producer of steam, Diesel-electric, and electric locomotives. Thus, all of these companies were actual or potential customers of Westinghouse Air Brake.

In regard to relations with suppliers, the interlock with General Steel Castings linked Westinghouse Air Brake with an important producer of special railroad steel castings. General Steel Castings was formed primarily to furnish railroad and railroad equipment manufacturers with special types of castings. The interlock with American Brake Shoe tied Westinghouse Air Brake to a major manufacturer of brake shoes and brake shoe parts for railway equipment; and the interlocks with Blaw-Knox and A. M. Byers were links with potential steel suppliers.

#### *Interlocking Directorates of Pullman, Inc.*

Pullman, Inc., is the country's largest producer of railroad equipment. It manufactures railroad freight cars, passenger cars, street cars, trolley cars, and parts and forgings used by railroad companies in repairing tracks and equipment. Through a subsidiary, M. W. Kellogg Co., Pullman constructs petroleum and chemical processing plants, designs equipment for new processes, and conducts research on metal products.

For many years Pullman, Inc., through its ownership of the Pullman Co., enjoyed a virtual monopoly of the business of furnishing sleeping cars, parlor cars, and combination sleeping and parlor cars to the railroads of the United States. However, on July 12, 1940, the Department of Justice filed a complaint<sup>60</sup> against Pullman, Inc., and its subsidiaries, under sections 1 and 2 of the Sherman Act and section 3 of the Clayton Act.<sup>61</sup>

<sup>60</sup> Civil Action No. 994, July 12, 1940, Eastern District of Pennsylvania.

<sup>61</sup> The complaint alleged a conspiracy in restraint of trade and a monopoly



On April 20, 1943, the court upheld the Government's contention that Pullman Co., had violated the Sherman Act in the operation and manufacture of sleeping cars. In 1945, as a result of proceedings under the Sherman Antitrust Act, Pullman, Inc., sold Pullman Co., to a group of major railroad companies.<sup>62</sup>

Pullman, Inc., has long been a focus of indirect interlocking relations for many other transportation equipment companies. It was directly linked to many important potential suppliers and customers, and through these potential suppliers and customers was interlocked with various other manufacturers of transportation equipment. The significant interlocking directorates of Pullman, Inc., appear on chart 35.

*Direct Interlocking Directorates of Pullman, Inc., of Potential Customer-Supplier Significance—*

Potential suppliers directly interlocked with Pullman are listed below:

1. Crane Co. is a large manufacturer of valves and fittings and of plumbing equipment.<sup>63</sup> Pullman uses this type of equipment in manufacturing railroad passenger cars.

2. A. M. Byers,<sup>64</sup> American Rolling Mill Co.,<sup>65</sup> and United States Steel Corp.,<sup>66</sup> are all producers of steel.

in the manufacture and distribution of sleeping cars and other types of rolling stock and in the operation of "sleeping car services." It was charged that Pullman, Inc., acquired control of competing companies or forced them out of business, restricted the production of rolling stock, suppressed the development of more efficient and safer equipment, compelled the railroads to deal exclusively with Pullman, Inc., fixed prices and made unreasonable profits.

<sup>62</sup> *U. S. v. Pullman Co., et al.*, 50 F. Supp. 123. The court directed that the final decree provide for divorcement of the operating company (Pullman Co.) and the manufacturing company (Pullman-Standard Car Manufacturing Co.). On January 22, 1944, the court held that Pullman, Inc., had the option of disposing of either the operating or the manufacturing company (53 F. Supp. 908). Pullman, Inc., elected to sell the operating company (Pullman Co.) to a group of major railroad companies (64 F. Supp. 108). The decision of the lower court was affirmed by the Supreme Court on March 31, 1947 (330 U. S. 806, and 331 U. S. 865).

<sup>63</sup> A. O. Choate, special partner in Clark, Dodge & Co., was a director of Crane Co. and of Pullman, Inc.

<sup>64</sup> Alan M. Scalfe, vice president, member of finance committee and director of Gulf Oil, was a director of Pullman, and of A. M. Byers.

<sup>65</sup> J. Frank Drake, president and director of Gulf Oil, was a director of Pullman, Inc., and of American Rolling Mills.

<sup>66</sup> Sewell L. Avery, chairman of the board and director of Montgomery Ward & Co., was a director of Pullman, Inc., and of U. S. Steel.

# INTERLOCKING DIRECTORATES OF PULLMAN, INC. 1946

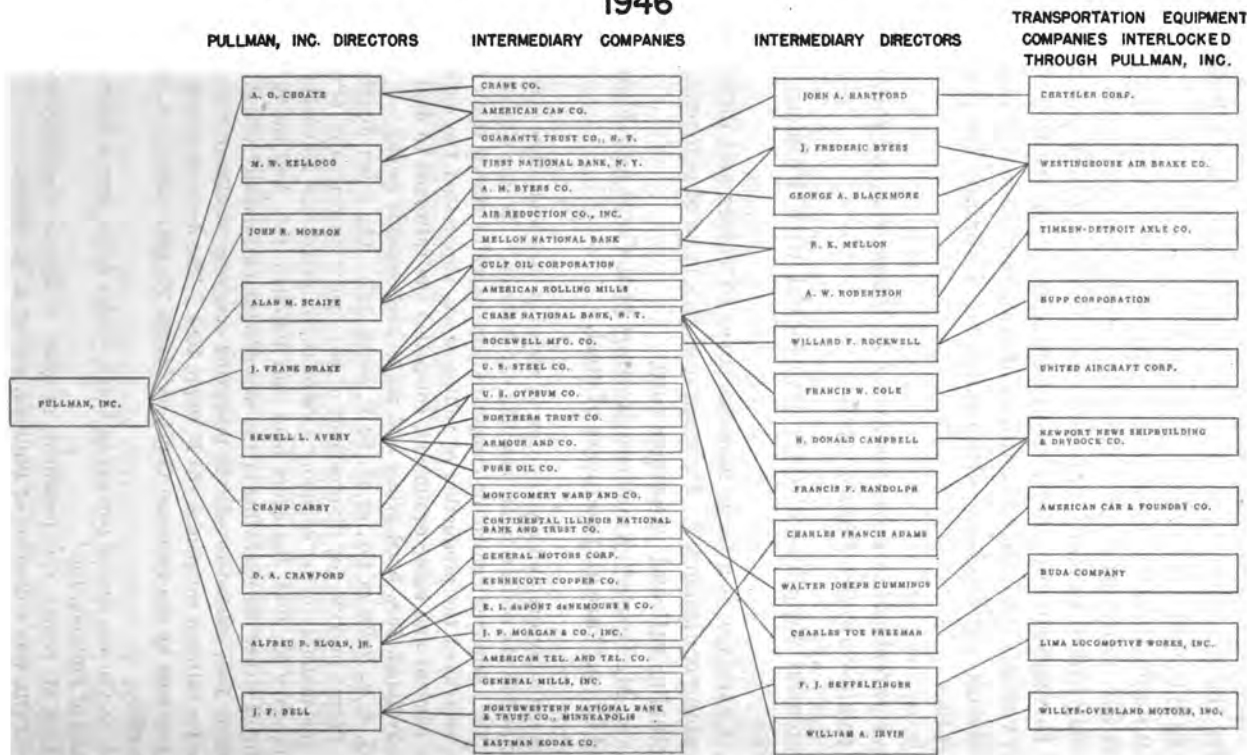


CHART 35.

3. Air Reduction Co., Inc.,<sup>67</sup> is an important producer of oxyacetylene torches and equipment, compressed gases, electric arc welding, and cutting machines. The oxyacetylene torch is used extensively by railroad car builders in manufacturing new cars and in repairing and scrapping old ones.

4. Rockwell Manufacturing Co.<sup>68</sup> is a manufacturer of gas, water, and gasoline meters, valves, wood- and metal-working machinery, small machine tools, and punch presses.

5. Du Pont<sup>69</sup> is a manufacturer of synthetic fabrics, paints, paint thinners, lacquers, and lacquer thinners, all usable in the manufacture of railroad cars.

6. General Motors<sup>70</sup> produces a long list of products but in particular could supply Pullman with ball and roller bearings and gray and malleable iron castings.

For many years Pullman owned a stock interest in General Steel Castings,<sup>71</sup> a producer of special railroad castings, but apparently it disposed of its holding in 1947.<sup>72</sup>

Potential customers directly interlocked with Pullman were Gulf Oil,<sup>73</sup> Armour & Co.,<sup>74</sup> and Pure Oil Co.<sup>75</sup> All are owners and operators of specialized freight cars. Pullman, through its subsidiary, M. W. Kellogg Co., also constructs petroleum refineries. Gulf and Pure Oil each operate several petroleum refineries.

Pullman, Inc., was also directly interlocked with important financial institutions, including J. P. Morgan & Co.,<sup>76</sup> which has done financing for Pullman, Inc., First National Bank of New York,<sup>77</sup> Guaranty Trust Co. of New York,<sup>78</sup> Chase National Bank of the City

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<sup>67</sup> Alan M. Scaife, vice president, member of finance committee and director of Gulf Oil, was a director of Pullman, Inc., and of Air Reduction.

<sup>68</sup> J. Frank Drake, president and director of Gulf Oil, was a director of Pullman, Inc., and Rockwell Manufacturing.

<sup>69</sup> Alfred P. Sloan, Jr., chairman of board and director of General Motors, was a director of Pullman and Du Pont.

<sup>70</sup> Albert P. Sloan, Jr., chairman of the board and director of General Motors, was a director of Pullman, Inc.

<sup>71</sup> Civil Action No. 994, July 12, 1940.

<sup>72</sup> See Pullman, Inc., Balance Sheet for 1947.

<sup>73</sup> J. Frank Drake and Alan M. Scaife, president and vice president, respectively, of Gulf Oil, were the interlocking directors.

<sup>74</sup> Sewell L. Avery, chairman of the board of Montgomery Ward & Co., was the interlocking director.

<sup>75</sup> Alfred P. Sloan, Jr., chairman of the board of General Motors and a director of Pullman, was a director of J. P. Morgan & Co.

<sup>76</sup> John R. Morron, director of Continental Rubber Co. of New York, was a director of Pullman, Inc., and of the First National Bank of New York.

<sup>77</sup> M. W. Kellogg, chairman of the board and director of M. W. Kellogg Co., was a director of Guaranty Trust Co. and Pullman, Inc.

of New York,<sup>78</sup> Mellon National Bank & Trust Co.,<sup>79</sup> Northern Trust Co. (Chicago),<sup>80</sup> and Northwestern National Bank of Minneapolis.<sup>81</sup>

*Companies Indirectly Interlocked with Pullman, Inc.*

Through its direct interlocks, Pullman, Inc., was indirectly linked with many corporations, some of which were potentially competitive with Pullman. Pullman had no direct interlocks with competitors.

Through Continental Illinois National Bank & Trust Co. of Chicago, Pullman was indirectly interlocked with American Car & Foundry<sup>82</sup> and with Buda Co.<sup>83</sup> American Car & Foundry is a manufacturer of railroad passenger and freight cars, and various parts for such equipment. Buda Co. manufactures magnet-type rail detectors, track drills, railroad frogs and switches, industrial shop trucks, and railroad hand cars.

Pullman, Inc., was also indirectly interlocked with Lima Locomotive,<sup>84</sup> a manufacturer of steam locomotives and parts, power shovels and cranes, draglines, boilers, and forgings.

Pullman, Inc., had several indirect links to Westinghouse Air Brake<sup>85</sup> which, as noted, is the leading manufacturer of railroad air

<sup>78</sup> J. Frank Drake, president of Gulf Oil, was a director of Pullman, Inc., and Chase National Bank.

<sup>79</sup> Alan M. Scaife, vice president of Gulf Oil, was the interlocking director.

<sup>80</sup> Sewell L. Avery, chairman of the board of Montgomery Ward & Co., was the interlocking director.

<sup>81</sup> J. F. Bell, chairman of the board and director of General Mills, Inc., was a director of Pullman, Inc., and of Northwestern National Bank of Minneapolis.

<sup>82</sup> D. A. Crawford, president of Pullman, and Walter Joseph Cummings, director of American Car & Foundry, were directors of the Continental Illinois National Bank & Trust Co.

<sup>83</sup> Charles Yoe Freeman, chairman of the board and director of Commonwealth Edison Co., was a director of Buda Co. and of Continental Illinois National Bank & Trust Co.

<sup>84</sup> F. J. Heffelfinger, chairman of the board and director of F. H. Peavey & Co., was a director of Lima Locomotive and Northwestern National Bank of Minneapolis; Mr. J. F. Bell, chairman of the board of General Mills, Inc., was a director of Pullman, Inc., and of Northwestern National Bank of Minneapolis.

<sup>85</sup> The intermediary companies through which these interlocks were effected were the A. M. Byers, Mellon National Bank & Trust Co., Gulf Oil, and Chase National Bank. On the board of A. M. Byers were J. Frederick Byers, a director of Westinghouse Air Brake and Mellon National Bank & Trust Co., and Alan M. Scaife, who was a director of Pullman, Gulf Oil, Mellon National Bank & Trust Co. and A. M. Byers. Also on the board of A. M. Byers was George A. Blackmore, chairman of the board and director of Westinghouse Air Brake. Additional directors who linked these two companies were R. K. Mellon, who was a director of Mellon National Bank & Trust Co., Gulf Oil, and Westinghouse Air Brake, and J. Frank Drake, who was a director not only of Pullman, but also of Gulf Oil, Chase National Bank and the Rockwell Manufacturing. On the board of Chase National Bank, Mr. Drake sat with A. W. Robertson, who was also a director of Westinghouse Air Brake.

brakes, train signaling, and control equipment, and such products are used by Pullman in the manufacture of railroad rolling stock.

Other transportation equipment companies indirectly interlocked with Pullman included companies which manufacture passenger cars and trucks, complete aircraft and ships. Important within these categories were Chrysler,<sup>86</sup> Willys-Overland Motors,<sup>87</sup> United Aircraft Corp.,<sup>88</sup> and Newport News Shipbuilding & Drydock.<sup>89</sup>

The above analysis indicates that Pullman was directly or indirectly interlocked with companies in all subdivisions of the transportation equipment industry, as well as with potential competitors, customers and suppliers. Pullman was also directly tied to General Motors, whose interlockings have already been discussed.

### *Interlocking Directorates of Other Railroad Equipment Companies*

In addition to Westinghouse Air Brake and Pullman, other large railroad equipment manufacturers also maintained interlocks of significance. Chart 36 shows the general interrelations of other railroad equipment companies, excluding Westinghouse Air Brake and Pullman, Inc.

American Car & Foundry and American Locomotive were directly

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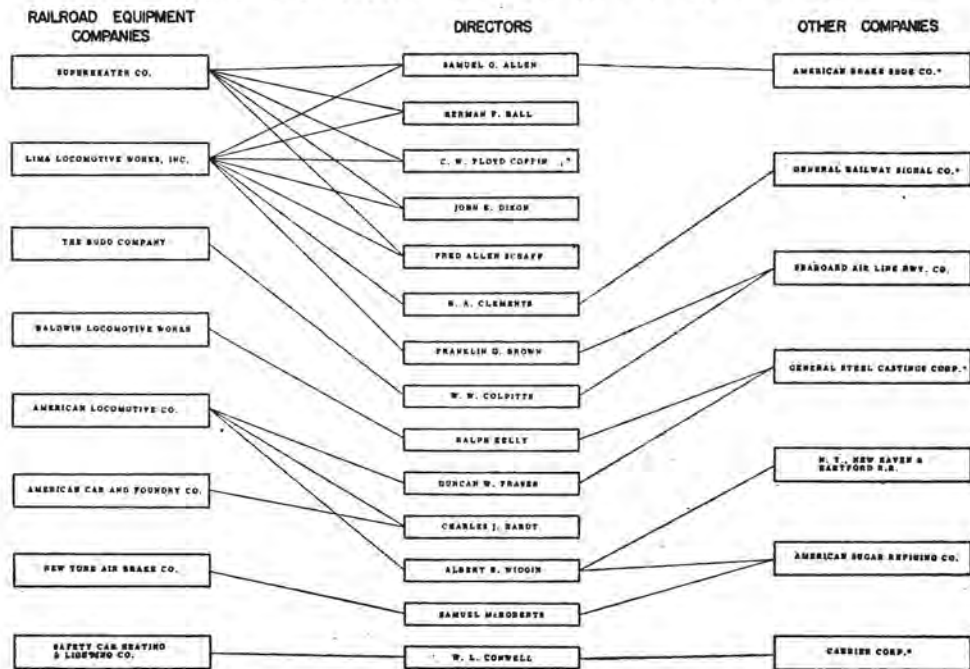
<sup>86</sup> John A. Hartford, president and director of the Great Atlantic & Pacific Tea Co., was a director of Chrysler and of the Guaranty Trust Co.; and M. W. Kellogg, chairman of the board of M. W. Kellogg Co., was a director of Pullman, Inc., and of Guaranty Trust Co.

<sup>87</sup> William A. Irvin, president and director of U. S. Steel, was a director of Willys-Overland Motors. Sewell L. Avery, chairman of the board of Montgomery Ward & Co., was a director of U. S. Steel and of Pullman.

<sup>88</sup> Francis W. Cole, chairman of board of Travelers Insurance Co., and a director of United Aircraft, was a director in common on the board of Chase National Bank with J. Frank Drake, president of Gulf Oil and a director of Pullman.

<sup>89</sup> H. Donald Campbell, vice chairman of the board and director of Chase National Bank, was a director of Newport News Shipbuilding and Drydock. J. Frank Drake, president of Gulf Oil, was a director of Chase National Bank and of Pullman, Inc. Another interlock was through American Telephone & Telegraph Co. Charles Francis Adams, chairman of the board of the State Street Trust Co. of Boston, and a director of Newport News Shipbuilding and Drydock Co., sat on the board of the American Telephone & Telegraph Co. with J. F. Bell, chairman of the board of General Mills, and a director of Pullman, and with D. A. Crawford, president and director of Pullman. Edward J. Quintal and Percy John Ebbott provide instances of director-officer interlocks which indirectly tie the four other transportation equipment companies into the Pullman constellation. Mr. Quintal, a vice president but not a director of the Chase National Bank, was a director of Studebaker Corp., White Motor Co., and Kelsey-Hayes Wheel Co. Mr. Ebbott, a vice president but not a director of Chase National Bank, was a director of Nash-Kelvinator Corp.

# INTERLOCKING DIRECTORATES OF RAILROAD EQUIPMENT COMPANIES EXCLUDING WESTINGHOUSE AIR BRAKE CO. AND PULLMAN, INC.



\*Although these companies are not classified as railroad equipment companies they are, nevertheless, important manufacturers of equipment for railroads and for railroad equipment manufacturers.



interlocked through Charles J. Hardy.<sup>80</sup> American Car & Foundry is a leading manufacturer of railway passenger and freight cars of all types. It also produces iron and steel forgings, cast iron wheels, valves, welded products, spare parts, and railway supplies of various kinds. American Locomotive is a major producer of steam, electric Diesel and Diesel-electric locomotives, and parts therefor. It also produces parts for railway equipment, such as steel tires and steel-tired wheels for locomotives and springs for use on freight cars, passenger cars, and locomotives. Thus the production of these companies appears to be complementary rather than competitive.

Safety Car Heating and Lighting, a producer of air-conditioning equipment for use on railway passenger cars, maintained a direct interlocking relation with Carrier Corp.,<sup>81</sup> which also manufactures air conditioning, refrigerating, heating, and ventilating equipment for railroad passenger cars. These two companies were, therefore, competitors in the field of air-conditioning equipment for railway transportation.<sup>82</sup> It is reported that in 1931, Safety Car Heating and Lighting and Carrier Corp. made an arrangement to coordinate their research and development work in the field in which each was especially interested, i. e., railway air-conditioning equipment.<sup>83</sup>

Lima Locomotive and Superheater Co. were directly interlocked, having five directors in common.<sup>84</sup> Lima Locomotive is the third largest manufacturer of steam, Diesel-electric, shay geared, and electric locomotives, and an important producer of power cranes, power shovels, and draglines. The principal product manufactured by Superheater is a device for raising the temperature and pressure of steam, which results in greater efficiency and economy of plants operated by steam power. This equipment is used extensively on railway locomotives as well as in industrial and public utility steam power plants. Insofar as the devices produced by Superheater can be used

<sup>80</sup> Mr. Hardy was a partner in Hardy, Stanciliffe & Hardy, New York, chairman of the board and member of the executive committee and a director of the American Car & Foundry, a director of Shippers Carline Corp. and a member of the executive committee and director of American Locomotive. Mr. Hardy was still a director of both American Locomotive and American Car & Foundry on December 31, 1949.

<sup>81</sup> W. L. Conwell, president and director of Safety Car Heating & Lighting Co., was also a director of Carrier Corp. Mr. Conwell was no longer a director of these companies on December 31, 1949.

<sup>82</sup> Carrier Corp., however, may be a supplier of essential parts, rather than a competitor of Safety Car Heating & Lighting.

<sup>83</sup> See Moody's Industrials, 1948, p. 884.

<sup>84</sup> Heading the list of directors which linked these two companies was Samuel G. Allen, chairman of the board of both Lima Locomotive and of Superheater Co. Other directors of both companies were Herman F. Ball, C. W. Floyd Coffin, John E. Dixon, and Fred Allen Schaff. Except for Mr. Ball, all of the above directors retained their directorships in both companies as of December 31, 1948.

by Lima Locomotive either in the production of steam locomotives or other steam-powered equipment, the interlocking relationship brings a potential customer and supplier together.

Lima Locomotive and Superheater were both directly interlocked with American Brake Shoe,<sup>95</sup> a manufacturer of brake shoes for locomotives, chilled car wheels for railway service, and miscellaneous castings. Lima Locomotive uses such products in manufacturing locomotives and other items.

H. K. Porter, which manufactures industrial and switching locomotives, maintained a direct interlock with Blaw-Knox,<sup>96</sup> a potential supplier of steel and alloy castings and steel fabricated equipment.

New York Air Brake and Buda both maintained interlocks with potential steel suppliers. New York Air Brake was interlocked with Pittsburgh Steel Co.<sup>97</sup> and Buda with Interlake Iron Corp.<sup>98</sup>

The Budd Co. (formerly Edward G. Budd Manufacturing Co.) was indirectly interlocked with Lima Locomotive through Seaboard Air Line Railroad Co.<sup>99</sup> In addition to being a manufacturer of automotive bodies and parts, Budd also manufactures railway cars.

Baldwin Locomotive's interlock with General Steel Castings has already been noted.<sup>1</sup>

The tie between Baldwin Locomotive, American Locomotive, and General Steel Castings is accompanied by a common stock interest on the part of both Baldwin and American Locomotive in General Steel Castings.<sup>2</sup>

American Locomotive was indirectly interlocked with New York Air Brake through American Sugar Refining Co.<sup>3</sup> This interlock linked a major manufacturer of Diesel and Diesel-electric locomotives

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<sup>95</sup> Samuel G. Allen, a director of Superheater Co. and of Lima Locomotive, was also a director of American Brake Shoe.

<sup>96</sup> Q. S. Snyder, vice president and director of Blaw-Knox, was a director of H. K. Porter.

<sup>97</sup> Joseph V. Smith, executive vice president and director of Hubbard & Co., was a director of New York Air Brake and of Pittsburgh Steel.

<sup>98</sup> Harry A. Arthur, president and director of American Cities Power & Light Corp., was a director of Buda and of Interlake Iron.

<sup>99</sup> W. W. Colpitts, partner in Coverdale & Colpitts, was a director of the Budd Co. and of Seaboard Air Line; Franklin Q. Brown was a director of Lima Locomotive and of Seaboard Air Line.

<sup>1</sup> Ralph Kelly, president and director of Baldwin Locomotive, and Duncan W. Fraser, chairman of the board and director of American Locomotive, were both directors of General Steel Castings.

<sup>2</sup> As of April 10, 1947, Baldwin Locomotive owned 147,800 shares of General Steel Castings and American Locomotive owned 60,000 shares.

<sup>3</sup> Samuel McRoberts, member of the executive committee and a director of the Manufacturers Trust Co. was a director of American Sugar Refining in company with Albert H. Wiggin, who in addition to being a director of American Locomotive and American Sugar Refining, was also a director of Underwood.

with the second largest manufacturer of railroad air brake equipment in the United States, which is also an important producer of train signaling and control equipment.

*Interlocking Directorates of Railroad Equipment Manufacturing Companies With Railroads*

Insofar as railroad equipment manufacturers had direct ties with railroad companies, potential customers and suppliers were brought together in such a way as to subject transactions between them to the provisions of section 10 of the Clayton Act. This section provides that "no common carrier engaged in commerce shall have any dealings in \* \* \* supplies or other articles of commerce, or shall have any contracts for construction or maintenance of any kind, to the amount of more than \$50,000, in the aggregate, in any one year, with another corporation," when the said common carrier has upon its board of directors any person who is at the same time a director in such other corporation, unless such purchases are made from the bidder whose bid is most favorable to the carrier. Bids must be made on a competitive basis, under regulations prescribed by the Interstate Commerce Commission. All common carriers making such purchases must report them within 30 days to the Interstate Commerce Commission with a full and detailed statement about the transaction.

Basically, the purpose of the law was to prohibit a railroad and a closely affiliated supplier from engaging in less than arm's-length dealings of a preferential or prejudicial character. If, however, there are only a few suppliers who can bid (as required under sec. 10), and these suppliers are interlocked, the purpose of section 10 of the Clayton Act may be defeated even if the requirements it contains are met.

Three sets of interlocking relations were found between railroad equipment companies and railroads. Westinghouse Air Brake was directly interlocked with the Pennsylvania Railroad and with the Wheeling and Lake Erie Railway Co. Lima Locomotive and Budd Manufacturing were directly tied to Seaboard Airline Railroad; and American Locomotive was directly interlocked with The New York, New Haven & Hartford Railroad Co.<sup>4</sup>

<sup>4</sup> The directors linking the above railroads with the respective companies were: Herbert A. May, assistant to the president of Westinghouse Air Brake, was a director of both Westinghouse Air Brake and Wheeling and Lake Erie; R. K. Mellon of Mellon National Bank & Trust Co. and Gulf Oil was on the board of both Westinghouse Air Brake and the Pennsylvania Railroad; Franklin Q. Brown, director of Georgia and Florida Railroad and of American Light & Traction Co. was also a director of Lima Locomotive, as well as of Seaboard Airline. Also on the board of Seaboard Airline Railroad, and a member of its executive committee, was W. W. Colpitts, partner in Coverdale & Colpitts, and a director of Budd Co. The director interlocking American Locomotive and the New York, New Haven & Hartford was Albert H. Wiggin.

## INTERLOCKING DIRECTORATES OF THE AIRCRAFT AND PARTS GROUP

The aircraft and parts group includes establishments engaged in the manufacturing or assembling of complete aircraft and in the manufacture of the various parts and subassemblies used by the manufacturers of complete aircraft; it also includes establishments which make aircraft engines and parts, aircraft propellers, and auxiliary equipment, such as brakes and flaps, electrical equipment, and the like.

There were both direct and indirect interlocking directorates within this industry. Many appear significant because they linked potential competitors and others because they brought suppliers and customers into closer relationships. The interlockings of the aircraft and parts groups, except General Motors Corp., Consolidated Vultee Aircraft and Avco Manufacturing, are shown on chart 37.

### *Direct Interlocks of the Aircraft and Parts Group*

Six of the 18 companies in the aircraft and parts group were directly interlocked in 1946. Curtiss-Wright Corp. and Douglas Aircraft Co., were directly interlocked, through J. Cheever Cowdin, a director of both companies. Since Curtiss-Wright and Douglas Aircraft are both manufacturers of complete aircraft, this direct relationship was a violation of section 8 of the Clayton Act.<sup>5</sup> Mr. Cowdin was also a director of Sperry Corp.,<sup>6</sup> a manufacturer of patented instruments and apparatus for use on aircraft. Some of these instruments, such as the gyro-compass, gyro-stabilizer, and gyro-pilot, are essential to aircraft manufacturers. Mr. Cowdin, therefore, not only interlocked two competing aircraft companies, but also interlocked these companies with a producer of indispensable aircraft equipment.

Bendix Aviation was directly interlocked with North American Aviation; Ernest R. Breech, executive vice president of Ford Motor Co., was a director of both companies. This relationship, however, is in the supplier-customer class, for Bendix Aviation does not manufacture complete aircraft but is an important manufacturer of aircraft parts and assemblies.<sup>7</sup>

Curtiss-Wright was interlocked with Western Electric Co.,<sup>8</sup> which

<sup>5</sup> However, in 1949, Mr. Cowdin was no longer a director of Douglas Aircraft; he was still on the board of the Curtiss-Wright. Mr. Cowdin was also chairman of the board and director of Universal Pictures Co., Inc.

<sup>6</sup> Mr. Cowdin was still a director of Sperry in 1949.

<sup>7</sup> In 1948, Mr. Breech was no longer a member of the board of either of these companies.

<sup>8</sup> E. S. Bloom, chairman of the board, member of the executive committee and director of the Atlantic Gulf & West Indies Steamship Lines, was a director of Western Electric and of Curtiss-Wright.

manufactures aviation communication equipment, and with Dana Corp.,<sup>9</sup> a manufacturer of aircraft forgings.

Glenn L. Martin Co. maintained a direct interlock with Warner & Swasey Co.,<sup>10</sup> a machine tool manufacturer.

United Aircraft Corp. likewise was tied to a machine tool manufacturer, General Machinery Corp.<sup>11</sup>

Another direct interlock was the tie between Consolidated-Vultee Aircraft and Avco Manufacturing. As part of the Victor Emanuel interest group, Consolidated-Vultee Aircraft and Avco manufacturing have already been discussed.

### *Indirect Interlocks of the Aircraft and Parts Group*

The indirect interlocks in the aircraft and parts group were more numerous than the direct interlocks. Practically all of the important manufacturers of aircraft were indirectly interlocked in some fashion or other.

Through General Aniline & Film Corp., Consolidated Vultee Aircraft Corp., and Avco Manufacturing Co. were indirectly interlocked with Curtiss-Wright;<sup>12</sup> Curtiss-Wright was indirectly interlocked with Republic Aviation Corp. through National Aviation Corp.;<sup>13</sup> Republic Aviation was indirectly interlocked with United Aircraft Corp. through Underwood Corp.;<sup>14</sup> Bell Aircraft Corp. was interlocked with Consolidated Vultee and Avco Manufacturing through Republic Steel Corp.;<sup>15</sup> and Lockheed Aircraft was interlocked with Northrop Aircraft, Inc., through Pacific American, Inc.<sup>16</sup>

All of these indirect interlocking directorates were potentially competition reducing. Seven of the eight companies manufacture air-

<sup>9</sup> C. A. Dana, president and director of Dana Corp., was also a director of Curtiss-Wright.

<sup>10</sup> Thomas H. Jones, partner in Jones, Day, Cockley & Reavis, was the director interlocking these companies.

<sup>11</sup> Frederick B. Rentschler, chairman of the board and director of United Aircraft, was a director of General Machinery.

<sup>12</sup> The directors interlocking these companies are identified in the section describing the Victor Emanuel interest group.

<sup>13</sup> R. L. Clarkson, chairman of the board of American Express Co., director of Republic Aviation, and Mr. Stuart R. Reed, partner in Paine, Webber, Jackson & Curtis, and a director of Curtiss-Wright, were both directors of National Aviation Corp.

<sup>14</sup> R. L. Clarkson of Republic Aviation sat on the board of Underwood Corp. with M. B. Brainard, president and a director of Aetna Life Insurance Co.

<sup>15</sup> Victor Emanuel and George E. Allen, directors of Consolidated Vultee Aircraft and of Avco Manufacturing, were on the board of Republic Steel with J. F. Schoellkopf, Jr., a director of Bell Aircraft, and president and director of Niagara Share Corp.

<sup>16</sup> Charles A. Barker, Jr., vice president, treasurer and director of Lockheed, and John O'Melveney, partner in O'Melveney & Myers of Los Angeles and a director of Northrop Aircraft, both served as directors of Pacific American.



craft. Avco Manufacturing Co., which does not manufacture aircraft, specializes in the production of aircraft engines and propeller parts and is, therefore, a potential supplier as well as a competitor. It is possible that customer-supplier, as well as competitor relations exists between all these companies with respect to certain assemblies and component parts. However, except for Avco Manufacturing and Consolidated Vultee, there are no known stock interrelations between the companies, such as might explain the interlocking directorates. A large share of the business of the aircraft companies is obtained by competing for contracts let by the Federal Government and by designing aircraft which meet the peculiar needs of the Government. In addition to Government business, the aircraft companies have the commercial airlines, private individuals, and corporations as potential customers. Although the non-Government share of the market may be relatively small, the potential private market of the plane manufacturers does not appear to be so narrow as to preclude competition. However, the apparent community of interest effected through interlocking directorates of the large producers of aircraft raises a question as to whether the industry has competed vigorously to develop the private market, and also whether the Government, as the largest buyer, is the beneficiary of effective competition.

In addition to maintaining a chain of indirect interlocks with each other, some of the aircraft manufacturers had indirect interlocking relations with others who were potential suppliers of aircraft parts. Glenn L. Martin Co. was indirectly interlocked through Cleveland Trust Co. (Cleveland, Ohio) with Eaton Manufacturing,<sup>17</sup> an important producer of aircraft engine valves. Northrop Aircraft was also interlocked with Eaton Manufacturing through Northwestern Mutual Life Insurance Co.<sup>18</sup> Republic Aviation had an interlock with Borg-Warner Corp. through National Distillers Products Corp.<sup>19</sup> Borg-Warner is a producer of carburetors, hydraulic pumps, fuel pumps, air pumps, wheel-braking system intensifiers, control valves, and other kindred parts for aircraft.

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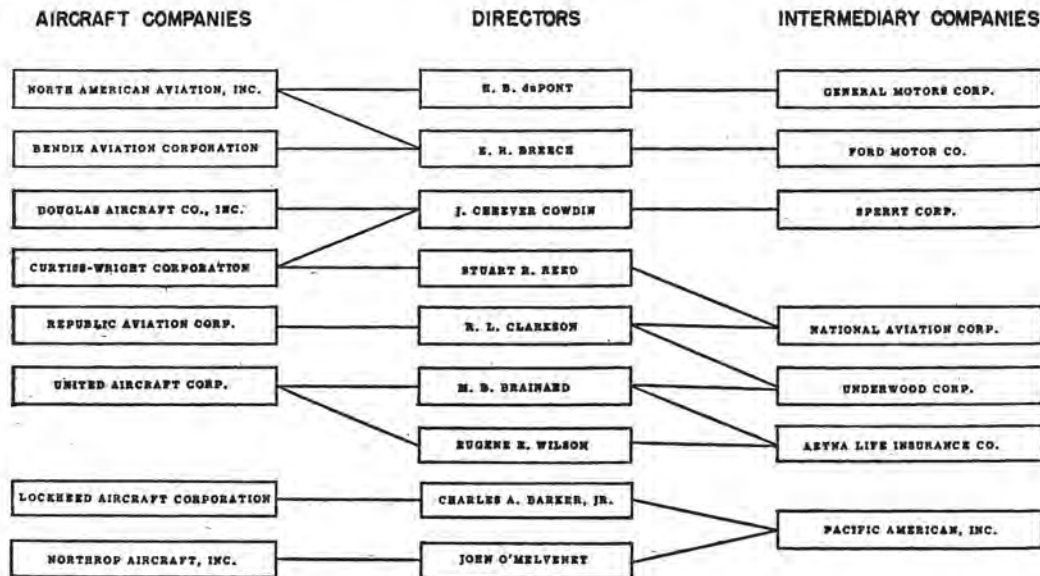
<sup>17</sup> E. B. Greene, president and director of Cleveland-Cliffs Iron Co. and a director of Eaton Manufacturing, served on the board of Cleveland Trust Co. with Thomas H. Jones, partner in Jones, Day, Cockley & Reavis of Cleveland and a director of Glenn L. Martin Co.

<sup>18</sup> John O'Melveney, partner in O'Melveney & Myers of Los Angeles and a director of Northrop Aircraft, was a director in common on the board of Northwestern Mutual Life with H. L. Pierson, president and director of Detroit Harvester and a director of Eaton Manufacturing.

<sup>19</sup> J. R. Forgan, partner in Glore Forgan & Co. and director of Borg-Warner Corp., sat on the board of National Distillers Products with Robert L. Clarkson, chairman of the board and president of Amerex Holding Corp., and a director of Republic Aviation.



# INTERLOCKING DIRECTORATES OF AIRCRAFT AND PARTS GROUP<sup>1</sup> 1946



<sup>1</sup>/Exclusive of Victor Knauss companies. Consolidated Police Aircraft Corporation and Avon Manufacturing Co., two Victor Knauss companies, were indirectly interlocked with Curtiss-Wright Corp., through General Aviation & Film Corp., and with Bell Aircraft Corp. through Republic Steel, see section on Victor Knauss interest group.

CHART 37.

## INTERLOCKING DIRECTORATES OF THE MOTOR VEHICLE AND MOTOR VEHICLE-EQUIPMENT GROUP

The motor vehicle and motor-vehicle equipment group includes establishments primarily engaged in manufacturing or assembling passenger cars, trucks, busses (except trackless trolleys), and special-purpose motor vehicles, such as fire engines, ambulances, and taxicabs. Within the industry are also establishments that manufacture passenger car, truck and bus bodies, truck and automobile trailers, and sundry automotive parts and accessories. Thus there are two distinct groups in the industry; the motor vehicle manufacturers and the parts and accessories manufacturers.

The pattern of production in motor vehicles and motor equipment is not homogeneous, but conglomerate. The large motor vehicle manufacturers are, in general, highly integrated. But, in addition to motor vehicles, General Motors, Ford Motor, and Chrysler also produce other products, such as heating and lighting equipment, refrigeration and air-conditioning equipment, farm equipment, Diesel engines and locomotives, and a complete line of automotive replacement parts. Most motor vehicle companies also produce a portion of their original equipment parts requirements, but even the integrated companies have always purchased some parts from the independent parts manufacturers. This practice, coupled with the fact that some motor vehicle manufacturers are essentially assemblers of parts produced by others, has made possible the development of an auxiliary or independent parts industry whose operations are closely related to those of the motor-vehicle manufacturers. The independent parts manufacturers are generally not highly integrated, and many are specialists in one or more lines of production. Some, however, equal or even exceed the motor-vehicle manufacturers in the number of different products produced.

Of the 48 companies in the motor vehicle and motor vehicle equipment division, 41 had interlocking directorates with other companies; and 33 of this 41 maintained interlocks with other motor vehicle companies. Some of these interlocking relations were complex. Chart 38 shows the direct and indirect interlocks of the motor vehicle and motor vehicle equipment group.

### *Interlocking Directorates of Potential Competition-Reducing Significance*

Although 41 of the 48 companies in the motor vehicle and motor vehicle equipment group had interlocks, of which 20 were direct, relatively few of these interlocking relations appeared to be of competitive significance. Moreover, the significant interlocks, with few exceptions, were among manufacturers of automotive parts.

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Of competitive significance were the multiple indirect interlocks between Eaton Manufacturing and Thompson Products.<sup>20</sup> Eaton Manufacturing and Thompson Products both produce bronze bearings and bushings and engine valves for the automotive and aircraft industries. In fact, these two companies are the only manufacturers of aircraft valves in the United States.<sup>21</sup>

Eaton Manufacturing was also directly interlocked with Lamson & Sessions,<sup>22</sup> and both companies are manufacturers of lock nuts and washers for the automotive industry. An additional interlock involving Eaton Manufacturing was an indirect interlock with Midland Steel Products Co.,<sup>23</sup> a manufacturer of metal stampings for the automotive industry. Eaton also manufactures automotive stampings.

Another significant direct interlocking relation involved three motor vehicles parts manufacturers: Borg-Warner, Houdaille-Hershey, and Bendix Aviation. Paul H. Davis,<sup>24</sup> of the Paul H. Davis Co., was a director on all three of these companies. Borg-Warner and Bendix Aviation both manufacture carburetors and universal joints for the automotive industry and a great variety of parts for aviation use. Houdaille-Hershey manufactures airplane and refrigerator parts, as well as parts and components for the motor vehicle industry. Borg-Warner produces refrigerators and coolers of all types.

Other interlocks of possible competition-reducing significance in the motor-vehicle group were as follows:

Chrysler was indirectly interlocked with American Locomotive,<sup>25</sup> which manufactures Diesel engines for marine and industrial use, and

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<sup>20</sup> One interlock was effected through Lamson & Sessions Co. Samuel L. Mather, vice president of Cleveland-Cliffs Iron Co., and director of Thompson Products, served on the board of Lamson & Sessions Co., with Richard Inglis, partner in Hauxhurst, Inglis, Sharp & Cull of Cleveland, general counsel, member of the executive committee and a director of Eaton Manufacturing. The other interlock was through Cleveland Graphite Bronze Co. Frederick C. Crawford, president, general manager, and director of Thompson Products, was a director on the board of Cleveland Graphite Bronze, in company with Frederick J. Griffiths of Chromlum Mining & Smelting Corp., Ltd., and a director of Eaton Manufacturing.

<sup>21</sup> Fortune, December 19, 1946, p. 203.

<sup>22</sup> See footnote 29, *supra*. Mr. Inglis was still a director of Eaton Manufacturing and of Lamson & Sessions on December 31, 1949.

<sup>23</sup> E. B. Greene, president and director of Cleveland-Cliff Iron Co., and a director of Eaton Manufacturing, served on the board of Jones & Laughlin Steel Corp., with John W. Reavis, partner, Jones, Day, Cockley & Reavis of Cleveland, member of the executive committee, secretary and director of Midland Steel Products Co.

<sup>24</sup> Mr. Davis continued to serve on all these companies, except Bendix Aviation, on December 31, 1948.

<sup>25</sup> John A. Hartford, president and director of the Great Atlantic & Pacific Tea Co., a director of Chrysler, and A. H. Wiggin, a director of American Locomotive, were both directors of the New York, New Haven & Hartford.

with Brockway Motors Co.,<sup>26</sup> a manufacturer of motor trucks. Chrysler manufactures Diesel engines for marine and industrial use as well as motor trucks.

Midland Steel Products and Dana Corp., were indirectly interlocked through the Manufacturers Trust Co. (New York).<sup>27</sup> Midland Steel Products and Dana Corp., manufacture automobile frames and appear to compete for the same market.

Midland Steel Products was also directly interlocked with Murray Corp. of America.<sup>28</sup> Both companies produce automobile chassis frames and metal stampings for the automotive industry.

Studebaker Corp., and Nash-Kelvinator Corp., manufacturers of automobiles, were indirectly interlocked through the Marine Midland Corp. (Jersey City, N. J.)<sup>29</sup>

*Interlocking Directorates of Potential Customer-Supplier Significance.*

Many interlocks within the motor vehicle and motor vehicle equipment group may have facilitated securing supplies or obtaining customers. In this respect the interlocking relations between motor vehicle manufacturers and potential parts suppliers were especially noteworthy.

Most of the large vehicle manufacturers had interlocks with several different parts manufacturers. Chrysler Corp.'s interlocking relations appear to have been particularly significant. One pattern of indirect interlocks linked Chrysler with Timken-Detroit Axle Co.,

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<sup>26</sup> John A. Hartford, president and director of the Great Atlantic & Pacific Tea Co., a director of Chrysler, and George V. McLaughlin, president and trustee of the Brooklyn Trust Co. (Brooklyn, N. Y.) and a director of Brockway Motor, were both on the board of the Long Island Railroad Co.

<sup>27</sup> Harold C. Richard, chairman of the board and director of the Hartford Electric Steel Corp., and a director of Midland Steel Products, served with C. A. Dana, chairman of the board and director of Dana Corp., on the board of the Manufacturers Trust Co.

<sup>28</sup> Harold C. Richard was also a director of Murray Corp., as well as of Midland Steel Products. Mr. Richard was still a director of these companies on December 31, 1949. Although Murray Corp. is classified as a fabricated metal products company, it is important as a manufacturer of parts for the motor vehicle industry.

<sup>29</sup> James G. Blaine, president and director of the Marine Midland Trust Co., of New York, and a director of Marine Midland Corp., was also a director of Studebaker. Ernest Stauffen, Jr., chairman of the trust committee and a director of the Manufacturers Trust Co., was a director of Marine Midland Corp., and of the Nash-Kelvinator.

It should also be noted that Percy John Ebbott, a vice president of Chase National Bank, was a director of Nash-Kelvinator, and that Edward J. Quintal, also a vice president of Chase, was a director of Studebaker.



Hupp Corp. and Standard Steel Spring Co.<sup>30</sup> Chrysler is the third largest manufacturer of automobiles and trucks and, in addition, produces heating, cooling, and refrigeration equipment, and various types of marine and industrial engines. Timken-Detroit Axle is the largest manufacturer of axles for commercial cars, trucks, and motor coaches. Hupp Corp. does contract manufacturing of production parts and assemblies for automobiles, air-conditioning equipment, refrigeration equipment, and aircraft. Standard Steel Spring is a manufacturer of automobile bumpers, flat-leaf springs and universal joints.

Chrysler was indirectly interlocked with the Budd Co., through the Bank of New York,<sup>31</sup> and with Stewart-Warner Corp., through United States Pipe & Foundry Co.<sup>32</sup> Stewart-Warner manufactures automotive electrical equipment and lubricating fittings. Budd Co., in addition to manufacturing railroad equipment, also manufactures wheels, hub and drum assemblies, passenger-car bodies, body parts, and brake parts for the automotive industry. In the late 1930's Chrysler was reported to be Budd's second largest customer for automobile bodies,<sup>33</sup> but it is not known if this customer-supplier relationship has continued.

Chrysler Corp., maintained direct interlocks with Electric Auto-Lite Co.,<sup>34</sup> and Electric Storage Battery Co.,<sup>35</sup> Electric Auto-Lite and Electric Storage Battery are both manufacturers of storage batteries, ignition parts, and electrical equipment for automobiles. Chrysler and Universal Products Co., were directly interlocked.<sup>36</sup> Universal Products, which is primarily a manufacturer of propeller shafts and universal joints, finds Chrysler its largest customer.<sup>37</sup>

<sup>30</sup> H. E. Talbott, partner in H. E. Talbott & Co., was a director of Chrysler Corp., and the Commercial National Bank and Trust Co. of New York. William F. Rockwell, chairman of the board and director of Timken-Detroit Axle, was also a director of the Commercial National Bank and Trust Co., Hupp Corp., and of Standard Steel Spring.

<sup>31</sup> W. W. Colpitts, partner in Coverdale & Colpitts, director of the Budd Co., and Thomas E. Murray, president and director of the Metropolitan Engineering Co., and director of Chrysler, were both directors on the board of the Bank of New York.

<sup>32</sup> J. C. Brady, president and director of Brady Security & Realty Corp., and a director of Chrysler, and Ralph M. Shaw, partner in Winston, Strawn & Shaw, Chicago, and a director of Stewart-Warner, were both directors of United States Pipe and Foundry.

<sup>33</sup> *Fortune*, February 1937, page 130.

<sup>34</sup> H. E. Talbott, partner in H. E. Talbott & Co., and a director of the Electric Auto-Lite, was a director of Chrysler.

<sup>35</sup> J. C. Brady, president and director of Brady Security and Realty Corp., was a director of Electric Storage Battery, and of Chrysler.

<sup>36</sup> Allen F. Edwards, president and director of Universal Products, was also a director of Chrysler.

<sup>37</sup> *Moody's Industrials*, 1948, p. 1062.

Thus Chrysler had interlocks with eight automobile parts manufactures. It is perhaps significant that Chrysler is not so highly integrated as its two larger competitors. The pattern suggests that interlocking directorates may be to some extent a substitute for integration.

The Ford Motor Co. had indirect interlocks with Motor Products Corp., and Kelsey-Hayes Wheel Co. through the Manufacturers National Bank of Detroit (Detroit, Mich.).<sup>38</sup> Motor Products manufactures various parts for the automotive industry including steel mouldings, windshields, instrument panels, and ventilating windows. Kelsey-Hayes Wheel makes wheels, hubs, and drums. Thus both companies were possible suppliers of Ford.

Ernest R. Breech, executive vice president and a director of Ford Motor Co., was a director of Bendix Aviation, which makes automotive brakes, starter drives, and carburetors.

Other potential customer-supplier interlocks tied Studebaker, indirectly with Borg-Warner, and directly with Stewart-Warner.<sup>39</sup> Both companies are important independent parts suppliers, and it is interesting to note that a newspaper advertisement by Studebaker on April 25, 1950, announcing the development of an automatic transmission for Studebaker cars, stated that Borg-Warner had cooperated with Studebaker in perfecting the product.

Studebaker also maintained a direct interlock with Kelsey-Hayes Wheel<sup>40</sup> and an indirect interlock with Trico Products Corp.<sup>41</sup> Trico owns the patents to manufacture vacuum-operated windshield wipers, windshield washers, and automatic car window control devices.

Packard Motor Co. had indirect interlocks with Briggs Manufacturing, Detroit Steel Products, and Eaton Manufacturing.<sup>42</sup> Briggs is an important manufacturer of automobile bodies, and Packard is re-

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<sup>38</sup> B. J. Craig and Benson Ford, directors of Ford Motor Co., S. A. Hill, partner in Hill, Hamblen, Essery & Lewis of Detroit and director of Motor Products, and George W. Kennedy, president and director of Kelsey-Hayes Wheel, were all directors of the Manufacturers National Bank of Detroit.

<sup>39</sup> J. R. Forgan, a director of Borg-Warner, and Charles F. Glore, a director of both Studebaker and Stewart-Warner, were both partners of Glore Forgan & Co.

<sup>40</sup> Edward J. Quintal, vice president and comptroller of Chase National Bank, was a director of Studebaker and of Kelsey-Hayes Wheel but was not a director of Chase National Bank.

<sup>41</sup> James G. Blaine, vice president and director of Marine Midland Corp., was also a director of Studebaker. Paul A. Schoellkopf, president and director of Niagara Falls Power Co., was a director of Trico Products and of Marine Midland Corp.

<sup>42</sup> All of these interlocks were through the National Bank of Detroit. Henry E. Bodman, vice president and director of Packard, Charles T. Fisher, Jr., president of the National Bank of Detroit and a director of Briggs Manufacturing, Walter Scott McLucas, chairman of the board of the National Bank of Detroit and director of the Detroit Steel Products, and James Inglis, chairman of the

ported to be Briggs' second largest customer.<sup>43</sup> Detroit Steel Products makes leaf springs and gears and Eaton produces many lines of auto parts. Thus, all three companies were possible supply sources for Packard.

Nash-Kelvinator was indirectly interlocked with Kelsey-Hayes Wheel, Dana Corp.,<sup>44</sup> Midland Steel Products,<sup>45</sup> and Trico Products,<sup>46</sup> all potential suppliers of Nash-Kelvinator.

White Motor Co., a manufacturer of trucks, busses and engines, maintained three indirect interlocking relations with Eaton Manufacturing.<sup>47</sup> It was also indirectly interlocked with Thompson Products,<sup>48</sup> Midland Steel Products,<sup>49</sup> and Budd Co.,<sup>50</sup> all potential suppliers. The

board and director of American Blower Corp., and a director of Eaton Manufacturing, were all directors of the National Bank of Detroit.

<sup>43</sup> Standard and Poor's Industry Surveys, Auto Parts, Part 2, Basic Analysis, July 18, 1947, p. A3-8.

<sup>44</sup> The interlock was effected through the Manufacturers Trust Co. of New York. Ernest Stauffen, Jr., chairman of the trust committee and a director of the Manufacturers Trust Co., was a director of Nash-Kelvinator. C. A. Dana, president and director of Dana Corp., and a director of Kelsey-Hayes Wheel, was also a director of the Manufacturers Trust Co.

<sup>45</sup> Harold C. Richard, chairman of the board and director of the Hartford Electric Steel Corp., and a director of Midland Steel Products, served with Ernest Stauffen, Jr., on the board of the Manufacturers Trust Co.

<sup>46</sup> Paul A. Schoellkopf, president and director of Niagara Falls Power Co., and a director of Trico Products, served on the board of the Marine Midland Corp., with Ernest Stauffen, Jr., chairman of the trust committee and director of the Manufacturers Trust Co., and a director of Nash-Kelvinator.

<sup>47</sup> Clarence I. Ochs, president and director of Eaton Manufacturing, sat on the board of the National Screw & Manufacturing Co. with W. A. McAfee, partner in McAfee, Grossman, Hanning, Newcomer & Hazlett of Cleveland and a director of White Motor. White Motor and Eaton Manufacturing were also interlocked through National Acme Co. Fred H. Chapin, chairman of the board, president and director of National Acme and a director of White Motor, served on the board of National Acme with J. O. Eaton, chairman of the board and director of Eaton Manufacturing. White Motor and Eaton Manufacturing were again interlocked through the Cleveland Trust Co. Mr. Chapin, a director of White Motor, served on the board of Cleveland Trust with E. B. Greene, president and director of Cleveland Cliffs Iron Co., and a director of Eaton Manufacturing.

<sup>48</sup> These companies were interlocked through the National City Bank of Cleveland. W. A. McAfee, director of White Motor, Sam W. Emerson, president, treasurer and director of Sam W. Emerson Co., of Cleveland and a director of Thompson Products, and Edgar A. Hahn, partner in Mooney, Hahn, Loeser, Keough & Freedheim of Cleveland and a director of Thompson Products, were all directors of the National City Bank of Cleveland.

<sup>49</sup> W. A. McAfee, partner in McAfee, Grossman, Hanning, Newcomer & Hazlett of Cleveland and a director of White Motor, was a director on the Board of the National City Bank of Cleveland with John W. Reavis, partner in Jones, Day, Cockley and Reavis, Cleveland, and a director of Midland Steel Products.

<sup>50</sup> W. W. Colpitts, partner in Coverdale & Colpitts, and a director of Budd Co., sat on the board of the Seaboard Air Line Railroad with Otis A. Glazebrook, Jr., partner in Hornblower & Weeks, and a director of White Motor.

principal products manufactured by these companies have already been indicated. In addition, White Motor had indirect interlocks with Electric Boat,<sup>51</sup> which produces truck bodies; Weatherhead Co.,<sup>52</sup> a manufacturer of automotive bearings; and with Trailmobile Co.,<sup>53</sup> a producer of truck-trailers. Truck and trailer manufacturers sometimes establish joint retailer dealerships or have cooperative supply arrangements which enable the customer to obtain more readily the tractor-trailer combination of his choice.

White Motor also maintained direct interlocks with Sparks-Withington Co.,<sup>54</sup> a producer of horns for autos, trucks and busses, and with Kelsey-Hayes Wheel,<sup>55</sup> a manufacturer of automotive wheels, hubs and drums.

In addition to interlocks with potential suppliers, White had a direct interlock with a potential customer, Thew Shovel Co.,<sup>56</sup> a user of engines and a producer of power shovels, motor truck cranes and excavating equipment.

Mack Trucks, Inc., a manufacturer of trucks, busses, fire apparatus and marine engines, was directly interlocked with Granite City Steel Co.,<sup>57</sup> a potential supplier of steel. Mack Trucks also maintained an indirect interlock with Westinghouse Air Brake,<sup>58</sup> which owns 49 percent of the stock of Bendix-Westinghouse Automotive Air Brake

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<sup>51</sup> George W. Codrington, vice president and general manager of General Motors, and a director of Electric Boat, served on the board of National Acme with Fred H. Chapin, chairman of the board and president of National Acme, and a director of White Motor.

<sup>52</sup> John W. Reavis, partner in Jones, Day, Cockley & Reavis of Cleveland, and a director of Weatherhead, was a director of the National City Bank of Cleveland with W. A. McAfee, partner in McAfee, Grossman, Hanning, Newcomer & Hazlett and a director of White Motor.

<sup>53</sup> Maynard H. Murch, president of Maynard H. Murch & Co., of Cleveland and director of White Motor, served on the board of Robbins & Myers, Inc., with S. B. Cramer, vice president and director of the Fifth Third Union Trust Co. of Cincinnati, and a director of Trailmobile.

<sup>54</sup> David L. Johnson, partner in M. & B. and H. H. Johnson of Cleveland, was a director of White Motor, Thew Shovel, and of Sparks-Withington.

<sup>55</sup> Edward J. Quintal, vice president and comptroller of Chase National Bank, was a director of White Motor, and of Kelsey-Hayes Wheel.

<sup>56</sup> David L. Johnson, partner in M. & B. and H. H. Johnson of Cleveland, was a director of White Motor, Thew Shovel, and of Sparks-Withington.

<sup>57</sup> Louis G. Bissell, member of Chadbourne, Wallace, Park & Whiteside, New York, chairman of the board and director, of Mack Trucks, was a director of Granite City Steel.

<sup>58</sup> John N. Marshall, who was with Bethlehem Steel Corp., and a director of Mack Trucks, was a director of Koppers, Inc., in company with R. K. Mellon, chairman of the board and member of the executive committee of the Mellon National Bank & Trust Co. of Pittsburgh, and a director of Westinghouse Air Brake.

Co.<sup>60</sup> Many trucks and busses are equipped with air brakes, and Bendix-Westinghouse Automotive Air Brake manufactures air brake equipment for automotive use. Thus the interlock with Westinghouse Air Brake linked Mack Trucks with a potential supplier.

In addition to Mack Trucks and White Motor, other bus and truck manufacturing companies which had interlocks with potential parts suppliers were Autocar Co., Twin Coach Co., and Reo Motors, Inc. Autocar was directly interlocked with Murray Corp., of America<sup>61</sup> and indirectly with Midland Steel Products.<sup>62</sup> Murray Corp., produces springs, fenders and metal stampings, and Midland Steel Products manufactures frames, power brakes, axle housings and metal stampings. Twin Coach was directly interlocked with Clark Equipment Co.,<sup>63</sup> an important manufacturer of axles, wheels and gears, and Reo Motors maintained a direct interlock with Bohn Aluminum and Brass Corp.,<sup>64</sup> a producer of pistons and bearings for trucks and busses.

Willys-Overland Motors, Inc., had direct interlocks with two potential suppliers: United States Steel,<sup>65</sup> a steel producer, and F. L. Jacobs Co.,<sup>66</sup> which manufactures window and door frames, seat slides, and visor brackets for automobiles and trucks.

Trailmobile Co., a manufacturer of truck trailers, was indirectly interlocked with two potential parts suppliers: Motor Wheel Corp.,<sup>67</sup> and McQuay-Norris Manufacturing Co.<sup>68</sup> Motor Wheel produces wheels, hubs, and drums usable in the manufacture of highway-tractor trailers. McQuay-Norris Manufacturing produces spring bolts and bushings which could be used in the production of trailers. McQuay-

<sup>60</sup> Moody's Industrials, 1948, p. 2895.

<sup>61</sup> Charles R. Stevenson, president and director of Stevenson, Jordon & Harrison, Inc., New York, was a director of Autocar and Murray Corp., of America.

<sup>62</sup> Harold C. Richard, director of the Manufacturers Trust Co., of New York, and a director of Midland Steel Products, served on the board of Murray Corp. with Mr. Stevenson.

<sup>63</sup> Alfred G. Willson was a director of Twin Coach and of Clark Equipment.

<sup>64</sup> Howard James Stoddard, director of the Michigan National Bank of Lansing, Michigan, was a director of Bohn Aluminum & Brass and of Reo Motors.

<sup>65</sup> William A. Irvin, member of the finance committee and a director of U. S. Steel Corp., was also a director of Willys-Overland Motors.

<sup>66</sup> Charles E. Sorensen, vice chairman of the board and a director of Willys-Overland Motors, was a director of F. L. Jacobs Co.

<sup>67</sup> George A. Rentschler, chairman of the board of General Machinery Corp. and a director of Motor Wheel, served on the board of The Fifth Third Union Trust Co. of Cincinnati, with Sterling B. Cramer, vice president of The Fifth Third Union Trust Co., and a director of Trailmobile.

<sup>68</sup> A. G. Drefs, president and director of the McQuay-Norris Manufacturing, was a director of the St. Louis Public Service Co., with David R. Calhoun, Jr., president of the St. Louis Union Trust Co., and a director of Trailmobile.



Norris Manufacturing also produces many products in accordance with customer specifications.

Kaiser-Frazer Corp., was directly interlocked with Graham-Paige Motors Corp.<sup>68</sup> This interlock is explained by the fact that Graham-Paige held a substantial stock interest in Kaiser-Frazer.<sup>69</sup>

Some of the large motor vehicle parts manufacturers also maintained interlocks with potential customers and suppliers.

Eaton Manufacturing, a producer of automotive valves, sodium-filled aircraft valves, transmissions, and many engine parts, was directly interlocked with the Oliver Corp., a manufacturer of farm tractors and a potential customer of Eaton Manufacturing.<sup>70</sup> Other direct interlocks maintained by Eaton Manufacturing were with National Acme,<sup>71</sup> a manufacturer of machine tools; Cleveland Graphite Bronze,<sup>72</sup> which makes lined bronze bearings and bushings for automotive use; Jones & Laughlin Steel Co.,<sup>73</sup> a producer of steel, and Harshaw Chemical Co.,<sup>74</sup> an industrial chemical manufacturer. All of these companies are potential suppliers of Eaton.

Thompson Products, a manufacturer of a long list of automotive engine parts and sodium filled aircraft valves, had direct interlocks with Cleveland Graphite Bronze,<sup>75</sup> Youngstown Sheet and Tube Co.,<sup>76</sup> Copperweld Steel Co.,<sup>77</sup> and Sun Chemical Corp., all potential supplies of Thompson Products. Youngstown Sheet and Tube makes steel and steel products; Copperweld Steel manufactures copper-covered steel rods and electric-furnace alloy steels; and Sun Chemical produces industrial chemicals.

Kelsey-Hayes Wheel, a manufacturer of wheels, hubs, and drums for farm equipment, was directly interlocked with Minneapolis-

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<sup>68</sup> Joseph W. Frazer, chairman of the board, president, and director of Graham-Paige Motors, was a director of Kaiser-Frazer.

<sup>69</sup> Moody's Industrials, 1948, p. 1502 and 1504, states that as of February 7, 1947, Graham-Paige owned 21.05 percent of the Kaiser-Frazer stock.

<sup>70</sup> Clarence I. Ochs, president and director of Eaton Manufacturing, was also a director of Oliver Corp.

<sup>71</sup> J. O. Eaton, chairman of the board and director of Eaton Manufacturing, was also a director of National Acme Co.

<sup>72</sup> Frederick J. Griffiths, with Chromium Mining and Smelting Corp., Ltd., was a director of Eaton Manufacturing, and of Cleveland Graphite Bronze.

<sup>73</sup> Edward B. Greene, president and director of Cleveland Cliffs Iron Co., was a director of Eaton Manufacturing, and of Jones & Laughlin Steel.

<sup>74</sup> Mr. Greene was also a director of Harshaw-Chemical Co.

<sup>75</sup> Frederick C. Crawford, president and director of Thompson Products, was also a director of Cleveland Graphite Bronze.

<sup>76</sup> Samuel L. Mather, vice president of Cleveland Cliffs Iron Co., was a director of Thompson Products and of Youngstown Sheet & Tube.

<sup>77</sup> R. V. Mitchell, chairman of the board and executive committee and a director of Harris-Selbold-Potter Co., was a director of Thompson Products, Copperweld Steel, and Sun Chemical.



Moline Power Implement Co.,<sup>78</sup> which manufactures farm tractors and other farm equipment.

Noblitt-Sparks Industries, Inc., a manufacturer of automobile heaters, maintained direct interlocking relations with Borg-Warner Corp.,<sup>79</sup> which produces heating elements for automobile heaters.

Other motor vehicle parts manufacturing companies which had interlocks with potential suppliers were Timken-Detroit Axle, and Motor Wheel. Timken-Detroit Axle was directly interlocked with Timken Roller Bearing Co.,<sup>80</sup> a producer of tapered roller bearings, and a potential supplier of Timken-Detroit Axle. Motor Wheel, an important producer of automobile wheels, hubs and drums, maintained a direct interlock with General Machinery,<sup>81</sup> which manufactures mechanical presses and machine tools usable by Motor Wheel.

#### INTERLOCKING DIRECTORATES OF THE SHIP AND BOAT BUILDING AND REPAIRING GROUP

The ship and boat building and repairing division of the transportation equipment industry includes establishments engaged primarily in building and repairing all types of ships, barges, motorboats, and canoes.

Among the 1,000 largest corporations in 1946, only eight companies were listed from the ship and boat building and repairing industry.

There were no direct interlocking directorates within this division, and there was only one indirect intra-division interlock which appears to be of competitive significance. This was the fact that Newport News Shipbuilding & Drydock Co., was indirectly interlocked with New York Shipbuilding Corp., through Western Union Telegraph Co.<sup>82</sup> There were, however, direct interlocks with potential suppliers. American Ship Building Co. was interlocked with Interlake Iron Corp.,<sup>83</sup> and Cramp Shipbuilding Co. had interlocks with Anaconda

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<sup>78</sup> Henry S. Bowers, partner in Goldman, Sachs & Co., was a director of Minneapolis Moline Power Implement, and of Kelsey-Hayes Wheel.

<sup>79</sup> Paul Hazlitt Davis, senior partner in Paul H. Davis Co., was a director of Noblitt-Sparks Industries, and of Borg-Warner.

<sup>80</sup> H. H. Timken, Jr., chairman of the board, executive vice president and director of Timken Roller Bearing, and William R. Timken, vice president and director of Timken Roller Bearing, were both directors of the Timken-Detroit Axle.

<sup>81</sup> George A. Rentschler, chairman of the board of General Machinery, was also a director of Motor Wheel.

<sup>82</sup> Albert N. Williams, president of Westinghouse Air Brake and a director of New York Shipbuilding, sat on the board of Western Union Telegraph with H. Donald Campbell, vice chairman of the board of Chase National Bank and a director of Newport News Shipbuilding & Drydock.

<sup>83</sup> John Sherwin, partner in Pickands Mather & Co., of Cleveland, was a director of American Shipbuilding, and of Interlake Iron.

Copper Mining Co.,<sup>84</sup> United States Pipe & Foundry Co.,<sup>85</sup> and Sloss-Sheffield Steel & Iron Co.<sup>86</sup>

An indirect interlock related American Ship Building Co. to the Buda Co., through Interlake Iron Corp.<sup>84</sup> Buda produces parts for the railway equipment industry and also produces Diesel and gasoline engines for marine, industrial, and truck use. To the extent that American Ship Building can use the products produced by Buda, a potential customer-supplier relationship was effected by the interlock.

Direct interlocks which tied companies in the ship- and boat-building group to other transportation equipment companies were as follows:

Bath Iron Works Manufacturing Corp. was interlocked with Mack Trucks;<sup>87</sup> American Ship Building, with Republic Aviation;<sup>88</sup> Cramp Shipbuilding Co. with United Aircraft;<sup>89</sup> Maryland Drydock Co., with Glenn L. Martin Co.;<sup>90</sup> New York Shipbuilding, with ACF-Brill, Avco Manufacturing, Consolidated Vultee Aircraft, Checker Cab Manufacturing, and Westinghouse Air Brake.<sup>91</sup>

#### INTERLOCKING RELATIONS WITH COMMERCIAL BANKS

The transportation equipment industry had more interlocks with banks than with any other industry group. Fifty-five of the ninety transportation equipment companies were interlocked with 42 banks through 108 directors. Not all interlocks with banks have significance. In the transportation equipment industry, however, there were several significant interlocks with banks.

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<sup>84</sup> E. Ronald Harriman, partner in Brown Brothers Harriman & Co., was a director of Cramp Shipbuilding, and of Anaconda Copper Mining.

<sup>85</sup> N. F. S. Russell, president and director, United States Pipe & Foundry Co., was also a director of Cramp Shipbuilding, and of Sloss-Sheffield Steel.

<sup>86</sup> John Sherwin, partner in Pickands Mather & Co., director of American Shipbuilding, and Harry A. Arthur, president and director of American Cities Power & Light Corp., and a director of Buda, were both directors of Interlake Iron.

<sup>87</sup> William S. Newell, president and director of Bath Iron Works, was also a director of Mack Trucks.

<sup>88</sup> Joseph Wright Powell was a director of American Ship Building, and of Republic Aviation.

<sup>89</sup> Joseph P. Ripley, chairman and director of Harriman, Ripley & Co., Inc., was also chairman of the board and director of Cramp Shipbuilding, and a director of United Aircraft.

<sup>90</sup> Howard Bruce was chairman of the board and director of the Baltimore National Bank; chairman of the board, member of the executive committee and a director of Worthington Pump & Machinery Corp.; chairman of the board, member of the executive committee and director of Maryland Drydock, and a director of the Glenn L. Martin Co.

<sup>91</sup> New York Shipbuilding is one of the Victor Emanuel controlled companies and the directors interlocking the above companies were identified in the section describing the Victor Emanuel group of companies.

Manufacturers Trust Co. (New York) had directors in common with nine different transportation equipment companies;<sup>92</sup> four motor vehicle and motor vehicle parts manufacturers (Nash-Kelvinator, Dana Corp., Kelsey-Hayes Wheel, and Midland Steel Products), two aircraft and parts companies (Curtiss-Wright and Avco Manufacturing), two railroad equipment companies (Westinghouse Air Brake and New York Air Brake), and one shipbuilding company (New York Shipbuilding). Thus this bank was interlocked with all subdivisions of the industry. Dana Corp., and Midland Steel Products were potential competitors, and so were Westinghouse Air Brake and New York Air Brake. Dana Corp., Kelsey-Hayes, and Midland Steel Products were potential suppliers of Nash-Kelvinator, and Avco Manufacturing was a potential supplier of Curtiss-Wright.

There were four transportation equipment companies interlocked with Chase National Bank.<sup>93</sup> These were Pullman, Inc., Westinghouse Air Brake, United Aircraft, and Newport News Shipbuilding and Drydock.

The National Bank of Detroit was interlocked with five motor vehicle and parts manufacturers: General Motors,<sup>94</sup> Packard Motor

<sup>92</sup> The interlocking directors were as follows: Ernest Stauffen, Jr., chairman of the trust committee, and a director of Manufacturers Trust Co., was a director of Nash-Kelvinator. C. A. Dana, president and director of Dana Corp., and a director of Kelsey-Hayes Wheel, was a director of the Manufacturers Trust Co. Harold C. Richard, chairman of the board and director of Hartford Electric Steel Corp., was a director of Midland Steel Products, and of the Manufacturers Trust Co. C. A. Dana, president and director of Dana Corp.; Edgar S. Bloom, member of executive committee and chairman of the board and director of Atlantic Gulf & West Indies Steamship Lines, and Guy W. Vaughan, president of Curtiss-Wright, were all directors of Curtiss-Wright and of the Manufacturers Trust Co. Albert N. Williams, president and director of Westinghouse Air Brake, director of Avco Manufacturing, and of New York Shipbuilding, was also a director of the Manufacturers Trust Co. Samuel McRoberts, member of the executive committee and a director of American Sugar Refining Co., was also a director of New York Air Brake and the Manufacturers Trust Co.

<sup>93</sup> The interlocking directors were as follows: Francis W. Cole, chairman of the board, vice president and director of Travelers Insurance Co., was a director of Chase National Bank and of United Aircraft. H. Donald Campbell, vice chairman of the board and director of Chase National Bank, was a director of Newport News Shipbuilding and Drydock. James F. Drake, president and director of Gulf Oil Corp., was a director of Chase National Bank and of Pullman, Inc. Andrew W. Robertson, chairman of the board and director of Westinghouse Electric Corp., was a director of Chase National Bank and of Westinghouse Air Brake. Although they were not directors of Chase National Bank, Percy John Ebbott, vice president of the Chase National Bank, was a director of Nash-Kelvinator, and Edward J. Quintal, vice president and controller of the Chase National Bank, was a director of Studebaker, White Motor, and of Kelsey-Hayes Wheel.

<sup>94</sup> Charles E. Wilson, president and director of General Motors, was a director of the National Bank of Detroit.

Car,<sup>66</sup> Briggs Manufacturing,<sup>68</sup> Detroit Steel Products,<sup>67</sup> and Eaton Manufacturing.<sup>68</sup> Although Detroit Steel Products is not classified as a motor-vehicle-parts company, it manufactures gears and leaf springs for automobiles. Briggs Manufacturing produces automobile bodies, while Eaton Manufacturing and Detroit Steel Products are both potential suppliers of General Motors and Packard Motor Car. The latter two companies are competitors.

The National City Bank of Cleveland was interlocked with four motor vehicle and parts manufacturers—White Motor,<sup>69</sup> Thompson Products,<sup>1</sup> Midland Steel Products<sup>2</sup> and Weatherhead<sup>3</sup>—and one producer of ships, American Ship Building.<sup>4</sup> Thompson Products, Midland Steel Products, and Weatherhead produce a wide variety of automotive parts and are potential suppliers of White Motor, which manufactures motor trucks and buses.

Nash-Kelvinator,<sup>5</sup> Studebaker,<sup>6</sup> Trico Products,<sup>7</sup> and Bell Aircraft,<sup>8</sup> were all interlocked with Marine Midland Corp. (Jersey City, N. J.). Trico Products is the only producer of vacuum-operated windshield

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<sup>66</sup> Henry E. Bodman, vice president and director of Packard Motor Car, was a director of the National Bank of Detroit.

<sup>67</sup> Charles T. Fisher, Jr., president and director of the National Bank of Detroit, was a director of Briggs Manufacturing.

<sup>68</sup> Walter Scott McLucas, chairman of the board and director of the National Bank of Detroit, was a director of Detroit Steel Products.

<sup>69</sup> James Inglis, chairman of the board and director of the American Blower Corp., was a director of Eaton Manufacturing and of the National Bank of Detroit.

<sup>1</sup> William A. McAfee, partner McAfee, Grossman, Hanning, Newcomer and Hazlett, was a director of White Motor, and of the National City Bank of Cleveland.

<sup>2</sup> Sam W. Emerson, president, treasurer, and director of Sam W. Emerson Co. of Cleveland, and Edgar A. Hahn, partner in Mooney, Hahn, Loeser, Keough & Freedheim of Cleveland, were both directors of Thompson Products and of the National City Bank of Cleveland.

<sup>3</sup> John W. Reavis, partner in Jones, Day, Cockley & Reavis of Cleveland, was a director of Midland Steel Products, and of the National City Bank of Cleveland.

<sup>4</sup> Mr. Reavis was also a director of Weatherhead. George Buffington, executive vice president and director of the National City Bank of Cleveland, was also a director of Weatherhead.

<sup>5</sup> Joseph H. Thompson, vice president and director of M. A. Hanna Co., was a director of American Ship Building, and of the National City Bank of Cleveland.

<sup>6</sup> Ernest Stauffen, Jr., chairman of the trust committee and director of Manufacturers Trust Co., was a director of Nash-Kelvinator and of Marine Midland Corp. (Jersey City).

<sup>7</sup> James G. Blaine, president and director of the Marine Midland Trust Co., was a director of Studebaker, and of Marine Midland Corp. (Jersey City).

<sup>8</sup> Paul A. Schoellkopf, president and director of the Niagara Falls Power Co., was a director of Trico Products and of Marine Midland Corp. (Jersey City).

<sup>9</sup> Jacob F. Schoellkopf, Jr., president and director of the Niagara Share Corp., was a director of Bell Aircraft and of Marine Midland Corp. (Jersey City).

wipers for autos, and these products are usable by Nash and Studebaker.

Commercial National Bank and Trust Co., of New York had directors in common with Chrysler,<sup>9</sup> Timken-Detroit Axle,<sup>10</sup> Hupp Corp.,<sup>10</sup> Standard Steel Spring,<sup>10</sup> and American Ship Building.<sup>11</sup> Timken-Detroit Axle, Hupp Corp., and Standard Steel Spring are potential suppliers of Chrysler.

Timken-Detroit Axle<sup>12</sup> and Hupp Corp.<sup>12</sup> were also interlocked with Peoples First National Bank & Trust Co. (Pittsburgh, Pa.) along with Westinghouse Air Brake<sup>13</sup> and New York Air Brake.<sup>14</sup> The latter two companies are the only producers of railway air brake equipment in the United States.

Ford Motor Co.<sup>15</sup> and two automobile parts manufacturers, Motor Products<sup>16</sup> and Kelsey-Hayes Wheel,<sup>17</sup> had directors in common with Manufacturers National Bank of Detroit.

White Motor,<sup>18</sup> a truck and bus manufacturer, Eaton Manufacturing,<sup>19</sup> a manufacturer of parts for motor and aircraft, and Glenn L. Martin Co.,<sup>20</sup> an aircraft manufacturer, were all interlocked with Cleveland Trust Co.

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<sup>9</sup> H. E. Talbott, partner in H. E. Talbott and Co., was a director of Chrysler and of the Commercial National Bank and Trust Co.

<sup>10</sup> Willard F. Rockwell, chairman of the board and director of Timken-Detroit Axle, was a director of Hupp Corp., Standard Steel Spring, and the Commercial National Bank & Trust Co.

<sup>11</sup> Edward P. Farley, chairman of the board, chairman of the executive committee, and director of American-Hawaiian Steamship Co., was a director of American Ship Building and of the Commercial National Bank and Trust Co.

<sup>12</sup> Willard F. Rockwell, chairman of the board and director of Timken-Detroit Axle, and a director of Hupp Corp., was also a director of the Peoples First National Bank & Trust Co. (Pittsburgh, Pa.).

<sup>13</sup> William Porter Witherow, chairman of the board, president and director of Blaw-Knox, was on the board of Westinghouse Air Brake, and of Peoples First National Bank & Trust Co. (Pittsburgh, Pa.).

<sup>14</sup> Joseph V. Smith, executive vice president and director, Hubbard & Co., was a director of New York Air Brake, and of Peoples First National Bank & Trust Co. (Pittsburgh, Pa.).

<sup>15</sup> B. J. Craig and Benson Ford, directors of Ford Motor Co., were also directors of the Manufacturers National Bank of Detroit.

<sup>16</sup> S. A. Hill, partner in Hill, Hamblen, Essery & Lewis of Detroit, was a director of Motor Products, and of the Manufacturers National Bank of Detroit.

<sup>17</sup> George W. Kennedy, president and director of Kelsey-Hayes Wheel, also served on the board of the Manufacturers National Bank of Detroit.

<sup>18</sup> Fred H. Chapin, chairman of the board, president and director of National Acme, was a director of White Motor, and of the Cleveland Trust Co.

<sup>19</sup> E. B. Greene, president and director of Cleveland Cliffs Iron Co., and director of Eaton Manufacturing, served on the board of the Cleveland Trust Co.

<sup>20</sup> Thomas Hoyt Jones, partner in Jones, Day, Cockley & Reavis, Cleveland, was a director of Glenn L. Martin Co., and of the Cleveland Trust Co.



The three railroad equipment companies: Pullman, Inc.,<sup>21</sup> American Car & Foundry,<sup>22</sup> and Buda Co.,<sup>23</sup> had directors in common with Continental Illinois National Bank & Trust Co., of Chicago.

Other large commercial banks which had interlocking relations with transportation equipment companies included such prominent banks as J. P. Morgan & Co., Guaranty Trust Co., Mellon National Bank & Trust Co., Bank of Manhattan Co., and the Marine Midland Trust Co. of New York. Interlocked with J. P. Morgan & Co., were General Motors and Pullman, Inc.,<sup>24</sup> with Guaranty Trust were Chrysler and Pullman, Inc.;<sup>25</sup> with Mellon National Bank & Trust Co., were Pullman, Inc., and Westinghouse Air Brake;<sup>26</sup> with Bank of Manhattan Co. were ACF-Brill and Consolidated Vultee Aircraft;<sup>27</sup> and with the Marine Midland Trust Co. of New York were Studebaker, and Curtiss-Wright.<sup>28</sup>

In addition to the aforementioned, there were six other banks each of which had interlocks with two transportation equipment companies. These were as follows:

The Northwestern National Bank of Minneapolis had interlocks with Pullman, Inc., and Lima Locomotive Works.<sup>29</sup>

<sup>21</sup> David A. Crawford, president and director of Pullman, Inc., was also a director of the Continental Illinois National Bank & Trust Co.

<sup>22</sup> Walter Joseph Cummings, chairman of the board and director of the Continental Illinois National Bank & Trust Co., was a director of American Car and Foundry.

<sup>23</sup> Charles Yoe Freeman, chairman of the board and director of Commonwealth Edison Co., was a director of Buda and of the Continental Illinois National Bank & Trust Co. of Chicago.

<sup>24</sup> Alfred P. Sloan, Jr., chairman of the board and director of General Motors and director of Pullman, Inc., sat on the board of J. P. Morgan & Co., with George Whitney, president of J. P. Morgan & Co., and a director of General Motors.

<sup>25</sup> John A. Hartford, president and director of the Great Atlantic & Pacific Tea Co., and director of Chrysler, served on the board of the Guaranty Trust Co., with Morris W. Kellogg, chairman of the board of M. W. Kellogg Co., and a director of Pullman, Inc.

<sup>26</sup> George A. Blackmore, chairman of the board of Westinghouse Air Brake; J. Frederic Byers, chairman of the board and director of A. M. Byers; William B. Given, Jr., president and director of American Brake Shoe; and Richard K. Mellon, chairman of the board, member of the executive committee of the Mellon National Bank & Trust Co., were all directors of Westinghouse Air Brake and of the Mellon National Bank & Trust Co. Alan M. Scaife, vice president, member of the finance committee and director of Gulf Oil Corp., was also a director of Pullman, Inc., and of the Mellon National Bank & Trust Co.

<sup>27</sup> Neal Dow Becker, president and director of Intertype Corp., was a director of ACF-Brill, Consolidated Vultee Aircraft, and the Bank of Manhattan Co.

<sup>28</sup> James G. Blaine, president of the Marine Midland Trust Co., director of Studebaker, and Burdette S. Wright, vice president of Curtiss-Wright, were both directors of the Marine Midland Trust Co.

<sup>29</sup> James F. Bell, chairman of the board of General Mills, Inc., and a director of Pullman, Inc., served on the board of the Northwestern National Bank of



The Bank of New York was interlocked with Chrysler, and Budd Co.<sup>30</sup>

The City National Bank and Trust Co. (Chicago, Ill.) maintained interlocks with Borg-Warner, and Stewart-Warner.<sup>31</sup>

The Fifth Third Union Trust Co. (Cincinnati, Ohio) was interlocked with Motor Wheel, and Trailmobile.<sup>32</sup>

The Mississippi Valley Trust Co. (St. Louis, Mo.) had interlocks with McQuay-Norris Manufacturing, and McDonnell Aircraft Corp.<sup>33</sup>

The Wilmington Trust Co. (Wilmington, Del.), interlocked General Motors and North American Aviation.<sup>34</sup>

A further indication of the importance of interlocks between banks and transportation equipment companies was the tendency of the larger transportation equipment companies to have interlocks with a number of different banks. Eight different banks were represented on the board of Pullman, Inc., five on that of Westinghouse Air Brake, four on that of Chrysler, and three on those of General Motors, Nash-Kelvinator, Studebaker, White Motor, Eaton Manufacturing, and Kelsey-Hayes Wheel.

Clearly the number and character of interlocks between transportation equipment companies and large banks created an environment that was unfavorable to vigorous competition. Furthermore, this tendency of large corporations to join hands with large banks may

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Minneapolis with Frank T. Heffelfinger, chairman of the board of F. H. Peavey & Co., and a director of Lima Locomotive.

\* Thomas E. Murray, president of the Metropolitan Engineering Co., and a director of Chrysler, served on the board of the Bank of New York with W. W. Colpitts, partner in Coverdale & Colpitts of New York City, and a director of Budd Co.

\* Charles S. Davis, president and director of Borg-Warner; George B. Dryden, president of Dryden Rubber Co., and a director of Borg-Warner; and William A. Patterson, president of United Airlines, Inc., and a director of Stewart-Warner, were all directors of the City National Bank & Trust Co. of Chicago.

\* George A. Rentschler, chairman of the board of General Machinery, and a director of Motor Wheel, served on the board of the Fifth Third Union Trust Co., with Sterling B. Cramer, the first vice president of the Fifth Third Union Trust Co., and a director of Trailmobile.

\* Arthur G. Drefs, president and director of McQuay-Norris Manufacturing, and Firmin V. Desloge, director of St. Joseph Lead Co. and a director of McDonnell Aircraft Corp., both served on the board of the Mississippi Valley Trust Co. (St. Louis).

\* Henry B. du Pont, vice president, member of the executive committee and director of du Pont, director of General Motors, and of North American Aviation; Walter S. Carpenter, Jr., president, chairman of the executive committee and director of du Pont, and a director of General Motors; and Lamont du Pont Copeland, member of the finance committee and a director of du Pont, and of General Motors, were all directors of the Wilmington Trust Co. (Wilmington, Del.).

limit the access of other and smaller competitors to the principal sources of short term capital and thereby may limit expansion in the industry to the large and established companies.

Transportation equipment directors on bank directorates had opportunities to function as private planning boards in allocating credit, accelerating or diminishing the tempo of the industry, harmonizing the relations of competitors and weighing the transactions of these companies with others in which they or their institutions were interested.

### SUMMARY

Interlocking directorates in the transportation-equipment industry were extensive, complex, and in some instances of apparent significance. No single corporate group exercises a dominance of control over all four divisions of the industry.<sup>36</sup> However, there were corporations and interest groups, with production in three or more divisions of the industry, whose interlocking relations appeared to extend the area of potential economic influence beyond the corporate entities comprising the respective interest groups. General Motors, whose production is listed in three of the four divisions of the industry,<sup>38</sup> had interlocking relations with six motor vehicle parts manufacturers,<sup>37</sup> four automobile and truck manufacturers,<sup>38</sup> three aircraft and parts companies,<sup>39</sup> and three railroad-equipment companies.<sup>40</sup> The Victor Emanuel interest group, composed of two aircraft, one motor vehicle and one shipbuilding company,<sup>41</sup> had a long list of interlocking relations. ACF-Brill, the motor vehicle company in the Emanuel complex, had interlocks with 10 companies,<sup>42</sup> all of which were either potential competitors, customers, or suppliers of Brill. The aircraft companies of the Emanuel group also had interlocking

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<sup>36</sup> The four divisions of the industry are: Motor vehicles and motor-vehicle equipment, aircraft and parts, railroad equipment, and ship and boatbuilding and repairing.

<sup>37</sup> General Motors products are listed in the motor vehicles and parts, aircraft and parts, and railroad equipment divisions of the industry.

<sup>38</sup> Eaton Manufacturing, Detroit Steel Products, Briggs Manufacturing, Thompson Products, Clark Equipment, and ACF-Brill.

<sup>39</sup> Ford Motor, Chrysler, Packard Motor Car, and Brockway Motors.

<sup>40</sup> Republic Aviation, United Aircraft, and North American Aviation.

<sup>41</sup> Pullman, Inc., American Locomotive, and General American Transportation.

<sup>42</sup> The Victor Emanuel companies were Avco Manufacturing, Consolidated Vultee Aircraft, ACF-Brill, and New York Shipbuilding.

<sup>43</sup> The 10 companies were General Motors, Mack Trucks, Brockway Motor, Waukesha Motor, Bendix-Westinghouse Automotive Air Brake, Checker Cab Manufacturing, Marmon-Herrington Co., Chicago Motor Coach Co., Sterling Motor Truck Co., Inc., and Gar Wood Industries.

relations with an airline company,<sup>43</sup> a parts manufacturer,<sup>44</sup> and a company which operates a landing field.<sup>45</sup> Moreover, the only interlock of competition-reducing significance in the shipbuilding division involved the New York Shipbuilding Corp.,<sup>46</sup> one of the Emanuel companies.

It is true that many of the interlocking directorates of these two interest groups were indirect, i. e. through a third company, and it is not known if they were deliberately sought. Moreover, the importance of any single directorship should not be overestimated for a directorship may be fortuitous or the director may be relatively inactive. However, the multiplication of interlocking relations appears to have broadened the economic influence capable of being exercised by each of the interest groups.

There were many interlocking directorates in the railroad equipment group. Fourteen of the fifteen companies in the group had interlocks, and 12 of the 14 had interlocking relations with other railroad equipment companies, six of which were direct. One direct interlock was between two manufacturers of railway air-conditioning equipment and was, therefore, of competitive significance.<sup>47</sup>

The pattern of indirect interlocks among manufacturers of similar types of railway equipment, and between these manufacturers and the potential buyers of the equipment, appears even more significant than the direct interlocks. The multiple interlocking relations (in addition to cross-licensing arrangements) of Westinghouse Air Brake Co., with New York Air Brake Co.,<sup>48</sup> commands particular attention, as do the multiple and single interlocks with some of the largest potential users of railway air brake equipment,<sup>49</sup> including two railroads.<sup>50</sup> The pattern of interlocks also linked Westinghouse with large manufacturers of special parts and components which appear to be potential suppliers of Westinghouse.<sup>51</sup>

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<sup>43</sup> Pan American Airways. The New York Times of May 24, 1950, reported that Avco Manufacturing had sold its stock interest in Pan American.

<sup>44</sup> Bendix Aviation.

<sup>45</sup> Roosevelt Field.

<sup>46</sup> The interlock was between New York Shipbuilding, and Newport News Shipbuilding and Drydock.

<sup>47</sup> This interlock was between Safety Car Heating and Lighting, and the Carrier Corp.

<sup>48</sup> Apparently New York Air Brake is the only other manufacturer of railway air brake equipment.

<sup>49</sup> These included Pullman, Inc., American Car and Foundry, American Locomotive, Baldwin Locomotive, Lima Locomotive, General American Transportation, and H. K. Porter Co.

<sup>50</sup> The Pennsylvania Railroad Co., and the Wheeling and Lake Erie.

<sup>51</sup> American Brake Shoe and General Steel Castings.

Another chain of interlocking relations existed among the manufacturers of locomotives,<sup>52</sup> railway rolling stock,<sup>53</sup> and other types of specialized railroad equipment.<sup>54</sup>

The economic significance of this network of interlocking directorates in the railroad equipment division is not obvious. The railroad-equipment division is dominated by a few large and well-established companies, and the market for railway equipment is relatively narrow. Thus there exist strong economic incentives for these manufacturers to develop a community of interest. In view of these considerations, the pattern of interlocking directorates in the railroad-equipment division has competitive significance and raises the question whether or not the purpose of section 10 of the Clayton Act is being defeated.

In the aircraft and parts group, the analysis disclosed one direct interlock<sup>55</sup> that appears to have been a violation of section 8 of the Clayton Act; but by 1948 the interlocking relation had been dissolved. The principal disclosure, however, was the chain of indirect interlocking relations linking the large manufacturers of aircraft,<sup>56</sup> and the prevalence of significant interlocks between aircraft manufacturers and the producers of specialized aircraft equipment.<sup>57</sup>

The interlocking directorates of the major aircraft and parts manufacturers created so pronounced a pattern as to warrant the inference that they were of competitive significance.

Many interlocking directorates were found in the motor-vehicle and motor vehicle-equipment division, and it is difficult to weigh the importance of some, but two general observations appear to be warranted. First, there was a tendency for each of the large motor-vehicle manufacturers to interlock with a cluster of parts manufac-

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<sup>52</sup> Among locomotive manufacturers there were interlocking relations between American Locomotive and Baldwin Locomotive and between American Locomotive and General Motors.

<sup>53</sup> Interlocks among manufacturers of this equipment linked General Motors with Pullman, Inc., and General American Transportation and American Car & Foundry with Pullman, Inc.

<sup>54</sup> Automatic block signal equipment is an example. Westinghouse Air Brake and General Railway Signal, both manufacture this equipment. Westinghouse Air Brake maintained an interlock with Lima Locomotive, which was interlocked with General Railway Signal.

<sup>55</sup> The interlock was between Douglas Aircraft and Curtiss-Wright.

<sup>56</sup> The interlocks were: Consolidated Vultee Aircraft and Avco Manufacturing, interlocked with Curtiss-Wright; Curtiss-Wright with Republic Aviation; Republic Aviation with United Aircraft; and Bell Aircraft with Consolidated Vultee and Avco Manufacturing. Lockheed Aircraft Corp. and Northrop were also interlocked.

<sup>57</sup> Douglas Aircraft and Curtiss-Wright had interlocks with Sperry Corp.; North American Aviation with Bendix Aviation; Curtiss-Wright with Western Electric; General Motors with United Aircraft, Republic Aviation, North American Aviation, and Consolidated Vultee; and Avco Manufacturing with Bendix Aviation.

turers; and second, there was no typical pattern of interlocking relations among parts manufacturers that was of general competitive significance. However, a few cases appeared important.

General Motors was interlocked with seven parts manufacturers,<sup>58</sup> Ford Motor, with three,<sup>59</sup> Chrysler with eight,<sup>60</sup> Studebaker with four,<sup>61</sup> Nash Kelvinator with four,<sup>62</sup> and Packard Motor Car with three.<sup>63</sup> Among the truck and bus manufacturers, White Motor, Mack Trucks, Twin Coach, and Autocar had interlocks with parts manufacturers.

The interlocking relations between vehicle manufacturers and the parts suppliers, however mutually advantageous, are a potential threat to the maintenance of aggressive competition in the industry. They provide an environment in which communities of interest are easily developed. The large integrated firm with its group of preferential suppliers has an opportunity to create many difficulties for new competitors desiring to enter either motor-vehicle production or parts production.

Some interlocking directorates among motor-vehicle-parts manufacturers were of potential competition-reducing significance. The multiple interlocking of the only two manufacturers of aircraft valves<sup>64</sup> was of importance. Other interlocks between parts manufacturers which appeared to effect potential competition included interlocks between manufacturers of automotive-chassis frames,<sup>65</sup> metal stamping,<sup>66</sup> Diesel engines for industrial use,<sup>67</sup> lock nuts and washers,<sup>68</sup> carburetors,<sup>69</sup> and universal joints.<sup>70</sup> The degree of importance to be attached to these interlocks, however, was not disclosed by the study, and the pattern of interlocks in the motor-vehicle and parts division affords no basis for an inference as to their competitive significance.

Some large-parts manufacturers<sup>70</sup> had interlocking relations with

<sup>58</sup> These were listed previously.

<sup>59</sup> Bendix Aviation, Kelsey-Hayes Wheel, and Motor Products.

<sup>60</sup> Timken-Detroit Axle, Hupp Corp., Standard Steel Spring, Budd Co., Stewart-Warner, Universal Products, Electric Auto-Lite, and the Electric Storage Battery.

<sup>61</sup> Borg-Warner, Stewart-Warner, Kelsey-Hayes Wheel, and Trico Products.

<sup>62</sup> Dana Corp., Kelsey-Hayes Wheel, Midland Steel Products, and Trico Products.

<sup>63</sup> Briggs Manufacturing, Bendix Aviation, and Eaton Manufacturing.

<sup>64</sup> The two manufacturers were Eaton Manufacturing and Thompson Products.

<sup>65</sup> Dana Corp. was interlocked with Midland Steel Products, and Midland Steel Products was interlocked with Murray Corp. All manufacture automotive frames.

<sup>66</sup> Eaton Manufacturing and Midland Steel Products.

<sup>67</sup> Chrysler and American Locomotive.

<sup>68</sup> Eaton Manufacturing and Lamson & Sessions.

<sup>69</sup> Borg-Warner and Bendix Aviation.

<sup>70</sup> Eaton Manufacturing, Thompson Products, Kelsey-Hayes Wheel, and Midland Steel Products.



potential suppliers; for a few of these manufacturers interlocking directorates may have functioned as a substitute for integration.

Interlocking directorates in the ship and boatbuilding and repairing group were not of general significance.

The transportation-equipment industry maintained more interlocks with large commercial banks than with any other industry or financial group. Fifty-five of the ninety transportation equipment companies were interlocked with 42 large banks, and such interlocks accounted for approximately 15 percent of all interlocks in the industry. These interlocks had two aspects. On the one hand, there was the interlocking of several transportation-equipment companies with an individual bank,<sup>71</sup> and on the other, the interlocking of one transportation-equipment company with several different banks.<sup>72</sup>

The prevalence of interlocks between commercial banks and transportation-equipment companies does not warrant the inference that each interlock was significant. However, bankers serving on the boards of transportation-equipment companies have an opportunity to influence important policy questions which come before the board for decision. Some of these questions may involve companies in which the affiliated bank has an interest. Similarly, corporation executives who serve as directors of large commercial banks have an opportunity to participate in the formulation of the loan and credit policies of the banks. Such financial affiliations may impose handicaps upon rivals or possible new entrants into the industry.

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<sup>71</sup> There were nine transportation equipment companies interlocked with Manufacturers Trust Co. of New York; four with the Chase National Bank, and five with the National Bank of Detroit.

<sup>72</sup> There were eight different banks represented on the board of Pullman, Inc., five on Westinghouse Air Brake, and four on the Chrysler board.



## Chapter 11

### CHEMICALS AND ALLIED PRODUCTS

The major chemical companies are highly integrated both vertically and horizontally. The E. I. du Pont de Nemours & Co. attained its great size (with assets exceeding \$1,025,000,000 in 1946) and diversity of production through a program of acquisitions dating from the 1920's. The second largest company, Union Carbide & Carbon Corp. (with assets about half those of du Pont) began in 1917 with a merger of four large corporations and their subsidiaries, and expanded through a subsequent program of acquisitions. Allied Chemical & Dye Corp., the third largest, was organized as a combination of five large companies in 1920; Dow Chemical Co., next in order, acquired the assets of other chemical companies and formed new corporations as its business rapidly expanded.

Intercompany ownership of stock has tended to diminish the significance of the use of interlocking directorates in the chemical industry. In addition, because of the speed of technological change and the wide diversification of products in the chemical industry, the use of patents and patent licenses has been a significant means of working out intercompany arrangements where there is a desire to control the market and patents are available. In the chemical industry the patent license is probably more effective than the interlocking directorate; it permits more detailed regulations in the manufacture, use and marketing of specific products and provides machinery for prompt and efficacious enforcement. Chemical companies that have limited competition have done so primarily by a complicated maze of patent pools, patent licensing agreements, and subagreements. Many, but by no means all, of these patent arrangements have been made public in Congressional hearings and antitrust actions—particularly with respect to their international aspects.<sup>1</sup>

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<sup>1</sup> Hearings before the Committee on Patents, U. S. Senate, S. 2303 and S. 2491, 77th Cong., 2d Sess., 1942 and antitrust actions involving du Pont, General Dyestuffs Corp., Imperial Chemical Industries, Ltd., Allied Chemical & Dye Corp., Standard Oil Co. (New Jersey), Dow Chemical Co., Rohm & Haas Co., Merck & Co., Alka Pharmaceutical Co. and Bayer Co. (Sterling Drug subsidiaries), Ciba Pharmaceutical Products, Schering Corporation, Roche-Organon Inc., and others.

Nevertheless, the interlocking of corporations through their boards of directors has not been wholly absent from the chemical industry. The task of analysis is complicated by the fact that, of the country's 1,000 largest corporations, 91 are listed as falling within the category of "chemicals and allied products"; and many of these 91 companies—because of their physical size and the character of their production—have widely diversified interests in the field of chemical production. Du Pont, for example—the extreme example—lists its principal manufacturing activities as conducted through 10 operating departments.<sup>2</sup>

Even where the company is comparatively specialized, diversification is still great. Merck & Co., for instance, is primarily engaged in the manufacture and distribution of "fine and medicinal chemicals and drugs," but it handles some 1,200 individual chemicals; its products are used "primarily for medicinal, prescription, nutritional, industrial, laboratory, and photographic purposes."<sup>3</sup> The principal products of

<sup>2</sup> These were as follows:

*Rayon:* Rayon division—viscose rayon yarn, staple fiber, and tire yarn. Acetate division—acetate rayon yarn, commercial cellulose acetate flake, acetate staple, and vinyl acetate. Cellophane division—cellophane, cellulose bands, cellulose sponges, and cellulose acetate film.

*Organic chemicals:* Dyestuffs, tetraethyl lead, ethyl alcohol, camphor, neoprene, and "other organic chemicals" for the rubber, petroleum, textile, paper, perfumery and other industries.

*Fabrics and finishes:* Fabrics division—pyroxylin, rubber, neoprene, and synthetic resin coated fabrics, washable window shade fabrics, processed plastic sheeting for upholstery, handbags and other purposes, adhesives. Finishes division—finishes for all industrial, transportation, marine and household purposes, including lacquers, enamels, paints, varnishes, automotive waxes and polishes, adhesives, solvents, plasticizers, and pyroxylin solutions.

*Ammonia:* Ammonia, urea, methanol, higher alcohols, glycol antifreezes, hydrogenated products, food chemicals, et cetera.

*Grasselli chemicals:* Inorganic and organic acids and heavy chemicals, zinc and zinc products, fungicides, seed disinfectants, household sprays and dusts, insecticides, weed killers, adhesives, and chemicals for the textile, water purification, paper, leather, steel, and food industries.

*Explosives:* Explosives division—commercial explosives, blasting accessories, and miscellaneous chemicals. American glycerin division—liquid and solidified nitroglycerin, oil and gas well torpedo service. Nitrocellulose and sporting powder division—military and sporting powders, commercial nitrocellulose.

*Plastics:* Polyvinyl butyral, methyl methacrylate, polythene, cellulose nitrate and cellulose acetate plastics, nylon molding powder and monofilaments, and fabricated articles (combs and toothbrushes).

*Electrochemicals:* Electro and industrial chemicals (including solvents), formaldehyde, cyanide, sodium, peroxides, refrigerants, fumigants, et cetera.

*Pigments:* Titanium dioxide, extended titanium pigments, lithopone, dry colors and copperas.

*Photo products:* Motion picture, X-ray, portrait, lithographic and microfilms, fluorescent screens, photographic printing papers and processing chemicals. (*Moody's Industrials*, 1948, p. 2715.)

<sup>3</sup> *Moody's Industrials*, 1948, p. 454.

American Cyanamid Co. include dyestuffs, intermediates, etc., mineral dressing chemicals; industrial chemicals; synthetic resins and plastics; agricultural chemicals; industrial explosives; insecticides, fumigants, and fungicides; biologicals and pharmaceuticals.\*

This diversification in production creates a problem in evaluating the competitive relationships between chemical companies. Even a product comparison for each company is not enough, since a company having the raw materials and equipment to manufacture a particular chemical might refrain from doing so because of an interlocking relationship with another company. An examination of the potential production of each company as indicated by the character of the materials and manufacturing equipment available is impracticable here.

### INTERLOCKS OF THE CHEMICAL COMPANIES

Seventy chemical companies among the 1,000 largest corporations had interlocks; altogether they accounted for 626 interlocks with 356 companies in 27 industry groups in 1946. The largest number of interlocks was with banks; next in order came transportation equipment, food and kindred products, public utilities, railroads, primary metals, and machinery (except electrical).

TABLE 48.—*Interlocks of chemical companies and other industries*

Industrial group	Number of interlocks	Number of chemical companies	Number of companies in other industry groups
Banks	120	48	43
Transportation equipment	54	23	29
Food	53	22	32
Utilities	35	24	13
Railroads	34	22	15
Primary metals	33	21	22
Machinery (except electrical)	30	20	21
Textile mill products	26	18	19
Paper	21	17	12
Retail trade	20	15	18
Petroleum	19	19	13
Stone, glass, and clay products	19	17	12
Investment trusts	19	15	11
Insurance companies	19	17	9
Investment banks	15	15	11

### DIRECT INTERLOCKS AMONG THE CHEMICAL COMPANIES

Direct interlocks in the chemical industry appeared to be generally of two types: (1) Those based upon a supply relationship between two companies, wherein one company obtained an outlet for a particular product and the other was guaranteed regularity of supply, and (2) those based upon a history of common ownership, sometimes direct and admitted, and sometimes of a tenuous character. Each type of inter-

\* Ibid., p. 2902.

lock contained the possibility that competition might be mitigated thereby—either by removing buyer and seller from the market place or by creating or strengthening a community of interest among sellers.

Among the 91 chemical companies there were 12 direct interlocks.

### *Supply Relationships*

The chemical industry presents singular difficulties in evaluating supply relationships because of the multiplicity and diversity of products. Almost every industry makes some use of chemicals; though such chemicals may loom large to industrial users either in terms of quantity or importance, they may constitute an insignificant item—perhaps an obscure byproduct—in the production of a large chemical company. In consequence, in listing its major fields of operation, the chemical company may omit to mention its less important intermediates or products which may have significance for interlocking relations with industrial consumers.

In 1946 there were four direct interlocks among chemical companies which appeared to be of a supply character. Elwyn Evans, vice president of du Pont, and one of its directors, sat on the board of National Vulcanized Fiber Co. The latter manufactures vulcanized fiber sold in the form of sheets, tubes and rods, laminated phenolic thermosetting plastics, specialties for electrical and mechanical application and similar products.<sup>5</sup>

Interlocking relations also existed between American Cyanamid and the Bon Ami Co. The latter company is the manufacturer and distributor of the Bon Ami cleaning and polishing chemical compound, and also sells glycerine and other chemicals.<sup>6</sup>

Procter & Gamble Co. and Eagle-Picher Lead Co. were also interlocked.<sup>7</sup> Procter & Gamble is a leader in the domestic soap industry, manufacturing Oxydol, Ivory, Dreft, Duz, and Camay; it is also active in the cottonseed oil business, producing cooking fats, such as Crisco, and oils for industrial purposes. Eagle-Picher Lead engages in the mining of zinc and lead concentrates and the manufacture of zinc and lead products. It is of note that among its products are paints and other painting chemicals requiring various kinds of oil.

<sup>5</sup> In addition to his office in du Pont, Elwyn Evans was also president of the Wilmington Trust Co. This bank is a part of the du Pont group, since the Christiana Securities Co.—controlled by the du Pont family—constituted the largest single investment interest in the Wilmington Trust Co. Mr. Evans died in 1949.

<sup>6</sup> Bon Ami, controlled by the Childs family, was represented on American Cyanamid's board by Richard S. Childs. Childs was not on the board in 1947 or later years. (Moody's Industrials, 1948, p. 2902; *Ibid.*, 1949, p. 1467; Poor's Register of Executives and Directors, 1950, p. 1747.)

<sup>7</sup> John Jay Rowe, president and a director of Fifth Third Union Trust Co. (Cincinnati), was a director of Procter & Gamble, and of Eagle-Picher Lead.

The Continental-Diamond Fibre Co. and American Agricultural Chemical Co. were interlocked.<sup>8</sup> Continental-Diamond Fibre manufactures vulcanized fiber, cotton cellulose chemically treated to form a hard material used in electrical insulation; materials produced from a chemical union of phenol and formaldehyde used in the manufacture of radio and other electrical devices; mica and other specialty products. American Agricultural Chemical is one of the leading manufacturers of fertilizers, among which are Agrico and AA Quality. It is also active in the mining and selling of phosphate rock, the manufacture of phosphoric acid and phosphates for food, pharmaceutical and other uses, sulphuric acid, and a miscellany of other products.

### *Common Ownership*

The Air Reduction Co. and United States Industrial Chemicals, Inc., both had Charles E. Adams as chairman of their boards of directors; Charles S. Munson was chairman of the executive committee for both companies. Two other individuals served as directors in common.<sup>9</sup>

Air Reduction and United States Industrial Chemicals are customarily listed as independent companies but in fact they are subject to the same control. Air Reduction owned 122,907 shares of United States Industrial Chemicals—over 24 percent of the outstanding stock.<sup>10</sup> The ownership of such a large block of stock is presumably enough to insure control of policy.

Air Reduction is a leading manufacturer of oxygen and acetylene gases used in the welding and cutting of metals; it makes liquid carbon dioxide used by soft drink manufacturers and soda fountains and solid carbon dioxide (dry ice) for perishable foods. It is also a manufacturer of welding and cutting equipment, anesthetic and therapeutic equipment, hospital equipment, and the like. United States Industrial Chemicals is primarily engaged in the manufacture and sale of chemicals,<sup>11</sup> synthetic resins, industrial alcohol; it also manufactures essential oils, aromatic chemicals, perfume bases, insecticide bases, etc.

A similar situation exists in the case of North American Rayon Corp. and the American Bemberg Corp. These two rayon manu-

<sup>8</sup> John R. Dillon was a director of Continental-Diamond Fibre and of American Agricultural Chemical. Mr. Dillon died in 1949.

<sup>9</sup> These common directors were Guy Cary, a partner in Shearman, Sterling & Wright, and E. W. Stetson, chairman of the board and a director of Guaranty Trust Co. of New York.

<sup>10</sup> Moody's Industrials, 1947, p. 2217.

<sup>11</sup> Solvents, dye intermediates, plasticizers, vitamin concentrates, flotation agents, nitro-cellulose solutions etc.



facturing companies had identical boards of directors. They were separately organized by Vereinigte Glanzstoff, their German parent, in the 1920's. In 1929 the German parent merged with a Dutch corporation, the owner of American Enka, another rayon manufacturing company in this country. This brought the three American companies under the common control of Algemeene Kunstzijde Unie, N. V. (A. K. U.), a Dutch corporation, following the merger.

With our entry into the war a major controversy developed around the question as to whether A. K. U. was Dutch or German controlled. The controversy continued until August 1947—some years after the war had ended—when a compromise settlement was reached. Since North American Rayon and American Bemberg had continued—despite the merger in 1929—to be dependent upon Vereinigte Glanzstoff, the German segment of A. K. U., these companies were taken over by the Office of Alien Property on August 13, 1947. American Enka Corp. was not seized.

The North American Rayon and American Bemberg properties were then put up for sale at a public auction, and in December 1948, were acquired by Beaunit Mills, one of the country's largest textile mills. It is not surprising, then, that in 1946—the year used for this study, which was prior to the seizure by Alien Property—the two companies should have had a common board of directors. While the two companies were operated as separate corporate entities, they had a number of jointly owned and operated facilities in and near Elizabethton, Tenn., and were under a common management.

This situation has continued under the new ownership by Beaunit Mills. Five directors on the Beaunit Mills board of nine also sit as directors on North American Rayon and American Bemberg.<sup>12</sup> Both companies have Israel Rogosin as their president and Ben Allen as their executive vice president, and both have the same managerial staff. John E. Bassill, president of North American Rayon and American Bemberg in March 1948 (according to the companies' annual reports for 1947), has left these posts to become president of American Enka. At the end of 1948, he was still a director of American Bemberg.<sup>13</sup>

Another direct interlock existed in 1946 between North American Rayon and American Bemberg companies and a third chemical corporation. Avon Allied Products had a director who sat on the boards of both North American Rayon and American Bemberg.<sup>14</sup> Avon Allied Products manufactures and distributes Avon cosmetics and

<sup>12</sup> These are Israel Rogosin, Harry Rogosin, William Ball, Edward Nufer and J. N. Platoff (Moody's Industrials, 1949, pp. 2336-2337).

<sup>13</sup> Ibid., p. 2337.

<sup>14</sup> Beveridge C. Dunlop, director of North American Rayon and of American Bemberg, was also a director of Avon Allied Products.



toiletries, Perfection household and food products, and Ambrosia toiletries. This interlock was severed when the rayon properties were seized by Alien Property and has not been renewed.

The American Potash & Chemical Corp. and Heyden Chemical Corp. were also interlocked as the result of common ownership. In March 1946, Heyden Chemical acquired 100,000 shares of American Potash & Chemicals class B common shares, or about 18.9 percent of the voting stock.<sup>16</sup> At the end of 1948 its holdings of class B common amounted to 101,600 shares, or 19.2 percent.<sup>16</sup> B. R. Armour, guiding genius of a host of related enterprises, was chairman of the board of American Potash & Chemical and president of Heyden Chemical.<sup>17</sup> American Potash & Chemical, large landowner and lessee of Federal Government properties in California, produces potash, borax, boric acid, soda ash, and other chemicals. Heyden Chemical manufactures synthetic organic chemicals; it is active in the ethical drug field, producing such products as penicillin, streptomycin, salicylates, and the like; it also makes coal tar chemicals for use as dyestuff intermediates, medicinals, food chemicals and flavors. In January 1947, Heyden Chemical acquired more than 99 percent of the common stock of the Nyal Co., drug distributors,<sup>18</sup> while in November 1948, it acquired the Rumford Chemical Works, Rumford, R. I.<sup>19</sup>

### *The Sterling-Merck-Colgate Relationship*

The direct chemical interlocks described above are comparatively simple and clearcut. A more complex relationship is to be found in the Sterling-Merck-Colgate interlocks. Briefly, the situation in 1946 was as follows: Sterling Drug was interlocked with Rexall Drug.<sup>20</sup> Rexall Drug was interlocked with Vick Chemical Co. and Colgate-Palmolive-Peet Co.<sup>21</sup> Colgate-Palmolive-Peet was interlocked with

<sup>16</sup> Moody's Industrials, 1947, p. 1980.

<sup>17</sup> Ibid., 1949, p. 1236.

<sup>18</sup> Besides Mr. Armour, there were three other common directors in 1946: D. B. Keyes, vice president and a director of Heyden Chemical; P. R. van der Stricht, secretary and a director of Heyden Chemical; and V. A. Johnston, vice president, in December 1949. John P. Remensnyder, a vice president and a director, was elected president of Heyden in January, 1950.

<sup>19</sup> Moody's Industrials, 1947, p. 1980.

<sup>20</sup> Ibid., 1949, p. 1236.

<sup>21</sup> George C. Haigh was the common director. He was still a director of Sterling Drug in 1949, but was not a member of Rexall Drug's board after 1946.

<sup>22</sup> William Rupert Basset was a member of the executive committee and a director of Rexall Drug, a member of the executive committee and a director of Colgate-Palmolive-Peet, and a director of Vick Chemical Co. He was still a director of Colgate-Palmolive-Peet and of Vick Chemical in 1949, but was not a Rexall Drug director after 1947.

Merck & Co.,<sup>22</sup> which in turn was interlocked with Lehn & Fink Products Corp.<sup>23</sup> Chesebrough Manufacturing Co., whose "vaseline" products are exclusively distributed by Colgate-Palmolive-Peet in the United States,<sup>24</sup> was interlocked with American Home Products Corp.<sup>25</sup>

All of these companies are competitive in some product areas. In addition to its large-scale soap manufacture, Colgate-Palmolive-Peet manufactures and sells Colgate dental cream and tooth powder, shaving creams, hand creams, cold creams, talcums and face powders, lipsticks and shampoos. Sterling Drug has, among its products, Phillips Dental Magnesia, Phillips Dentrifices and Cosmetics, Dr. Lyon's Tooth Powder and Paste, Mulsified Cocoanut Oil Shampoo, Glostora, and Molle Brushless Shaving Cream. Vick Chemical is best known for its product "Vick's Vapo-Rub"; but one of its subsidiaries, Sofskin Co. of Ohio, manufactures a face and hand cream for women. Another of its companies, Prince Matchabelli, Inc., manufactures and sells perfumes and a line of face powders and toilet articles. Lehn & Fink Products manufactures and sells Pebecco toothpaste and powder. It also owns the Dorothy Gray line of face powders, creams, lotions, and other cosmetics; the Tussy line of cosmetics; and the Hinds creams—Honey & Almond, Hinds Hand Cream.

American Home Products includes, among its widely flung interests, the manufacture and sale of Kolynos tooth paste and powder, a "hair groom," Louis Philippe rouge and lipstick, Edna Wallace Hopper and Kissproof cosmetics. Rexall Drug also is a manufacturer of toilet goods and cosmetics, as well as a large volume of other products. Through its subsidiaries—Liggett Drug, Owl Drug, Lane Drug Stores, Renfro Stores, Sontag Stores, and a Canadian subsidiary—it operates over 500 drug stores in 35 States, the District of Columbia, and Canada.

Some of these companies also have allied interests in the pharmaceutical field. Sterling Drug's line of ethical drugs—so-called because they are usually available only upon prescriptions by physicians—include anesthetics, vitamins, antimalarials, sulfa drugs, analgesics, arsenicals, barbiturates, antiseptics, and antibacterials. Its proprietary drugs—those available over the drug store counter—include

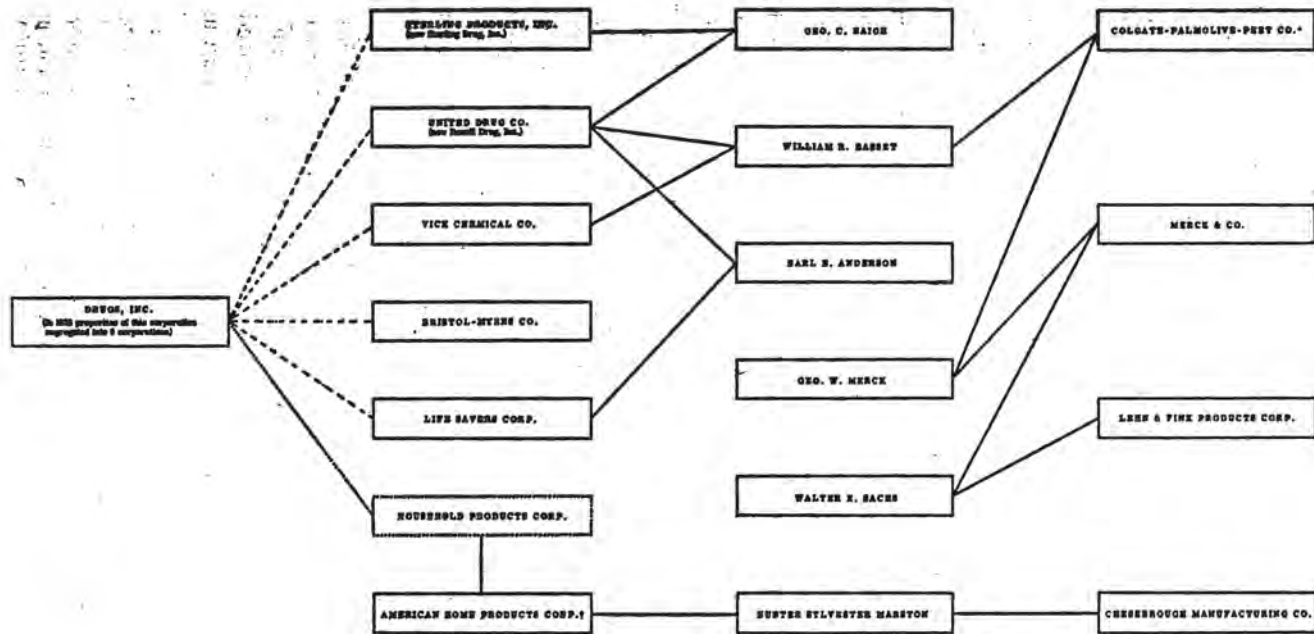
<sup>22</sup> George W. Merck, president and director, Merck & Co., was a director of Colgate-Palmolive-Peet. Continuing as president of Merck & Co., Mr. Merck did not serve as a director of Colgate-Palmolive-Peet after 1947.

<sup>23</sup> Walter E. Sachs, partner in Goldman, Sachs & Co., was a director of Merck & Co. and of Lehn & Fink Products, of both of which he was still a director in 1949.

<sup>24</sup> Moody's Industrials, 1947, p. 665; *Ibid.*, 1949, p. 1061.

<sup>25</sup> Hunter Sylvester Marston was a director of Chesebrough Manufacturing and of American Home Products. Mr. Marston was on both boards in 1949.

# STERLING-COLGATE-MERCK INTERLOCKS



\*Colgate is exclusive distributor of products of Chesbrough in the United States.  
 1Incorporated in 1936 by interests identified with Sterling Products, Inc., absorbing  
 Household Products Corp.

CHART 39.

Bayer Aspirin, Castoria, Andrew's Liver Salts, and Ross Pills among its many products. Vick is engaged in the manufacture and distribution of household medicinal products, pharmaceutical chemicals, veterinary pharmaceuticals, and pharmaceuticals and biologicals for the medical and dental professions. American Home Products operates in both the ethical and proprietary pharmaceutical fields. Its ethicals include hormones, bacteriologicals, antibiotics, prescription pharmaceuticals, and vitamins; among its proprietaries are cold tablets, nose drops, vitamin capsules, elixirs, and tablets of all types. Merck's interests are almost entirely centered in the manufacture and distribution of fine and medicinal chemicals and drugs. It manufactures the sulfa drugs, penicillin and streptomycin, synthetic vitamins, arsenicals, bismuths, citrates, iodides, and mercurials. Like Sterling Drug and American Home Products, it is both in the ethical and proprietary pharmaceutical business. Rexall Drug also has a large miscellaneous line of proprietary medicines and pharmaceuticals which are marketed through its chain of retail drug stores.

It is significant that several of the companies in this group have a history of common ownership. In 1928 Sterling Drug—then Sterling Products, Inc.—effected a merger with United Drug Co.; and a holding company known as Drug, Inc. was formed. The latter soon acquired the business and assets of Bristol-Myers Co., Vick Chemical, and Life Savers, Inc. In 1933, these companies were restored to their former position as individual operating units but control of policy remained in the same hands. In the dissolution of Drug, Inc., its properties were segregated into five new Delaware corporations, stock of which was distributed as follows for each 10 shares of Drug, Inc.: 4 shares of United Drug, Inc., 5 shares of Sterling Products, 2 shares of Vick Chemical, 2 shares of Bristol-Myers, and 1 share of Life Savers Corp.<sup>26</sup>

American Home Products was incorporated in 1926 by "interests identified with Sterling Products, Inc., and Household Products, Inc. [the latter owned by Drug, Inc.] \* \* \* to acquire the entire capital stock of Wyeth Chemical Co." and a host of affiliated companies.<sup>27</sup> American Home Products expanded rapidly in an aggres-

<sup>26</sup> Moody's Industrials, 1934, p. 1021.

<sup>27</sup> Moody's Industrials, 1947, p. 1819. But see Moody's Industrials, 1934, p. 152, for an earlier account of American Home Products Corp.:

"Incorporated in Delaware, February 4, 1926, as a holding company for subsidiary companies engaged in manufacture and sale of medicines and preparations known as Hill's Cascara Quinine, Jad Salts, Tiz, St. Jacob's Oil, Wyeth's Sage and Sulphur, Freezone, Petrolagar, Bisurated Magnesia, Bisodol, Kolynos Toothpaste, etc. \* \* \*

"During 1930, company purchased for cash, the formulae and trade rights of Van Ess Laboratories, Inc., and its subsidiary, the Anacin Co., proprietors of

sive policy of acquisitions, and now ranks—only below Sterling Drug—as the second largest drug company in the United States.

In 1946 Bristol-Myers had no interlocking relations with any of these companies with which it had formerly been affiliated.<sup>28</sup> Life Savers Corp., manufacturer of Life Savers candy, was interlocked with Rexall Drug, one of its former associates in Drug, Inc.<sup>29</sup>

The result of these interlocks—both direct and indirect—was to bring together at various points a number of companies which had closely allied interests. It is obvious that the divorcement of the Sterling Drug group of companies was not complete in 1946; interlocking directorates still kept them together. Thus, when the board of directors of Colgate-Palmolive-Peet came together, the representatives included two of the companies in the Sterling drug group, as well as the president of Merck, another large drug company. The interests of these companies converged at various points. With some the dominant interest lay in the realm of toothpastes, shaving creams, face and hand lotions, cosmetics; with others the emphasis was in pharmaceutical products. In either event there was parallelism of interest among the particular companies in terms of raw materials used, processes followed, products sold, marketing outlets employed. The possibility that these interlocks may have had competitive significance is obvious.

### *McKesson & Robbins*

Another interlock of possible competitive importance was that between the Lambert Co. and McKesson & Robbins, Inc.<sup>30</sup> The latter is not here classified as a chemical company because its major interest is a wholesaling business; however, it is also engaged in drug

Anacin Tablets; French Cosmetic Manufacturing Co., manufacturers of a line of cosmetics, and the business of Addison-Leslie Co., manufacturers and distributors of Plastic Wood and Rug-Sta. Acquisitions during 1931 were the formulae and trade-rights of Saltrates Inc., manufacturers of proprietaries, and the business of John Wyeth & Bro., Inc. of Philadelphia, latter being first manufacturer of pharmaceuticals in the United States, established 1860." It is of note that A. H. Diebold, one of the directors of American Home Products in 1946 was secretary-treasurer and director of Sterling Drug in 1928, and was president, treasurer, and director of that Company in 1934.

<sup>28</sup> The Bristol-Myers line of products falls into the same general categories as those of the other companies. Bristol-Myers manufactures and sells Ipana Toothpaste, Ingram Shaving Cream and Ingram face creams, Trushay hand cream and beauty lotions, Benex brushless shave cream, Ammen's antiseptic powder, Mum deodorant, Vitalis hair preparation, et cetera. It is also in the ethical and proprietary pharmaceutical business, including the manufacture of penicillin, yeast vitamins, parenteral biologicals, et cetera.

<sup>29</sup> Earl E. Anderson was a director of both Life Savers, Inc., and Rexall.

<sup>30</sup> Sidney J. Weinberg, a partner in Goldman, Sachs & Co., was the common director. He was still a director of both companies in 1949.



manufacturing. The Lambert Co. manufactures Listerine antiseptic, tooth paste, tooth powder, shaving cream, and cough drops; it makes Sportsman hair dressing, after-shaving lotion, cologne, shaving cream, and powder. The company is also in the pharmaceutical business, manufacturing serums and medicines for treatment of glandular disorders, germicides, fungicides and other products. McKesson & Robbins' pharmaceutical interests are closely allied. It manufactures Calox Tooth Powder, Abolene Cleansing Cream, Yodora deodorant, Soretone antiseptic. It also has a proprietary line of drugs, including vitamin capsules and a host of other products.

### INTERLOCKS WITH BANKS

The largest number of interlocks of chemical companies was with banks. Of the total of 626 interlocks examined, 127 were between 43 commercial banks and 48 chemical companies. Another 15 were with investment banks, involving 11 banks and 15 chemical concerns.

Du Pont, unlike many of the chemical companies had only two banking connections in 1946. Of du Pont's 14 directors in 1946, seven sat on the board of Wilmington Trust Co.<sup>31</sup> However, in the light of du Pont's financial interests in Wilmington Trust Co., this was not a case of a chemical company being dependent upon a bank; on the contrary, the bank appeared to be an extension of the du Pont interests into the field of finance. The only other bank interlocked with du Pont at that time was J. P. Morgan & Co.<sup>32</sup>

The outstanding case of a chemical company with predominantly investment bank relationships was American Viscose Corps. This was the direct result of its recent history. Prior to 1941, American Viscose was a subsidiary of Courtaulds, Ltd., of London, the largest manufacturer of rayon in the world. The American company was organized in 1910 to produce rayon in the United States, under Courtaulds' patents. For the next 11 years, as the only rayon manufacturer in this country accorded exclusive rights under the patent system, American Viscose was exceptionally profitable. A large portion of these profits went to the parent company as royalty payments under patents; the remainder was ploughed back into the American company for expansion purposes. In this manner the British-owed company secured its present position in the American rayon industry.

This situation prevailed until March 15, 1941. In order to increase

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<sup>31</sup> These directors were Walter S. Carpenter, Jr., Pierre Samuel du Pont, Lammot du Pont, Henry B. du Pont, Lammot du Pont Copeland, Elwyn Evans, and Willis F. Harrington.

<sup>32</sup> Alfred P. Sloan, Jr., chairman of board of General Motors, and a director of du Pont, was a director of J. P. Morgan & Co.



its supply of foreign currency, the British Government sold to Morgan Stanley & Co. and Dillon, Read & Co. in this country 448,000 shares of common stock of American Viscose. This represented approximately 91 percent of the common stock outstanding. In consequence, in 1946 the president of Dillon, Read & Co.<sup>33</sup> and a partner of Morgan Stanley & Co.,<sup>34</sup> both sat on the board of directors. In addition, J. P. Morgan & Co.<sup>35</sup> and Marine Midland Trust Co.<sup>36</sup> of New York also were interlocked with American Viscose.

In 1946 the Chase National Bank had eight interlocks involving seven chemical companies; five rested on officer-director interlocks. Two of these companies—Davison Chemical Corp.<sup>37</sup> and Virginia-Carolina Corp.<sup>38</sup>—are engaged in the mining of phosphate rock and the manufacture of phosphates, superphosphates, sulphuric acid, mixed fertilizers, and similar products. Three rayon manufacturing companies—North American Rayon, American Bemberg,<sup>39</sup> and American Enka,<sup>40</sup>—were also represented. This was a reflection of the prewar situation when all three of these companies were under common ownership. Another company was Mathieson Alkali Works,<sup>41</sup> and among this company's products is caustic soda used in rayon manufacture. Allied Chemical & Dye,<sup>42</sup> also interlocked, produces caustic soda; other of its manufactures are textile chemicals, coal tar dyes, coal tar intermediates, and synthetic detergents. It is the leading producer of alkalis and is one of the leading producers of acids. Thus, on this bank, two large fertilizer companies were brought together, as well as three rayon companies and two potential suppliers of chemicals for rayon manufacture.

<sup>33</sup> C. S. McCain was president of Dillon, Read & Co.

<sup>34</sup> William Ewing, a limited partner in Morgan Stanley & Co., was a director of American Viscose.

<sup>35</sup> H. C. Alexander, vice president and director of J. P. Morgan & Co., was a director of American Viscose.

<sup>36</sup> John G. Jackson, director and general counsel of American Viscose, was a director of the Marine Midland Trust Co.

<sup>37</sup> Edward J. Quintal, vice president (not a director) of Chase National Bank, was a director of Davison Chemical.

<sup>38</sup> George Earle Warren, vice president (not a director) of Chase National Bank, was a director of Virginia-Carolina Chemical.

<sup>39</sup> Beveridge C. Dunlop, a director of North American Rayon, and a director of American Bemberg, was a member of the advisory committee of the Garfield Branch of Chase National Bank; he was not a director.

<sup>40</sup> R. J. Whitfield, vice president, but not a director, of Chase National Bank, was a director of American Enka.

<sup>41</sup> H. Donald Campbell, vice chairman of board and director of Chase National Bank, was a director of Mathieson Alkali Works; Malcolm G. Chace was a director of Mathieson Alkali Works and of the Chase National Bank.

<sup>42</sup> Carl J. Schmidlapp, vice president and director of Chase National Bank, was a director of Allied Chemical & Dye.

Central Hanover Bank & Trust Co. had seven interlocks involving four chemical companies. Union Carbide & Carbon had three interlocks<sup>43</sup> with this bank; Commercial Solvents, one.<sup>44</sup> The manufacturing activities of these two companies overlap—both producing synthetic wood alcohol, acetic acid, butyl chemicals, and other products. North American Rayon and American Bemberg also were interlocked in this same bank.<sup>45</sup> These companies are potential users of Union Carbide & Carbon and Commercial Solvents' products. The former manufactures acetic anhydride used in the rayon, film and plastics industries; among Commercial Solvents' products is acetone solvent used in the manufacture of rayon. Another potential consumer on the board of this bank was Sun Chemical,<sup>46</sup> which manufactures printing inks, textile chemicals, automotive lacquers, paints and varnishes. Union Carbide & Carbon manufactures resins used for surface coatings; and Commercial Solvents is engaged in the production of the raw materials for resin manufacture.

The Guaranty Trust Co. had multiple interlocks with three chemical companies. Two of these—Air Reduction<sup>47</sup> and U. S. Industrial Chemicals<sup>48</sup>—are under the same control and management. U. S. Industrial Chemicals and the third company, American Cyanamid,<sup>49</sup> both produce resins and industrial chemicals.

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<sup>43</sup>George Willets Davison, honorary chairman of the board and trustee of Central Hanover Bank & Trust Co., and W. S. Gray, Jr., president and trustee of Central Hanover Bank & Trust Co., were directors of Union Carbide & Carbon. Benjamin O'Shea, chairman of the executive committee and director of Union Carbide & Carbon, was a trustee of Central Hanover Bank & Trust Co.

<sup>44</sup>George Monroe Moffett, chairman of the board and director of the Corn Products Refining Co., was also a director of the Central Hanover Bank & Trust Co., and of Commercial Solvents.

<sup>45</sup>H. P. Turnbull, executive vice president and trustee of the Central Hanover Bank & Trust Co., was a director of each of these rayon manufacturing companies.

<sup>46</sup>Walter P. Dunnington, partner in the law firm of Dunnington, Bartholow & Miller, sat on the boards of the Central Hanover Bank & Trust Co., and the Sun Chemical Co.

<sup>47</sup>Charles S. Munson, president and director of Air Reduction, was a member of the executive committee and a director of the Guaranty Trust Co.; Eugene W. Stetson, chairman of the board and director of Guaranty Trust Co., and Winthrop M. Crane, Jr., president and director of Crane Co. and a director of the Guaranty Trust Co., were directors of Air Reduction.

<sup>48</sup>Charles S. Munson, president and director of Air Reduction and chairman of executive committee and director of U. S. Industrial Chemicals, was a director of Guaranty Trust Co. Eugene W. Stetson, chairman of board and director of Guaranty Trust Co., was a director of U. S. Industrial Chemicals.

<sup>49</sup>George Garland Allen, director of American Cyanamid, was a director of Guaranty Trust Co., as was William B. Bell, president and director of American Cyanamid.

Manufacturers Trust Co. had six interlocks with five chemical companies, four of which manufacture pharmaceuticals. These were American Home Products,<sup>50</sup> Sharp & Dohme,<sup>51</sup> Lambert Co.,<sup>52</sup> and American Cyanamid.<sup>53</sup> Two of the companies—General Aniline & Film Corp.<sup>54</sup> and American Cyanamid—are leading producers in this country of dyestuffs and dyestuffs intermediates. The fifth company was Mathieson Alkali Works; <sup>55</sup> its major products—soda ash, caustic soda, and chlorine—have wide uses in the pharmaceutical field and elsewhere.

The Chemical Bank & Trust Co. had interlocks with four chemical companies, two of which were directly competitive. These were Air Reduction <sup>56</sup> and National Cylinder Gas Co.<sup>57</sup> Air Reduction is one of the leading producers of oxygen and acetylene gases, as well as liquid and solid carbon dioxide (dry ice). It is also a manufacturer of acetylene cylinders. These products also constitute National Cylinder Gas' major manufacturing activities.

American Enka,<sup>58</sup> a manufacturer of rayon, and Commercial Solvents <sup>59</sup> were also interlocked with Chemical Bank & Trust Co. As indicated earlier, Commercial Solvents includes in its production the manufacture of acetone solvent used on rayon manufacture.

The Marine Midland Corp., a bank holding company, had six chemical companies represented on its board of directors. These were North American Rayon <sup>60</sup> and American Bemberg <sup>60</sup> (both rayon

<sup>50</sup> Harvey D. Gibson, chairman of board, president, and director of Manufacturers Trust Co., was a director of American Home Products Corp.

<sup>51</sup> Ernest Stauffen, Jr., chairman of trust committee and a director of Manufacturers Trust Co., was a director of Sharp & Dohme.

<sup>52</sup> John L. Johnston, president of Lambert Co., was a director of Manufacturers Trust Co.

<sup>53</sup> William B. Bell, president and director of American Cyanamid Co., was a member of the advisory board (not a director) of the Manufacturers Trust Co.

<sup>54</sup> Albert N. Williams, president and director of Westinghouse Air Brake Co., was a director of General Aniline & Film and a director of Manufacturers Trust Co.

<sup>55</sup> Edwin Madison Allen, director of Mathieson Alkali Works (now Mathieson Chemical Co.), was a director of Manufacturers Trust Co. Mr. Allen died in 1947.

<sup>56</sup> Clarence Francis, chairman of board and director of General Foods, was a director of Air Reduction, and a director of Chemical Bank & Trust Co.

<sup>57</sup> J. H. Hillman, Jr., chairman of board of Hillman Coal & Coke Co., was a director of Chemical Bank & Trust Co., and was on the board of National Cylinder Gas.

<sup>58</sup> Thomas Holt Haywood, proprietor of Arden Farm and Arden Farm Store and member of advisory board but not a director of Chemical Bank & Trust Co., was a director of American Enka.

<sup>59</sup> Linus C. Coggan, vice president and director of Corn Products Refining, was on the boards of Chemical Bank & Trust Co. and Commercial Solvents.

<sup>60</sup> Eustace Seligman, a partner in Sullivan & Cromwell, was a director of North American Rayon, of American Bemberg, and of Marine Midland Corp.

manufacturers), Sharp & Dohme<sup>61</sup> (pharmaceuticals), International Salt Co.,<sup>62</sup> (a leading domestic producer of salt). The two remaining companies were Durez Plastics & Chemicals<sup>63</sup> and Spencer Kellogg & Sons:<sup>64</sup> Spencer Kellogg manufactures and deals in vegetable oils, including linseed and soybean oil, which are used in the paints and varnish industries; Durez Plastics & Chemicals manufactures synthetic resins, molding compounds, paints and varnishes under the trade name Durez.

Marine Midland Trust Co., a subsidiary of Marine Midland Corp., had five chemical companies interlocked on its board. Three of these were rayon companies—American Viscose,<sup>65</sup> North American Rayon, and American Bemberg.<sup>66</sup> The two others were Durez Plastics & Chemicals<sup>67</sup> and International Salt.<sup>68</sup>

J. P. Morgan & Co. had on its board representatives of the two largest rayon companies in the United States—American Viscose<sup>69</sup> and du Pont.<sup>70</sup> It also interlocked du Pont with Sharp & Dohme<sup>71</sup>—thus bringing together a supplier of basic chemicals for pharmaceutical manufacture and a pharmaceutical manufacturer. A fourth company represented on its board was International Minerals &

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<sup>61</sup> Ernest Stauffen, Jr., chairman trust committee and director of Manufacturers Trust Co., was a director of Sharp & Dohme and a director of Marine Midland Corp.

<sup>62</sup> Charles H. Diefendorf, president and director, Marine Midland Corp., was a director of International Salt.

<sup>63</sup> Edward H. Letchworth, a senior partner in Kenefick, Cooke, Mitchell, Bass & Letchworth, was a director of Durez Plastics & Chemicals and a director of Marine Midland Corp.

<sup>64</sup> Howard Kellogg, president and director of Spencer Kellogg, was a director of Marine Midland Corp.

<sup>65</sup> John G. Jackson, general counsel and director of American Viscose, was a director of Marine Midland Trust Co.

<sup>66</sup> Eustace Sellgman, a partner in Sullivan & Cromwell, linked North American Rayon and American Bemberg with Marine Midland Trust Co.

<sup>67</sup> Edward H. Letchworth, a senior partner in Kenefick, Cooke, Mitchell, Bass & Letchworth, was a director of Durez Plastics & Chemicals and a director of Marine Midland Trust Co.

<sup>68</sup> Charles H. Diefendorf, president and director both of Marine Midland Corp. and of Marine Trust Co. of Buffalo, was a director of Marine Midland Trust Co. and of International Salt.

<sup>69</sup> Henry Clay Alexander, vice president and director of J. P. Morgan & Co., was a director of American Viscose.

<sup>70</sup> Alfred P. Sloan, Jr., chairman of the board and director of General Motors Corp., was a vice president and director of J. P. Morgan & Co. and a director of du Pont.

<sup>71</sup> Charles D. Dickey, a vice president and director of J. P. Morgan & Co., was a director of Sharp & Dohme.

Chemical,<sup>72</sup> one of the leading phosphate rock producers and a manufacturer of sulphuric acid.

The National City Bank of Cleveland interlocked Industrial Rayon,<sup>73</sup> Dow Chemical,<sup>74</sup> and Ferro Enamel.<sup>75</sup> Potentially, Dow Chemical is a supplier to Industrial Rayon, since it is a manufacturer of carbon bisulphide used in viscose rayon production; it is also a manufacturer of chemicals used in the manufacture of paints and dyes. Ferro Enamel includes among its products paints, paint dryers, color oxides, and synthetic finishes.

Central Trust Co. (Cincinnati), had two interlocking directorates with Procter & Gamble<sup>76</sup> and one with the Drackett Co.<sup>77</sup> Drackett Co. has interests similar to those of Procter & Gamble, being a manufacturer of household cleaning products, such as Drano and Windex. It produces and sells other products in the same field, such as lye, chlorinated lime and caustic soda; it also produces soybean oil.

### INTERLOCKS OF CHEMICAL COMPANIES OUTSIDE THE CHEMICAL INDUSTRY

Approximately 500 interlocks existed in 1946 between the country's largest chemical companies and other industrial corporations. For the most part these interlocks appeared significant with respect to access to raw materials or to outlets for chemicals and chemical products. The bulk of the interlocks were with industrial consumers of chemicals. In a number of instances two or three chemical companies had representatives on the board of directors of the same large industrial user of chemical products.

As indicated earlier, the chemical industry supplies some materials to virtually every other industry. Because of diversity in production and the multiple uses of particular chemicals, the chemical industry presents unusual hazards in any attempt to relate particular products to companies interlocked. Only a sampling of the interlocks can

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<sup>72</sup> Thomas S. Lamont, a vice president and director of J. P. Morgan & Co., was a director of International Minerals & Chemical.

<sup>73</sup> John M. Reavis, a partner in Jones, Day, Cockley & Reavis, was a director of the National City Bank of Cleveland and a director of Industrial Rayon.

<sup>74</sup> John S. Crider, assistant treasurer and director of Dow Chemical, was a director of the National City Bank of Cleveland.

<sup>75</sup> R. A. Weaver, president and director of Ferro Enamel, was a director of the National City Bank of Cleveland.

<sup>76</sup> Charles W. Dupuis, president and director of Central Trust Co. (Cincinnati), was a director of Procter & Gamble. Frederick V. Geler, president and director of Cincinnati Milling Machine Co., and a director of the Central Trust Co., was also a director of Procter & Gamble.

<sup>77</sup> James J. Heekin, chairman of board and director of Heekin Can Co., vice president and director of Drackett Co., was a director of the Central Trust Co. (Cincinnati).



be presented to indicate the situation that prevailed for virtually all the 91 chemical companies in 1946. An examination is made first of some of the companies engaged in diversified production. Thereafter those which specialize in limited branches of the chemical industry are considered.

### *Chemical Companies With Diversified Production*

Du Pont's interlocks with other companies appear to be important principally in facilitating sales of its extensive array of chemical products. It also had substantial stock interests directly or indirectly, in five important consuming companies—General Motors, U. S. Rubber, Remington Arms, North American Aviation, and Bendix Aviation. In early 1948 it disposed of its interests in the two aviation companies, but its interests in the other companies have continued to be substantial.

The details of the du Pont relationship with General Motors and U. S. Rubber are discussed elsewhere.<sup>78</sup> In 1946 du Pont and General Motors had seven directors in common, one being Alfred P. Sloan, Jr., chairman of General Motors' board of directors. One of these directors also sat on the board of U. S. Rubber.<sup>79</sup>

The products made by du Pont and bought by General Motors include auto lacquers, synthetic fabrics for seat covers and other purposes, Freon refrigerant for refrigerators, automobile antifreeze, paints, and varnishes of all kinds. Du Pont sells tire cord fabric to U. S. Rubber for the manufacture of tires and supplies it with synthetic rubber and a host of other products. In turn the tires made by U. S. Rubber find their largest market in du Pont's affiliate, General Motors.

As the country's largest manufacturer of explosives and smokeless powder, du Pont finds a secure market for such products in Remington Arms, which it controls.<sup>80</sup> The companies have two directors in common.<sup>81</sup>

Another of du Pont's directors sat on the board of United States Finishing Co.<sup>82</sup> The latter is engaged in bleaching, dyeing and printing cotton, linens, wool mixtures, and rayon cloth. Du Pont is the country's largest dye producer.

<sup>78</sup> See Chapters 10, 13, and 14.

<sup>79</sup> This was Lamont du Pont Copeland. The others were: Donaldson Brown, Walter S. Carpenter, Jr., Henry F. du Pont, Henry B. du Pont, and Angus B. Echols.

<sup>80</sup> Moody's Industrials, 1947, p. 2203. At the end of 1946, du Pont owned 60.17 percent of the common and 99.25 percent of the preferred stock.

<sup>81</sup> Henry B. du Pont and J. Thompson Brown were the common directors. Each was a vice president, member of the executive committee, and a director of du Pont, and a director of Remington Arms.

<sup>82</sup> Leonard A. Yerkes was a director of du Pont and of U. S. Finishing.



Another du Pont director was on the board of Phillips Petroleum in 1946.<sup>83</sup> Phillips Petroleum is a producer of automobile and aviation gasoline, lubricating oils, greases, and other products. It is also a marketer of carbon black used in the manufacture of tires and other rubber products.

Mathieson Alkali Works interlocked with two paper manufacturers—International Paper Co.<sup>84</sup> and United States Envelope Co.<sup>85</sup>—and two textile mills—William Whitman Co., Inc.,<sup>86</sup> and Berkshire Fine Spinning Associates, Inc.<sup>87</sup> Among Mathieson Alkali Works' leading products are soda used by the paper and pulp industry, and chlorine which is used for the bleaching of pulp and textiles. The company listed iron and steel and many other industries as users of its products. Other interlocks existed with Granite City Steel Co., Vanadium Corp. of America, National Enameling and Stamping Co.,<sup>87</sup> American Smelting & Refining Co., Newport News Shipbuilding & Dry Dock Co.,<sup>88</sup> Lone Star Cement Corp.,<sup>89</sup> and Mack Trucks, Inc. The company reported that in recent years it has perfected a synthetic rubber, made from butadiene, which is able to resist high temperatures. Tests have indicated that it is "especially suitable" for trucks and busses.<sup>90</sup>

Commercial Solvents had multiple interlocks with Corn Products Refining<sup>91</sup> and South Porto Rico Sugar Co.<sup>92</sup> Its manufacture of grain alcohol for whiskey is made from corn; industrial alcohol, used for antifreeze, lacquers, varnishes and enamels, and plastics, is manu-

<sup>83</sup> Eugene E. du Pont was a director of du Pont and of Phillips Petroleum.

<sup>84</sup> Malcolm G. Chace was a director of Mathieson Alkali Works and of International Paper Co.

<sup>85</sup> Robert Gregg Stone, a limited partner in Hayden, Stone & Co., was a director of Mathieson Alkali Works, of U. S. Envelope, and of William Whitman & Co.

<sup>86</sup> Malcolm G. Chace was a director of Mathieson Alkali Works and of Berkshire Fine Spinning Associates.

<sup>87</sup> Louis B. Bissell, a member of Chadbourne, Wallace, Parker & Whiteside, served as a director of Mathieson Alkali Works, of Granite City Steel, of Vanadium Corp., and of National Enameling & Stamping, and was chairman of the board and a director of Mack Trucks, Inc.

<sup>88</sup> H. Donald Campbell, vice chairman and director of Chase National Bank, was a director of Mathieson Alkali Works, of American Smelting & Refining, and of Newport News Shipbuilding & Dry Dock.

<sup>89</sup> John P. Chase, president, treasurer, and director of John P. Chase, Inc., was a director of Mathieson Alkali Works and of Lone Star Cement.

<sup>90</sup> Moody's Industrials, 1947, p. 2929.

<sup>91</sup> George M. Moffett and Linus C. Coggan, respectively, chairman of the board and a director, and vice president and a director, of Corn Products Refining, were both directors of Commercial Solvents.

<sup>92</sup> George M. Moffett, chairman of the board and a director of Corn Products Refining, and a director of Commercial Solvents, was also a director of South Porto Rico Sugar, as was another director of Commercial Solvents, Phillip G. Mumford, chairman, president, and director of American Machine & Metals, Inc.

factured from molasses. Another interlock existed with Goodrich.<sup>93</sup> Commercial Solvents' subsidiary, Thermatomic Carbon Co., manufactures carbon black used principally in the manufacture of automobile tires and rubber goods.

Air Reduction and U. S. Industrial Chemicals had a wide array of interlocking directorates with industrial consumers of their products. These included Vanadium Corp., New York Shipbuilding,<sup>94</sup> Otis Elevator,<sup>95</sup> Illinois Central,<sup>96</sup> Pullman,<sup>97</sup> and Gulf Oil.<sup>97</sup> Air Reduction produces oxygen and acetylene gases used in the welding and cutting of metals by the railroad, shipbuilding, oil, and other industries; it is also a leading manufacturer of cutting and welding apparatus and supplies. U. S. Industrial Chemicals' primary business is the manufacture of chemicals, synthetic resins, and industrial alcohol; it also has a number of subsidiaries engaged in the purchasing, handling, and transportation of molasses.

Other interlocks of Air Reduction and U. S. Industrial Chemicals were with National Distillers Products Corp.,<sup>98</sup> Canada Dry Ginger Ale,<sup>99</sup> Coca-Cola,<sup>100</sup> and General Foods.<sup>1</sup> The production of these chemical companies includes liquid carbon dioxide used in the manufacture of carbonated beverages; it also includes solid carbon dioxide

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<sup>93</sup> David M. Goodrich, chairman of board, member of executive committee, and director of B. F. Goodrich, was a director of Commercial Solvents.

<sup>94</sup> Charles E. Adams, chairman of the board and the executive committee and director of Air Reduction, and chairman of the board and director of U. S. Industrial Chemicals, was a director of Vanadium Corp. Samuel F. Pryor, Jr., vice president, member of the executive committee and director of Pan American Airways System, and a director of U. S. Industrial Chemicals, was a director of Vanadium Corp. and of New York Shipbuilding.

<sup>95</sup> Winthrop M. Crane, Jr., president and director of Crane & Co. and director of Air Reduction, served as a director of Otis Elevator.

<sup>96</sup> Eugene W. Stetson, chairman of the board and director of Guaranty Trust Co., and chairman of the executive committee and director of Illinois Central, was a member of the executive committee and a director of both U. S. Industrial Chemicals and Air Reduction and a member of the executive committee and director of Coca-Cola.

<sup>97</sup> Allan M. Scalfe, vice president, member of the finance committee, and director of Gulf Oil, was a director of Air Reduction and of Pullman.

<sup>98</sup> Charles E. Adams, chairman of the board and of the executive committee and a director of Air Reduction, and chairman of the board and a director of U. S. Industrial Chemicals, was a director of National Distillers Products.

<sup>99</sup> Charles S. Munson, president and director of Air Reduction and chairman of the executive committee and director of U. S. Industrial Chemicals, was a member of the finance committee and a director of National Distillers Products and a director of Canada Dry Ginger Ale.

<sup>100</sup> Eugene W. Stetson was a director of Coca-Cola, of U. S. Industrial Chemicals, and of Air Reduction.

<sup>1</sup> Clarence Francis, chairman of board and director of General Foods, was a director of Air Reduction.

(dry ice), a product used by General Foods. An interlock also existed with National Sugar Refining Co.<sup>2</sup>

Union Carbide & Carbon was interlocked with Chrysler Corp.<sup>3</sup> Among Union Carbide & Carbon's products are butanol and butyl acetate, widely used solvents in the automobile lacquer industry. It is also a manufacturer of methanol, an antifreeze; ethylene glycol, used in the manufacture of "Prestone" antifreeze; plastic used as an interlayer for automobile safety glass; batteries and dry cells; waxes and other products used in the automobile industry.

Interlocks also existed with General Foods, a large user of solid carbon dioxide (dry ice), one of the products of Union Carbide & Carbon; it was also interlocked with Texas Co.<sup>4</sup> Union Carbide & Carbon is one of the three leading producers of oxygen and acetylene which, in combination, are used in the oxy-acetylene processes of welding and cutting metals used in the oil and metal industries. It also manufactures a complete line of welding and cutting machines and similar equipment; and controls the "Union-melt" automatic electric welding process.

The Potash Co. of America is engaged in the mining, refining, and distribution of potassium salts and potassium chloride. One of its interlocking relations was with Lion Match Co.,<sup>5</sup> an affiliate of Diamond Match Co., the largest match corporation in the United States. The Department of Justice antitrust investigation of this corporation in 1944 disclosed that Diamond Match was the largest stockholder in Universal Match Corp., the country's second largest match company, in Ohio Match Co., the third largest, in Berst-Forster-Dixfield Co., and in Lion Match Co. According to the Department of Justice, Diamond Match was in a position to control policy in all of these match companies.<sup>6</sup> Since potassium chlorate is of great importance in the manufacture of matches, this interlocking directorate between Lion Match and the Potash Co. had considerable significance.

<sup>2</sup> Knight Woolley, a partner in Brown Brothers, Harriman & Co., was a member of the finance committee and a director of Air Reduction and was a member of the executive committee and a director of National Sugar Refining.

<sup>3</sup> George Willets Davison, honorary chairman of board and trustee of Central Hanover Bank & Trust Co., was a director of Chrysler and of New Jersey Zinc, as well as of Union Carbide & Carbon.

<sup>4</sup> W. S. Gray, Jr., president and trustee, Central Hanover Bank & Trust Co., was a director of Union Carbide & Carbon, General Foods, and the Texas Co.

<sup>5</sup> Boris A. Bakhmeteff was chairman of board, treasurer, and a director of Lion Match, and a director of the Potash Co.

<sup>6</sup> Civil No. 25-397. In the District Court of the United States for the Southern District of New York. *United States v. Diamond Match Company, et al.* Complaint (filed May 1, 1944), p. 5 and *passim*.

Allied Chemical & Dye had interlocks with U. S. Finishing,<sup>7</sup> which does a large business in bleaching, dyeing, and printing cloth. Allied Chemical & Dye is one of the country's leading dye manufacturers. It also interlocked with Corning Glass Works,<sup>7a</sup> a large user of sodium silicate and other chemicals for glass making, which are produced by Allied Chemical & Dye. The interest of the latter company in chemicals for glass bottle manufacturing is indicated by the fact that in 1947 it owned 30,713 shares of Libby-Owens-Ford Glass Co., and 201,637 shares of common stock of Owens-Illinois Glass Co.<sup>8</sup>

Allied Chemical & Dye also interlocked with American Steel Foundries,<sup>9</sup> a manufacturer of basic parts for railway cars, Chicago Pneumatic Tool Co.,<sup>10</sup> a tool manufacturer, and General Foods.<sup>10</sup>

This chemical company has apparently supplemented its interlocking directorates with direct investments in companies which are major users of chemical products. In addition to its investments in the glass companies, it reported stock ownership in U. S. Steel, American Light & Traction Co., and American Viscose.<sup>8</sup>

### *Chemical Companies With Specialized Production*<sup>11</sup>

Davison Chemical interlocked with Studebaker Corp.<sup>12</sup> and White Motor Co.<sup>12</sup> In addition to being one of the world's largest producers of sulphuric acid in connection with its phosphate rock business, Davison Chemical also manufactures Fendix, an automobile underbody coating and sound deadener.

Harshaw Chemical interlocked with Goodyear.<sup>13</sup> Included in Harshaw Chemical's extensive production of industrial chemicals are preformed catalysts used mainly in the production of synthetic rubber. Another interlock was with Medusa Portland Cement Co. which

<sup>7</sup> Wallace Campbell, partner, Sturges, Chaffee & Hazard, was a member of the executive committee and a director of U. S. Finishing, and a director of Allied Chemical & Dye.

<sup>7a</sup> George Murnane was a director of Allied Chemical & Dye and of Corning Glass Works.

<sup>8</sup> Moody's Industrials, 1947, p. 637.

<sup>9</sup> George Murnane, was a director of Allied Chemical & Dye and of American Steel Foundries.

<sup>10</sup> Carl J. Schmidlapp, vice president and director of Chase National Bank, was a director of Allied Chemical & Dye, of Chicago Pneumatic Tool, and of General Foods.

<sup>11</sup> General Aniline & Film is eliminated from discussion in this report because it has been under the control of the Office of Alien Property, U. S. Department of Justice, which has named its directors since Government seizure in 1942.

<sup>12</sup> Edward J. Quintal, vice president of Chase National Bank, was a director of Davison Chemical, of Studebaker, and of White Motor.

<sup>13</sup> Edward B. Greene, president and director of Cleveland-Cliffs Iron, was a director of Harshaw Chemical, of Goodyear, and of Medusa Portland Cement.

manufactures interior paint and floor coatings, the raw materials of which may be supplied by Harshaw. Sun Chemical interlocked with the Texas Co.,<sup>14</sup> a potential supplier of raw materials for microcrystalline petroleum waxes sold by one of Sun Chemical's subsidiaries.

American Viscose, the country's largest producer of rayon tire yarn and fabric, had interlocking relations with Goodrich.<sup>15</sup> Three rayon manufacturing companies—American Viscose, North American Rayon, and American Bemberg—were interlocked with International Paper.<sup>16</sup> The rayon companies are large users of wood pulp as raw materials in manufacturing; International Paper's manufacturing operations include rayon and paper pulp. Another large producer of rayon tire yarn and fabric—Industrial Rayon—interlocked with Goodyear.<sup>17</sup>

American Enka, manufacturer of rayon yarn, interlocked with Cannon Mills<sup>18</sup> and Powdrell & Alexander,<sup>19</sup> possible users of rayon in the manufacture of draperies, bedspreads, and other textile products. American Enka also had interlocks with Oxford Paper Co.,<sup>20</sup> a possible supplier of wood pulp for rayon manufacturing, as well as a user of rayon in connection with its paper manufacturing facilities.

International Minerals & Chemical, a large producer of sulphuric acid, had interlocking connections with Phelps Dodge Corp., Continental Oil Co.,<sup>21</sup> Container Corp. of America, and Bridgeport Brass Co.<sup>22</sup> International Minerals & Chemical is also one of the country's leading fertilizer manufacturers, and in this connection it is of note

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<sup>14</sup> Walter G. Dunnington, a partner in Dunnington, Bartholow & Miller, was a director of both Sun Chemical and the Texas Co.

<sup>15</sup> Charles S. McCain, president of Dillon, Read & Co., was a director of American Viscose, of Goodrich, and of International Paper.

<sup>16</sup> Boylston A. Tompkins, vice president and director of Bankers Trust Co., was a director of North American Rayon, of American Bemberg, and of International Paper. Charles S. McCain was a director of American Viscose and of International Paper.

<sup>17</sup> L. B. Williams, chairman of board and director of National City Bank of Cleveland, was the common director linking Industrial Rayon and Goodyear.

<sup>18</sup> George W. Fraker, vice president (not a director) of National City Bank of New York, was a director of American Enka and of Cannon Mills.

<sup>19</sup> Henry J. Nichols, vice president and director, National Shawmut Bank, was a director of American Enka and of Powdrell & Alexander.

<sup>20</sup> Edward S. French, president and director of the Boston & Maine Railroad, was a director of American Enka and of Oxford Paper.

<sup>21</sup> Thomas S. Lamont, vice president and director of J. P. Morgan & Co., was a director of International Minerals & Chemical, of Phelps Dodge, and of Continental Oil.

<sup>22</sup> John E. Bierwirth, president and trustee of New York Trust Co., was a director of International Minerals & Chemical, of Container Corp., and of Bridgeport Brass.



that it interlocked with J. I. Case Co.,<sup>23</sup> a manufacturer of farm implements and machinery, and Stokeley-Van Camp, Inc.,<sup>24</sup> canners and packers of fruits and vegetables.

Virginia-Carolina Chemical, also a major producer of sulphuric acid, fertilizers, and the like, had a quite different group of interlocking arrangements. One existed with Pittsburgh Plate Glass Co.,<sup>25</sup> which uses sodium silicates and other sodium chemicals in glass making. Other interlocks included Congoleum-Nairn, Inc.,<sup>26</sup> manufacturer of linoleum and other floor coverings; Remington Rand, Inc.; ATF, Inc.,<sup>28</sup> a maker of printers' type, presses, metal furniture, sheet plastics, etc.; American Writing Paper Corp.<sup>27</sup> Another chemical company on the boards of ATF, Inc. and Congoleum-Nairn was Hooker Electrochemical.<sup>28</sup> This company's manufactures include caustic soda, and a miscellany of other chemicals, including chlorine, which is also produced by Virginia-Carolina Chemical.

International Salt Co., a leading domestic manufacturer of salt, was interlocked with General Baking Co.<sup>29</sup>

Archer-Daniels-Midland Co. is listed among the chemical companies for its manufacture of linseed oil, used mainly in the plant, varnish, linoleum, and printing ink industries. However, the company also has extensive interests in the buying and storage of grain, the operation of grain elevators, and the manufacture and sale of flour; in these operations its activities parallel those of Pillsbury Mills, Inc. with which Archer-Daniels-Midland was interlocked in 1946.<sup>30</sup> The latter also had interlocking relations with United Biscuit Co. of America.<sup>30</sup> The operations of Archer-Daniels-Midland include the

<sup>23</sup> Henry S. Sturgis, vice president of First National Bank of the City of New York, was a director of International Minerals & Chemical, of J. I. Case, of Best Foods, and of General Mills.

<sup>24</sup> David M. Milton, president and director of Equity Corp., was a director of Stokeley-Van Camp, as well as of International Minerals & Chemical.

<sup>25</sup> Howard B. Brown, assistant secretary and director of The Pitcairn Co., was secretary and director of Pittsburgh Plate Glass and a director of Virginia-Carolina Chemical.

<sup>26</sup> George M. Wells was a director of Virginia-Carolina Chemical, of Congoleum-Nairn, and of ATF, Inc.

<sup>27</sup> George Earle Warren, vice president (not a director), Chase National Bank, was a director of Virginia-Carolina Chemical, of Remington Rand, and of American Writing Paper.

<sup>28</sup> Clinton S. Lutkins, a partner in R. W. Pressprich & Co., was a director of all three of these companies.

<sup>29</sup> Charles H. Diefendorf, president and director of both Marine Midland Corp. and Marine Trust Co. of Buffalo, was a director of International Salt and General Baking.

<sup>30</sup> Henry S. Bowers, a partner in Goldman, Sachs & Co., was a director of Archer-Daniels-Midland, of Pillsbury Mills, and of United Biscuit. Mr. Bowers was still on the board of Archer-Daniels-Midland in 1949, but was not a director of Pillsbury Mills in 1947, 1948, or 1949.



manufacture of soybean flour. It was one of two exclusive licensees in the United States for the manufacture of lecithin from soybean oil, which is extensively used in the baking industry.

Consolidated Chemical Industries, Inc., a California corporation, had interlocks confined to the Pacific coast. Two of these appeared to have supply implications. The business of this corporation is the manufacture of chemical products, including glues, greases, animal charcoal, ground bone, and bone meal. Interlocks existed with Alaska Packers Association<sup>31</sup> and California Packing Corp.,<sup>31</sup> possible sources of raw material for some operations of Consolidated Chemical.

Continental-Diamond Fibre Co. was interlocked with Raybestos-Manhattan, Inc.,<sup>32</sup> manufacturer of asbestos and rubber products, including asbestos insulating materials. Continental-Diamond Fibre's production includes vulcanized fiber and mica products used in electrical insulation.

Ferro Enamel Corp., manufacturer of vitreous porcelain enamels, was interlocked with American Stove Co.<sup>33</sup> The latter would have use for enamel finishes in its stove manufacture. Ferro Enamel also manufactures paints, paint dryers, color oxides, and synthetic finishes. It had other interlocking directorates with White Motor Co., manufacturer of motortrucks and busses, and with Hinde & Dauch Paper Co.,<sup>34</sup> producer of glassine pads and other paper specialties.

Rexall Drug, which operates drug-store chains throughout the country, had interlocks with three corporations at one time in the Sterling group, with which Rexall Drug had also been allied. These companies were: Life Savers Corp.,<sup>35</sup> manufacturer of Life Savers candy, Pine Bros. glycerine tablets, antiseptic mouth tablets; Vick Chemical,<sup>36</sup> which makes ethical and proprietary drugs, cosmetics, perfumes, and men's toiletries; and Sterling Drug,<sup>37</sup> a producer of ethical and proprietary drugs. The products of all of these companies are marketed through retail drug channels.

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<sup>31</sup> Marshall P. Madison, a partner in Pillsbury, Madison & Sutro, was a director of all three companies.

<sup>32</sup> John R. Dillon was a director of Continental-Diamond Fibre and of Raybestos-Manhattan.

<sup>33</sup> R. A. Weaver, president and director of Ferro Enamels, was a director of American Stove.

<sup>34</sup> M. H. Murch, president and director of M. H. Murch Co., was a director of Ferro Enamel, of White Motor, and of Hinde & Dauch Paper.

<sup>35</sup> Earl E. Anderson was a member of the executive committee and a director of Rexall Drug and a director of Life Savers Corp.

<sup>36</sup> William Rupert Basset was a member of the executive committee and a director of Rexall Drug and a director of Vick Chemical, a member of the executive committee and a director of Container Corp., and a director of Interstate Bakeries.

<sup>37</sup> George C. Haigh was a director of Rexall Drug and of Sterling Drug.

Other Rexall Drug interlocks appeared to have supply implications in connection with soda-fountain operations, packaging of products, or other drug-store operations. These included: American Sugar Refining<sup>38</sup> and Central Aguirre,<sup>39</sup> Interstate Bakeries Corp., and Container Corp., a producer of shipping containers, paper cans, and tubes.<sup>39a</sup>

American Home Products, also at one time associated with the Sterling group of companies, had interlocks with Dixie Cup Co., a maker of paper cups and containers; Servel, Inc., manufacturer of refrigeration equipment; Worthington Pump & Machinery Corp.,<sup>40</sup> fabricator of mechanical equipment for chemical production; and American Machine & Foundry Co.,<sup>41</sup> producer of automatic and semi-automatic machinery, such as automatic platforms for china, glass and tray dispensers.

### SUMMARY

The interlocking of companies, through their boards of directors, has not been of outstanding significance in the chemical industry for two reasons: the larger companies are already highly integrated in their operations, both vertically and horizontally; and the structure of patent pools and licensing arrangements existent in the industry has tended to be more useful than interlocking directorates in adjusting intercorporate relations in the production and distribution of specific chemicals and the introduction of new products.

A relatively small number of direct interlocks existed in the industry in 1946. In some instances they represented a supply relationship between two companies, wherein one obtained an assured outlet and the other obtained regularity of supply. This type of interlock apparently involved interlocking directorates between du Pont and National Vulcanized Fiber; American Cyanamid and Bon Ami; Procter & Gamble and Eagle-Picher Lead. In other cases, direct interlocks reflected an historical pattern of common ownership and control. This was the case in interlocks between Air Reduction and U. S. Industrial Chemicals; North American Rayon and American Bemberg;

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<sup>38</sup> James L. Richards was a member of the executive committee and a director of Rexall Drug, and was a member of the executive committee and a director of American Sugar Refining.

<sup>39</sup> Charles Francis Adams, chairman of board and director of the State Street Trust Co., Boston, was a director of Rexall Drug and a director of Central Aguirre.

<sup>39a</sup> William R. Bassett was a director of Rexall Drug, of Interstate Bakeries Corp., and of Container Corp.

<sup>40</sup> Hunter Sylvester Marston was a director of American Home Products, of Dixie Cup, of Servel, and of Worthington Pump & Machinery.

<sup>41</sup> Knox Ide, attorney, was a director of American Home Products and a director of American Machine & Foundry.

American Potash & Chemical and Heyden Chemical. The net incidence of such interlocks reduced competition to a greater or less degree. In the first type of case, buyer and seller removed themselves from the open market to engage in private bargaining; in the second, a community of interest existed and interlocking directorates which expressed it were likely to facilitate friendly cooperation rather than free and open competition.

The interlocks among Colgate-Palmolive-Peet, Merck & Co., and the companies formerly associated with Sterling Drug, were more complicated. Sterling Drug was interlocked with Rexall Drug; Rexall Drug was interlocked with Vick Chemical and Colgate-Palmolive-Peet; Colgate-Palmolive-Peet was interlocked with Merck & Co.; Merck & Co. was interlocked with Lehn & Fink Products. Chesebrough Manufacturing, whose "vaseline" products are exclusively distributed by Colgate-Palmolive-Peet in the United States, was interlocked with American Home Products. In this group the companies formerly connected with Sterling were Rexall Drug, Vick Chemical, and American Home Products.

All of these companies have some interests in common. Colgate-Palmolive-Peet, Sterling Drug, Vick Chemical, Lehn & Fink Products, and American Home Products are all engaged in the manufacture of one or more of the following: tooth paste and powders, shampoos and shaving creams, hand and cold creams, cosmetics. Sterling Drug, Vick Chemical, American Home Products, Merck & Co. and Rexall Drug have allied interests in the fields of ethical or proprietary drugs, or both lines of pharmaceuticals. The possible implications of these interlocks on competition require no elaboration.

Another interlock of potential competitive significance was that between the Lambert Co. and McKesson & Robbins. The latter is not classified as a chemical company in the list because its major interest is wholesaling. Nevertheless, McKesson & Robbins is engaged in drug manufacturing; and its production of tooth pastes and powders, creams and pharmaceuticals is competitive with the production of the Lambert Co.

The largest number of interlocks with any industrial group was with commercial banks. To a considerable extent these interlocks reflected the role which these financial institutions had played in the significant merger developments within the chemical industry, particularly during the 1920's. However, they may have more than historical significance. Through interlocks with banks, chemical companies in the same general fields of production came together.

In 1946 the Chase National Bank had eight interlocks involving seven chemical companies. Two—Davison Chemical and Virginia-Carolina Chemical—compete in the phosphate rock, sulphuric acid, and mixed fertilizer business. Three rayon manufacturers—North

American Rayon, American Bemberg, and American Enka—were represented on the board of the bank. Two other companies—Mathieson Alkali and Allied Chemical & Dye—produce chemicals usable in rayon manufacture.

Central Hanover Bank & Trust Co. included on its board, directors of Union Carbide & Carbon and Commercial Solvents, which compete in the manufacture of wood alcohol and a large number of other products. North American Rayon and American Bemberg—potential users of the chemicals of these two companies in rayon manufacture—were also represented. Another potential consumer on the bank's board was Sun Chemical, which could use the products of Union Carbide & Carbon or Commercial Solvents in its manufacture of paints, lacquers, and other products.

Manufacturers Trust Co. interlocked four companies engaged in the manufacture of pharmaceuticals—American Home Products, Sharp & Dohme, Lambert Co., and American Cyanamid. It also interlocked General Aniline & Film and American Cyanamid, leading producers in dyestuffs and dyestuffs intermediates.

The Chemical Bank & Trust Co. maintained interlocking relations between Air Reduction and National Cylinder Gas, both of whom are leading producers of oxygen and acetylene gases, and liquid and solid carbon dioxide. Marine Midland Trust Co. interlocked three rayon manufacturing companies—American Viscose, North American Rayon, and American Bemberg. J. P. Morgan & Co. interlocked the country's two largest rayon companies—American Viscose and du Pont. Central Trust Co. interlocked Procter & Gamble and the Drackett Co., a manufacturer of household cleaning products.

The large number of interlocks between chemical companies and industrial corporations appeared to be significant largely in assuring to the chemical producers an outlet for their products. Chemicals have some place in the manufacturing processes of virtually every industry, and the interlocks of the chemical companies stretch to a variety of industries. Where particular chemicals have been of strategic importance in manufacturing, the users themselves may have taken the initiative. Thus, interlocks may have performed a dual function. Officials of chemical corporations sat on the boards of their important industrial consumers; and the industrial users, in turn, maintained representatives on the boards of the chemical companies. In times of shortages, these arrangements presumably operated in favor of consumers; in other periods, they seem to have been bulwarks of safety for suppliers.

Long-term supply contracts—either verbal or written—tend to have stabilizing effects on prices. Where prices are determined in advance, the supply moves from manufacturer to industrial user without any direct impact on the market. Even where products move on long-

term contracts at spot market prices there is still a stabilizing effect. Instead of a heavy volume of goods flooding the market with a depressing effect on prices, the goods move to user on contract and distress prices are reduced to a minimum.

The interlocks of du Pont with other companies provided a number of important marketing outlets for the company's products. These included interlocks with General Motors, providing an assured outlet for auto paints and lacquers, synthetic fabrics for seat covers, refrigerants, antifreeze, etc.; with U. S. Rubber for tire cord fabric; with Remington Arms, for its products in the explosives field; with U. S. Finishing, for chemicals used in the bleaching, dyeing and printing of textiles.

Mathieson Alkali interlocked with International Paper, and U. S. Envelope, and with two textile companies, William Whitman and Berkshire Fine Spinning. Among the leading products of Mathieson Alkali are soda used by the paper and pulp industry, and chlorine used for the bleaching of pulp and textiles. Commercial Solvents had multiple interlocks with Corn Products Refining and South Porto Rico Sugar. Commercial Solvents uses corn in its manufacture of grain alcohol for whisky; it uses molasses in manufacturing industrial alcohol for antifreeze, lacquers, enamels and other products. Another interlock was with Goodrich. One of Commercial Solvents' subsidiaries manufactures carbon black used principally in the manufacture of automobile tires and rubbers goods.

Air Reduction, leading producer of oxygen and acetylene gases used in the welding and cutting of metals, and a manufacturer of cutting and welding apparatus and supplies, had interlocks with New York Shipbuilding, Otis Elevator, the Illinois Central, Pullman, and Gulf Oil. It also manufactures liquid carbon dioxide used in the manufacture of carbonated beverages; its interlocks included National Distillers Products, Canada Dry Ginger Ale, and Coca-Cola. Its affiliated company, U. S. Industrial Chemicals, manufacturing industrial alcohol from molasses, and engaged in the purchasing, handling and transportation of molasses, was interlocked with the National Sugar Refining.

Davison Chemical, manufacturer of an automobile underbody coating and sound deadener, had interlocking relations with Studebaker and White Motor. Harshaw Chemical, whose production includes preformed catalysts used mainly in the production of synthetic rubber, was interlocked with Goodyear. American Viscose, the country's largest producer of rayon tire yarn and fabric, was interlocked with Goodrich; another large producer of rayon tire yarn and fabric, Industrial Rayon, was interlocked with Goodyear.



## Chapter 12

### PETROLEUM

The petroleum industry is concerned with discovering and taking crude oil from the earth, refining the oil to yield consumer and industrial products, transporting the oil from wells to refineries, transporting the refined products from refineries to sales outlets, and, in the case of gasoline, operating retail outlets.<sup>1</sup>

In recent decades the larger oil companies have tended to become completely integrated from the production of crude oil through its transportation, refining, and the retailing of its products. A corporation among the 20 or so largest oil companies is typically an organization owning widely scattered oil fields, fleets of tankers, networks of pipelines, refineries, and various distribution facilities down to and including chains of retail gasoline stations. However, the major oil companies as a group refine more crude oil than they produce and thus depend upon small, independent producers for a part of their supplies. Similarly, they produce more gasoline than they sell at retail, and thus depend upon many independent filling station operators to help dispose of their output. Thus the independent crude oil producers compete with their integrated customers and the independent distributors compete with their sources of supply.

There were 33 petroleum companies listed among the 1,000 largest manufacturing corporations in 1946. All but three of these had direct or indirect interlocking directorate relations with other companies, manufacturing and nonmanufacturing, among those selected for study. Twenty-two of the thirty-three oil companies had direct or indirect interlocks among themselves. Other direct interlocks in order of importance were with public utilities, primary-metals companies, transportation-equipment companies, and chemical companies.

As to direct and indirect interlocking directorates among the Nation's largest oil companies, this chapter is complete for the year 1946

<sup>1</sup> The petroleum industry, as studied in this chapter corresponds to Industry Classification No. 291, Petroleum Refining, as defined in the Standard Industrial Classification Manual. Thus, "establishments primarily engaged in producing gasoline, fuel oils, lubricants, illuminating oils and other products from crude petroleum and its fractionation products in petroleum refineries" are considered. Other products of petroleum and coal, classified in the same major group as petroleum refining, have been excluded.



so far as information is available. As to direct relationships between the oil companies and their potential suppliers or customers in 1946, it is illustrative only. Indirect relationships between the oil companies and potential suppliers or customers have not been examined.

### INTERLOCKING DIRECTORATES AMONG COMPETITORS

Two-thirds of the larger oil companies (22 companies) had direct or indirect interlocks among themselves. Eight of these companies had direct ties with each other. Examples of these interlocks are shown in chart 40.

Standard Oil Co. (Indiana), the third largest of the oil companies in the country,<sup>2</sup> had an indirect tie with Texas Co., the fourth largest of the oil companies, through Continental Illinois National Bank & Trust Co.<sup>3</sup> It also had indirect ties with Standard Oil Co. of California, the fifth largest oil company, with Gulf Oil Corp., the sixth largest company, and with Continental Oil Co., the sixteenth largest company, since members of the board of directors of each of these companies were on the board of Chase National Bank of the City of New York.<sup>4</sup> Standard of Indiana also had indirect ties with Pure Oil Co. and with Hickok Oil Corp. through Poor & Co.<sup>5</sup>

<sup>2</sup> The company rank is based upon total assets in 1946.

<sup>3</sup> Judson F. Stone, manager of McCormick Estates, and Alonzo W. Peake, president of Standard of Indiana, were directors of Standard of Indiana and Continental Illinois National Bank & Trust Co. Walter Joseph Cummings, chairman of the board of Continental Illinois National Bank & Trust Co. and W. H. Mitchell, a partner in Mitchell Hutkins & Co., were directors of Texas Co. and Continental Illinois National Bank & Trust Co.

<sup>4</sup> Robert E. Wilson, chairman of the board and director of Standard Oil of Indiana was a director of Chase National Bank. A. N. Kemp, chairman of the board of Pacific Mutual Life Insurance Co., was a director of Standard of California and Chase National Bank. J. Frank Drake, president and director of Gulf Oil Corp., was a director of Chase National Bank. Arthur Wilson Page, director of American Telephone & Telegraph Co., was a director of Continental Oil and Chase National Bank.

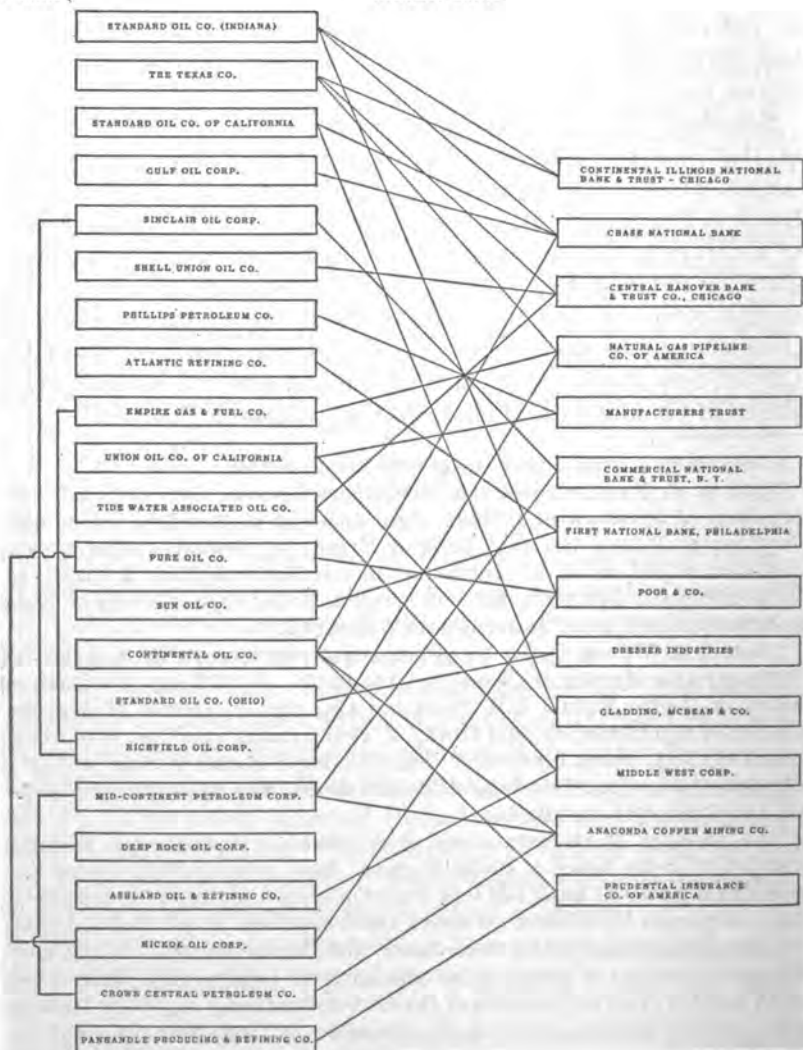
The presence of representatives of Standard of Indiana and Standard of California on the board of Chase National Bank, presumably reflected the fact that Chase National Bank has long been a principal center of Rockefeller interests. Although there were no direct representatives of the two top Standard Oil companies, Standard of New Jersey and Socony-Vacuum, on the board of Chase National, their influence was not entirely lacking, since Chase National Bank holds in trust for members of the Rockefeller family important blocks of oil stock, particularly in Standard Oil companies. Chase National Bank is also closely identified with Rockefeller interests in other ways. Winthrop W. Aldrich, chairman of the board of Chase National Bank, for example, has close family and financial ties with the Rockefellers.

<sup>5</sup> Judson F. Stone, manager of McCormick Estates, was a director of Standard of Indiana and Poor & Co. Rawleigh Warner, vice president, treasurer and director of Pure Oil, was a director of Hickok Oil and Poor & Co. Poor & Co. manufactures railroad supplies.

# **EXAMPLES OF INTERLOCKING DIRECTORATES AMONG LARGE PETROLEUM COMPANIES 1946**

## **DIRECT LINKS**

## **INDIRECT LINKS**



**CHART 40.**

In addition to its indirect tie with Standard of Indiana, Texas Co., the fourth largest of the Nation's oil companies, had indirect ties through Central Hanover Bank & Trust Co., with Shell Union Oil Corp. and with Tide Water Associated Oil Co.<sup>6</sup> Texas Co.<sup>7</sup> was indirectly interlocked through Natural Gas Pipeline Co. of America with Empire Gas & Fuel Co. (Cities Service) and with Richfield Oil Corp.<sup>8</sup> It had an indirect link with Continental Oil through Phelps Dodge Corp.<sup>9</sup>

Standard of California, the fifth largest of all the oil companies, has already been shown to have had an indirect tie with Standard of Indiana, the third largest company, with Gulf Oil, the sixth largest company, and with Continental Oil, the sixteenth oil company in size. It also had two indirect ties with Union Oil through Southern California Edison<sup>10</sup> and through Gladding, McBean & Co.<sup>11</sup>

Gulf Oil was the sixth largest oil company in 1946. Its ties with Standard of Indiana, Standard of California, and Continental Oil through Chase National Bank, have already been mentioned. Gulf Oil<sup>12</sup> also had indirect ties with Panhandle Producing & Refining

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<sup>6</sup> W. G. Dunnington, partner of Dunnington, Bartholow & Miller, and W. S. Gray, president of Central Hanover Bank & Trust Co., were directors of Texas Co. and Central Hanover Bank & Trust Co. Bernard M. Culver was a director of Shell Union Oil and Central Hanover Bank & Trust Co. Johnston de Forest was a director of Tide Water Oil and Central Hanover Bank & Trust Co.

<sup>7</sup> Texas Co. had a director-officer link with Sun Oil through the First National Bank of Dallas. G. N. Aldredge, chairman of the executive committee of the First National Bank in Dallas, was a director of Texas Co. John G. Pew, assistant to the vice president and director of Sun Oil, was a director of First National Bank in Dallas.

<sup>8</sup> R. Ogarrlo, vice president of the Texas Co., was a director of Texas Co. and Natural Gas Pipeline. Ernest H. Johnston, treasurer of Cities Service Co., was a director of Empire Gas & Fuel and Natural Gas Pipeline. William A. Jones, president of Cities Service, was a director of Richfield Oil and Natural Gas Pipeline.

<sup>9</sup> W. S. Gray, Jr., president of Central Hanover Bank & Trust Co., was a director of Texas Co. and Phelps Dodge. T. S. Lamont, vice president of J. P. Morgan & Co., was a director of Continental Oil and Phelps Dodge.

<sup>10</sup> A. N. Kemp, chairman of the board of Pacific Mutual Life, was a director of Standard of California and Southern California Edison Co. James R. Page was a director of Union Oil Co. of California and Southern California Edison.

<sup>11</sup> Atholl McBean, chairman of the board of Gladding, McBean & Co., was a director of Standard Oil of California. James R. Page was a director of Union Oil of California and Gladding, McBean & Co.

<sup>12</sup> Gulf Oil had a director-officer interlock with Shamrock Oil & Gas Corp., through the Mellon National Bank & Trust Co. W. L. Mellon, chairman of the board of Gulf Oil, and Allan M. Scalfe, vice president of Gulf Oil, were directors of Mellon National Bank & Trust Co. Ralph S. Euler, senior vice president of the Mellon National Bank & Trust Co., was a director of Shamrock Oil & Gas.

Co., through Pennsylvania Railroad Co.;<sup>13</sup> and with Tide Water Oil, through Rockwell Manufacturing Co.<sup>14</sup>

Sinclair Oil Corp., the seventh largest of the oil companies, had a direct tie through four common directors with Richfield Oil Corp.<sup>15</sup> Through Richfield Oil, it had an indirect tie with Empire Gas & Fuel.<sup>16</sup> Empire Gas & Fuel, a wholly owned subsidiary of Cities Service,<sup>17</sup> owns approximately 30 percent of the stock of Richfield Oil, while Sinclair Oil owns another 30 percent.<sup>18</sup> In addition to its direct tie with Richfield Oil, Sinclair Oil had an indirect tie with Mid-Continent Petroleum Corp., through Commercial National Bank & Trust Co. of New York;<sup>19</sup> with Tide Water Oil, through Petroleum Corp. of America;<sup>20</sup> and with Continental Oil, through Continental Baking Co.<sup>21</sup>

Shell Union Oil was the eighth largest oil company in 1946. Its indirect ties with Texas and with Tide Water Oil, through Central Hanover Bank & Trust Co. have already been noted. Shell Union Oil also had an indirect interlock with Continental Oil, through National Bond & Share Corp.<sup>22</sup>

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<sup>13</sup> R. K. Mellon, chairman of the board of the Mellon National Bank & Trust Co., was a director of Gulf Oil and Pennsylvania Railroad. Franklin D'Olier, chairman of the board of Prudential Insurance Co., was a director of Panhandle Producing & Refining Co. and Pennsylvania Railroad.

<sup>14</sup> J. Frank Drake, president and director of Gulf Oil, was a director of Rockwell Manufacturing. Elisha Walker, of Kuhn, Loeb & Co., was a director of Tide Water Oil and Rockwell Manufacturing. Rockwell Manufacturing is primarily a manufacturer of valves and water and gasoline meters.

<sup>15</sup> Sheldon Clark, chairman of the executive committee of Sinclair Oil, H. F. Sinclair, president of Sinclair Oil, M. L. Gosney, vice president and director of Sinclair Oil, and George MacDonald, were directors of Sinclair Oil and Richfield Oil. All of these men were directors of both companies in 1946 and in 1949.

<sup>16</sup> Herbert R. Straight, chairman of the board of Cities Service Oil Co., William A. Jones, member of the executive committee and director of Cities Service, and T. W. Tutwiler, president and director of Tutwiler Investment Co., were directors of Empire Gas & Fuel and Richfield Oil.

<sup>17</sup> Moodys Public Utilities, 1947, p. 1428.

<sup>18</sup> Moody's Industrials, 1947, p. 2229.

<sup>19</sup> Samuel L. Fuller, a partner of Merrill Lynch, Pierce, Fenner & Beane, was a director of Sinclair Oil and Commercial National Bank & Trust Co. Jacob France, senior member of France, Rouzer & Lantz, was a director of Mid-Continent Petroleum and Commercial National Bank & Trust Co.

<sup>20</sup> George MacDonald was a director of Sinclair Oil and Petroleum Corp. Elisha Walker, of Kuhn, Loeb & Co., was a director of Tide Water Oil and Petroleum Corp.

<sup>21</sup> R. L. Clarkson, chairman of the board of Amerex Holding Co., was a director of Sinclair Oil and Continental Baking. William C. Potter, member of the executive committee of Guaranty Trust Co., was a director of Continental Oil and Continental Baking.

<sup>22</sup> Gayer G. Dominick, of Dominick & Dominick, was a director of Shell Union Oil and National Bond & Share Corp. William V. Griffin, chairman of Brady

Phillips Petroleum Co., the ninth largest of the oil companies; had an indirect tie with Union Oil through Manufacturers Trust Co.;<sup>25</sup> and with Tide Water Oil, through the Hat Corp. of America.<sup>26</sup>

Atlantic Refining Co., the tenth of the oil companies in size, had an indirect interlock with Sun Oil, through First National Bank of Philadelphia.<sup>25</sup>

Empire Gas & Fuel, the eleventh of the oil companies, has already been shown to have been tied indirectly with Sinclair Oil and Texas Co. It had a direct tie with Richfield Oil, with which it shared three directors.<sup>26a</sup>

Union Oil, twelfth largest of the oil companies, had indirect ties with Standard of California and Phillips Petroleum. These relations have already been outlined.

The thirteenth largest of the oil companies, Tide Water Oil, has already been shown to have had indirect links with Gulf Oil, Phillips Petroleum, Texas Co., Shell Union Oil, and Sinclair Oil. It also had an indirect tie, through Middle West Corp., with Ashland Oil & Refining Co.<sup>26</sup>

Pure Oil was the fourteenth largest oil company in 1946. In that year, it had two directors in common with Hickok Oil.<sup>27</sup> Its indirect tie with Standard of Indiana has already been noted.

Sun oil was the fifteenth of the oil companies in size. Its indirect tie with Atlantic Refining has already been noted.

Directors from the board of Continental Oil, the sixteenth of the oil companies in size, met directors of seven other of the Nation's

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Security & Realty Corp., was a director of Continental Oil and National Bond & Share Corp.

<sup>25</sup> J. L. Johnston, president of Lambert Co., was a director of Phillips Petroleum and Manufacturers Trust Co. Ernest Stauffen, Jr., chairman of the trust committee and director of Manufacturers Trust Co., was a director of Union Oil.

<sup>26</sup> J. L. Johnston, president of Lambert Co., was a director of Phillips Petroleum and of Hat Corp. Elisha Walker, of Kuhn, Loeb & Co., was a director of Tide Water Oil and of Hat Corp.

<sup>26a</sup> Robert H. Colley, president and director of Atlantic Refining, was a director of First National Bank of Philadelphia. Arthur Edmond Pew, vice president and director of Sun Oil, was a director of First National Bank of Philadelphia.

<sup>27</sup> Herbert R. Straight, chairman of the board of Cities Service Oil Co., William A. Jones, member of the executive committee and director of Cities Service, and T. W. Tutwiler, president and director of Tutwiler Investment Co., were directors of Empire Gas & Fuel and Richfield Oil. All three were on the boards of both companies in 1946 and 1949.

<sup>28</sup> Adolphe Bolsevain was a director of Tide Water Oil and Middle West Corp. William C. Freeman, president of the Middle West Corp., was a director of Ashland Oil & Refining.

<sup>29</sup> Rawleigh Warner, vice president and director of Pure Oil, and L. S. Wescoat, another vice president and director of Pure Oil, were both on the board of Hickok Oil. There were no direct ties between these companies in 1949.



largest oil companies on the boards of various other companies. Continental Oil has already been shown to have had indirect ties with Standard of Indiana, Texas Co., Standard of California, Gulf Oil, Sinclair Oil, and Shell Union Oil, the Nation's third, fourth, sixth, seventh, and eighth largest oil companies, respectively. It also had indirect interlocks with Standard of Ohio, through Dresser Industries, Inc.;<sup>28</sup> with Mid-Continent Petroleum and with Crown Central Petroleum, through Anaconda Copper Mining Co.;<sup>29</sup> and with Panhandle Producing & Refining, through Prudential Insurance.<sup>30</sup>

Standard of Ohio was the seventeenth largest oil company. Its indirect tie with Continental Oil has already been noted.

Richfield Oil was the nineteenth of the oil companies in size in 1946. Its direct ties with Sinclair Oil and with Empire Gas & Fuel, and its indirect tie with Texas Co. have already been described.

Mid-Continent Petroleum, the twentieth of the oil companies, had a director in common with each of two smaller companies—Deep Rock Oil Corp. and Crown Central Petroleum.<sup>31</sup> Its indirect ties with Continental Oil and Sinclair Oil have already been described.

Interlocks of Deep Rock Oil, Ashland Oil, Hickok Oil, Crown Central Petroleum, and Panhandle Producing & Refining with other large oil companies have already been outlined.

Thus, two-thirds of the companies had direct or indirect interlocks with each other; while eight had direct ties. Of greatest apparent significance were the indirect interlocks of Standard of Indiana, Standard of California, Gulf Oil, and Continental Oil, through the Chase National Bank; those of Standard of Indiana and Texas Co., through the Continental Illinois National Bank & Trust Co.; and those of Texas Co., Shell Union Oil, and Tide Water Oil, through Central Hanover Bank & Trust Co. These three sets of indirect interlocks,

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<sup>28</sup> William V. Griffin, chairman of Brady Security & Realty Corp., was a director of Continental Oil and Dresser Industries. William A. McAfee, of McAfee, Grossman, Hanning, Newcomer & Hazlett, was a director of Standard of Ohio and Dresser Industries.

<sup>29</sup> William C. Potter, member of the executive committee of Guaranty Trust Co., was a director of Continental Oil and Anaconda Copper. Maurice Newton, of Hallgarten & Co., was a director of Mid-Continent Petroleum, Crown Central Petroleum, and Anaconda Copper.

<sup>30</sup> Arthur Wilson Page, director of American Telephone & Telegraph, was a director of Continental Oil and Prudential Insurance. Franklin D'Olier, chairman of the board of Prudential Insurance, was a director of Panhandle Producing & Refining.

<sup>31</sup> Henry N. Greis, president of Burke-Greis Oil Co., was also president and director of Deep Rock Oil and director of Mid-Continent Petroleum. He was not listed as a director of either company in 1949. Maurice Newton, partner in Hallgarten & Co., was a director of both Mid-Continent Petroleum and Crown Central Petroleum. He was not listed as a director of Crown Central Petroleum in 1949.



alone, linked the third, fourth, fifth, sixth, eighth, and ninth largest of the oil companies.

Twenty-two of the country's largest oil companies were interlocked with each other in an endless chain. However, the absence of Standard of New Jersey, the largest of the oil companies, and Socony-Vacuum, the second largest of the oil companies, made the chain conspicuously incomplete.

#### OTHER INTERLOCKING RELATIONS AMONG COMPETITORS

The direct and indirect interlocking directorates among the oil companies are not, of course, the total array of relations among such companies. There are also other types of close relationships. Opportunities for joint action occur, for example, where two or more petroleum companies own affiliated domestic petroleum companies,<sup>32</sup> foreign or domestic companies which produce or market petroleum in foreign countries,<sup>33</sup> domestic natural gas pipeline companies,<sup>34</sup> domestic crude oil pipeline companies,<sup>35</sup> foreign crude oil pipeline companies,<sup>36</sup> domes-

<sup>32</sup> As indicated above, Richfield Oil was owned 30.513 percent by Sinclair Oil and 31.449 percent by Empire Gas & Fuel (Cities Service). Pacific Western Oil Corp. and Mission Corp. are principally holding companies and, therefore, were not included among the largest manufacturing corporations. It may be noted, however, that 59.37 percent of Skelly Oil Co. and 22.30 percent of Tide Water were owned by Mission, 46.98 percent of which was owned by Pacific Western Oil, 84 percent of whose stock was held by J. P. Getty as an individual and as a trustee.

<sup>33</sup> Standard-Vacuum and Near East Development Corp. were owned jointly by Standard of New Jersey and Socony-Vacuum. Colsag Corp., Ultramar Petroleum Co., and La Junta Petroleum Co. were owned jointly by Socony-Vacuum and Texas Co. Bahrain Petroleum Co. and 11 or more additional companies were owned jointly by Standard of California and Texas Co. African Petroleum Terminals was owned jointly by Texas Co. and Atlantic Refining. South American Gulf Oil Co. was acquired from Gulf in 1936 by Socony-Vacuum and Texas Co. jointly.

<sup>34</sup> Natural Gas Pipeline was owned 28.56 percent by Cities Service, 18.86 percent by Texas Co., 14.28 percent by Standard of New Jersey, 21.30 percent by Peoples Gas, Light & Coke Co., 14.28 percent by Southwestern Development Co., and 2.72 percent by Columbian Carbon Co.

<sup>35</sup> Texas-Empire Pipe Line Co. was owned jointly by Texas Co. and Empire Gas & Fuel (Cities Service). Kow Pipe Line Co. was owned jointly by Texas Co., Phillips Petroleum, and Empire Gas & Fuel. Wyco Pipe Line Co. was owned 40 percent by Texas Co., 40 percent by Standard of Indiana, and 20 percent by Socony-Vacuum. Texas-New Mexico Pipe Line Co. was owned 45 percent by Texas Co., 35 percent by Sinclair Oil, 10 percent by Empire Gas & Fuel, and 10 percent by Tide Water Oil.

<sup>36</sup> Trans-Arabian Pipe Line Co. was owned 30 percent by Standard of New Jersey, 30 percent by Standard of California, 30 percent by Texas Co., and 10 percent by Socony-Vacuum. Middle East Pipe Lines was owned 50 percent by Anglo-Iranian, 40 percent by Standard of New Jersey, and 10 percent by Socony-Vacuum.

tic gasoline pipeline companies,<sup>37</sup> and various other interests.<sup>38</sup> If the directors or operating executives of major oil companies jointly work out problems in connection with affiliated companies, the consequence may be much the same as if they are linked by interlocking directorates.

Although directors of Standard of New Jersey and Socony-Vacuum were conspicuously missing from the boards of directors of any of the other large oil companies, these two companies had a series of ties with each other and with other petroleum companies through joint stock ownership in third companies. Illustrations of some of these ties are shown in chart 41.

Standard of New Jersey and Socony-Vacuum, together with Texas Co. and Standard of California, controlled Arabian American Oil Co.<sup>39</sup> (formerly California Arabian Standard Oil Co.), and Trans-Arabian Pipe Line Co.<sup>40</sup> These oil companies had common problems in marketing their foreign oil and in the relations of their foreign to their domestic markets.

Standard of New Jersey was also a joint owner, with Gulf Oil and Atlantic Refining, of United Petroleum Securities.<sup>41</sup> With Texas Co., Empire Gas and Fuel (Cities Service), Peoples Gas, Light & Coke Co., Southwestern Development Co., and Columbian Carbon Co., it owned Natural Gas Pipeline Co. of America.<sup>42</sup> Standard of New

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<sup>37</sup> Great Lakes Pipe Line Co. was owned approximately 29 percent by Continental Oil, 18.96 percent by Mid-Continent Petroleum, 14.22 percent by Skelly Oil, 12.14 percent by Texas Co., 9.48 percent by Pure Oil, 4.99 percent by Phillips Petroleum, 5.15 percent by Empire Gas & Fuel (Cities Service) and an unidentified percent by Sinclair Oil. Detroit Southern Pipe Line Co. was owned 47.5 percent by Pure Oil, 20.0 percent by Gulf Oil, and an unidentified percent by Sun Oil.

<sup>38</sup> Process Management Co. was jointly owned by Texas Co. and Standard of Indiana. Gray Processes Corp. was owned 50 percent by Texas Co., 25 percent by Standard of Indiana, and 25 percent by Pure Oil. Gasoline Products Co. was jointly owned by Standard of Indiana, Texas Co., and M. W. Kellogg Co. (a subsidiary of Pullman, Inc.).

<sup>39</sup> Arabian American Oil Co. (formerly California Arabian Standard Oil Co.) was owned 30 percent by Standard of New Jersey, 30 percent by Standard of California, 30 percent by Texas Co., and 10 percent by Socony-Vacuum.

<sup>40</sup> Trans-Arabian Pipe Line Co. was owned 30 percent by Standard of New Jersey, 30 percent by Standard of California, 30 percent by Texas Co., and 10 percent by Socony-Vacuum.

<sup>41</sup> United Petroleum Securities Corp., was owned 67.5 percent by Standard of New Jersey, 22.5 percent by Gulf Oil, and 10 percent by Atlantic Refining.

<sup>42</sup> Natural Gas Pipeline was owned 28.56 percent by Cities Service, 18.86 percent by Texas Co., 14.28 percent by Standard of New Jersey, 21.30 percent by Peoples Gas, Light & Coke Co., 14.28 percent by Southwestern Development Co., and 2.72 percent by Columbian Carbon Co. Southwestern Development Co., it may be noted, was owned 51 percent by Sinclair Oil and 47.282 percent by Mission Corp. Mission Corp., in turn, owned 59.37 percent of Skelly Oil. It may also be noted



Indiana.<sup>47</sup> It shared control of Neches Butane Products Co. with Texas Co., Gulf Oil, Pure Oil, and Atlantic Refining.<sup>48</sup>

No attempt has been made to find other examples of joint ownership relations involving Standard of New Jersey, Socony-Vacuum, and the other large oil companies; nor have steps been taken to follow the labyrinthine connections among the large petroleum companies through affiliates and affiliates of affiliates. The examples given here merely illuminate the fact that neither Standard of New Jersey nor Socony-Vacuum was so isolated from the other petroleum companies as the lack of common directorships at first sight seems to indicate.

#### INTERLOCKING DIRECTORATES WITH POTENTIAL CUSTOMERS AND SUPPLIERS

Petroleum products bought by business enterprises include gasoline, kerosene, gas oil, Diesel oil, fuel oil, and lubricants of all kinds; asphalt, which is used in the manufacture of roofings and waterproofing materials of many kinds, and for road surfacing; naphtha, solvents, and waxes which have many industrial and commercial uses; raw materials for the chemicals industry, including the basic raw material for plastics and synthetic rubber products; and liquid petroleum gas and carbon black. The oil companies in turn are large customers for a great variety of products and services, including steel, steel pipe, tin cans,<sup>49</sup> pumps, engines, trucks, measuring and dispensing machines,<sup>50</sup> automotive tires, batteries and accessories<sup>51</sup> and a great variety of equipment used in the drilling, pumping, transporting and refining of crude petroleum and petroleum products.

The wide variety of products in which the oil companies are interested, either as buyers or sellers, renders interlocking directorates with companies in almost any industry of potential competitive sig-

<sup>47</sup> Wyco Pipe Line was owned 40 percent by Texas Co., 40 percent by Standard of Indiana, and 20 percent by Socony-Vacuum.

<sup>48</sup> Neches Butane Products Co. was owned 30 percent by Texas Co., 30 percent by Gulf Oil, 22.85 percent by Socony-Vacuum, 12.5 percent by Pure Oil, and 4.683 percent by Atlantic Refining.

<sup>49</sup> The Texas Co. manufactures tin cans for its own use in packaging oils and lubricants.

<sup>50</sup> A subsidiary of Standard of New Jersey, Gilbert & Barker, is one of the largest manufacturers of automatic oil pumps and measuring devices for dispensing oils, gasoline, and other volatile liquids.

Martin and Schwartz, Inc., which is 50 percent owned by Socony-Vacuum, and in which Sun Oil Co., also has a stock interest, also manufactures gasoline-dispensing pumps.

<sup>51</sup> Many oil companies handle the distribution and sale of automobile tires, batteries, and accessories through a subsidiary company. The general practice is for these products to be manufactured to the specifications of the oil company and sold under the oil company's designated trade name.

# EXAMPLES OF INTERLOCKING DIRECTORATES BETWEEN LARGE PETROLEUM COMPANIES AND POTENTIAL CUSTOMERS AND SUPPLIERS

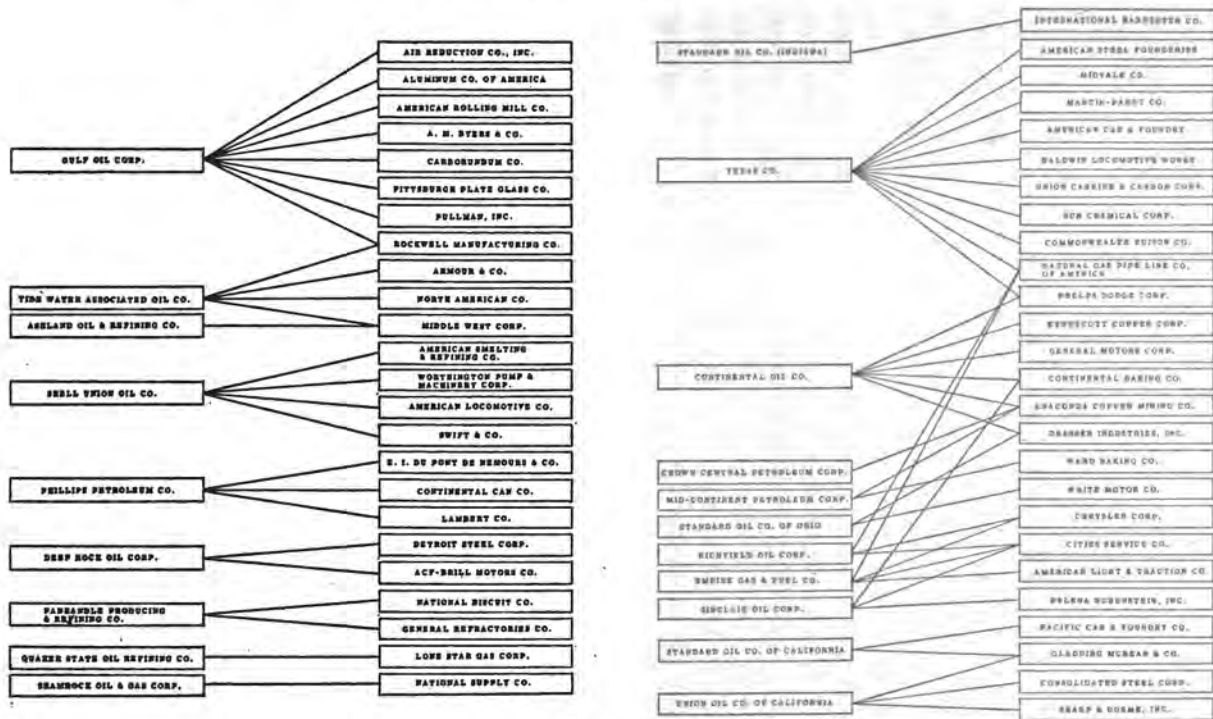


CHART 42.



nificance. The interlocking directorates discussed herein are, therefore, not exhaustive; they merely illustrate types of interconnections linking large oil companies with corporations outside the petroleum industry. Some of these examples are shown in chart 42. All interlocking directorates discussed in this section are direct interlocks, i. e., in each case a director who served on the board of a petroleum company also served on the board of a nonpetroleum company which was a potential customer or supplier.

### *Interlocking Relations With Potential Suppliers*

Standard of Indiana, the third largest of the oil companies, was directly interlocked with International Harvester Co.,<sup>52</sup> an important manufacturer of motortrucks, tractors, and engines which can be used in the oil industry.

The Texas Co., the fourth largest oil company, maintained interlocking relations with Phelps Dodge Corp.,<sup>53</sup> a manufacturer of copper and copper alloy products usable in petroleum refining and processing equipment; with American Steel Foundries,<sup>54</sup> a manufacturer of miscellaneous steel, iron, and brass castings; with Midvale Co.,<sup>55</sup> a manufacturer of weldless rings and steel rolls; with Martin-Parry Co.,<sup>56</sup> which makes drawn metal products, including all-steel prefabricated wallboard and movable steel partitions; and with American Car & Foundry Co.,<sup>57</sup> which produces cylindrical plug valves. All of these products are of use in the petroleum industry. Texas Co. also had direct ties with Baldwin Locomotive Works,<sup>57</sup> a manufacturer of boilers usable in petroleum distillation equipment; and with Union Carbide & Carbon Co.,<sup>58</sup> one of the three leading producers of oxygen and acetylene gases, and of oxy-acetylene welding and cutting equipment. Such types of equipment, as well as oxygen and acetylene gases, are used extensively by petroleum companies.

<sup>52</sup> Judson F. Stone, manager of McCormick Estates, was a director of International Harvester and of Standard of Indiana.

<sup>53</sup> William S. Gray, Jr., president of Central Hanover Bank & Trust Co., was a director of the Texas Co., and Phelps Dodge.

<sup>54</sup> Henry Pratt Upham Harris, a partner at Harris Upham & Co., was a director of the Texas Co., and American Steel Foundries.

<sup>55</sup> Robert C. Shields, director of Fisher & Co., was a director of Midvale Co., Martin-Parry Corp., and the Texas Co.

<sup>56</sup> Walter Joseph Cummings, chairman of the board of Continental Illinois National Bank & Trust Co., was a director of American Car & Foundry and of the Texas Co.

<sup>57</sup> Robert C. Shields was director of Baldwin Locomotive as well as of the Texas Co.

<sup>58</sup> William S. Gray, Jr., was a director of Texas Co. and Union Carbide & Carbon.



Standard of California, the fifth largest of the oil companies, had a direct tie with Pacific Car & Foundry Co.,<sup>59</sup> which manufactures structural steel; and with Gladding, McBean & Co.,<sup>60</sup> which makes acid-proof cement, fire brick, and heat insulating material.

Another of the large oil companies, Gulf Oil was interlocked with Rockwell Manufacturing Co.,<sup>61</sup> Aluminum Co. of America,<sup>62</sup> American Rolling Mill Co.,<sup>63</sup> A. M. Byers & Co., Pullman, Inc., Air Reduction Co.,<sup>64</sup> Carborundum Co., and Pittsburgh Plate Glass Co.,<sup>65</sup> all of which manufacture products which oil companies can use. Rockwell Manufacturing produces all kinds of valves for oil transporting and refining equipment. It also manufactures orifice gauges, chart integrators, and precision instruments usable by oil companies. Alcoa, in its chemical division, produces activated alumina, used as a desiccant for liquid and air dehydration units. It also makes corrosion-resistant pipe, which has a great variety of uses in the petroleum industry. American Rolling Mill is an important manufacturer of oil-well casings, lined pipe, welded steel pipe, pipe couplings, and pipe fittings. A. M. Byers is one of the principal manufacturers of wrought iron pipe. A subsidiary of Pullman, Inc., M. W. Kellogg Co., is one of the outstanding firms in designing and constructing gasoline refineries and fluid catalytic cracking plants. Air Reduction is one of the principal manufacturers of oxygen and acetylene, oxy-acetylene welding and cutting machines, and arc-welding equipment, which are used extensively in oil pipeline construction. The Carborundum Co., manufactures carborundum grinding wheels, sharpening stones, coated abrasives, non-metallic heating elements and resistors. Pittsburgh Plate Glass ranks as one of the leading producers of soda ash and caustic soda;<sup>66</sup> both of these products are used in substantial quantities by petroleum refineries.

Shell Union Oil had interlocking relations with Worthington Pump

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<sup>59</sup> Paul Pigott, president and director of Pacific Car & Foundry, was also a director of Standard of California.

<sup>60</sup> Atholl McBean, chairman of the board and director of Gladding McBean & Co., was a director of Standard of California.

<sup>61</sup> J. Frank Drake, president and director of Gulf Oil and a director of Chase National Bank, was a director of Rockwell Manufacturing Co.

<sup>62</sup> R. K. Mellon, chairman of the board of Mellon National Bank & Trust Co., was a director of Gulf Oil Corp. and Aluminum Co. of America.

<sup>63</sup> J. Frank Drake, president and director of Gulf Oil Corp., was also a director of American Rolling Mill Co.

<sup>64</sup> Alan M. Scaife, vice president and director of Gulf Oil Corp., was a director of A. M. Byers Co.; Pullman, Inc.; and Air Reduction Co.

<sup>65</sup> R. K. Mellon, chairman of the board, Mellon National Bank & Trust Co., was a director of Gulf Oil Corp., Carborundum Co., and Pittsburgh Plate Glass Co.

<sup>66</sup> Production is by Southern Alkali Corp., a subsidiary of Pittsburgh Plate Glass.

& Machinery Corp., American Locomotive Co.,<sup>67</sup> and American Smelting & Refining Co.<sup>68</sup> Worthington Pump is an important supplier of gas-engine compressors for gas pipelines, air compressors, condensers, Diesel engines, pumps, and pumping equipment. These products are widely used by oil companies. American Locomotive manufactures oil-storage tanks, refinery stills, distillation columns, fractionating columns and condensers, cracking chambers, Diesel engines, distillation units, and pipeline pump engines, all usable by petroleum refining companies. American Smelting & Refining produces sulphuric acid, of which large quantities are used by petroleum refineries.

Phillips Petroleum maintained interlocks with Continental Can Co.,<sup>69</sup> and E. I. du Pont de Nemours & Co.<sup>70</sup> Continental Can is a large manufacturer of oil cans and containers, steel shipping drums, and grease cans. DuPont is a leading supplier of metal deactivators, tetraethyl lead compounds, antioxidants and dyes. All of these are gasoline additives. DuPont also makes additives for lubricating oil and fuel oil. Shamrock Oil & Gas., in which Phillips<sup>71</sup> owns a stock interest, maintained interlocking relations with National Supply Co.,<sup>72</sup> a large manufacturer of supplies for oil and gas wells and pipelines. National Supply manufactures drilling and pumping machinery and tubular products and distributes products manufactured by others principally for use in the oil and gas industries.

Empire Gas & Fuel and Richfield Oil both maintained interlocks with Chrysler,<sup>73</sup> a manufacturer of trucks and industrial engines usable by oil companies.

Union Oil was linked with a west coast steel company, Consolidated Steel Corp., and with Gladding, McBean.<sup>74</sup> Consolidated Steel supplies fabricated steel, structural steel plates, boilers, towers, and oil-refining equipment. Gladding, McBean & Co. sells acid-proof cement and heat insulating material.

<sup>67</sup> Louis L. Clark was a director of Shell Union Oil, Worthington Pump, and American Locomotive.

<sup>68</sup> Lewis E. Pierson was a director of American Smelting & Refining, and of Shell Union Oil.

<sup>69</sup> John Lawrence Johnston, president of Lambert Co., was a director of Continental Can and of Phillips Petroleum.

<sup>70</sup> Eugene E. du Pont, director of E. I. du Pont de Nemours, was also a director of Phillips Petroleum.

<sup>71</sup> In December 1945, Phillips Petroleum purchased 27 percent of the common stock of Shamrock Oil & Gas.

<sup>72</sup> Ralph S. Euler, senior vice president of Mellon National Bank & Trust Co., was a director of Shamrock Oil & Gas and of National Supply.

<sup>73</sup> William Alton Jones, president of Cities Service, was a director of Empire Gas & Fuel, Richfield Oil, and of Chrysler.

<sup>74</sup> James R. Page was a director of Union Oil of Gladding, McBean, and of Consolidated Steel.

Like Gulf Oil, Tide Water Oil shared a director with Rockwell Manufacturing.<sup>76</sup>

Continental Oil maintained interlocks with Dresser Industries,<sup>79</sup> Anaconda Copper,<sup>77</sup> Kennecott Copper,<sup>78</sup> Phelps Dodge,<sup>79</sup> and General Motors.<sup>80</sup> Dresser manufactures derricks, drilling units, and pumps for oil pipelines. Through an affiliate, Hydro Carbon Research, Dresser Industries also engages in experimental and developmental work concerning the engineering and commercial use of the Hydrocol process for making gasoline from natural gas. Anaconda Copper, as has been stated, manufactures tubes and plates for condensers, heat exchangers and other types of petroleum refining and processing equipment. Kennecott Copper and Phelps Dodge, through affiliated or subsidiary companies, manufacture copper, brass, and copper-alloy fabricated products usable by petroleum companies in their producing, refining, and processing equipment. General Motors manufactures trucks and Diesel and gasoline engines, all widely used by oil companies.

Standard Oil of Ohio was interlocked with Dresser Industries, which manufactures derricks, drilling units, and pumps for oil pipelines, and with White Motor Co., a manufacturer of heavy duty trucks.<sup>81</sup>

Mid-Continent Petroleum and Crown Central Petroleum both shared a director with Anaconda Copper.<sup>82</sup>

Deep Rock Oil was interlocked with Detroit Steel Corp.,<sup>83</sup> and with an engine manufacturer, ACF-Brill Motors.<sup>84</sup>

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<sup>76</sup> Elisha Walker, of Kuhn, Loeb & Co., was a director of Tide Water Oil and Rockwell Manufacturing.

<sup>77</sup> William V. Griffin, chairman of the board and director of Brady Security & Realty Corp., was a director of Continental Oil and of Dresser Industries.

<sup>78</sup> William C. Potter, who was a member of the executive committee of the Guaranty Trust Co., was a director of Anaconda Copper and of Continental Oil.

<sup>79</sup> Arthur Wilson Page, director of American Telephone & Telegraph, was a director of Kennecott Copper and of Continental Oil.

<sup>80</sup> Thomas S. Lamont, vice president of J. P. Morgan & Co., was a director of Phelps Dodge and of Continental Oil.

<sup>81</sup> George Whitney, president of J. P. Morgan & Co., was a director of General Motors, Kennecott Copper, and Continental Oil.

<sup>82</sup> William A. McAfee, partner in McAfee, Grossman, Hanning, Newcomer and Hazlett of Cleveland, was a director of Dresser Industries, Standard Oil of Ohio, and White Motor Co.

<sup>83</sup> Maurice Newton, a partner of Halgarten & Co., was a director of Anaconda Copper, Mid-Continent Petroleum, and Crown Central Petroleum.

<sup>84</sup> Jason L. Honigman, partner in Sempliner, Dewey, Stanton & Honigman, was a director of Deep Rock Oil and Detroit Steel.

<sup>85</sup> C. Kenneth Baxter, vice president and treasurer of Donner Estates, was a director of Deep Rock Oil and ACF-Brill Motors.

Panhandle Producing & Refining Co. was interlocked with General Refractories Co.,<sup>85</sup> a potential supplier of refractory bonding mortars and cements, and refractory brick.

### *Interlocking Relations With Potential Customers*

In addition to their interlocks with potential suppliers, the large oil companies also maintained ties with companies which were potential customers.

The Texas Co. was interlocked with Sun Chemical Corp.,<sup>86</sup> a manufacturer of printing ink, paints, and textile chemicals, and with Union Carbide & Carbon.<sup>87</sup> One of the products produced by the Texas Co., is carbon black, which is an important ingredient used in the manufacture of printing ink. A major product produced by Union Carbide & Carbon is acetylene, for which the basic raw material, calcium carbide, is made by fusing coke and lime. Oil refining companies are manufacturers of petroleum coke.

Shell Union Oil maintained interlocking relations with Swift & Co.;<sup>88</sup> while Tide Water Oil was interlocked with Armour & Co.<sup>89</sup> As large meat packers, both Armour and Swift use refrigerants and refrigeration equipment. Liquid sulphur dioxide, which is widely used as a refrigerant, is obtained in the refining of automobile lubricants.

Several oil companies had interlocks with chemical companies. Sinclair Oil was interlocked with Helena Rubinstein, Inc.;<sup>90</sup> Phillips Petroleum with Lambert Co.,<sup>91</sup> and Union Oil with Sharp & Dohme, Inc.<sup>92</sup> Both Lambert Co. and Sharp & Dohme manufacture extensive lines of pharmaceutical and biological products as well as toilet preparations. Lambert Co. also makes industrial plastic articles and a complete line of toilet brushes. Many raw materials used in the pro-

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<sup>85</sup> Franklin D'Olier, chairman of the board of Prudential Insurance Co., was a director of General Refractories and of Panhandle Producing & Refining.

<sup>86</sup> W. G. Dunnington, partner in Dunnington, Bartholow & Miller, was a director of Sun Chemical and the Texas Co.

<sup>87</sup> William S. Gray, Jr., president of Central Hanover Bank & Trust Co., was a director of Union Carbide & Carbon and of the Texas Co.

<sup>88</sup> Louis L. Clark was a director of Swift and of Shell Union Oil.

<sup>89</sup> Elisha Walker of Kuhn, Loeb & Co., was a director of Armour and of Tide Water Oil.

<sup>90</sup> William P. Phillips was a director of Sinclair Oil and of Helena Rubinstein, Inc.

<sup>91</sup> John Lawrence Johnston was president and director of Lambert Co., and director of Phillips Petroleum.

<sup>92</sup> Ernest Stauffen, Jr., chairman of the trust committee of Manufacturers Trust Co., was a director of Union Oil and of Sharp & Dohme.

duction of pharmaceuticals, plastics and toilet preparations are obtained from the petroleum industry. Some of these raw materials are paraffin, glycerin, glycols, ethers, pharmaceutical jellies, and alcohols.

Some of the large oil companies also maintained interlocking relations with large baking companies. Continental Oil was interlocked with Continental Baking Co.,<sup>93</sup> Mid-Continent Petroleum with Ward Baking Co.,<sup>94</sup> and Panhandle Producing & Refining with National Biscuit Co.<sup>95</sup> In 1947 Continental Baking<sup>96</sup> operated more than 4,500 motor trucks and 178 passenger cars, and Ward Baking<sup>97</sup> operated about 2,200 electric and gas motor trucks. The number of trucks operated by National Biscuit is not known but 96 percent of its sales were delivered to stores by delivery trucks operating from 257 distributing branches.<sup>98</sup> Thus these baking companies are potential users of a large volume of petroleum products.

The large oil companies also had a number of interlocking directorates with public utilities. Interlocks with public utilities are significant because oil companies are the most important suppliers of natural gas, while utilities are important purchasers of this product.

The Texas Co. was interlocked with Commonwealth Edison Co.,<sup>99</sup> a large utility purchasing and distributing natural gas to Chicago and vicinity; and with Natural Gas Pipeline,<sup>1</sup> which owns a natural gas pipeline running from Texas to Chicago.<sup>2</sup>

Sinclair Oil was interlocked with Cities Service,<sup>3</sup> which owns systems for the production, transportation, and distribution of natural gas in Kansas, Oklahoma, Missouri, Arkansas, Nebraska, Texas, Louisiana, and New York.

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<sup>93</sup> William C. Potter, member of the executive committee of Guaranty Trust Co., was a director of Continental Oil and Continental Baking.

<sup>94</sup> F. R. Russell, chairman of the board and a director of Ward Baking, was a director of Mid-Continent Petroleum.

<sup>95</sup> Franklin D'Olier, chairman of the board of Prudential Insurance Co., was a director of Panhandle Producing & Refining and of National Biscuit.

<sup>96</sup> Moody's Industrials, 1947, p. 1917.

<sup>97</sup> Moody's Industrials, 1947, p. 1628.

<sup>98</sup> Moody's Industrials, 1947, p. 2706.

<sup>99</sup> Walter Joseph Cummings, chairman of the board of Continental Illinois National Bank & Trust Co., was a director of Commonwealth Edison Co. and the Texas Co.

<sup>1</sup> R. Ogarrio, vice president and director of the Texas Co., was a director of Natural Gas Pipeline.

<sup>2</sup> Natural Gas Pipeline purchases 75 percent of its natural gas from Texomo Natural Gas Co., in which the Texas Corp. owned a 18.86 percent interest.

<sup>3</sup> George MacDonald was a director of Sinclair Oil and of Cities Service.



Empire Gas & Fuel was also interlocked with Cities Service,<sup>4</sup> as was Richfield Oil.<sup>5</sup> Richfield Oil and Empire Gas & Fuel also maintained interlocks with Natural Gas Pipeline.<sup>6</sup> Empire Gas & Fuel also was interlocked with American Light & Traction Co.,<sup>7</sup> a utility holding company which owns subsidiaries furnishing gas and electricity to cities in Kansas, Iowa, Illinois, Michigan, and Wisconsin.

Tide Water Oil and Ashland Oil & Refining were interlocked with Middle West Corp.,<sup>8</sup> a utility holding company which, through its subsidiaries, distributes gas and electricity in several Midwestern States. Tide Water Oil was also interlocked with North American Co.,<sup>9</sup> which furnishes gas service to communities in Kansas, Missouri, Illinois, Wisconsin, and Michigan.

Quaker State Oil Refining Corp. was interlocked with Lone Star Gas Corp.,<sup>10</sup> which produces, purchases, and distributes natural gas in 321 cities in Texas and Oklahoma.

How far such ties between the oil companies and potential suppliers or customers operated to block other potential suppliers from selling to the oil companies or other potential customers from buying from these companies has not been examined. Channels which otherwise would be open to other potential suppliers or customers can be obstructed by ties such as those which have been described.

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<sup>4</sup> Empire Gas & Fuel is a subsidiary of Cities Service and these companies had nine directors in common: they were Thomas I. Carter, vice president of Cities Service; Stanhope Foster; W. Alton Jones, president of Cities Service; Ernest H. Johnson, treasurer of Cities Service; John M. McMillin; Henry L. O'Brien, first vice president of Cities Service; Herbert R. Straight, chairman of the board of Cities Service Oil Co.; Temple W. Tutwiler, and Burl S. Watson, vice president of Sixty Wall Tower.

<sup>5</sup> Richfield Oil and Cities Service shared four directors: W. Alton Jones, president of Cities Service, George MacDonald, Herbert R. Straight, chairman of the board of Cities Service, and Temple W. Tutwiler. Cities Service owns 31 percent of the stock of Richfield Oil. See Moody's Public Utilities, 1947, p. 1428.

<sup>6</sup> W. Alton Jones, president and director of Cities Service, was director of Natural Gas Pipeline and Richfield Oil. Ernest H. Johnston, treasurer and director, Cities Service, was a director of Empire Gas & Fuel and of Natural Gas Pipeline.

<sup>7</sup> Stanhope Foster was a director of Empire Gas & Fuel and of American Light & Traction.

<sup>8</sup> A. Boissevain was a director of Tide Water Oil and of Middle West Corp. William Claude Freeman, president and director of Middle West Corp., was also a director of Ashland Oil & Refining.

<sup>9</sup> Edward L. Shea, president and director of North American Co., was also on the board of Tide Water Oil.

<sup>10</sup> Thomas B. Gregory was a director of Quaker State Oil Refining and of Lone Star Gas.



## SUMMARY

The bare outline of the interlocking directorates among the large oil companies has shown that 22 of these companies had direct or indirect ties with each other. All of the 20 largest oil companies, except the first, second, and eighteenth, were in this list. Standard of New Jersey and Socony-Vacuum, conspicuous by their absence from this roster, were linked with each other and with other large oil companies through joint control of affiliates. There was, therefore, in 1946, no break in the pattern of relations among the Nation's largest oil companies.

The third, fourth, fifth, sixth, eighth, and ninth largest of the oil companies were linked with one another through three banks. Standard of Indiana, Standard of California, Gulf Oil, and Continental Oil all had directors who were on the board of the Chase National Bank. Standard of Indiana and Texas Co. were linked through Continental Illinois National Bank & Trust Co., while Texas Co., Shell Union Oil, and Tide Water Oil were linked through Central Hanover Bank & Trust Co.

While there were no direct interlocks among the top six oil companies, several of the medium-size companies did have such ties. Thus, Sinclair had five directors in common with Richfield, which in turn had three directors in common with Empire.

Standard of New Jersey, Socony-Vacuum, Texas Co., and Standard of California together controlled Arabian American Oil and Trans-Arabian Pipe Line. Standard of New Jersey, Gulf Oil, and Atlantic Refining joint owned United Petroleum Securities. Socony-Vacuum shared control of Wyco Pipeline Co. of America with Texas Co. and Standard of Indiana. These examples merely highlight the fact that Standard of New Jersey and Socony-Vacuum, far from being isolated from the other oil companies by their nonparticipation in interlocking directorates, were closely tied with them in other ways.

Interlocking directorates between the major oil companies and potential suppliers were many and varied. Thus, Texas Co. had a direct tie with Phelps Dodge, a manufacturer of copper and copper-alloy products usable in petroleum refining and processing equipment. It also had a direct interlock with Baldwin Locomotive, a manufacturer of boilers usable in petroleum distillation equipment; and with Union Carbide & Carbon, one of the three leading producers of oxygen and acetylene gases and of oxyacetylene welding and cutting equipment. This equipment, as well as oxygen gases, is used extensively by petroleum companies. Shell Union Oil had direct interlocks with Worthington Pump & Machinery, an important supplier of gas engine compressors for gas pipelines, air compressors, condensers, Diesel engines, pumps, and pumping equipment; and with American Loco-

motive, a manufacturer of oil storage tanks, refinery stills, distillation columns, fractionating columns, condensers, cracking chambers, distillation units, and pipeline pump engines. Both Continental Oil and Standard of Ohio had a director in common with Dresser Industries, a manufacturer of derricks and drilling units and pumps for oil companies.

The large oil companies also had a wide variety of direct ties with companies which were potential customers. The Texas Co., for example, had a direct tie with Sun Chemical, a manufacturer of printing ink, paints, and textile chemicals. Carbon black, produced by Texas, is an important ingredient in the manufacture of printing ink. Shell Union Oil had a direct tie with Swift; while Tide Water Oil had a direct tie with Armour. As large meat packers, both Armour and Swift use refrigerants and refrigeration equipment and sulphur dioxide which is widely used as a refrigerant is obtained from the refining of automobile lubricants. The large oil companies also had a number of interlocking directorates with public utilities, important purchasers of natural gas, which can be supplied by the oil companies. Texas Co., for example, was interlocked with Commonwealth Edison, a large utility company purchasing and distributing natural gas; and with Natural Gas Pipeline, which owns a natural gas pipeline running from Texas to Chicago. Sinclair Oil had a direct tie with Cities Service, which owns gas systems for the production, transportation and distribution of natural gas in eight states. These are but a few among many examples.

In summary, it appears from the pattern of interlocking directorates among the oil companies and from their ties through ownership of affiliates that there was a continuity of relationships among the country's top oil companies. While the effects of the interlocks between the oil companies and potential suppliers and customers have also not been studied, it is possible that channels which would otherwise be open to other suppliers and buyers were closed or obstructed by these ties.

## Chapter 13

### RUBBER PRODUCTS

There were 16 rubber products companies listed among the 1,000 largest manufacturing corporations in 1946. The industry includes the four biggest tire manufacturers—Goodyear Tire & Rubber Co., Firestone Tire & Rubber Co., United States Rubber Co., and the B. F. Goodrich Co. The remaining 12 large companies included seven other tire companies—General Tire & Rubber Co., Lee Rubber & Tire Co., Dayton Rubber Co., Seiberling Rubber Co., Mansfield Tire & Rubber Co., Armstrong Rubber Co., and Pharis Tire & Rubber Co.—and five companies engaged in the manufacture of miscellaneous rubber products.

Twelve of the sixteen rubber companies had interlocking directors with 114 of the other corporations included in this study, 47 of which were financial institutions. Among the manufacturing corporations were 11 chemical companies, 10 food companies, and nine primary metals producers. Firestone, Dayton Rubber, Mansfield Tire & Rubber, and Thermoid Co. had no directors in common with the other companies studied.

The dominant position of the Big Four is reflected both in asset and sales figures. The total assets of the Big Four as of the close of 1946 aggregated \$1,185,471,000. The aggregate assets of the next 12 aggregated \$198,430,000, or only 56 percent of the assets of Goodyear, the largest manufacturer. The 1946 sales of the Big Four amounted to \$20,505,565,000; the aggregate sales of the next 12 were \$346,773,000, or again 56 percent of the sales of Goodyear.

#### INTERLOCKING RELATIONS WITHIN THE RUBBER INDUSTRY

There were no common directors directly interlocking the rubber manufacturers in 1946.

There were relatively few directors indirectly interlocking the rubber companies to one another. Goodyear and Goodrich were indirectly interlocked through General Electric Co. and Sears, Roebuck

& Co.<sup>1</sup> Goodrich and Lee Rubber & Tire were indirectly related through the Corn Products Refining Co.<sup>2</sup>

Dewey & Almy Chemical Co. and Boston Woven Hose & Rubber Co. were indirectly interlocked through the Waltham Watch Co. and the John Hancock Mutual Life Insurance Co.<sup>3</sup> Dewey & Almy Chemical are manufacturers of direct sealing compounds, shoemaking materials, inflatable bladders, thermoplastic coating and adhesives, and divers other products. Boston Woven Hose & Rubber manufactures rubber and cotton hose and belting, jar rings, rubber packing, and a general line of rubber goods.

### INTERLOCKING RELATIONS WITH OTHER INDUSTRIES

The rubber manufacturers had not developed any great number of direct interlocking relations with companies that might serve as a source of supply of products used in the manufacture of rubber. Goodyear shared a common director with the Harshaw Chemical Co.,<sup>4</sup> a manufacturer and importer of industrial chemicals, including those used in the manufacture of rubber and rubber products. It was also interlocked with Interchemical Corp.,<sup>5</sup> which, as a manufacturer of printing ink, carbon paper, and typewriter paper, is, like Goodyear, a consumer of carbon black; this corporation also produces lacquers, paints, varnishes, and enamels. Among its many other products, Goodyear makes phiolite, a basic material for paints and coatings.

The interlocking relation which existed between Goodyear and Industrial Rayon Corp.<sup>6</sup> acquires significance from the extensive use

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<sup>1</sup> Lewis B. Williams of Goodyear and Sidney J. Weinberg, Jr., of Goodrich met on the Board of General Electric. Mr. Weinberg was also a director of Sears, Roebuck, whose chairman, Robert E. Wood, served on the board of Goodyear. Mr. Williams was chairman of the board and director of the National City Bank of Cleveland. Mr. Weinberg was a partner in Goldman, Sachs & Co.

<sup>2</sup> Charles S. McCain of Goodrich and George E. Mahana of Lee Rubber & Tire were directors of Corn Products Refining. Mr. McCain was president of Dillon, Read & Co.; Mr. Mahana was vice president of Corn Products Refining.

<sup>3</sup> O. K. Anderson of Dewey & Almy Chemical and Allen Forbes of Boston Woven Hose & Rubber were directors in Waltham Watch. Mr. Anderson was president and trustee of the Consolidated Investment Trust; Mr. Forbes was president of the State Street Trust Co. Frank G. Allen of Dewey & Almy Chemical and Albert M. Creighton of Boston Woven Hose & Rubber were John Hancock Mutual Life Insurance directors. Mr. Allen was chairman of Winslow Bros. & Smith Co. of Boston; Mr. Creighton was chairman of the Federal Reserve Bank of Boston.

<sup>4</sup> Edward B. Greene the common director, was president of the Cleveland-Cliffs Iron Co.

<sup>5</sup> Clifford E. Stone was a member of Goodyear's executive and finance committees and of Interchemical's executive committee.

<sup>6</sup> Lewis B. Williams, chairman of the board and director of the National City Bank of Cleveland, was the common director.

of rayon tire yarn, which the latter company manufactures and processes into tire cord and fabric for sale to tire manufacturers.

Goodrich, like Goodyear, produces a full line of rubber products in addition to tires and tubes. It shared a common director with American Viscose Corp.,<sup>7</sup> a producer of rayon yarn and of viscose tire yarn and tire fabric. Goodrich also shared a common director with Commercial Solvents Corp.,<sup>8</sup> a producer of an extensive list of industrial chemicals. Thermatomic Carbon Co., a subsidiary of Commercial Solvents, is engaged in the production of carbon black, an essential ingredient in the manufacture of tires and other rubber products.

The most significant interlock with other industries revolved around the relations of U. S. Rubber with E. I. du Pont de Nemours & Co. and General Motors Corp.<sup>9</sup> U. S. Rubber has been within the du Pont sphere of influence since 1928, when the du Pont family and affiliated interests began buying its stock; in 1937 the combined holdings of the du Pont interests were reported to be one-fifth of the common and nearly 10 percent of the voting preferred.<sup>10</sup> Du Pont, as noted elsewhere, is the largest stockholder in General Motors, owning directly and indirectly 23 percent of its voting stock.<sup>11</sup>

Du Pont is, of course, an important source of supply for U. S. Rubber. Its products of particular interest to the rubber manufacturer include rayon tire cord, diphenylamine, neoprene, rubber chemical accelerators, dinethylamine, and polyvinyl butyral flake. Du Pont is a leading producer of synthetic rubber, and U. S. Rubber offers a natural outlet.

Du Pont's position in both General Motors and U. S. Rubber provided U. S. Rubber with preferential access to the largest market for original equipment tires and offered General Motors a secure source of supply.

In a complaint filed June 30, 1949, by the Department of Justice in the case of *United States v. E. I. du Pont de Nemours & Co.*,<sup>12a</sup> the allegations gave the following outline of the tire and tube dealings between U. S. Rubber and General Motors. Beginning in 1931 General Motors purchased large quantities of tires and tubes from U. S. Rubber, but it was not until the following year that a long-term contract was concluded. The 1931 contract provided that General Motors

<sup>7</sup> Charles S. McCain was president of Dillon Read & Co.

<sup>8</sup> David M. Goodrich was chairman of the board of Goodrich.

<sup>9</sup> Lamont du Pont Copeland was a director and member of the finance committee in both du Pont and U. S. Rubber; he was also director of General Motors, Wilmington Trust Co., and Christiana Securities Co.

<sup>10</sup> U. S. Temporary National Economic Committee, Monograph No. 29, *The Distribution of Ownership in the 200 Largest Nonfinancial Corporations, 1940*, pp. 1378-1381.

<sup>11</sup> See chapter 10.

<sup>12a</sup> *U. S. v. E. I. du Pont de Nemours & Co.* (Civil 49c 1071), June 30, 1949.



would take at least half of its tires and tubes for the equipment of new cars from U. S. Rubber. The contract was allegedly so drawn as to provide for preferentially low prices for General Motors. The complaint described the contract as follows:

The foregoing agreements provided that General Motors would carry the risk and responsibility of purchasing the rubber and cotton to be used in the manufacture of the tires which it was to purchase from United States Rubber. The agreements also provided that United States Rubber would actually make the purchases as "agent" for General Motors, and that General Motors would then resell to United States Rubber at cost plus not to exceed 12½ percent, the rubber and cotton which United States Rubber had itself purchased on General Motors account. By this means, the agreements provided for the payment to General Motors of a rebate on the price which it paid to United States Rubber for tires and tubes, in an amount equal to 12½ percent of the cost of the rubber and cotton used therein.

In addition to the substantial rebate to be paid to General Motors as profit on fictitious sales of cotton and rubber, the General Motors-United States Rubber contract of 1931 provided for substantially lower prices to General Motors than were to be made available to other purchasers of tires and tubes from United States Rubber. Provision was made within the contract to conceal its terms not only from other United States Rubber customers, but from General Motors employees as well. The contract provided that tires and tubes delivered under the contract were to be billed by United States Rubber to the several car and truck division of General Motors at fictitious prices which were substantially higher than the true prices. General Motors agreed that its divisions would pay United States Rubber the fictitious prices so billed, and that thereafter United States Rubber would rebate to General Motors the difference between the true price and the fictitious price. This arrangement was carried into effect.

Ambiguity concerning costs and the amount of the rebate were responsible in 1934 for a modification of the contract which provided a definite discount on purchases by General Motors and further provided that there would be a rebate equal to one-half of any profits realized by U. S. Rubber in excess of 10 percent "on sales to General Motors over and above \$15,000,000 annually." Agreements entered into on August 1, 1936, provided that General Motors would purchase 55 percent of its Chevrolet tire requirements, 53 percent of its General Motors truck tires and 75 percent of its remaining new tire requirements from U. S. Rubber. It was provided that General Motors should receive a price as low as that which it secured from any other large tire manufacturer, plus an additional volume discount.

General Motors did not purchase all of its tire requirements from U. S. Rubber. Purchases were also made from Firestone, Goodrich, and Goodyear.

Hewitt-Robbins, Inc. manufactures fabric, reinforced rubber belting, industrial rubber hose, and various molded and sheet rubber



products. It shared a director with Air Reduction Co.,<sup>12</sup> which produces directly or through subsidiaries an extensive list of chemical products, and with the Durez Plastics & Chemicals Co.,<sup>13</sup> a manufacturer of phenolic plastics and other related chemicals.

Boston Woven Hose & Rubber, manufacturer of rubber and cotton hose and a general line of rubber goods, shared a director with American Enka Corp.,<sup>14</sup> producer of rayon and viscose yarn, and with Pacific Mills,<sup>15</sup> which produces cotton and rayon fabrics, automobile cloths, and the like.

Interlocking relations between rubber manufacturers and users of their products were significant principally for tires and tubes. The relations between U. S. Rubber and General Motors have already been described. If these two companies are withdrawn from the competitive markets for a large part of their purchases and sales, the market clearly is narrowed and opportunities for their competitors are limited. No other tire manufacturer included in the present study appears to have had any direct interlocking relations with an important tire outlet.

However, there were indirect interlocks between tire manufacturers and automobile manufacturers and oil companies, some of which provided important outlets to the replacement market. Goodyear was indirectly interlocked with Standard Oil Co. (Indiana)<sup>16</sup> and Standard Oil Co. (Ohio)<sup>17</sup> but it is not known that its market position was thereby improved. It was also indirectly interlocked with International Harvester Co., which purchases substantial quantities of tires for its farm equipment.<sup>18</sup> Goodyear was also indirectly interlocked with the White Motor Co. through the Cleveland Trust Co., and with General Motors through the New York Central Railroad Co.<sup>19</sup>

<sup>12</sup> Knight Woolley was a partner in Brown Bros. Harriman & Co.

<sup>13</sup> Edward H. Letchworth was a senior partner in Kenefick, Cooke, Mitchell, Bass & Letchworth of Buffalo.

<sup>14</sup> George H. Clough was vice president of Boston Woven Hose & Rubber and president of Russell Co. of Boston.

<sup>15</sup> Charles G. Bancroft was vice president of United Shoe Machinery Corp.

<sup>16</sup> Robert E. Wood, a director of Goodyear, and Robert E. Wilson and Edward G. Seubert, directors of Standard of Indiana, served on the board of the First National Bank of Chicago.

<sup>17</sup> Lewis Blair Williams, a director of Goodyear, and William A. McAfee, a partner in McAfee, Grossman, Hanning, Newcomer & Hazlett and a director of Standard of Ohio, were co-directors of the National City Bank of Cleveland.

<sup>18</sup> Robert E. Wood has already been identified as a director of both Goodyear and the First National Bank of Chicago; Ralph Budd, G. A. Ranney, and J. P. Wilson were directors of both International Harvester and the First National Bank of Chicago.

<sup>19</sup> Edward B. Greene, president of Cleveland-Cliffs Iron Co., was a director of Goodyear and of the Cleveland Trust Co. and the New York Central; Frederick H. Chapin, president and chairman of the board of National Acme Co., was a director of Cleveland Trust Co. and White Motor Co.; and George Whitney, president of J. P. Morgan & Co., was a director of the New York Central and General Motors.

U. S. Rubber had a number of indirect interlocks of significance for the disposal of its tires and other rubber products. It interlocked with the Texas Co.<sup>20</sup> It was also indirectly interlocked with the Continental Oil Co.<sup>21</sup> and with the Crown Central Petroleum Corp.<sup>22</sup> It was interlocked with the Brockway Motor Co.<sup>23</sup> which produces a complete line of motortrucks, school buses, bodies and cabs, and with North American Aviation,<sup>24</sup> which develops and produces airplanes. Finally, U. S. Rubber was indirectly interlocked with Safety Car Heating & Lighting Co.,<sup>25</sup> which manufactures and sells equipment for railroad passenger cars.

Goodrich was indirectly interlocked with the Chrysler Corp.<sup>26</sup> and the Edward G. Budd Manufacturing Co.<sup>27</sup> through the Bank of New York. The Budd Co. operates through three divisions—automobile, railway, and agricultural equipment. The automobile division produces bodies and body parts, wheels, hubs, drums, and brake parts for the automotive industry. The railway division manufactures lightweight stainless steel passenger cars and highway trailers. The agricultural division manufactures plows. Through Manufacturers National Bank of Detroit, Goodrich indirectly interlocked with the Ford Motor Co.,<sup>28</sup> Kelsey-Hayes Wheel Co.,<sup>29</sup> and Motor Products

<sup>20</sup> Harry E. Humphreys, Jr., was vice president and director of U. S. Rubber and the Chemical Bank & Trust Co.; H. P. U. Harris was a director of the bank and the Texas Co.

<sup>21</sup> John W. Davis, partner in Davis, Polk, Wardwell, Sunderland & Kiendl, was a director of U. S. Rubber and the Guaranty Trust Co.; W. C. Potter was a director of the bank and Continental Oil Co.; M. G. B. Whelpley was a director of U. S. Rubber and Kennecott Copper Corp.; Arthur W. Page and George Whitney were directors of Kennecott Copper and Continental Oil.

<sup>22</sup> Herbert E. Smith was director of U. S. Rubber and Brooklyn Trust Co.; Charles J. Mason was a director of Brooklyn Trust Co. and Crown Central Petroleum.

<sup>23</sup> George V. McLaughlin was a director of Brockway Motor and Brooklyn Trust Co., where he met Herbert E. Smith, a director of U. S. Rubber.

<sup>24</sup> Lamot du Pont Copeland and George P. Edmonds were directors of U. S. Rubber and Wilmington Trust Co.; Henry B. du Pont was a director of North American Aviation and Wilmington Trust Co.

<sup>25</sup> Harry E. Humphreys, Jr., was a director of U. S. Rubber and the Chemical Bank & Trust Co.; Joseph Bower was a director of Safety Car Heating & Lighting and the bank.

<sup>26</sup> Langbourne M. Williams, Jr., was a director of Goodrich and the Bank of New York; Thomas E. Murray was a director of Chrysler and the Bank of New York.

<sup>27</sup> W. W. Colpitts was a director of Budd Manufacturing and the Bank of New York.

<sup>28</sup> Wesson Seyburn was a director of Goodrich and Manufacturers National Bank of Detroit; B. J. Craig and Benson Ford were directors of Manufacturers National Bank of Detroit and Ford Motor Co.

<sup>29</sup> George W. Kennedy was a director of Manufacturers National Bank of Detroit and director and president of Kelsey-Hayes Wheel.

Corp.<sup>50</sup> The Ford Motor Co. is reported to buy its tires and tubes largely from Firestone with lesser quantities being bought from Goodyear and Goodrich. Kelsey-Hayes Wheel manufactures various types of passenger car and truck wheels and also other automotive parts; its customers are reported to include Ford, General Motors, Chrysler, Willys-Overland Motors, International Harvester, Kaiser-Frazer Corp., and Harry Ferguson, Inc. Motor Products manufactures various automotive parts and accessories including steel moulding, windshields, instrument panels, and ventilating windows, and it also manufactures deep-freeze units. Goodrich also interlocked with two oil companies, the Texas Co. and Continental Oil, through Phelps Dodge.<sup>51</sup>

The Armstrong Tire & Rubber Co. is owned 50 percent by Sears, Roebuck & Co. and 50 percent by the Armstrong Rubber Co. Armstrong Tire & Rubber is engaged in the contract production of tires for Sears, Roebuck in addition to its own Armstrong brand. Dayton Rubber also makes private brand tires for Sears, Roebuck.

The private brand production of the leading tire manufacturers has some interest with respect to their outlets. Firestone, which had no interlocking directors with the other companies being studied, is the only tire producer that produces no private brand tire. It sells directly to over 3,500 dealers throughout the country and through 700 company-owned or controlled stores. Goodyear makes Mobil tires for Socony-Vacuum. Goodrich makes Gulf and Traffic Tires for Gulf Oil. U. S. Rubber not only produces United States tires but also Fiske, Gillette, and Federal, the latter for Tide Water Oil. Its private brands include Atlas, made for Atlas Supply Co., which is owned by five Standard Oil companies—Standard of New Jersey, Standard of Indiana, Standard of Ohio, Standard of Kentucky, and Standard of California; Acme, for Cities Service; Riverside, for Montgomery Ward; Davis, for Western Auto; and Skogmo, for Gamble-Skogmo. General Tire & Rubber produces the General tire and also Amoco for American Oil and Yale for Pure Oil, as well as more than a dozen other private brands.

#### SUMMARY

There were no direct interlocking relations among rubber manufacturers in 1946. Indirect interlocking relations did, however, exist among the large tire manufacturers, between the large tire companies and some of the smaller tire manufacturers, and between some of the other rubber companies.

<sup>50</sup> S. A. Hill was a director of Manufacturers National Bank of Detroit and Motor Products.

<sup>51</sup> C. E. Dodge was director of Goodrich and Phelps Dodge; W. S. Gray, Jr., was a director of Texas Co. and Phelps Dodge; T. S. Lamont was a director of Continental Oil and Phelps Dodge.

The most significant set of interlocking relations were those linking U. S. Rubber with du Pont and General Motors. These ties, resting on stock ownership as well as common directors, are alleged by the Department of Justice to have provided the base for preferential dealing between General Motors, the largest outlet for new equipment tires, and U. S. Rubber, and between U. S. Rubber and du Pont. No other tire company had direct interlocking relations with an important outlet. However, Goodyear, U. S. Rubber, and Goodrich had indirect interlocking relations with petroleum companies and equipment manufacturers which may have facilitated the marketing of their products.

Relations between rubber manufacturers and sources of supply were not numerous but appeared to be of some significance. Thus, Goodyear interlocked with Harshaw Chemical, a producer of catalysts used in making synthetic rubber, and with Industrial Rayon, a producer of tire fabrics. Goodrich shared a director with American Viscose, a producer of rayon tire fabric; and with Commercial Solvents, whose subsidiary produces carbon black. U. S. Rubber has important commodity relations with du Pont. Hewitt-Robins and Boston Woven Hose & Rubber had interlocking relations with companies with which they may also have had significant commodity transactions.

## Chapter 14

### TEXTILE MILL PRODUCTS

Interlocking directorates in the textile industry are of long standing. Historically, textile manufacture is one of the oldest industries in the country, with its beginnings centered in New England. In that area there developed very early a pattern of interlocking relations among the various industries—textiles, paper and pulp, utilities, shoes and shoe machinery—which still exists today.

The partial shift of textiles to the South created a second geographical area for the industry. The flow of New England funds and managerial talent resulted in interlocks between northern and southern textile mills. The New England tradition of establishing interlocking directorates with other industries in the same area was also reflected in the southern branch of the industry. In consequence, many of the interlocks of the southern mills are also geographic in origin.

The merger development of the mid-twenties—common to other industries—had only a limited impact upon the textile industry.<sup>1</sup> Historically, the industry has been made up of comparatively small units; the relatively low capital requirement for the establishment of a cotton mill has invited new units into the industry. Except for certain new developments, such as the Sanforizing process, patents are of little importance; the basic patents on machinery and processes have long since expired.

As a result, the 85 textile companies in the country's 1,000 largest corporations tend to rank near the bottom of the list. The largest listed is the Celanese Corp. of America, which, strictly speaking, is

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<sup>1</sup> There were, however, two ambitious mergers undertaken in the late twenties—Berkshire Fine Spinning Associates and United Merchants & Manufacturers, Inc. Both encountered difficulties connected with the events of October 1929. United Merchants underwent reorganization in 1933; and Berkshire Fine Spinning at best represented a disappointment to its sponsors. Organized as a combination of competitors and with the expectation of enhanced profits, this horizontal merger did not work out as anticipated.

A third merger attempt was Textiles, Inc., which combined a group of competing southern yarn mills, in 1931. The new company was faced almost immediately with the necessity of curtailing operations to an extent which made impossible the economies that had been hoped for. Unsuccessful attempts at reorganization were followed by a receivership. For detailed discussion see Stephen Jay Kennedy, *Profits and Losses in Textiles*, chapters V, VI, VII.



not a textile mill but a chemical firm. Celanese Corp.—alone of the rayon manufacturing companies—has been placed in the textile industry; all of the others are to be found in the chemical industry.<sup>2</sup> Celanese was placed with textiles because of its large interest in finished textile products; its physical size and capital investment, however, are a reflection of its activity as a chemical company engaged in rayon manufacture. Of the remaining textile companies, only two have assets exceeding \$100,000,000,<sup>3</sup> in contrast with the group of chemical companies where 10 of the 91 companies had assets in 1946 exceeding \$100,000,000.

The companies falling within the textile group attain homogeneity only to the extent that they are engaged in the manufacture of textile products. In terms of raw material used, they are heterogeneous—using cotton, wool, rayon, nylon, linen, jute, or combinations of these materials. Their manufactures are also highly diversified—running the gamut from underwear, hosiery, and clothing of all types, including hats, to sheets, towels and similar articles, and even extending to carpets, linoleum goods, jute bags, and a host of other textile products.

This variety in production means that companies meet each other competitively at different points, and in some cases may not meet competitively at all. The larger companies, in the process of merger and consolidation, have sought for security through diversity in products. Thus they tend to meet each other competitively at almost every point. The smaller companies have tended to remain more specialized, and thus their range of competition has been more limited. However, textile machinery permits, within limits, some convertibility from one product to another, and companies may thus shift their emphasis from one field of production to another which looks more promising. The extent of competition in the textile industry and the particular units which are affected vary with their changing activities and with new technological developments.

The interlocking directorate device offers a substantial opportunity for unification of policy in the textile industry. The multiplicity of relatively small units and the absence of effective patent controls have created a situation peculiarly vulnerable to competition. It may have been in response to this desire that the textile industry has made extensive use of interlocking directorships.

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<sup>2</sup> In 1946 Beunitt Mills had a small interest in rayon manufacturing resulting from its acquisition of Skenandoa Rayon Corp. in 1945. In 1948 this interest was considerably increased through its purchase of North American Rayon Corp. and American Bemberg Corp. from the Office of Alien Property, U. S. Dept. of Justice. These acquisitions occurred subsequent to the year of this study. In the list the acquired companies are to be found included with "chemicals and allied products."

<sup>3</sup> J. P. Stevens & Co. and American Woolen Co.



Interlocking relations seem particularly significant between the larger textile companies and those too small to be included among the 1,000 largest corporations. Many of the smaller companies have drifted into a close relationship to larger units. Representatives of the latter sit on their boards, and influence the development of the policies of these smaller mills.<sup>4</sup>

Interlocking directorships also reflect the significance of the selling agent and the factor in the textile industry. Many companies market their products through independent selling agents rather than maintain their own sales force. These selling agents handle a diversified line of products; they act for a number of mills; they are market specialists and thus have great influence on the mills themselves. It is a common practice for these selling agents to sit on the boards of directors of the companies they represent and thus to share in the policy decisions of the textile companies.

A similar situation prevails in the case of the factor. In the textile industry, the factor is the money lender; he provides credit to the mill which is financially hard pressed because the buyer of the mill's products has not paid his bill promptly. The factor commonly discounts these bills and assumes the task of collection. To protect his investment, the factor may sit on the mill's board of directors and participate in the making of decisions. On occasion, if the mill becomes bankrupt, the factor takes over. Some of the largest textile companies have been built up by this process.

The net effect of these interlocks—either direct by representation of the bigger mill on the boards of the smaller companies, or indirect through sales agents or factors who sit on the boards of several companies—must be to mitigate the stringencies of competition. The way is open to reach a working accord which will prevent the companies from breaking out in unbridled competition. Thus the independence of the large number of units in the textile industry tends to be somewhat illusory. The units exist but they are neither wholly independent

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<sup>4</sup> For example, West Point Manufacturing Co. wholly owns Dixie Cotton Mills, New England Bunting Co., and the Wellington Sears Co., a selling agency. Its interest in Equinox Mills is 98 percent; Lanett Bleachery & Dye Works, 50.2 percent; Amoskeag Fabrics and Jefferson Mills, 51 percent. Carleton R. Richmond, secretary, treasurer, and director of West Point Manufacturing, was a director of the companies given above; in addition, he was a director of Warwick Mills, Wellington Mills, Greenville (N. H.) Mills, and Samson Cordage Works (Boston, Mass.). George H. Lanier, president and director of West Point Manufacturing, was a director of Dixie Cotton, Lanett Bleachery & Dye, Southern Bleachery & Print Works, and the Wehadkee Yarn Mills. He was also president of the Lanier Textile Co. Charles Oliver Richardson, vice president and director of Wellington Sears, was a director of Dixie Cotton Mills, Equinox Mills, Greenville (N. H.) Mills, Lanett Bleachery, New England Bunting, Warwick Mills, Wellington Mills, West Point Manufacturing, and the Universal Winding Co.

nor wholly competitive. The effect of the interlock of directorships apparently is to bring the companies together, at least partially, in working harmony.

Of the 85 textile companies in the list of the 1,000 largest corporations, 66 interlocked with other corporations. Of the total of 468 interlocks, 53 were with other textile companies. The remaining 415 interlocks involved 256 companies in other industrial groups. The largest number of interlocks was with banks. Next came retail trade, machinery (except electrical), food and kindred products, and chemicals and allied products, in that order.

TABLE 49—*Interlocks of textile companies with other industrial groups*

Industrial group	Number of interlocks	Number of textile companies	Number of companies in industrial group
Banks.....	75	43	30
Retail trade.....	38	20	18
Machinery (except electrical).....	29	17	16
Food.....	28	15	16
Chemicals.....	25	18	16
Investment banks.....	22	11	11
Utilities.....	22	13	12
Railroads.....	21	17	7
Paper.....	20	15	12

#### DIRECT INTERLOCKS AMONG TEXTILE COMPANIES

In 1946 there were 53 interlocks within the textile industry, involving 39 of the 85 textile companies in the list. In some instances the production of the interlocked companies overlapped; in others, it appeared to be totally unrelated. Exact comparison of products is impossible because the textile companies produce such a wide diversity of commodities that they give only general listings in *Moody's* and other sources. Furthermore, any listing—no matter how exhaustive—could not take account of products to which machinery could easily be converted if the companies were so disposed.

Where interlocked companies produce the same or similar products, or where their machinery would permit them to do so, the effect of interlocking relations is to curtail competition or to reduce the likelihood of competition. Where the companies have essentially complementary functions, the interlocks appear to have united suppliers with market outlets. In the discussion below an attempt will be made to delineate the different functions performed by these interlocks wherever possible. In the instances where the activities of the companies are totally unrelated, the significance of the interlocks seems to have been largely geographical in importance.

#### *Textron and Ludlow Interlocks*

In 1946 *Textron, Inc.* (spinner, weaver, and manufacturer of finished consumer goods) was directly interlocked with *American*

Thread Co.<sup>5</sup> Textron operates a number of sewing plants in connection with its manufacture of finished products.

Textron had two additional interlocks through Nashua Manufacturing Co., a subsidiary acquired by Textron in 1945. One was a double interlock with Ludlow Manufacturing & Sales Co.,<sup>6</sup> a maker of jute, hemp and flax yarns, twines, threads, jute webbing, burlap, and sacking. The other was through Nashua Manufacturing with Firth Carpet Co.<sup>7</sup> a producer of wool pile broadloom rugs. The products of the latter two companies seem to be unrelated to Textron's.

In turn, Ludlow Manufacturing & Sales was multiply interlocked with Pacific Mills. The latter is a manufacturer of cotton and rayon goods, cotton warp and wool dress goods, men's wear, and yarns; it does its own printing and bleaching.<sup>8</sup>

Pacific Mills was also interlocked with West Point Manufacturing,<sup>9</sup> producer of cotton duck, Martex towels, sheets, drills, twills. The operations of both Pacific Mills and West Point Manufacturing are similar to the activities of Textron; the latter manufactures not only dress wear but also sheets, pillow cases, blankets, home furnishings and other textile products.

#### *United Merchants & Manufacturers and Bigelow-Sanford Carpet*

United Merchants & Manufacturers is engaged primarily in the manufacture and sale of cotton, silk and rayon textile fabrics. It is highly integrated, having its own chemical plant for the manufacture of textile chemicals, as well as finishing plants and print works. Two subsidiaries—Case Clothes and Robert Hall Clothes—operate 53 retail stores in the United States. It also does a general factoring business.

The only direct interlock of United Merchants & Manufacturers was with Bigelow-Sanford Carpet,<sup>10</sup> a weaver, spinner and dyer of

<sup>5</sup> Percival S. Howe, Jr., president and director of American Thread, was a director of Textron.

<sup>6</sup> Roger Amory was a director of the Nashua Manufacturing and, besides being interested in Nashua Manufacturing, held directorships in Ludlow Manufacturing & Sales and in companies outside the textile industry. H. V. Greenough was vice president, secretary, and a director of Ludlow Manufacturing & Sales, and a director of Nashua Manufacturing.

<sup>7</sup> Emmons Bryant, Jr., a partner in Reynolds & Co., was a director of both Firth Carpet and Nashua Manufacturing.

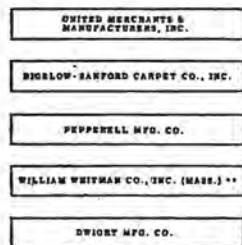
<sup>8</sup> The president and general manager of Ludlow Manufacturing & Sales, Malcolm B. Stone, sat on the board of Pacific Mills, and the president and treasurer of Pacific Mills, Henry M. Bliss, was on the board of Ludlow Manufacturing & Sales. A third individual, Samuel Cabot, president and director of Samuel Cabot, Inc., was common to the board of both companies.

<sup>9</sup> Sinclair Weeks, chairman of the board, Reed & Barton Corp., was the common director. He continued as a common director in 1949.

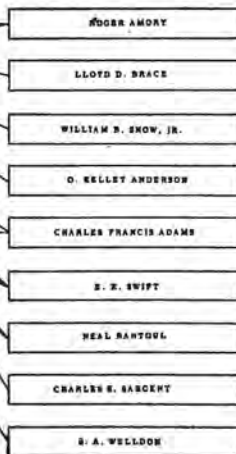
<sup>10</sup> Roger Amory, trustee, was the director common to these two companies.

# DIRECT INTERLOCKS OF UNITED MERCHANTS & MANUFACTURERS, INC. AND OF BIGELOW-SANFORD CARPET CO., INC.

## TEXTILE MANUFACTURING COMPANIES



## DIRECTORS



## OTHER COMPANIES



\*This combination also appears in Chart 42.  
\*\*Also selling agents.  
†Partners.

CHART 43.

worsted and woolen materials used in the manufacture of rugs and carpets.

Pepperell Manufacturing and Bigelow-Sanford Carpet had one director in common.<sup>11</sup> Another individual was a director in common for Pepperell Manufacturing, Bigelow-Sanford Carpet, and William Whitman Co.,<sup>12</sup> a manufacturer of fine cotton yarns and fabrics, natural and synthetic fibre, blended yarns, and fabrics.

Pepperell Manufacturing was directly linked with Plymouth Cordage Co.,<sup>13</sup> a manufacturer of rope and binder twine. Dwight Manufacturing Co., a maker of cotton goods, was directly interlocked through its president with Bigelow-Sanford Carpet.<sup>14</sup>

These interlocks brought together a number of textile concerns with interests in common. Directly linked on Bigelow-Sanford Carpet's board were United Merchants & Manufacturers, Pepperell Manufacturing, William Whitman, and Dwight Manufacturing<sup>15</sup>—all of which appear to operate in the same general fields of textile production. In addition, United Elastic Corp. was linked with Pepperell Manufacturing,<sup>16</sup> and Pepperell Manufacturing in turn with William Whitman Co.<sup>17</sup> Such interlocks could hardly fail to have some effect on competition. The interlocks of the other companies appear to be less explicable and may have had only geographical significance.

#### *J. P. Stevens & Co.*

Another series of interlockings centered around J. P. Stevens & Co., a manufacturer of cotton, rayon, woolen, and worsted fabrics. One

<sup>11</sup> This was Neal Rantoul, a partner in F. S. Moseley & Co.

<sup>12</sup> Elijah Kent Swift, chairman of the board, treasurer, and a director of the Whitin Machine Works, was the common director of the three companies. He continued as a common director of Bigelow-Sanford Carpet and Pepperell Manufacturing in 1949, but was not a director of William Whitman after 1946.

<sup>13</sup> Amory Coolidge, executive vice president, assistant treasurer, and director of Pepperell Manufacturing, supplied this link.

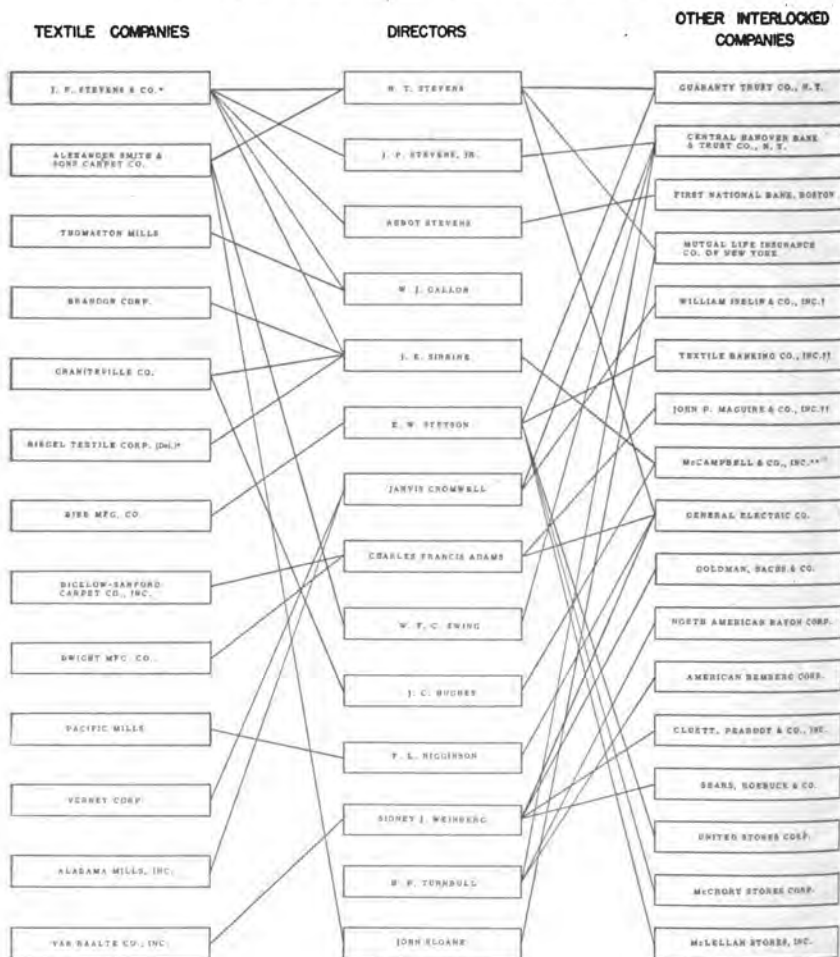
<sup>14</sup> Charles Francis Adams, chairman of the board, State Street Trust Co., Boston, was president and a director of Dwight Manufacturing, and a director of Bigelow-Sanford Carpet.

<sup>15</sup> These Bigelow-Sanford Carpet directors were responsible for the interlocking relationships in question: Roger Amory, trustee, director of United Merchants & Manufacturers; Elijah Kent Swift, chairman of the board, treasurer, and director, Whitin Machine Works; director, Pepperell Manufacturing; director, William Whitman; Charles Francis Adams, chairman of board, State Street Trust Co.; president, Dwight Manufacturing.

<sup>16</sup> E. Sohler Welch, lawyer, was director of United Elastic and Pepperell Manufacturing.

<sup>17</sup> Elijah Kent Swift, chairman of the board, treasurer, and director of Whitin Machine Works, was a director of both Pepperell Manufacturing and William Whitman Co.

# J. P. STEVENS & CO. DIRECT AND INDIRECT INTERLOCKS



\*These manufacturers are also selling agents.

\*\*Selling agents.

†Factors. Three directors of William Smith & Co., Inc., were directors of the affiliated Irvine-Jefferson Co., Inc., selling agents.

††Factors.

**CHART 44.**



individual was a director of both J. P. Stevens and Thomaston Mills,<sup>18</sup> a maker of sheets, pillow cases, combed broadcloths, cotton and rayon cord tire fabric.

Another director linked Stevens with the Graniteville Co., a producer of cotton fabrics, including flannels, coverts, twills, and duck; Brandon Corp., a maker of cotton goods; and Riegel Textile Corp., a manufacturer of cotton goods, including gabardines, drills, and sheetings.<sup>19</sup> This individual also held directorships in a large number of textile companies too small to be included among the 1,000 largest corporation. The chairman of the board of J. P. Stevens sat on the directorate of Alexander Smith & Sons Carpet Co., which makes wool pile rugs and carpets, and other products.<sup>20</sup>

With the exception of the carpet company, these interlocks brought together textile companies operating in the same general fields of production.

### *The Van Raalte Co.*

The Van Raalte interlocks brought together a number of companies capable of constituting a thoroughly integrated structure in the textile industry. All of these interlocks were the result of the investment activities of Goldman, Sachs & Co. and Lehman Brothers, or of the factoring operations of J. P. Maguire.

Van Raalte's business has been primarily the manufacture and sale of hosiery, underwear, gloves and kindred products. Its chairman, Col. John R. Simpson, was also chairman of the executive committee of Sidney Blumenthal & Co. which makes velvets, upholstery and auto goods. Associated with Mr. Simpson on the Van Raalte

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<sup>18</sup> William J. Gallon, vice president and a director of J. P. Stevens, was the director through whom these two companies were interlocked. Mr. Gallon continued as director of Thomaston Mills in 1949; he was vice president but not a director of J. P. Stevens in 1947, 1948, and 1949.

<sup>19</sup> J. E. Sirrine, senior partner, J. E. Sirrine & Co., Greenville, S. C., provided this link. Mr. Sirrine was southern manager for Lockwood Greene & Company, prominent textile engineers, from 1895 to 1902, when he organized J. E. Sirrine & Co., "designers of industrial and power plants, steam and hydroelectric, also of warehouses \* \* \*" (Who's Who in Commerce and Industry, 1948, p. 1268). Moody's Industrials, 1948 (pp. 154, 805, 2364, 2731), does not show Mr. Sirrine as having been a director in 1947 of any of the four corporations mentioned in the text. In 1946, however, as a director of Graniteville, he linked J. P. Stevens, Riegel Textile, and Brandon to McCampbell & Co., selling agent for Graniteville, and exclusive sales representative of several other cotton textile mills. As of December 31, 1946, McCampbell & Co., owned 99,000 of the 200,000 outstanding shares of Graniteville stock, and was represented by its president, John C. Hughes, on Graniteville's board.

<sup>20</sup> Robert T. Stevens (no principal business affiliation shown in Poor's Register of Directors and Executives, 1947), chairman of the board and a director of J. P. Stevens was the common director.

board were H. J. Sachs and Sidney J. Weinberg, both of Goldman, Sachs & Co., and John M. Hancock, of Lehman Brothers and Lehman Corp.

Messrs. Sachs, Weinberg, and Hancock supplied connections with the apparel companies.<sup>21</sup> Mr. Sachs was a member of the board of Manhattan Shirt Co., and Mr. Weinberg was on the board of Cluett, Peabody & Co. Both of these companies specialize in the manufacture of men's shirts, neckwear, underwear, pajamas and similar products. Mr. Hancock sat on the board of A. Stein & Co. maker of garters, suspenders, belts, and foundation garments for women. Mr. Simpson, in addition to his duties with Van Raalte and Sidney Blumenthal, was on the board of the Hat Corp. of America.<sup>22</sup>

Interlocks with sources of supply were effected through J. P. Maguire, president and director of J. P. Maguire Co., a factoring concern. It will be recalled that in the textile industry the factor has primarily financial functions; he assumes credit risks, discounts selling invoices, and performs other financial services. As director, Mr. Maguire interlocked a number of textile firms: Cheney Bros., a producer of broad goods, velvets, tie fabrics, and upholstery goods; Botany Mills, a maker of worsted and woolen women's and men's wear, knitting yarns, fabrics, ties, and sportswear; and United States Finishing Co., engaged in the bleaching, dyeing, printing and finishing of cottons, rayons, linens and wool mixtures. He was also a director of Sidney Blumenthal and of Cluett, Peabody & Co.,<sup>23</sup> both of which were interlocked with Van Raalte.

U. S. Finishing and du Pont had a common director.<sup>24</sup> The operations of U. S. Finishing provided an actual or potential market for du Pont chemicals in the dyeing and bleaching operations of the textile company.

The American Woolen Co. was linked with this group of companies through a direct interlock with Sidney Blumenthal.<sup>25</sup> American Woolen is a leading manufacturer of woolen and worsted fabrics, particularly for men's wear, as well as blankets, yarns and a wide miscellany of products.

<sup>21</sup> These are discussed in Chapter 15.

<sup>22</sup> Mr. Simpson was also a director of the McCall Corp. This interlock was of considerable importance in the textile field since McCall is the publisher of a large number of fashion magazines and dress-making pattern books, including McCall Needlework, McCall Pattern Book, McCall Dressmaking Book, McCall Printed Patterns, McCall Transfer Patterns, Advance McCall Styles, and McCall Style News.

<sup>23</sup> Mr. Maguire continued as common director of all these companies, except Sidney Blumenthal and U. S. Finishing, in 1948 and 1949.

<sup>24</sup> L. A. Yerkes was the common director.

<sup>25</sup> Ray Morris, partner in Brown Bros. Harriman & Co., provided this interlock, which continued in 1949.

Chart 45

# DIRECT AND INDIRECT INTERLOCKS OF VAN RAALTE GROUP

## TEXTILE AND APPAREL MANUFACTURERS

## DIRECTORS

## OTHER COMPANIES

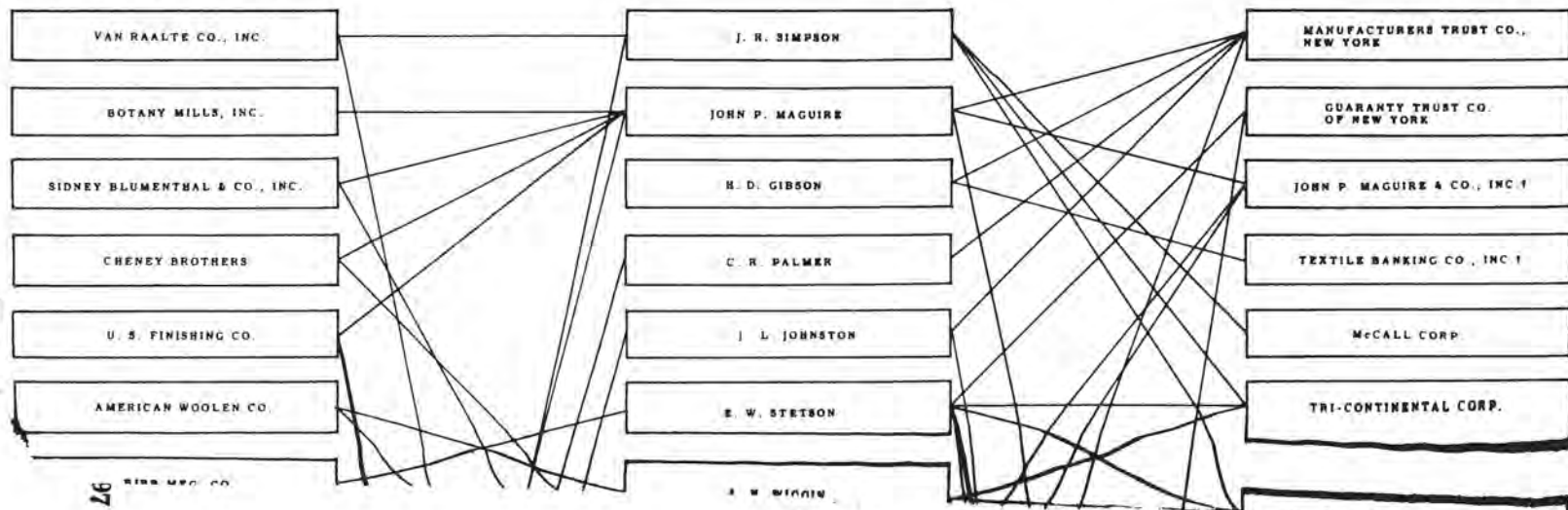
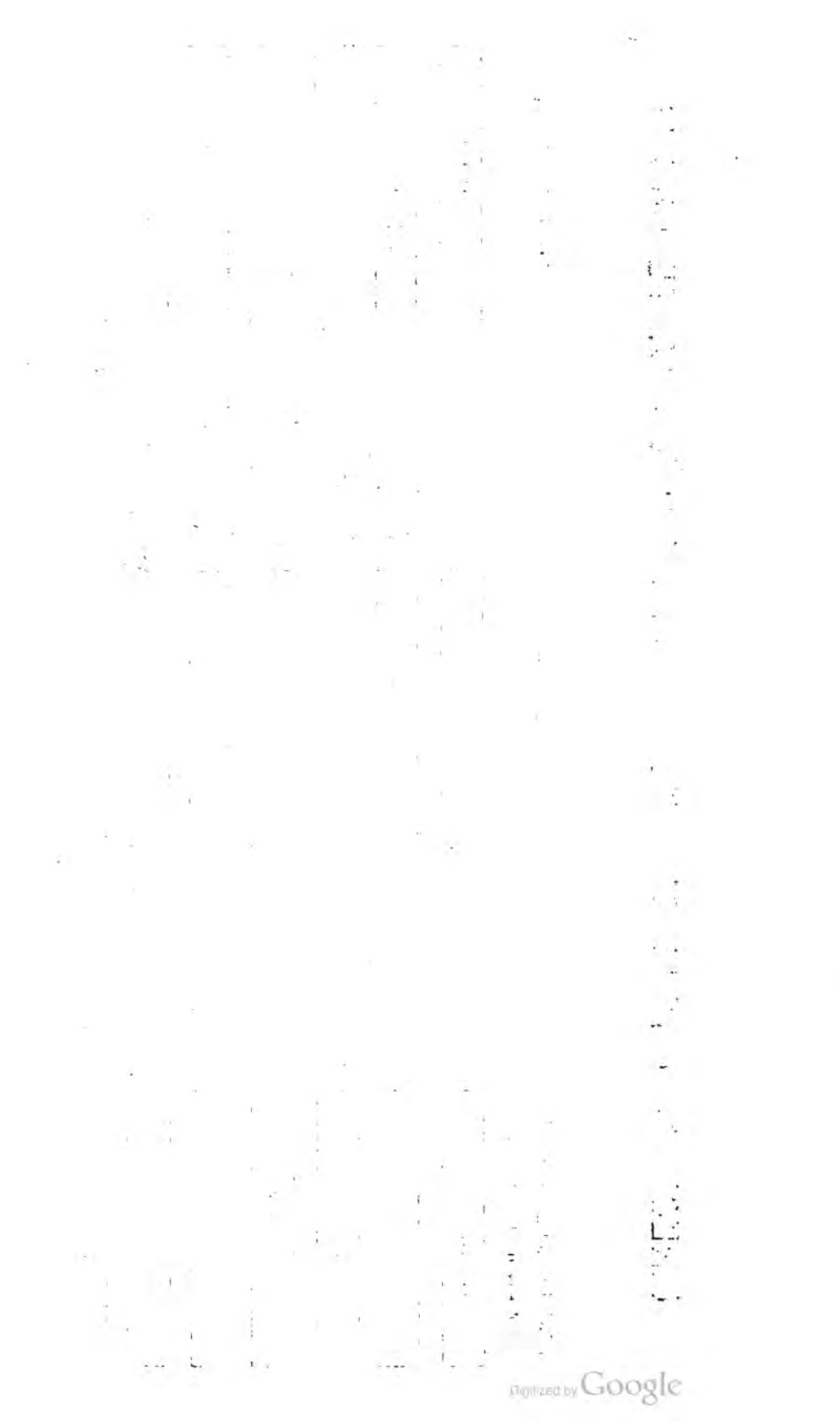


CHART 46.

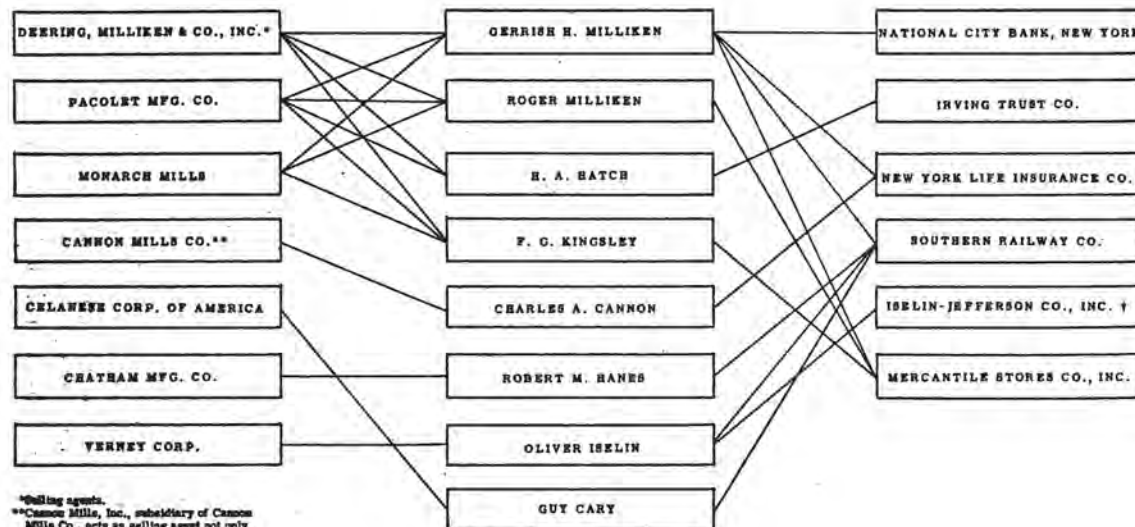


# DIRECT AND INDIRECT INTERLOCKS OF DEERING, MILLIKEN & CO., INC.

## DEERING, MILLIKEN & CO., INC. AND TEXTILE COMPANIES

## DIRECTORS

## OTHER COMPANIES



\*Selling agents.

\*\*Cannon Mills, Inc., subsidiary of Cannon Mills Co., acts as selling agent not only for its parent but also for other textile manufacturers.

†Iselin-Jefferson Co., Inc., selling agents, and William Iselin & Co., Inc., factors, had three directors in common.

CHART 46.

### *Other Direct Interlocks Within the Industry.*

Another direct interlock existed between Textiles, Incorporated, manufacturer of cotton yarn, and American Yarn & Processing Co., which also manufactures yarn, spinning and finishing both combed and carded yarns.<sup>26</sup> In view of the similarity of the operations of these two companies, this interlock must have affected competition in this branch of the textile industry.

Two directors were shared by Verney Corp., a manufacturer and finisher of rayon, nylon and other synthetic fabrics, corset goods, lastex fabrics and shoe cloth, and Alabama Mills, Inc., a maker of light and heavy staple cotton goods, including drills, jeans, sheeting and ticking.<sup>27</sup> Here the products are unrelated; the ties were provided by the selling agent and the factoring concern, both of which were interested in the affairs of these mills.<sup>28</sup>

Pacolet Manufacturing Co., a maker of sheetings, drills and twills, and Monarch Mills, a producer of sheetings and print cloths, were interlocked through three common directors, including the president and two of the vice presidents of the selling agent for both companies, Deering, Milliken & Co., Inc., New York and Boston.<sup>29</sup>

Direct interlocking relations existed among Belding Heminway, a manufacturer of silk yarn, silk, cotton, nylon, and synthetic threads,

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<sup>26</sup> R. S. Dickson, chairman of the board and a director, R. S. Dickson & Co., Inc. (underwriter and dealer in textile securities), was president and chairman of the board of directors of the American Yarn & Processing Co., and was a director of Textiles, Incorporated. He held both these positions in 1949.

<sup>27</sup> These were Jarvis Cromwell, president and director, William Iselin & Co., Inc., factors, and Floyd W. Jefferson, president, Iselin-Jefferson Co., Inc., selling agents. The two companies advertised jointly in Davison's Textile Blue Book, 1947 (p. 789).

<sup>28</sup> The Securities and Exchange Commission's records show that William Iselin & Co., Inc., received \$79,833.42 from Verney Corp. and its subsidiaries in 1946 for factoring services and anticipation discounts aggregating \$22,655.89 on amounts withdrawn by Verney Corp. in advance of due dates of particular customers' accounts, and that Iselin-Jefferson Co., Inc., received in that year from Verney Corp. commissions for selling and other services aggregating \$297,436.71.

<sup>29</sup> Gerrish H. Milliken, president and a director of Deering, Milliken & Co., was president and director of Pacolet Manufacturing, and a director of Monarch Mills. Francis G. Kingsley, a vice president and director of Deering, Milliken & Co., was a director of both Pacolet Manufacturing and Monarch Mills. Roger Milliken, vice president and a director of Deering, Milliken & Co., was president and a director of Monarch Mills, and a director of Pacolet Manufacturing. As to these three directors, Moody's Industrials, 1947, and Poor's Register of Directors and Executives, 1947, are in agreement; and both show Harold A. Hatch, a vice president and director of Deering, Milliken & Co., as a director of Pacolet Manufacturing. Poor's, however, lists him as also a director of Monarch Mills, while Moody's Industrials does not. In 1947, Roger Milliken was president of both Pacolet Manufacturing and Monarch Mills; Messrs. Kingsley and Hatch were directors of both. Gerrish H. Milliken died June 11, 1947.



and seller of silk fabrics, hosiery, and ladies' underwear; La France Industries, maker of tapestry, plush, automobile upholstery, drapery fabrics, men's woolen and worsted wear; and Julius Kayser & Co., a manufacturer of hosiery, underwear, and fabric gloves.

Both Belding Heminway and La France Industries had the same official as chairman of their boards of directors.<sup>30</sup> La France Industries had on its board the president of Belding Heminway<sup>31</sup> and the president of Julius Kayser.<sup>32</sup> Another individual was common to the boards of all three companies.<sup>33</sup> It appears that Belding Heminway is a raw material supplier to Julius Kayser, and also a distributor of its products. The La France Industries connection seems to be explainable only on geographical grounds.

Interlocks between Munsingwear (maker of knit and woven underwear, sportswear, pajamas, foundation garments, hosiery) and Wayne Knitting Mills (producer of nylon, rayon, and cotton hosiery) were the result of Munsingwear's ownership of the latter company. In 1936 and 1937 Munsingwear, which owned the entire common stock of Wayne Knitting Mills, paid this stock as a dividend to the shareholders of Munsingwear. In 1946 the two companies had five directors in common.<sup>34</sup>

#### INTERLOCKS WITH RETAIL OUTLETS

A number of textile companies—or their factors or selling agents—were interlocked with retail outlets. In general, the textile mills have not been large enough to establish their own retail channels; nor have

<sup>30</sup> This was Raymond C. Kramer. He also held these positions in 1949.

<sup>31</sup> John P. T. Armstrong was president and director of the Belding Heminway and director of La France Industries. He continued in these positions in 1949.

<sup>32</sup> Theophil H. Mueller was president and director of Julius Kayser and director of La France Industries. He held these positions in 1949.

<sup>33</sup> Paolino Gerli, president and director, E. Gerli & Co., was this common director. He continued in these positions in 1949.

<sup>34</sup> These were: Harry C. Piper, a partner in Piper, Jaffray & Hopwood; Henry S. Bowers, a partner in Goldman, Sachs & Co.; John S. Pillsbury, co-chairman of the board of Pillsbury Flour Mills; Angus W. Morrison, president and director of Holding Co.; George E. Rutledge, chairman of the board, Wayne Knitting Mills. Mr. Bowers resigned as a director at the end of 1947; he was replaced by Robert V. Horton, another partner in Goldman, Sachs & Co. Except for Mr. Bowers, the common directors of Munsingwear and Wayne Knitting Mills were also directors of the Vassar Co., Chicago, of which Mr. Rutledge was president. Vassar Co. (capital, \$2,000,000; not one of the 1,000 largest manufacturing corporations) manufactures men's union suits, woven athletic shirts and drawers, and women's undergarments (Official Statistics of Textile Corporations Section of American Wool and Cotton Reporter, vol. LXI, No. 13 (March 27, 1947), sec. 2, p. 76). Securities & Exchange Commission records disclose that in 1944 Munsingwear borrowed \$1,250,000 from two insurance companies; and that the loans were obtained through Goldman, Sachs & Co., and Piper, Jaffray & Hopwood of Minneapolis. Later loans were also secured through the same sources.

they had the financial resources to make the attempt. Interlocks of textile mills with the chain clothing and department stores may have served as a partial substitute in developing retail outlets.

The case of Mercantile Stores, Inc., is a good example. This company has 17 full department stores located in Cincinnati, Seattle, Augusta, Ga., Duluth, Minn., and other cities scattered over the United States. It also has some 30 "junior department stores" selling general drygoods and ready-to-wear clothing for men, women, and children. On the board of Mercantile Stores in 1946 were three directors of the Pacolet Manufacturing and Monarch Mills companies. All three were also directors of Deering, Milliken & Co.,<sup>35</sup> selling agent for a number of textile mills. One held the position of chairman of the board of Mercantile Stores.<sup>36</sup>

National Department Stores operate general department stores or specialty stores in Pittsburgh, Philadelphia, Cleveland, Detroit, Wheeling, and other cities. On the board of this company was John P. Maguire, president and director of J. P. Maguire & Co., engaged in factoring operations. As indicated earlier, Mr. Maguire's directorships included Sidney Blumenthal, Cheney Bros., Botany Mills, U. S. Finishing, and Cluett, Peabody & Co.

Allied Stores Corp. has subsidiaries operating approximately 30 department stores widely scattered over the country, including Jordan Marsh in Boston, L. S. Donaldson in Minneapolis, Bon Marche in Seattle, and Golden Rule in St. Paul. Among the directors of Allied Stores was R. C. Kramer who was also chairman of the board of Belding Heminway and of La France Industries.

Affiliated with Allied Stores is Interstate Department Stores, Inc., operating 40 retail department stores and eight smaller stores throughout the United States. The chairman of the board of Interstate Department Stores was R. C. Kramer of Belding Heminway and La France Industries. One of Interstate Department Stores' other directors was a director of Belding Heminway, La France Industries, and Julius Kayser.<sup>37</sup>

In an indirect fashion Van Raalte also effected an interlock with the Allied Stores and Interstate Department Stores chains. A director of both Allied Stores and Interstate Department Stores was H. J.

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<sup>35</sup> These were Gerrish H. Milliken, president and director of Deering, Milliken & Co., president and director of Pacolet Manufacturing, and director of Monarch Mills; Roger Milliken, vice president and a director of Deering, Milliken & Co., president and director of Monarch Mills, director of Pacolet Manufacturing; Francis G. Kingsley, vice president and director of Deering, Milliken & Co.; director of Pacolet Manufacturing; director of Monarch Mills.

<sup>36</sup> Francis G. Kingsley, vice president and director, Deering, Milliken & Co., was chairman of the board of Mercantile Stores.

<sup>37</sup> The common director was Paolino Gerli, president and director, E. Gerli & Co.

Szold a partner in Lehman Bros. John M. Hancock, another Lehman Bros. partner, was a member of the board of Van Raalte.

In a number of instances the interlock between retail outlet and textile mill was effected through an investment house having financial interests in both companies. For example, the connection between Van Raalte and Sears, Roebuck & Co. existed through two investment banks. John M. Hancock of Lehman Bros., was a director of Van Raalte and Sears, Roebuck & Co.; so also was Sidney J. Weinberg of Goldman, Sachs & Co.

The same situation existed in the case of the interlock between Gimbel Bros. and Van Raalte, which was effected through H. J. Sachs of Goldman, Sachs & Co. Of the same character was the connection between W. T. Grant Co. variety stores and Van Raalte, the common director being John M. Hancock of Lehman Bros.

S. H. Kress & Co., another variety store chain, had interlocks with Van Raalte, Munsingwear, and Wayne Knitting Mills. In the case of Van Raalte the interlock was effected through John M. Hancock of Lehman Bros. The Munsingwear-Wayne Knitting Mill connection was through H. S. Bowers of Goldman, Sachs & Co.

The Hecht Co., a general department store, was interlocked with Van Raalte and Mount Vernon-Woodberry Mills. In the Van Raalte case the common director was H. J. Sachs. The Mount Vernon-Woodberry interlock was through Thomas B. Butler.<sup>38</sup>

### INTERLOCKS WITH BANKS

The largest number of interlocks of the textile companies was with commercial banks. In a total of 75 banking interlocks, 43 textile companies and 30 banks were involved.

The First National Bank of Boston—with long-standing financial interests in the New England textile industry—had a number of interlocks with the large textile firms. One vice president of the bank served as director of United Merchants & Manufacturers;<sup>39</sup> another vice president was a director of Textron's subsidiary, Nashua Manufacturing.<sup>40</sup> The bank's board also included a vice president of J. P. Stevens;<sup>41</sup> the president and treasurer of Pepperell Manufacturing;<sup>42</sup> a director of both Pacific Mills and West Point Manufactur-

<sup>38</sup> Mr. Butler was president and director of Safe Deposit & Trust Co. of Baltimore.

<sup>39</sup> L. D. Brace, a vice president and director of the First National Bank of Boston, was a director of United Merchants & Manufacturers.

<sup>40</sup> Serge Semenenko, a vice president (not a director) of the First National Bank of Boston, was a director of Nashua Manufacturing.

<sup>41</sup> Abbott Stevens, vice president and director of J. P. Stevens, was a director of the First National Bank of Boston.

<sup>42</sup> Russell H. Leonard, president, treasurer and director of Pepperell Manufacturing, was a director of the First National Bank of Boston.

ing; "a director of Ludlow Manufacturing & Sales; "and two directors of Plymouth Cordage."<sup>45</sup>

These banking interlocks strengthened and extended other direct interlocks among many of the same companies. The earlier analysis of direct interlocks shows that Textron was interlocked with Ludlow Manufacturing & Sales, Ludlow Manufacturing & Sales with Pacific Mills, and Pacific Mills with West Point Manufacturing; that United Elastic was interlocked with Pepperell Manufacturing; and that Pepperell Manufacturing was interlocked with Plymouth Cordage.

The interlocks through First National of Boston brought together some of New England's largest textile corporations, whose products directly compete with each other. United Merchants & Manufacturers, Textron, J. P. Stevens, Pepperell Manufacturing, West Point Manufacturing, and Pacific Mills all manufacture cotton, rayon, or wool fabrics for clothing; Textron, Pepperell Manufacturing, and West Point Manufacturing make sheeting, sheets, and pillow cases; Pepperell Manufacturing and West Point Manufacturing are engaged in towel manufacture; Ludlow Manufacturing & Sales and Plymouth Cordage are producers of twines, cordage, and similar products.

The board of Second National Bank of Boston included representatives of many of the same companies—United Merchants & Manufacturers,<sup>46</sup> Pacific Mills, Pepperell Manufacturing, and Ludlow Manufacturing & Sales.<sup>47</sup> It added two other companies—Bigelow-Sanford Carpet and William Whitman.<sup>48</sup> As indicated earlier, the two latter companies were directly interlocked with Pepperell Manufacturing. William Whitman's production of worsted textiles is in

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<sup>45</sup> Sinclair Weeks, chairman of the board, Reed & Barton Corp., and a director of the First National Bank of Boston, was also a director of Pacific Mills and West Point Manufacturing.

<sup>46</sup> Richard L. Bowditch, president and director, C. H. Sprague & Son Co., was a director of the First National Bank of Boston, and a director of Ludlow Manufacturing & Sales.

<sup>47</sup> The two directors of the First National Bank of Boston who were also directors of Plymouth Cordage were Thomas D. Cabot, vice president, treasurer, and director, Godfrey L. Cabot, Inc., and Neil W. Rice, chairman of board, president, member of executive committee, and director, United States Smelting, Refining & Mining Co.

<sup>48</sup> William B. Snow, Jr., president of the Suffolk Savings Bank for Seamen and Others, was a director of the Second National Bank of Boston, and a director of United Merchants & Manufacturers.

<sup>49</sup> Henry M. Bliss, president, treasurer, and a director of Pacific Mills, was a director of Ludlow Manufacturing & Sales, and was a member of the board of the Second National Bank of Boston.

<sup>50</sup> Elijah Kent Swift, chairman of the board, treasurer, and a director of the Whittin Machine Works, was a director of Pepperell Manufacturing, Bigelow-Sanford Carpet, William Whitman, and the Second National Bank of Boston.

the same general field as United Merchants & Manufacturers and Pacific Mills, and overlaps that of Pepperell Manufacturing.

Manufacturers Trust Co. (New York) brought together on its board a director of the Belding Heminway, La France Industries and Julius Kayser companies,<sup>49</sup> and John P. Maguire, director of Botany Mills, Sidney Blumenthal, Cheney Bros., U. S. Finishing, and Cluett, Peabody & Co.<sup>50</sup> La France Industries, Sidney Blumenthal, and Cheney Bros., manufacture velvets, plush, upholstery and drapery products. Two of the companies of which Mr. Maguire was director were interlocked with Van Raalte, which—like Julius Kayser—specializes in the manufacture of hosiery, underwear, and gloves.

Guaranty Trust Co. interlocked textile mills with retail outlets. E. W. Stetson, chairman of the board of the bank, was director of United Stores Corp., McLellan Stores Co., and McCrory Stores Corp. United Stores, a variety store holding company, has a 48 percent common stock interest in McLellan Stores, which operates a chain of 224 variety stores in 29 States. United Stores has a 34 percent common stock interest in McCrory Stores, which operates a chain of 199 variety stores in 23 States and the District of Columbia. Mr. Stetson was also a director of Bibb Manufacturing Co. (maker of belt cords, twine, hose cords, hosiery, industrial fabrics, print cloth, tire cords, fabrics, etc.). Another director of Guaranty Trust was the chairman of the board of J. P. Stevens & Co. and a director of Alexander Smith & Sons Carpet Co., carpet manufacturer.<sup>51</sup>

Another important bank connection of United Stores was the Chemical Bank & Trust Co.<sup>52</sup> The board of Chemical Bank & Trust Co. included a director of Callaway Mills<sup>53</sup> and a director and member of the executive committee of William Iselin & Co., factors.<sup>54</sup> As indicated earlier, the William Iselin company had interlocking relations with Verney Corp. and Alabama Mills. Callaway Mills produces drills, twills, jeans, tickings, sateens, and other textile products. To some extent its manufacturing activities overlap those of Alabama Mills. William Iselin engages in factoring activities for a large number of smaller textile mills; and an affiliated company, Iselin-Jefferson Co., is a selling agent for Verney Corp., Alabama Mills, and others.

<sup>49</sup> Paolino Gerli, president and director, E. Gerli & Co., was a director of each of these three companies and of the Manufacturers Trust Co.

<sup>50</sup> The bank's board included a second director of Cluett, Peabody—Chesley R. Palmer, its president.

<sup>51</sup> Robert T. Stevens was chairman of the board of J. P. Stevens & Co., a director of Alexander Smith & Sons Carpet, and a director of the Guaranty Trust Co.

<sup>52</sup> H. Hobart Porter was a director of United Stores, and a director of the Chemical Bank & Trust Co.

<sup>53</sup> Cason J. Callaway, owner of Blue Springs Farms, Hamilton, Ga., was a director of the Chemical Bank & Trust Co., and a director of Callaway Mills.

<sup>54</sup> This was Arthur Iselin, partner in William Iselin & Co.



The National City Bank of New York included on its board a director of the Celanese Corp. of America,<sup>55</sup> and a director of Pacolet Manufacturing and Monarch Mills,<sup>56</sup> while one of its vice presidents was a director of Cannon Mills.<sup>57</sup> Celanese Corp. is a rayon supplier to textile mills. Cannon Mills, Monarch Mills, and Pacolet Manufacturing overlap in their production of sheeting and similar products.

Wachovia Bank & Trust Co. of Winston-Salem interlocked May McEwen Kaiser Co. and Adams-Millis Corp.<sup>58</sup> Both of these companies have mills in North Carolina; both specialize in hosiery manufacture.

Citizens & Southern National Bank (Savannah) interlocked Thomaston Mills, Graniteville, and Bibb Manufacturing.<sup>59</sup> These companies all engage in textile operations in Georgia. Bibb Manufacturing and Thomaston Mills both manufacture twine, belt cords, tire cord, and fabrics, and similar products.

In comparison with the commercial banks, the investment banks played a relatively minor role. Goldman, Sachs & Co. interlocked four of the country's largest hosiery companies—Van Raalte, Phoenix Hosiery Co., Munsingwear, and Wayne Knitting Mills.<sup>60</sup> Van Raalte and Munsingwear also overlap in their production of finished consumer goods, such as underwear, pajamas, etc.

#### OTHER INTERLOCKS OF SIGNIFICANCE

Representatives of the larger textile companies had opportunities to meet on the boards of corporations in other industries which often had little or no relation with textiles. One such case was the Gillette

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<sup>55</sup> Guy Cary, a partner in Shearman, Sterling & Wright, was a director of the National City Bank of New York, of the Celanese Corp. and the Southern Railway.

<sup>56</sup> Gerrish H. Milliken, president and a director of Deering, Milliken & Co., was president and a director of Pacolet Manufacturing and a director of Monarch Mills, and the National City Bank of New York.

<sup>57</sup> George W. Fraker was a vice-president but not a director of the National City Bank of New York and a director of Cannon Mills.

<sup>58</sup> J. E. Millis, president and a director of Adams-Millis, was a director of the Wachovia Bank & Trust Co.; and Richard G. Stockton, vice-president and a director of the Wachovia Bank & Trust Co., was a director of May McEwen Kaiser Co.

<sup>59</sup> H. Lane Young, vice chairman of the board and a director of Citizens & Southern National Bank was a director of Thomaston Mills; S. H. Swint, president, treasurer, and a director of Graniteville, was a director of the bank; William D. Anderson, chairman of the board and president of Bibb Manufacturing, was a director of Citizens & Southern National Bank, which was also interlocked with Bibb Manufacturing through William Murphey, chairman of the board and a director of the bank.

<sup>60</sup> H. J. Sachs and Sidney J. Weinberg, both partners in Goldman, Sachs & Co., were directors of Van Raalte; another Goldman, Sachs & Co. partner, A. E. Hamill, was a director of Phoenix Hosiery; Munsingwear and Wayne Knitting Mills had on their boards H. S. Bowers, also a partner in Goldman, Sachs & Co.



Safety Razor Co. The president of Gillette Safety Razor sat on the board of Pacific Mills;<sup>61</sup> and a director of both Pacific Mills and West Point Manufacturing was on Gillette Safety Razor's board.<sup>62</sup> Another director of Gillette Safety Razor was also a director of Pepperell Manufacturing.<sup>63</sup>

Another series of interlocks existed through the General Electric Co. Charles Francis Adams, president of Dwight Manufacturing Co., a maker of cotton goods, and a director of Bigelow-Sanford Carpet, producer of rugs and carpets, was a director of General Electric. So also was R. T. Stevens, chairman of the board and director of J. P. Stevens and director of Alexander Smith & Sons Carpet. Another director of General Electric was a director of Pacific Mills.<sup>64</sup> In this manner the General Electric board served as a meeting place for two of the large carpet and rug companies, as well as three companies engaged in a wide diversity of manufacture in the textile industry.

In addition to his numerous other duties,<sup>65</sup> Charles Francis Adams was a director of J. P. Maguire & Co. Mr. Maguire's directorships included Botany Mills, Sidney Blumenthal, U. S. Finishing, Cheney Bros., and Cluett, Peabody & Co. Thus, Messrs. Adams and Maguire, associated together on the board of J. P. Maguire & Co., were in a position to know in detail the problems of a large number of textile mills with which they were directly or indirectly connected.

A number of insurance companies had multiple representatives of the textile companies on their boards of directors. These interlocks presented opportunities for a closer knitting together of the interests of certain textile companies. John Hancock Mutual Life included on its board directors of West Point Manufacturing, Dwight Manufacturing, Van Raalte, A. Stein & Co., and Bigelow-Sanford Carpet.<sup>66</sup>

<sup>61</sup> Joseph P. Spang, Jr., was president and director of the Gillette Safety Razor.

<sup>62</sup> Sinclair Weeks, chairman of the board, Reed & Barton Corp., was a director of Pacific Mills, West Point Manufacturing and Gillette Safety Razor.

<sup>63</sup> This was Amory Coolidge, executive vice president and a director of Pepperell Manufacturing. As a director of Plymouth Cordage, he also linked that company to Gillette Safety Razor.

<sup>64</sup> This common director was Francis Lee Higginson, vice president and director of Lee Higginson Corp.

<sup>65</sup> These included, among others, directorships on U. S. Smelting, Refining & Mining, Newport News Shipbuilding & Dry Dock, Central Aguirre Associates, Rexall Drug, John Hancock Mutual Life Insurance Co., and New York, New Haven & Hartford Railroad Co.

<sup>66</sup> These directors of John Hancock Mutual Life were: Elwyn G. Preston, vice president and director of S. S. Pierce & Co. and a director of West Point Manufacturing; Charles Francis Adams, chairman of the board of State Street Trust Co., president and director of Dwight Manufacturing Co., director of Bigelow-Sanford Carpet; and John M. Hancock, partner in Lehman Brothers, a director of Van Raalte, and a director of A. Stein & Co.

Mutual Life Insurance had directors in common with J. P. Stevens, Armstrong Cork Co., and Alexander Smith & Sons Carpet.<sup>67</sup> New York Life had on its board directors of Cannon Mills, Pacolet Manufacturing, and Monarch Mills.<sup>68</sup> The board of Massachusetts Mutual Life had representation from Pepperell Manufacturing, William Whitman, and Bigelow-Sanford Carpet.<sup>69</sup> Many of these companies were already interlocked directly, through commercial banks, or through other business corporations.

The presence of textile representatives on railroad boards of directors might have facilitated a more prompt and sympathetic consideration of the transportation needs of the textile companies. The New York, New Haven & Hartford had as directors the president of Dwight Manufacturing and representatives of American Woolen, Cheney Bros, and J. P. Maguire & Co.<sup>70</sup> Southern Railway had on its board four directors through whom it was interlocked with five textile mills—Celanese Corp., Chatham Manufacturing, and Pacolet Manufacturing and Monarch Mills.<sup>71</sup> Textile mills were also represented on the Illinois Central and its subsidiary, Central of Georgia Railway Co. E. W. Stetson, member of the executive committee and director of Bibb Manufacturing (and chairman of the board of Guaranty Trust Co.), was chairman of the executive committee and director of Illinois Central. Sitting on the board of Cen-

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<sup>67</sup> The following were trustees of the Mutual Life Insurance: Robert T. Stevens, chairman of the board and director of J. P. Stevens, director of Alexander Smith & Sons Carpet; John Sloane, chairman of the board of W. & J. Sloane, director of Alexander Smith & Sons Carpet; W. G. Carey, Jr., president and director of Yale & Towne Manufacturing Co., and director of Armstrong Cork.

<sup>68</sup> On the board of the New York Life, Cannon Mills was represented by Charles A. Cannon, president and director; Gerrish H. Milliken, president and director of Deering, Milliken & Co., president and director of Pacolet Manufacturing, and a director of Monarch Mills, represented these two textile mills.

<sup>69</sup> Elijah Kent Swift, chairman of the board and general manager of the Whitin Machine Works, was also a director of Massachusetts Mutual Life Insurance, Pepperell Manufacturing, William Whitman, and Bigelow-Sanford Carpet.

<sup>70</sup> Charles Francis Adams, chairman of the board of State Street Trust Co., and president and director of Dwight Manufacturing, was a director of the New York, New Haven & Hartford. Another director of the railroad, A. H. Wiggin, was a director of American Woolen. M. B. Brainard, president and director of the Aetna Life Insurance Co., was a director of the New York, New Haven & Hartford, a director of Cheney Bros., and a director of J. P. Maguire & Co.

<sup>71</sup> The four directors were: Guy Cary, a partner in Shearman, Sterling & Wright and a director of Celanese Corp.; Oliver Iselin, chairman of the board of Iselin-Jefferson Co., Inc. the president of which, Floyd W. Jefferson, was a director of Verney Corp.; Robert M. Hanes, president and director of Wachovia Bank & Trust Co. and director of Chatham Manufacturing; and Gerrish H. Milliken, president and director of Deering, Milliken & Co., president and director of Pacolet Manufacturing and director of Monarch Mills.

tral of Georgia Railway were the president and director of Bibb Manufacturing<sup>72</sup> and directors of Thomaston Mills<sup>73</sup> and Alabama Mills.<sup>74</sup> The Boston & Maine had on its board representatives of Ludlow Manufacturing & Sales and Plymouth Cordage;<sup>75</sup> and Atlantic Coast Line had directors of Thomaston Mills and Mount Vernon-Woodberry on its board of directors.<sup>76</sup>

A relatively small number of interlocks appeared to link textile companies with various types of suppliers. The majority of the interlocks between textile machinery companies and textile manufacturing companies were indirect—mainly through banks and other financial institutions—but several were direct. The chairman of the board of the Whitin Machine Works, who was also its treasurer and a director, sat on the boards of Pepperell Manufacturing, William Whitman, and Bigelow-Sanford Carpet. He was also a director of the Second National Bank of Boston.<sup>77</sup> Saco-Lowell Shops and United Merchants & Manufacturers had a director in common;<sup>78</sup> and another Saco-Lowell Shops director linked that company with American Enka,<sup>79</sup> a manufacturer of viscose rayon yarn which might have been a source of supply for some of the textile mills.<sup>80</sup>

Besides its three direct connections with textile manufacturing companies, Whitin Machine Works was indirectly interlocked through the

<sup>72</sup> William D. Anderson was president and director of Bibb.

<sup>73</sup> W. Harrison Hightower was president and director of Thomaston Mills.

<sup>74</sup> Lawrence Wood Robert, Jr., chairman of board, president, and director, Robert Co., Inc., was a director of Alabama Mills.

<sup>75</sup> These directors were Richard L. Bowditch, president and director, C. H. Sprague & Son Co., and a director of Ludlow Manufacturing & Sales; and Augustus P. Loring, Jr., chairman of board and director, Plymouth Cordage.

<sup>76</sup> Two bankers, H. Lane Young, vice chairman of the board and a director of the Citizens & Southern National Bank; and Thomas B. Butler, president and director of the Safe Deposit & Trust Co.—respectively directors of Thomaston Mills and Mt. Vernon-Woodberry, were also directors of the Atlantic Coast Line.

<sup>77</sup> Elijah Kent Swift, chairman of the board and director of Whitin Machine Works, was a director of Pepperell Manufacturing, of William Whitman, of Bigelow-Sanford Carpet, and of the Second National Bank of Boston.

<sup>78</sup> O. Kelley Anderson, president and trustee of Consolidated Investment Trust, was president of Boston Fund, trustee of Century Shares Trust, director of United Corp., director of United Merchants & Manufacturers, and director of Saco-Lowell Shops.

<sup>79</sup> E. S. French, president and director, Boston & Maine Railroad, was a director of Saco-Lowell Shops and of American Enka.

<sup>80</sup> If Nathaniel F. Ayer was a director of Whitin Machine Works, another textile mill was directly interlocked with Whitin Machine Works, viz., Dwight Manufacturing, of which Mr. Ayer was a director. Concerning his relationship to Whitin Machine Works there is some uncertainty, since Moody's Industrials, 1947 and *Poor's Register of Directors and Executives*, 1947 are not in agreement. Mr. Ayer's name does not appear in the "Individuals Section" of *Poor's Register* but is included in the "Corporations Section." Moody's Industrials, 1947, does not list Mr. Ayer as a director of Whitin Machine Works.

Second National Bank of Boston, with United Merchants & Manufacturers,<sup>81</sup> Pacific Mills,<sup>82</sup> Wamsutta Mills,<sup>83</sup> and Ludlow Manufacturing & Sales.<sup>84</sup> Since the president of Crompton & Knowles Loom Works was a director of the Second National Bank of Boston,<sup>85</sup> his company was indirectly interlocked both with Whitin Machine Works and with the seven textile manufacturing companies represented on the board of the bank. Through Bigelow-Sanford Carpet, Dwight Manufacturing<sup>86</sup> was indirectly interlocked with Whitin Machine Works, and United Merchants & Manufacturers<sup>87</sup> had a second indirect interlock. The board of Pepperell Manufacturing provided a meeting place for the chairman of Whitin, a director of United Elastic,<sup>88</sup> and a director of Plymouth Cordage.<sup>89</sup> Draper Corp. and Saco-Lowell Shops were directly interlocked with the First National Bank of Boston,<sup>90</sup> and, in consequence of their relations to the bank indirectly interlocked with each other and with the textile companies represented on the board of First National Bank of Boston. These were J. P. Stevens & Co.,<sup>91</sup> Pacific Mills,<sup>92</sup> United Merchants & Manu-

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<sup>81</sup> William B. Snow, Jr., president of the Suffolk Savings Bank for Seamen and Others, was a director of the Second National Bank of Boston and of United Merchants & Manufacturers.

<sup>82</sup> Henry M. Bliss, president and a director of Pacific Mills, was a director of the Second National Bank of Boston. A. Murray Howe, a director of Pacific Mills, was a director of the Second National Bank of Boston.

<sup>83</sup> Charles F. Broughton, president, general manager, and a director of Wamsutta Mills, was a director of the Second National Bank of Boston.

<sup>84</sup> Henry M. Bliss, president and director of Pacific Mills, was a director of the Second National Bank of Boston and of Ludlow Manufacturing & Sales.

<sup>85</sup> John F. Tinsley, president and a director of Crompton & Knowles Loom Works, was a director of the Second National Bank of Boston.

<sup>86</sup> Charles Francis Adams, president of Dwight Manufacturing, was a director of Bigelow-Sanford Carpet, of which E. K. Swift of Whitin Machine Works was also a director.

<sup>87</sup> Roger Amory, trustee, was a director of United Merchants & Manufacturers and of Bigelow-Sanford Carpet.

<sup>88</sup> E. Sohler Welch, trustee, was a director of United Elastic and of Pepperell Manufacturing. E. K. Swift, chairman of Whitin Machine Works, was also a director of Pepperell Manufacturing.

<sup>89</sup> Amory Coolidge, executive vice president and director of Pepperell Manufacturing, was a director of Plymouth Cordage. E. K. Swift, chairman of Whitin Machine Works, was a director of Pepperell Manufacturing.

<sup>90</sup> B. H. B. Draper, Jr., a director of Draper Corp., was a director of the First National Bank of Boston. E. S. French, president and a director of the Boston & Maine, was a director of Saco-Lowell Shops and of the First National Bank of Boston.

<sup>91</sup> Abbot Stevens, vice president and a director, J. P. Stevens & Co., was a director of the First National Bank of Boston.

<sup>92</sup> Sinclair Weeks, chairman of the board and a director, Reed & Barton Corp., was a director of Pacific Mills and of the First National Bank of Boston.

facturers,<sup>93</sup> Pepperell Manufacturing,<sup>94</sup> West Point Manufacturing,<sup>95</sup> Ludlow Manufacturing & Sales,<sup>96</sup> and Plymouth Cordage.<sup>97</sup> Saco-Lowell Shops and Powdrell & Alexander were indirectly interlocked through American Enka,<sup>98</sup> while a director of Bemis Bros. Bag Co. and a director of Crompton & Knowles Loom Works sat together on the board of the Merchants National Bank of Boston.<sup>99</sup> Draper Corp., with a director in common with Whitin Machine Works,<sup>1</sup> was indirectly interlocked with the textile manufacturing companies of which Whitin Machine Works' chairman was a director—Pepperell Manufacturing, William Whitman, and Bigelow-Sanford Carpet.

Some of the textile companies, which were either directly or indirectly interlocked with textile machinery firms, were also factors or selling agents for other textile mills. As a result, such companies represented a complex of interests in the textile field when their directors sat on the boards of the textile machinery companies. United Merchants & Manufacturers, for example, had a factoring subsidiary; J. P. Stevens & Co. and William Whitman, in addition to their manufacturing operations, were selling agents. West Point Manufacturing was also engaged in selling for other companies through its subsidiary, Wellington Sears. George Nichols, treasurer and director of Dwight Manufacturing, was a partner in the selling agency of Minot, Hooper & Co.

American Enka, one of the country's rayon manufacturers, was interlocked with Cannon Mills and Powdrell & Alexander. Cannon

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<sup>93</sup> Lloyd D. Brace, a vice president and director of the First National Bank of Boston, was a director of United Merchants & Manufacturers.

<sup>94</sup> Russell H. Leonard, president and a director of Pepperell Manufacturing, was a director of the First National Bank of Boston.

<sup>95</sup> Sinclair Weeks, chairman of the board and a director, Reed & Barton Corp., was a director of West Point Manufacturing and of the First National Bank of Boston.

<sup>96</sup> Richard L. Bowditch, president and a director, C. H. Sprague & Son Co., was a director of Ludlow Manufacturing & Sales and of the First National Bank of Boston.

<sup>97</sup> Neil W. Rice, chairman of board, president, and a director, U. S. Smelting, Refining & Mining, and Thomas D. Cabot, vice president and a director, Godfrey L. Cabot, Inc., were directors of Plymouth Cordage and of the First National Bank of Boston.

<sup>98</sup> E. S. French, president, chairman of executive committee, and a director of the Boston & Maine, was a director of American Enka and of Saco-Lowell Shops. Henry J. Nichols, vice president and a director, National Shawmut Bank, was a director of American Enka and of Powdrell & Alexander.

<sup>99</sup> F. G. Bemis, president of Bemis Bros. Bag Co., and Charles Stetson, partner in the law firm of Warner, Stackpole, Stetson & Bradlee, and a director of Crompton & Knowles, were directors of the Merchants National Bank.

<sup>1</sup> The common director was Phillips Ketchum, partner in the Boston law firm of Herrick, Smith, Donald, Farley & Ketchum



Mills manufactures bedspreads; Powdrell & Alexander's specialty is curtain fabric which is made partially or wholly from rayon.<sup>2</sup>

Two chemical companies—Allied Chemical & Dye and du Pont—were interlocked with U. S. Finishing.<sup>3</sup> This company is a large consumer of chemicals in connection with its bleaching, dyeing and printing operations. Allied Chemical & Dye also had interlocking relations with Bigelow-Sanford Carpet,<sup>4</sup> which does its own dyeing of the worsted and woolen materials used in rug manufacture.

Paraffine Companies, Inc., manufacturer of linoleum and floor coverings, was interlocked with Union Oil Co.<sup>5</sup> Paraffine Companies manufactures asphalt roofings, asphalt shingles, and other asphalt products from the raw material derived from oil residues.

Three directors of United States Leather Co., sat on the board of American Hair & Felt Co.<sup>6</sup> The latter is a large user of cattle hair, a tannery byproduct, in the manufacture of carpet linings and insulation materials.

### SUMMARY

Interlocking directorates have had considerable importance in the textile industry. Historically, the industry has been made up of comparatively small units; and the capital requirements for entrance into it are not prohibitive. The basic patents on machinery and processes have long since expired. As a result, the industry could be quite competitive. For decades efforts have been made in the textile industry to find some workable machinery to attain greater stability in prices and more orderly marketing conditions. The extensive use of interlocking directorships appears to be one of the answers to this problem.

The interlocks among the textile companies included in the 1,000 largest corporations are only a part of the significant interlocking directorates in the textile industry. Many of the smaller mills have drifted into a close relationship with larger units, whose officials sit

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<sup>2</sup> George W. Fraker, vice president but not a director of National City Bank of New York, was a director of Cannon Mills and of American Enka. Henry J. Nichols, vice president and director of National Shawmut Bank, was a director of American Enka and of Powdrell & Alexander.

<sup>3</sup> Wallace Campbell, partner, Sturges, Chaffee & Hazard, and a member of the executive committee and a director of U. S. Finishing, was a director of Allied Chemical & Dye. L. A. Yerkes was a director of both du Pont and U. S. Finishing.

<sup>4</sup> Samuel A. Welldon, chairman of board and director of First National Bank of the City of New York, interlocked Allied Chemical & Dye and Bigelow-Sanford Carpet.

<sup>5</sup> Herman Pfleger, of Brobeck, Pfleger & Harrison, attorneys, was the common director.

<sup>6</sup> These were Henry M. McAdoo, president; Roland H. Zinn, vice president, secretary, and comptroller; and Sherwood B. Gay.



on the boards of the small companies and participate in the making of policy.

Interlocking directorates in textiles also reflect the importance of the role of the factor and the selling agent. The factor's function is primarily financial; he discounts bills, assumes the task of collection, supplies credit, and performs other services. To protect his investment he frequently sits on the mill's board of directors. The selling agent is the marketing expert. Ordinarily he handles a diversified line of products and represents a number of mills. He, too, is frequently found on the boards of directors.

The net effect of these interlocks—either direct by the larger mill in the smaller companies, or by the sales agent or factor—is in the direction of reducing competition.

### *Direct Interlocks*

In 1946 there were 53 interlocks within the textile industry, involving 39 of the 85 textile companies in the list. In some instances the production of the interlocked companies overlapped, thus indicating that the result was some curtailment of competition. In other cases, the activities of the companies appeared to be quite unrelated, and the interlocks had only geographical importance. Historically, the New England textile industry has always been closely interlocked among its own members and with companies in other industries in New England; and this pattern of interlockings was imported into the South when this area started textile manufacturing.

The textile industry presents considerable difficulties in an attempt to compare products of the various companies. The larger mills are highly diversified in production. Furthermore, an analysis of current output cannot take account of products to which machinery could be converted if the companies were so disposed. Thus it is not always possible to indicate whether an interlock brought together companies that were in actual or potential competition.

In 1946 Textron was interlocked, through a subsidiary, with Ludlow Manufacturing & Sales, and Firth Carpet. In turn Ludlow Manufacturing & Sales interlocked with Pacific Mills and West Point Manufacturing. The operations of both the latter companies seem unrelated to those of Ludlow Manufacturing & Sales, but overlap the activities of Textron. United Merchants & Manufacturers was linked with Bigelow-Sanford Carpet; and interlocked with one or both of these companies were Pepperell Manufacturing, William Whitman, and Dwight Manufacturing. There was direct representation on Bigelow-Sanford Carpet's board of United Merchants & Manufacturers, Pepperell Manufacturing, William Whitman, and Dwight Manufacturing—all of which operate in the same general fields of textile production.

Interlocked with J. P. Stevens & Co., were the following firms: Graniteville, Brandon Corp., Riegel Textile, and Alexander Smith & Sons Carpet. With the exception of the carpet company, these interlocks brought together textile companies engaged in the same or similar operations.

A series of interlocks centering around Van Raalte, brought together a number of companies vertically related to one another. This development was the result of the investment activities of Goldman, Sachs & Co. and Lehman Bros. or the factoring operations of J. P. Maguire. Connections with suppliers through Mr. Maguire were with Sidney Blumenthal, Botany Mills, Cheney Bros., and U. S. Finishing. Connections with apparel companies—largely through the investment bankers—were with Manhattan Shirt Co., Cluett, Peabody & Co., A Stein & Co., and the Hat Corp.

Other direct interlocks involved the following textile companies: Verney Corp. and Alabama Mills; Pacolet Manufacturing and Monarch Mills; Belding Heminway, La France Industries, and Julius Kayser; Munsingwear and Wayne Knitting Mills; Textiles, Incorporated and American Yarn & Processing Co. In the first two instances, the link was a common selling agent who sat as director on the boards of the interlocked companies. In the case of Munsingwear and Wayne Knitting Mills, there was a history of common ownership.

#### *Other Interlocks of Importance*

A number of textile mills—or their factors or selling agents—were interlocked with retail outlets, largely chain clothing and department stores. Mercantile Stores was interlocked with the Pacolet Manufacturing and Monarch Mills companies. Allied Stores and its affiliate, Interstate Department Stores, had interlocking connections with the Belding Heminway, La France Industries, and Julius Kayser companies. S. H. Kress & Co. interlocked with Munsingwear and Wayne Knitting Mills, the Hecht Co. with Mt. Vernon-Woodberry.

The largest group of retail interlocks was centered around Van Raalte. This company interlocked directly with Sears, Roebuck & Co., Gimbel Bros., W. T. Grant Co., S. H. Kress & Co., and the Hecht Co. Indirectly it interlocked with National Department Stores and the Allied Stores and Interstate Department Stores chains.

A significant number of textile company interlocks was with banks. The First National Bank of Boston interlocked several important companies: United Merchants & Manufacturers, Textron, J. P. Stevens, Pepperell Manufacturing, Pacific Mills, West Point Manufacturing, Ludlow Manufacturing & Sales, and Plymouth Cordage. The second National Bank of Boston interlocked some of these same companies—United Merchants & Manufacturers, Pacific Mills, Pep-

perell Manufacturing and Ludlow Manufacturing & Sales; it also included William Whitman and Bigelow-Sanford Carpet. Several of these companies were already interlocked, either directly or indirectly, among themselves.

Guaranty Trust Co. and Chemical Bank & Trust Co., interlocked textile mills with retail outlets. The chairman of the board of Guaranty Trust Co. was a director of Bibb Manufacturing and a director of United Stores, a variety store holding company, and its two affiliates, McLellan Stores and McCrory Stores. Also on the board of this bank was the chairman of the board of J. P. Stevens and a director of Alexander Smith & Sons Carpet. On the board of Chemical Bank & Trust Co. were directors of United Stores Corp., Callaway Mills, and the factoring concern associated with Verney Corp. and Alabama Mills.

Representatives of the larger textile companies also met on the boards of various industrial corporations—sometimes those totally unrelated to textiles. Gillette Safety Razor, for example, included on its board representatives of Pacific Mills, West Point Manufacturing, and Pepperell Manufacturing. General Electric interlocked Dwight Manufacturing, Bigelow-Sanford Carpet, J. P. Stevens, Alexander Smith & Sons Carpet, and Pacific Mills.

A number of insurance companies had multiple representatives of textile companies on their boards of directors. John Hancock Mutual Life included on its board directors of West Point Manufacturing, Dwight Manufacturing, Van Raalte, and Bigelow-Sanford Carpet. Mutual Life Insurance had directors in common with J. P. Stevens, Armstrong Cork and Alexander Smith & Sons Carpet. These interlocks presented opportunities for a closer knitting together of the interests of certain textile companies.

Interlocks also existed between some of the textile companies and the railroads. New York, New Haven & Hartford had as directors the president of Dwight Manufacturing, and representatives of American Woolen and Cheney Bros. Southern Railway had on its board directors of Celanese Corp., Verney Corp., Chatham Manufacturing, Pácolet Manufacturing, and Monarch Mills.

A number of interlocks linked textile companies with various types of suppliers. Such suppliers included Whitin Machine Works, Draper Corp., Saco-Lowell Shops, Crompton & Knowles Loom Works, American Enka, Allied Chemical & Dye, and du Pont.

## Chapter 15

### APPAREL AND OTHER FINISHED PRODUCTS

Seven companies in this group are among the 1,000 largest. They occupy a miscellany of industries in the apparel field rather than a single industry. Four of them—Cluett, Peabody & Co., Reliance Manufacturing Co., Manhattan Shirt Co., and Phillips-Jones Corp.—are engaged in the manufacture of men's shirts, neckwear, underwear, pajamas, and similar products. Hart, Schaffner & Marx' field is men's suits and overcoats. The Hat Corp. of America is engaged in the manufacture and sale of men's and women's hats; A. Stein & Co. manufactures garters, suspenders, belts, foundation garments for women, and a wide array of other products.

These seven companies' productions overlap the products of some of the corporations discussed under "textile mill products." Such companies as Munsingwear, Botany Mills, Textron, Julius Kayser & Co., and Van Raalte Co. also engage in the manufacture of finished apparel; John B. Stetson Co. competes with the Hat Co. of America in the manufacture and sale of finished hats. Differentiation in treatment is due to the fact that the companies listed under "textile mill Co., and Van Raalte Co. also engage in the manufacture of finished products.

The seven apparel companies are characterized by their control of valuable trade-marks and trade names—well known to the public and heavily advertised. Cluett, Peabody & Co. markets its shirts, neckwear, handkerchiefs, and underwear in this country under the trade name "Arrow", and controls this name for its pajama sales in Canada. Manhattan Shirt sells its products under the name of "Manhattan"; Phillips-Jones controls the "Van Heusen" label. The Hat Corp. of America owns "Dobbs", "Knox", "Dunlap", "Knapp Felt" and other famous trade names in the hat market; and A. Stein has control of the "Paris" trade-mark in its garter and suspender business. The competitive importance of these trade names and trade-marks in their respective fields is obvious.

Cluett, Peabody & Co. holds a distinct competitive advantage over other companies in its patents on the "Sanforizing" process. The basic patents on this shrinkage process have already expired, but the company's control of the improvements continues the monopoly. In 1949

about 100 plants in the United States were licensees of Cluett, Peabody & Co. for this process, and another 50 abroad had secured licenses. In addition, Cluett, Peabody & Co. had secured control of a similar process called "Sanforset" for rayon and one entitled "Sanforian" for woolen goods. Other companies incur direct out-of-pocket expenses for royalty payments on these patented processes, whereas the patentee—Cluett, Peabody & Co.—incurs such costs only in the nature of bookkeeping transactions.

Of the seven companies in the apparel group, three—Hart, Schaffner & Marx, Reliance Manufacturing, and Phillips-Jones—had no interlocks with other corporations. The remaining four were indirectly interlocked through the Van Raalte Co.

### INTERLOCKS THROUGH VAN RAALTE

Van Raalte—textile mill and manufacturer of hosiery, gloves, underwear, and other finished apparel—provided a common meeting ground for directors of the following large apparel companies: Cluett, Peabody & Co., Manhattan Shirt, Hat Corp. of America, and A. Stein. Three of these interlocks were effected through representatives of investment banks. On the board of Van Raalte was a partner of Goldman, Sachs & Co. who also sat on the board of Manhattan Shirt.<sup>1</sup> Another representative of Goldman, Sachs & Co. was common to the boards of Van Raalte and Cluett, Peabody & Co.<sup>2</sup> A partner in Lehman Brothers was on the boards of Van Raalte and A. Stein.<sup>3</sup> A bank executive linked the Hat Corp. of America with Van Raalte.<sup>4</sup>

Thus it appears that interlocking directorates in the apparel field have developed primarily under the leadership of the investment banks.<sup>5</sup> Not all of the companies represented on the Van Raalte board are intercompetitive in their lines of products. However, in the case of Cluett, Peabody & Co. and Manhattan Shirt—where production is centered around men's shirts and other men's clothing—the companies are competitive. All of these companies have similar interests, moreover, in their relations to textile mills and retail outlets, in labor and tax policies, and other matters.

<sup>1</sup> H. J. Sachs, partner, Goldman, Sachs & Co., was the common director.

<sup>2</sup> This was Sidney J. Weinberg, partner, Goldman, Sachs & Co.

<sup>3</sup> John M. Hancock was the Lehman Brothers partner who supplied the link between Van Raalte and A. Stein.

<sup>4</sup> John R. Simpson, chairman of the executive committee and director of the Fiduciary Trust Co. of New York, was chairman of the executive committee of Van Raalte and was also a director of the Hat Corp. of America.

<sup>5</sup> In addition to Goldman, Sachs & Co. and Lehman Brothers, a third investment bank was also represented in the apparel field. Elisha Walker of Kuhn, Loeb & Co., was a director of Hat Corp. of America.



## INTERLOCKS WITH SOURCES OF SUPPLY

So far as Manhattan Shirt and A. Stein were concerned, the only interlock with textile mills was that afforded through Van Raalte. Both Cluett, Peabody & Co. and the Hat Corp of America reached backward to effect connections with other textile mills, in this manner securing further interlocks of an indirect character with each other.

In the case of Cluett, Peabody & Co., these interlocks with suppliers were effected through John P. Maguire. Maguire's primary position was president and director of John P. Maguire Co., a factoring concern. In the textile industry, a factor's business is generally of a financial character; he discounts sales invoices, assumes credit risks, and performs other financial services. Mr. Maguire was also a director of Manufacturers Trust Co. (New York). Another director of Manufacturers Trust Co. was a director of the Hat Corp. of America.<sup>6</sup> Thus this bank supplied another indirect interlock between this company and Cluett, Peabody & Co.

Mr. Maguire connected Cluett, Peabody & Co. with four textile mills of which he was a director. These were Sidney Blumenthal & Co., manufacturing worsted yarns, cotton velvets, plushes, velours, and upholstery goods; Botany Mills which manufacture fabrics and is also engaged in the production of finished apparel; United States Finishing Co., bleacher, dyer, and printer of cloth; and Cheney Bros., which weaves rayons, linings, tie fabrics, upholstery goods, etc. All of these companies supply some materials that are usable by Cluett, Peabody & Co.

The Hat Corp. of America also found representation on the board of Sidney Blumenthal. This was through John R. Simpson who, in addition to being chairman of the board and chairman of the executive committee of Van Raalte and a director of Hat Corp. of America, was also chairman of the executive committee and director of Sidney Blumenthal. The specialty products of Sidney Blumenthal are of particular importance in the manufacture of hats.

Since 1946 the Hat Corp. of America has extended its contacts directly back to rayon manufacturing. One of its directors sat on the boards of North American Rayon Corp. and American Bemberg Corp.<sup>7</sup> These companies, formerly German-owned, were sold in 1948 to Beaunit Mills, one of the largest textile mills in the United States.

<sup>6</sup> This common director was J. L. Johnston, president and director, Lambert Co.

<sup>7</sup> Charles Beal Wiggin was vice president, treasurer, a member of the executive committee, and a director of the National Can Corp. Mr. Wiggin seems to have joined the boards of both companies in 1947 (*Moody's Industrials*, 1948, pp. 1036, 1037, shows him as a director of each), and to have continued in his directorships after the companies were purchased by Beaunit Mills.



Here a direct link was effected from rayon manufacturing facilities through the textile mill to the industrial consumer of the product.<sup>8</sup>

### INTERLOCKS WITH LARGE CONSUMERS

Cluett, Peabody & Co., Manhattan Shirt, and the Hat Corp. of America also reached forward to establish connections, through interlocking directorships, with retail outlets. It is noteworthy that, for each of these companies, the link between the manufacturer and retailer was through investment banks or other financial institutions.

Cluett, Peabody & Co. had two directors with retail connections. One was John P. Maguire, factor and contact man with a number of textile mills, who was a director of National Department Stores Corp. The other, a representative of Goldman, Sachs & Co.,<sup>9</sup> sat as a director of Sears, Roebuck & Co.

The Goldman, Sachs & Co. representative on Manhattan Shirt was also a director of the Hecht Co. and Gimbel Bros.<sup>10</sup>

A. Stein—through a partner in Lehman Brothers—was represented on the boards of Sears, Roebuck & Co., W. T. Grant Co., and S. H. Kress & Co.<sup>11</sup>

Two of these apparel companies, Hat Corp. of America and A. Stein, also had interlocking directorships with Bond Stores, Inc. This clothing chain, selling men's and women's wear in 57 retail stores located in 46 cities, was not large enough to appear on the list of the country's 1,000 largest corporations. Here again financial interests were the source of the interlock.<sup>12</sup>

### MISCELLANEOUS INTERLOCKS

Other indirect interlocks existed among the apparel companies, but had little significance in the apparel trades. For the most part, they

<sup>8</sup> Until early 1946 Hart, Schaffner & Marx maintained one of its directors—Dewitt Millhauser—on the boards of North American Rayon and American Bemberg. With his death in April 1946, this connection ended and none seems to have existed since that time.

<sup>9</sup> This was Sidney J. Weinberg, a partner in Goldman, Sachs & Co.

<sup>10</sup> The common director was H. J. Sachs, partner, Goldman, Sachs & Co. Walter J. Sachs of the same company, was a director of the May Department Stores.

<sup>11</sup> John M. Hancock, Lehman Brothers partner, was the source of these interlocks with A. Stein. In many of these cases the bank's interest appears to be two-sided—with financial stakes in both the manufacturing company and the retail outlet. For example, *Moody's Manual of Investments, 1949*, shows that Lehman Corp.—affiliated with Lehman Brothers—owned 25,000 shares of common stock of W. T. Grant and 80,000 shares of common stock of Sears, Roebuck & Co.

<sup>12</sup> In the case of the Hat Corp. of America the interlock was effected through Maurice Wertheim (died May 1950), senior partner of Wertheim & Co., a brokerage firm; for A. Stein it was through John M. Hancock, a Lehman Brothers partner.

reflected the dominant role played by the investment banks in these companies, and the widespread interests of these financial institutions in the affairs of other industries.

A partner in the brokerage firm of Wertheim & Co. and a director of the Hat Corp. of America was a director of Underwood Corp.,<sup>13</sup> on the board of which A. Stein was also represented.<sup>14</sup> Another of the Hat Corp. of America's interlocks was with the Lambert Co.,<sup>15</sup> manufacturer of Listerine, Prophylactic toothbrushes, toothpaste, and a host of pharmaceuticals. A second apparel company, Cluett, Peabody & Co., was brought into relationship with Lambert Co. through Goldman Sachs & Co.<sup>16</sup>

### SUMMARY

Of the seven companies in the apparel group, three—Hart, Schaffner & Marx, Reliance Manufacturing, and Phillips-Jones—had no interlocks. The remaining four were directly interlocked through Van Raalte (classified as belonging to the textile mill products industry). These were Cluett, Peabody & Co. and Manhattan Shirt (men's shirts, neckwear, underwear, pajamas, etc.); Hat Corp. of America (men's and women's hats); and A. Stein (garters, suspenders, belts, etc.)

Three of these interlocks were effected through representatives of investment banks. The board of Van Raalte contained a partner of Goldman, Sachs & Co. who was a director of Manhattan Shirt; another Goldman, Sachs & Co. partner who was on the board of Cluett, Peabody & Co.; and a partner of Lehman Brothers who was a director of A. Stein. The fourth company—Hat Corp. of America—was represented on Van Raalte's board by Col. John R. Simpson, chairman of the board and chairman of the executive committee of Van Raalte.

This structure of interlocks indicates that leadership in synchronization of policy through interlocking directorates in the apparel field has come primarily from the investment banks. Only two of the companies—Cluett, Peabody & Co. and Manhattan Shirt, specializing in men's shirts and men's clothing—are actually in direct competition.

<sup>13</sup> Maurice Wertheim (died May 1950), senior partner in Wertheim & Co., represented his firm on the boards of the Hat Corp. of America and Underwood.

<sup>14</sup> John M. Hancock, Lehman Brothers partner, was a director both of A. Stein and of Underwood.

<sup>15</sup> J. L. Johnston, president and director of the Lambert Co., also served as a director of the Hat Corp. of America. A close connection also existed between the Hat Corp. of America and the Western Tablet & Stationery Corp. Three of the latter's board of six directors also were directors of the Hat Corp. of America. These were W. W. Sunderland, chairman of the board of Western Tablet & Stationery, Charles Beal Wiggin, vice president of the same company, and E. R. Tinker.

<sup>16</sup> The director shared by Lambert Co. and Cluett, Peabody & Co. was Sidney J. Weinberg, partner in Goldman, Sachs & Co.

However, all of these companies have similar interests in their relations to textile mills and retail outlets, in labor and tax policies, and other matters.

Interlocking directorships effected contacts with mills, at one end, and retail outlets, at the other. The Cluett, Peabody & Co. board included John P. Maguire, president and director of John P. Maguire Co., factor. Mr. Maguire's directorships connected Cluett, Peabody & Co. with four textile mills—Sidney Blumenthal, Botany Mills, U. S. Finishing Co., and Cheney Bros.—all of which manufacture some textile product usable by Cluett, Peabody & Co.

The Hat Corp. of America was also linked with Sidney Blumenthal. This was through John R. Simpson, who simultaneously held the positions of chairman of the board and chairman of the executive committee of Van Raalte, chairman of the executive committee and director of Sidney Blumenthal, and director of the Hat Corp. of America. The textile products of both the Van Raalte and Sidney Blumenthal mills are usable in the manufacture of hats. As of 1947, the Hat Corp. of America had also extended its contacts to rayon manufacturing, through interlocks with North American Rayon and American Bemberg. Here a direct link was effected from rayon manufacturing facilities through the textile mill to the industrial consumer of the product.

Cluett, Peabody & Co., Manhattan Shirt, and the Hat Corp. of America also had interlocks with retail outlets, largely retail variety store chains and department stores. Cluett, Peabody & Co. interlocked with National Department Stores and Sears, Roebuck & Co.; Manhattan Shirt, with Hecht Co., and Gimbels Bros.; A. Stein with Sears, Roebuck & Co., W. T. Grant Co., and S. H. Kress & Co. The Hat Corp. of America and A. Stein were also interlocked with Bond Stores, Inc., a well-known clothing chain not large enough to appear on the list of the country's 1,000 largest corporations.

## Chapter 16

### PAPER AND ALLIED PRODUCTS

Interlocking directorates are only one among several significant interlocking relations in the paper and allied products industry. Other interlocking patterns are found where two paper companies jointly own a third company in this industry.<sup>1</sup> There are also instances where one company in this industry and a company in another industry are joint owners of a third company.<sup>2</sup> In addition, there are close working relationships, such as patent license agreements and long-term sale or purchase contracts among the companies within the industry,<sup>3</sup> or between such companies and those in other industries.<sup>4</sup>

<sup>1</sup> For example, Mead Corp. and Scott Paper Co. jointly own Brunswick Pulp & Paper Co.; Canadian International Paper Co. (a subsidiary of International Paper Co.) and Masonite Corp. jointly own Masonite Co. of Canada; Hammermill Paper Co. owns 60 percent and Rayonier, Inc. 40 percent of Grays Harbor Pulp & Paper Co.; Mead Corp. owns 60 percent and Inland Container Co. 40 percent of Macon Kraft Co.; Robert Gair Co. owns 60 percent and Fort Wayne Corrugated Paper Co. owns 40 percent of Southern Paperboard Corp.

<sup>2</sup> For example, Crown Zellerbach Corp. and The Paraffine Companies, Inc., jointly own Fibreboard Products, Inc. Substantially all kraft board produced by Crown Zellerbach is reported to be sold under contract to Fibreboard Products. Also, International Paper Co. and American Cyanamid Co. jointly own Arizona Chemical Co.

<sup>3</sup> Masonite Corp. is licensed by Minnesota & Ontario Paper Co. under certain patents. Minnesota & Ontario Paper, in turn, is a selling agent for Masonite Corp. In this connection, it may be interesting to note that the Supreme Court, on May 11, 1942, held (*U. S. v. Masonite Corp. et al.*, 316 U. S. 265) that Masonite Corp. and its selling agents had been violating the Sherman Antitrust Law in carrying out agreements to market hardboard. (U. S. Gypsum Co., maker of plaster board, was the only other producer of hardboard.) In addition to The Insulite Co. (now Minnesota & Ontario Paper Co.), the selling agents specified in the action included Armstrong Cork Co., The Celotex Corp., Certain-Teed Products Corp., Dant & Russell, Inc., Johns-Manville Sales Corp., National Gypsum Co., Wood Conversion Co., and The Flintkote Co. Masonite Corp. has an agreement to buy insulation board from the last named company. As previously noted, Masonite Corp. and Canadian International Paper Co. (a subsidiary of International Paper Co.) jointly own Masonite Co. of Canada.

<sup>4</sup> For example, St. Regis Paper Co. has a long-term contract with Weco Corp., a subsidiary of Western Electric Co., to supply paper for telephone directories; Kimberly-Clark Corp. sells absorbent wadding and other specialties under long-term contract to International Cellucotton Products Co.; Champion Paper & Fibre

where there are no direct interlocking relations. There are also instances where sales or transfers of plants have been made by one company to another <sup>6</sup> but where there are no interlocking directorates. Moreover, the domestic and Canadian paper industries are inter-related, but this study has not extended to international interrelations.<sup>7</sup>

### THE DIRECTORSHIP RELATIONS OF THE "BIG FOUR"

Of the 1,000 largest manufacturing corporations, 59 are classified in the paper and allied products industry, which includes six groups: pulp, paper, and paperboard mills; paper coating and glazing; envelopes; paper bags; paperboard containers and boxes; and pulp goods and miscellaneous converted paper products.

The most significant of these is the pulp, paper, and paperboard mills group, which contains the eight largest corporations in the industry.<sup>7</sup> Of these, International Paper Co. is the largest,<sup>8</sup> with assets of \$269,000,000, or more than 15 percent of \$1,753,000,000 total assets of all 59 paper companies combined. Crown Zellerbach Corp. is approximately half the size of International Paper, with assets of \$137,000,000. St. Regis Paper Co. and Kimberly-Clark Corp. rank next in magnitude with assets of \$102,000,000 and \$77,000,000, respectively.<sup>9</sup>

International Paper has most of its plants east of the Mississippi. It is the largest producer of kraft board and one of the leading manufacturers of many types of paper and paper products. It had indi-

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Co. sells milk container stock to American Can Co.; Brown Co. distributes through Westinghouse Electric Supply Co. a fiber conduit for the underground installation of electric cables. Long-term contracts with publishers of newspapers and magazines, with whom no interlocking directorates were found, are too numerous to mention.

<sup>6</sup> For example, Time, Inc., acquired Bryant Paper Co., Maine Seaboard Paper Co., Hennepin Paper Co., and Bucksport Water Co. in 1945. In 1946, these were sold to St. Regis Paper for stock, cash, and other considerations. In 1949, St. Regis Paper also acquired a paper coating mill from Time, Inc.

<sup>7</sup> For example, many of the paper companies own subsidiaries in Canada. Any direct interlocks between these companies and Canadian corporations, and any interlocks between those subsidiaries and the largest American corporations, are not included in this analysis.

<sup>8</sup> The ninth largest is Container Corp. of America, which is classified in the paperboard containers and boxes group. The annual sales of Container Corp., however, are third largest in the industry.

<sup>9</sup> It was substantially larger prior to the time it was compelled, by governmental action, to divest itself of some of its former holdings and affiliations.

<sup>10</sup> This section could concern itself with the directorship relations of a "Big Three" instead of a "Big Four" since, as is shown, Kimberly-Clark (fourth largest in the industry) was interlocked indirectly with International Paper (largest in the industry); and West Virginia Pulp & Paper Co. (fifth largest in the industry) was interlocked indirectly with St. Regis Paper (third largest in the industry). It was felt, however, that Kimberly-Clark's manifold relations justified including it among the larger paper companies.



rect interlocks with Kimberly-Clark;<sup>10</sup> with Mead Corp.,<sup>11</sup> seventh largest in the industry, approximately three-fourths of whose sales are of book papers, which are purchased mostly by magazine publishers; with Container Corp. of America,<sup>12</sup> the largest manufacturer of paperboard containers, with annual sales the third largest in the industry; with U. S. Playing Card Co.;<sup>13</sup> and with American Writing Paper Corp.<sup>14</sup>

Crown Zellerbach is the second largest manufacturer of paper products. Most of its plants are located on the Pacific coast. Crown Zellerbach and Rayonier Inc., one of the world's largest producers of dissolving pulps (bleached sulfite), had a number of directors in common.<sup>15</sup> Crown Zellerbach also interlocked indirectly with Hammer-

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<sup>10</sup> Flintkote Co. and Underwood Corp. were the intermediate companies. B. A. Tompkins, senior vice president and director of Bankers Trust, was also a director of International Paper and Flintkote; A. H. Wiggin, retired banker, was a director of International Paper and Underwood Corp.; J. M. Hancock, a partner in Lehman Bros., investment bankers, was also chairman of the executive committee of Flintkote and a director of Kimberly-Clark and Underwood Corp. It is noteworthy that, while Mr. Hancock has been a director of Kimberly-Clark since 1931, Lehman Corp., an investment trust affiliated with Lehman Bros., disposed of its holdings in Kimberly-Clark in the second quarter of 1937; apparently none has been acquired since then. On the other hand, while no representative of Lehman Bros. or Lehman Corp. is a director of International Paper, Lehman Corp. has owned stocks or bonds in International Paper or in one of its predecessor companies since 1934 or longer, with the possible exception of 1936. As of March 31, 1950, Lehman Corp. owned 40,000 shares of common stock of International Paper and none of Kimberly-Clark. (The Lehman Corp., *Interim Report for the Nine Months Ended March 31, 1950*, p. 13).

<sup>11</sup> National Cash Register Co. was the intermediate company. C. S. McCain, president of Dillon, Read & Co., investment bankers, was also a director of International Paper and National Cash Register; C. F. Kettering, of General Motors, was a director of Mead Corp. and National Cash Register.

<sup>12</sup> Colgate-Palmolive-Peet Co. provided the meeting ground. H. A. Colgate, partner in the investment firm of Wood, Struthers & Co., was also a director of International Paper and Colgate-Palmolive-Peet; W. R. Basset was a member of the executive committee of both Colgate-Palmolive-Peet and Container Corp.

<sup>13</sup> Mr. Hancock was also a director of U. S. Playing Card.

<sup>14</sup> W. W. Aldrich, chairman of the board of Chase National Bank, was also a director of International Paper. George Earle Warren, a director of American Writing Paper, was a vice president but not a director of Chase National Bank in 1946.

<sup>15</sup> C. R. Blyth, who was also president of Blyth & Co., investment bankers; E. M. Mills, a retired president of Rayonier, who was formerly executive vice president of Crown Zellerbach; H. L. Zellerbach, who was executive vice president of Crown Zellerbach and a director of Fibreboard Products. J. D. Zellerbach, president of Crown Zellerbach and chairman of the board of Fibreboard Products, was a director of Rayonier in 1946 but not in 1949.



mill Paper Co.,<sup>16</sup> maker of sulfite pulp and fine writing papers; with U. S. Envelope Co.,<sup>17</sup> the largest domestic producer of envelopes; and with Soundview Pulp Co.,<sup>18</sup> manufacturer of bleached sulfite pulp.

St. Regis Paper, third largest in the industry, produces a variety of products, including pulp, paper, paper bags, plastics, bag-making machinery, and bag-filling machinery. Its only direct interlock was with Oxford Paper Co.,<sup>19</sup> fourteenth largest in the industry, and producer of book papers, soda pulps, sulfite pulps, and electrolytic bleach. It was also interlocked indirectly with West Virginia Pulp & Paper Co.,<sup>20</sup> fifth largest, a leading domestic producer of book papers and manufacturer of kraft papers and kraft liner board for bags and containers; with Gaylord Container Corp.,<sup>21</sup> maker of various packing, wrapping, and shipping materials; and with Oswego Falls Corp.,<sup>22</sup> manufacturer of bottle caps and closures.

Kimberly-Clark, fourth largest, makes book papers, rotogravure papers, wadding (both absorbent and building insulating), and hanging papers. Within the industry, it interlocked directly both with

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<sup>16</sup> Norman W. Wilson, president of Hammermill Paper, was also a director of Rayonier, which was interlocked directly with Crown Zellerbach as described above.

<sup>17</sup> Mr. Wilson, on the board of Rayonier, was also a director of U. S. Envelope.

<sup>18</sup> Wells Fargo Bank & Union Trust Co. and Bank of California, National Association provided the connecting boards. J. D. Zellerbach, mentioned above, was also a director of Wells Fargo Bank; H. D. Nichols, president of Tubbs Cordage Co., was a director of Wells Fargo Bank and Soundview Pulp; Louis Bloch, chairman of the board both of Crown Zellerbach and Pacific Mills, Ltd. (British Columbia), was also chairman of the executive committee of both Fibreboard Products and Bank of California; R. C. Force, member of the executive committee of Caterpillar Tractor Co., was also a director of Soundview Pulp and Bank of California.

<sup>19</sup> J. O. Bulkley of the domestic-export-import pulp and paper firm of Bulkley, Dunton & Co., and a director of Oxford Paper, was a director of St. Regis Paper in 1946 but not in 1949.

<sup>20</sup> W. K. Dick, chairman of the executive committee of St. Regis Paper, was a director of Irving Trust; and D. L. Luke, Jr., president and director of West Virginia Pulp & Paper, was also a director of Irving Trust.

<sup>21</sup> The interlock came through Marine Midland Corp. H. E. Machold, chairman and director of Central New York Power Corp., vice president and director of Niagara Hudson Power Corp., was also a director of St. Regis Paper, Marine Midland Corp., and Buffalo Niagara Electric Corp.; S. H. Knox, chairman and director of Marine Trust Co., Buffalo, vice president and director of Marine Midland Corp., was a director of Gaylord Container Corp. (Effective January 1950, Niagara Hudson Power Corp. was in process of dissolution.)

<sup>22</sup> Mr. Machold; F. C. Ash, president and director of Oswego Falls Corp.; and C. B. Martin, director of St. Regis Paper, were all directors of Central New York Power Corp.

U. S. Playing Card<sup>23</sup> and United Wallpaper, Inc.<sup>24</sup> While it did not interlock directly with any company within its subindustry group, Kimberly-Clark interlocked indirectly with International Paper;<sup>25</sup> with Champion Paper & Fibre Co.,<sup>26</sup> sixth in the industry, maker of coated and uncoated papers, paperboard, woodpulp, tanning extract, and other chemicals; and with Sorg Paper Co.,<sup>27</sup> manufacturer of sulfite, kraft, and rag papers.

These direct and indirect interlocks are shown in four separate charts—one for each of the “big four.”<sup>28</sup> Each of the four charts, however, is an extension of one or more of the others, in that various companies appear in two or more charts.<sup>29</sup>

There is greater significance in some of the interlocks than might seem to be indicated by the industrial classification used in this report. For example, Flintkote, U. S. Gypsum, and Pillsbury Mills appear in charts 47, 49, or 50 as intermediate companies which provide indirect interlocks between paper companies. Although classified in industries other than paper and allied products, these companies own or operate pulp or paper mills. Similarly, the following additional companies, mentioned previously as having provided types of interlocks other than those of directorates, also own or operate pulp or paper mills: The Paraffine Companies, Armstrong Cork, The Celotex Corp., Certain-Teed Products, Johns-Manville, National Gypsum, Wood Conversion Co., and American Can.

#### OTHER DIRECTORSHIP RELATIONS WITHIN THE INDUSTRY

There were in this industry only four interlocks, seemingly for greater integration, which had no interlocking directors with one or more of the “big four” companies in 1946:

<sup>23</sup> J. M. Hancock was a director of Kimberly-Clark and U. S. Playing Card in 1946 and 1949.

<sup>24</sup> C. H. Sage, vice president and member of the executive committee of Kimberly-Clark, was also a director of United Wallpaper in 1946 but not in 1949.

<sup>25</sup> The Flintkote Co. and Underwood Corp. interlocks have already been described.

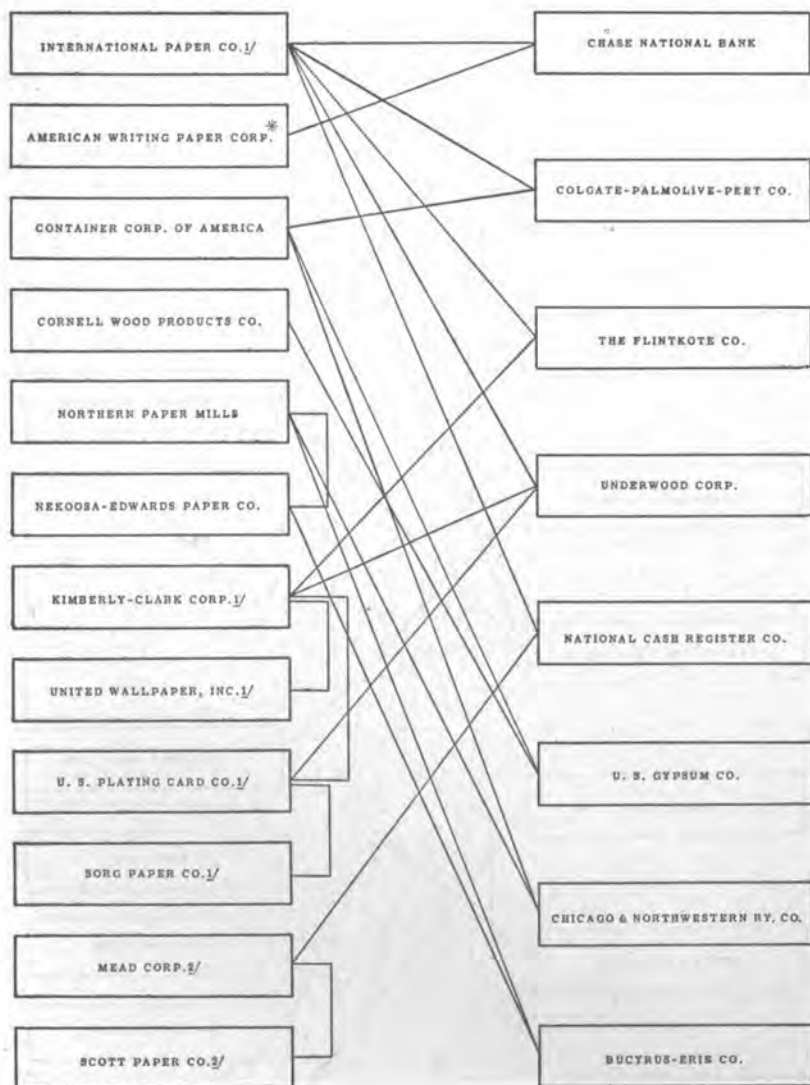
<sup>26</sup> Mr. Hancock, a director of Kimberly-Clark, was also chairman of the executive committee of Jewel Tea Co. and a director of S. H. Kress & Co. H. S. Bowers, a partner of Goldman, Sachs & Co., investment bankers, was also a director of Jewel Tea Co., S. H. Kress & Co., and Champion Paper.

<sup>27</sup> Mr. Hancock has been previously mentioned as a director of Kimberly-Clark and U. S. Playing Card. E. P. Bosworth, partner of Merrill Lynch, Pierce, Fenner & Beane and secretary and director of U. S. Playing Card, was a director of Sorg Paper and U. S. Printing & Lithograph Co.

<sup>28</sup> Charts 47, 48, 49, and 50.

<sup>29</sup> For example, Mead Corp. and Scott Paper have interlocks in all four charts; International Paper, Kimberly-Clark, U. S. Playing Card, United Wallpaper, and Sorg Paper, in charts 47 and 50; Robert Gair Co., in charts 48 and 49; Champion Paper, in charts 49 and 50.

# DIRECT AND INDIRECT INTERLOCKS IN THE PAPER AND ALLIED PRODUCTS INDUSTRY WITH REFERENCE TO INTERNATIONAL PAPER CO.



\*Mr. George E. Warren was a director of American Writing Paper and a vice-president but not a director of Chase National Bank.

1/See also Chart 50.  
2/See also Charts 48, 49 and 50.

**CHART 47.**

DIRECT AND INDIRECT INTERLOCKS  
IN THE PAPER AND ALLIED PRODUCTS INDUSTRY  
WITH REFERENCE TO CROWN ZELLERBACH CORP.

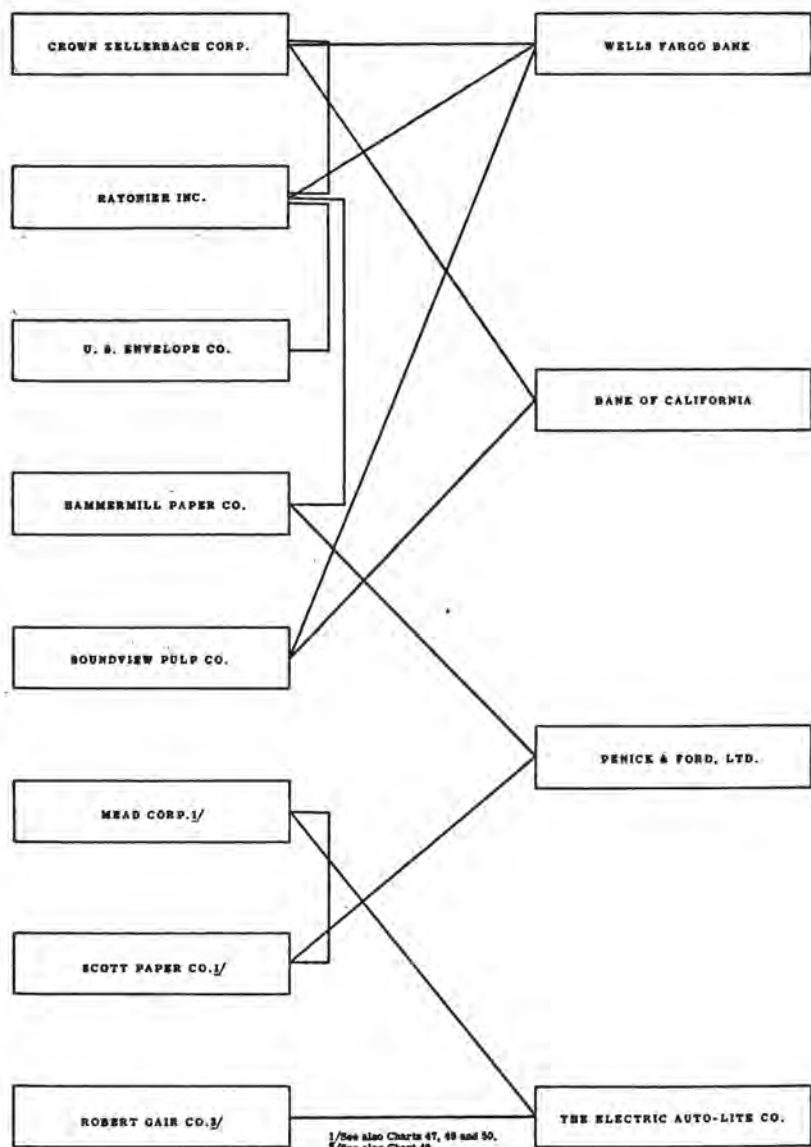
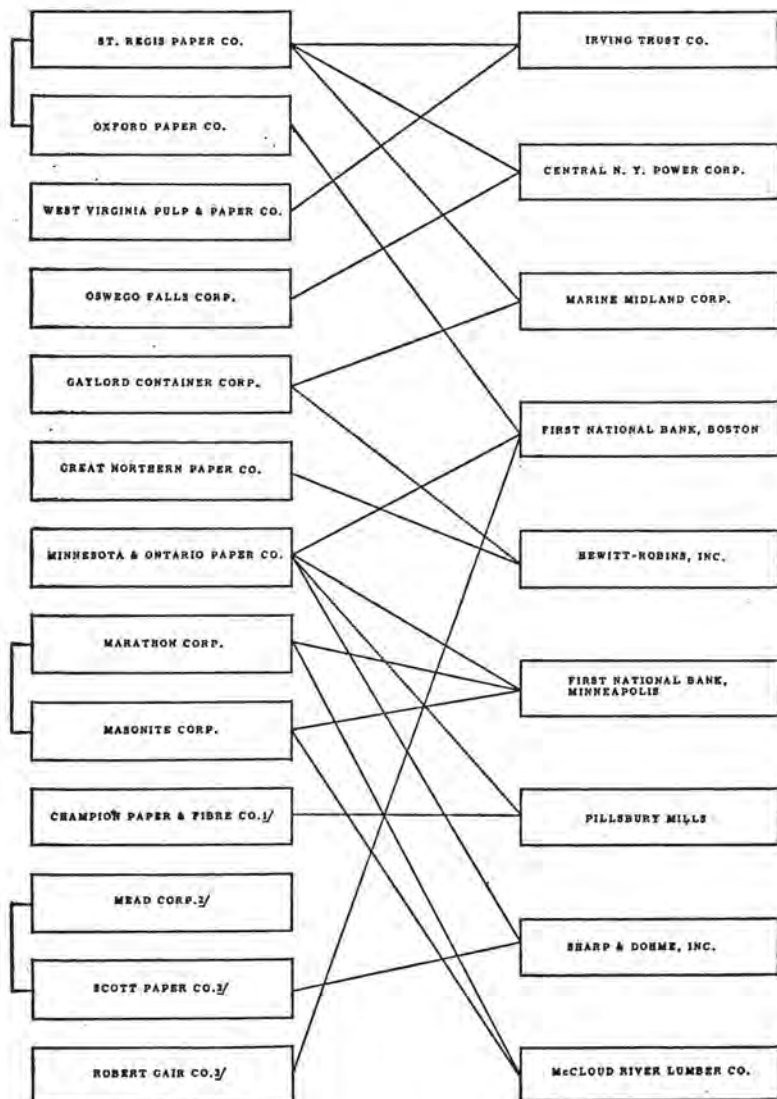


CHART 48.

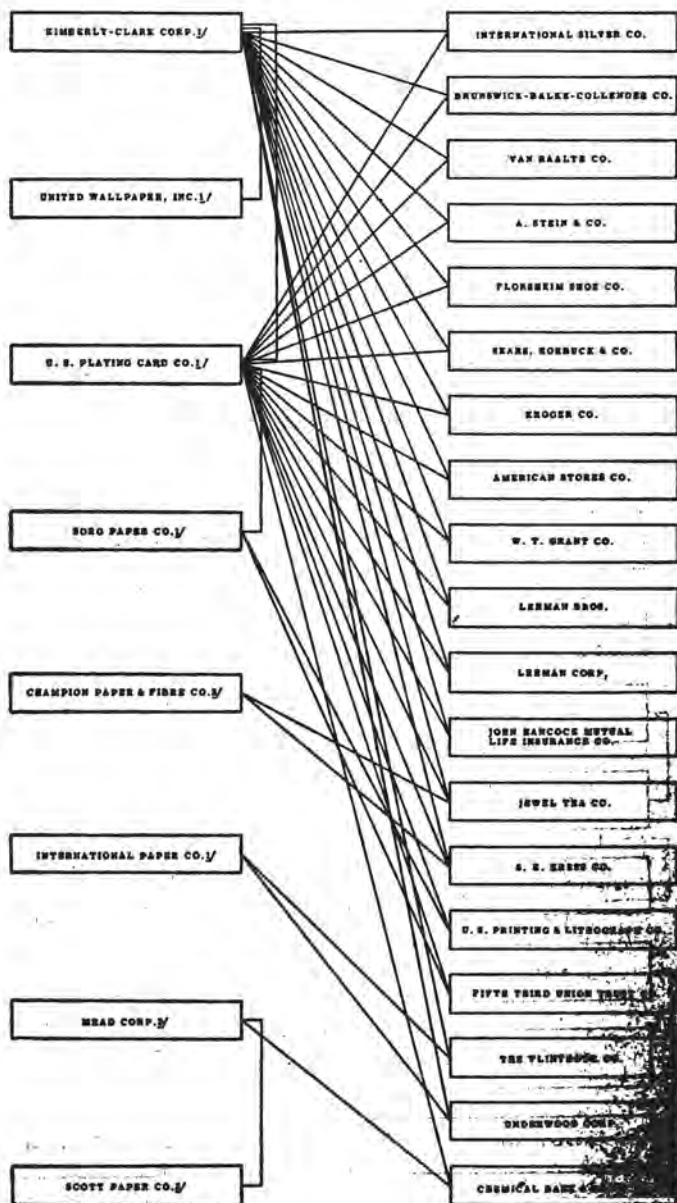
# DIRECT AND INDIRECT INTERLOCKS IN THE PAPER AND ALLIED PRODUCTS INDUSTRY WITH REFERENCE TO ST. REGIS PAPER CO.



<sup>1/</sup>See also Chart 50.  
<sup>2/</sup>See also Charts 47, 48 and 50.  
<sup>3/</sup>See also Chart 48.

CHART 49.

DIRECT AND INDIRECT INTERLOCKS  
IN THE PAPER AND ALLIED PRODUCTS INDUSTRY  
WITH REFERENCE TO KIMBERLY-CLARK CORP.



1/2 See also Chart 47.  
1/2 See also Chart 49.  
1/2 See also Charts 47, 48 and 49.

CHART 50.



1. Camp Manufacturing Co., forty-fourth in the industry, was interlocked directly with Chesapeake Corp. of Virginia,<sup>30</sup> fifty-first in the industry, both being in the pulp, paper, and paperboard mills sub-industry group.

2. Morris Paper Mills, fifty-eighth in the industry, was interlocked directly with Shellmar Products Co.,<sup>31</sup> fifty-sixth largest.

3. Brown Co., eighth in the industry, was interlocked indirectly with Union Bag & Paper Corp.,<sup>32</sup> sixteenth in size. In the last two instances, the first named is in the pulp, paper, and paperboard mills subindustry while the second is a paper-bag manufacturer.

4. Kalamazoo Vegetable Parchment Co., twentieth largest, was interlocked directly with Sutherland Paper Co.,<sup>33</sup> thirty-fourth in the industry. The former is in the paper coating and glazing group, while the latter is in the paperboard containers and boxes subindustry.

#### INTERLOCKING RELATIONS WITH POTENTIAL SUPPLIERS

In this industry, the degree of dependence upon suppliers varies considerably. Some companies are integrated to the extent of owning their own timberlands, power plants, water supplies and filter plants, logging transportation facilities, marine and river transportation

<sup>30</sup> Elis Olsson was chairman of the board of directors of Chesapeake Corp. and a director of Camp Manufacturing; W. C. Gouldman was vice president, secretary, and director of Chesapeake Corp. and a director of Camp Manufacturing, both in 1946 and 1949. As of 1950, moreover, W. C. Shorter, vice president and director of Camp Manufacturing, replaced C. H. Sage as a director of United Wallpaper (United Wallpaper having been interlocked directly with Kimberly-Clark, as indicated previously, through C. H. Sage, vice president of Kimberly-Clark). Also to be noted is the fact that in 1941, Camp Manufacturing entered into a long-term contract to sell Taggart Corp. (a subsidiary of St. Regis Paper) substantial quantities of multiwall and special kraft bag papers. Since then, Taggart Corp. built a large bag factory adjacent to Camp Manufacturing's paper plant at Franklin, Va.

<sup>31</sup> F. M. Lebold, president and director of Morris Paper Mills, was a director of Shellmar Products in 1946; and Peter Berkey, chairman of the board of directors of Shellmar Products, was a director of Morris Paper Mills in 1946 but not in 1949.

<sup>32</sup> Savage Arms Corp. was the intermediate company. F. G. Coburn, president and director of Brown Co., was also a director of Savage Arms. W. S. Kies, partner in W. S. Kies & Co., had been a director both of Union Bag & Paper and Savage Arms in 1946. As of 1950, moreover, K. J. Hanau, executive vice president, treasurer, member of the executive committee, general manager, and director of Wagner Baking Corp., was a director of Union Bag & Paper and chairman of the board of directors and member of the executive committee of United Cigar-Whelan Stores Corp. The last-named company was interlocked directly with International Paper through B. A. Tompkins, who has been referred to earlier in this chapter as senior vice president and director of Bankers Trust and a director of various companies.

<sup>33</sup> As of 1946, R. A. Hayward, president of Kalamazoo Vegetable Parchment, and L. H. S. De Witt were directors of Kalamazoo Vegetable Parchment and Sutherland Paper. As of 1950, however, R. A. Hayward, N. L. De Witt, and W. J. Lawrence, Jr. were directors of both companies.

equipment, pulp and paper mills, or converting plants. The individual companies which are most dependent upon others are converters who do not produce most of their own raw material requirements.<sup>34</sup> While interlocking relations within the industry exist in part because of the dependence of one company upon another for raw materials or intermediate products, detailed information about the character and extent of each company's dependence upon others, both within the industry and in other industries, is not available. Below are listed certain interlocking relations with companies in other industries which may be potential suppliers.

1. *Products of petroleum and coal.*—As has been indicated, both International Paper and Kimberly-Clark had a direct interlock with Flintkote, which makes paper mill construction and maintenance materials, and liquid products for paper processing (adhesives, asphalt emulsions, et cetera).

2. *Electrical machinery.*—International Paper was interlocked directly with Westinghouse Electric,<sup>35</sup> producer of turbines, electric motors, and other paper mill equipment.

3. *Machinery.*<sup>36</sup>—Kimberly-Clark was interlocked directly with Allis-Chalmers,<sup>37</sup> producer of paper machine drives and machinery for barking, working, defiberizing, grinding, chip screening, pumping, etc., and with Chain Belt,<sup>38</sup> manufacturer of elevating and conveying machinery.

4. *Public utilities.*—As previously indicated, St. Regis Paper was interlocked directly with Niagara Hudson Power and two of the latter's affiliates, from whom St. Regis has purchased electric power.

#### INTERLOCKING RELATIONS WITH POSSIBLE CUSTOMERS

Pulp<sup>39</sup> and paper are consumed in many forms, directly and indirectly, by every person and every corporation. Paper bags con-

<sup>34</sup> Some of the more than 5,000 different kinds of paper made are consumed in the form in which they emerge from the paper mill, such as newsprint, uncoated book paper, writing paper, wrapping paper, and building paper. A large part of the paper and paperboard produced, however, is converted into a variety of items, such as paper bags, envelopes, shipping containers, folding boxes, and set-up boxes.

<sup>35</sup> W. W. Aldrich, previously mentioned, was also a director of Westinghouse Electric.

<sup>36</sup> St. Regis Paper manufactures its own bag-making and bag-filling machinery.

<sup>37</sup> Ernst Mahler, executive vice president and director of Kimberly-Clark, and chairman of the board of directors of International Cellucotton Products, was also a director of Allis-Chalmers; Walter Kasten, president of the First Wisconsin National Bank, was a director of Kimberly-Clark and Allis Chalmers.

<sup>38</sup> Mr. Kasten was also a director of Chain Belt.

<sup>39</sup> Wood pulp is a derivative of pulpwood. Companies engaged primarily in producing pulpwood, however, are classified in the lumber and wood products industry.

sumed by retail stores, paper boxes used by food and drug manufacturers, paper rolls and forms sold by manufacturers of business machines, writing papers and envelopes processed by printing companies—these are but a few examples, more illustrative than necessarily significant, of actual or potential marketing outlets for paper manufacturers.

Pulp is a basic raw material in the manufacture of rayon,<sup>40</sup> paper,<sup>41</sup> and other products.<sup>42</sup> International Paper was interlocked directly with American Viscose Corp.,<sup>43</sup> North American Rayon Corp., and American Bemberg Corp.<sup>44</sup> Oxford Paper was directly interlocked with American Enka Corp.<sup>45</sup> Moreover, practically every rayon producer reportedly obtains part of its pulp requirements from Rayonier.

Retail stores are consumers of many paper products. Kimberly-Clark was interlocked directly with Sears, Roebuck & Co., Kroger Co., American Stores Co., W. T. Grant Co., Jewel Tea Co., and S. H. Kress Co.<sup>46</sup> Champion Paper was also interlocked directly with the last two companies named.<sup>47</sup>

<sup>40</sup> See following table.

Rank	Rayon process	Principal raw material used
1	Viscose.....	Dissolved wood pulp (primarily) or refined cotton linters pulp.
2	Cellulose acetate.....	Refined cotton linters or special high alpha dissolving wood pulp.
3	Cuprammonium.....	Purified cotton linters or special grades of high alpha wood pulp.

<sup>41</sup> Sulfate or "kraft" pulp is used in unbleached form for container boards, wrapping and bag papers, paper towels, and other utility papers; in bleached form, it is usually mixed with sulfite or soda pulp for producing writing, envelope, tag, and food packaging papers and boards. Sulfite pulp is used in unbleached form for newsprint and other cheap printing papers, paperboards, wall paper, wrapping paper, and various utility papers; in bleached form, for book, writing, and some types of wrapping and tissue papers. Groundwood or "mechanized" pulp is usually mixed with sulfite for newsprint, wall paper, and other cheap papers and boards. Soda pulp, almost all bleached, is often mixed with pulp of longer fiber for high-grade book and magazine papers. Semichemical pulp is relatively unimportant. Some of the more than 5,000 different kinds of paper, however, are made of cotton and linen rags, cotton linters, waste paper, straw, old rope, and various other fibrous materials rather than virgin wood pulp.

<sup>42</sup> Other uses include transparent cellulose products, nitrocellulose, photographic film, plastics, and related products.

<sup>43</sup> C. S. McCain was a director of International Paper and American Viscose.

<sup>44</sup> In 1946, B. A. Tompkins was a director of International Paper and North American Rayon and American Bemberg.

<sup>45</sup> E. S. French, president of the Boston & Maine Railroad and vice chairman of the board of Jones & Lamson Machine Co., was a director of both Oxford Paper and American Enka.

<sup>46</sup> J. M. Hancock previously identified, was also a director of each of these companies.

<sup>47</sup> H. S. Bowers, referred to previously, was also a director of each of these companies.

Tanning extract is a byproduct manufactured by some paper companies, notably by Champion Paper. Companies in the leather and leather products industry also consume many paper products, including shoe boxes, shipping containers, and the like. Direct interlocks between paper producers and leather manufacturers included Champion Paper with Endicott Johnson,<sup>48</sup> International Paper with U. S. Leather,<sup>49</sup> Kimberly-Clark with Florsheim Shoe.<sup>50</sup>

These are but a few of the interlocking directorates with possible customers, since every interlock, including all those not mentioned here, is a potential marketing outlet.

### SUMMARY

The large paper companies produce a wide variety of paper products.<sup>51</sup> Some of these companies specialize in certain related groups of pulp and paper.<sup>52</sup> Twenty-two of the thirty-one largest paper companies had interlocking directorates.<sup>53</sup> Whether one sees in the pattern of interlocking directorates one complex network, or four networks grouped around the four largest producers, is relatively immaterial. What is significant is the realization that the multiplicity of the inter-

<sup>48</sup> Mr. Bowers was also a director of Endicott Johnson.

<sup>49</sup> Mr. Tompkins was also chairman of the board of directors of U. S. Leather.

<sup>50</sup> Mr. Hancock was also a director of Florsheim Shoe.

<sup>51</sup> A relatively few of the many individual divisions (classified, for example, by kind of pulpwood and by selected grade of wood pulp, paper, and board) are: Pulpwood—domestic and imported softwood and hardwood; wood pulp—domestic unbleached and bleached sulfate, domestic groundwood, imported unbleached and bleached sulfite; paperboard for packaging—container board liners and folding boxboard stock; printing and fine papers—book paper, writing paper, and newsprint; coarse and industrial papers—wrapping paper, bag paper, shipping sack paper, and asphaltting kraft; construction paper materials—building paper, wallboard, and paper board liners for gypsum and plaster board; sanitary paper—toilet tissue and toweling stock. To this classification of grade may be added an end-use classification, including paper bags, envelopes, wallpaper, containers, etc.

<sup>52</sup> The principal products of International Paper, for example, include kraft container board, kraft paper, newsprint, and dissolving pulp; those of St. Regis Paper include paper bags, paper machinery, and paper-bag filling machinery.

<sup>53</sup> The nine exceptions were: Brown Co., Great Northern Paper Co., Consolidated Water Power & Paper Co., Union Bag & Paper Corp., Hollingsworth & Whitney Co., Kalamazoo Vegetable Parchment Co., National Container Corp., Hinde & Dauch Paper Co., and S. D. Warren Co. Since 1946, however, Union Bag & Paper became interlocked indirectly with International Paper through K. J. Hansau and B. A. Tompkins, whose directorships have been referred to earlier in this chapter. Furthermore, S. D. Warren Co. has a long-term contract to supply Rayonier with sulfite pulp. Of seemingly less apparent significance, Brown Co. distributes a fiber conduit, for the underground installation of electric cables, through Westinghouse Electric Supply Co.; the latter had a direct interlock with International Paper through W. W. Aldrich.

locking relations is so great <sup>54</sup>—particularly when viewed in the light of other interlocking arrangements <sup>55</sup> such as jointly owned affiliates, long-term contracts, and patent license agreements—as to indicate the existence of a community of interest having serious competitive implications.

<sup>54</sup> Some of the indirect interlocks are supplemented by a crisscrossing of direct or indirect interlocks within a cluster of interlocking companies, such as the Crown Zellerbach, Rayonier, Hammermill Paper, and U. S. Envelope grouping; and the International Paper, Kimberly-Clark, Mead Corp., and U. S. Playing Card grouping. In these instances, the removal of any one interlock direct or indirect, would not dissolve the grouping. There are additional instances where the removal of a number of interlocks, direct or indirect, would not necessarily break the chain of interlocking directorates. For example, among the largest paper companies, Minnesota & Ontario Paper had indirect interlocks with seven other paper companies; International Paper had indirect interlocks with five other paper companies; and Kimberly-Clark had direct interlocks with two and indirect interlocks with three other large paper companies. Furthermore, some of the interlocks, direct and indirect, are multiple (double, triple, etc.) in nature.

<sup>55</sup> Masonite Corp. and International Paper are about as far apart in this chain of interlocking directorates as any other two companies, yet Masonite Corp. and Canadian International Paper Co. (a subsidiary of International Paper) jointly own Masonite Co. of Canada, which is managed by International Paper on a fee basis. Another similar example is that of St. Regis Paper and Cornell Wood Products; although in a chain of remote indirect interlocks, St. Regis Paper is reported to have a minority interest in Cornell Wood Products. Some of the direct interlocks are supplemented by other types of interlocks; Mead Corp. and Scott Paper jointly own Brunswick Pulp & Paper Co., which supplies both with bleached sulfate pulp; Hammermill Paper owns 60 percent, while Rayonier owns 40 percent of Grays Harbor Pulp & Paper, which leases its paper mill from Rayonier and buys its sulfate pulp (to produce fine papers) from Rayonier. Similarly, some of the indirect interlocks are augmented by other types of interlocks, such as the previously described licensing agreement between Minnesota & Ontario Paper and Masonite Corp. Furthermore, as has been pointed out at various points throughout this chapter, there are a number of interlocking relations between companies where no interlocking directorates were found. One such example is International Paper and Masonite Corp.; in addition to their joint ownership of Masonite Co. of Canada, International Paper was interlocked directly with Flintkote, while Masonite Corp. has both licensing and purchasing agreements with Flintkote. Another example where there were no interlocking directorates is Camp Manufacturing's contractual relationship with Taggart Corp., a St. Regis Paper subsidiary. Also, while Robert Gair Co. owns 60 percent and Fort Wayne Corrugated Paper owns 40 percent of Southern Paperboard, there were no interlocking directorates between the first two companies.



## Chapter 17

### PRINTING, PUBLISHING, AND ALLIED INDUSTRIES

This industry includes a number of related economic activities which may be described by a listing of its nine major subindustry groups: newspapers, periodicals, books, miscellaneous publishing, commercial printing, lithographing, greeting cards, bookbinding and related industries, and service industries for the printing trade.

Due to the relatively wide diversification in products and to the relative specialization of most of the 26 companies included in this analysis, there was only one company—Hearst Consolidated Publications, Inc.—which ranked among the 100 largest manufacturing corporations. Two others—Curtis Publishing Co. and Time, Inc.—were among the second hundred, and Crowell-Collier Publishing Co.<sup>1</sup> ranked in the third hundred. The assets and annual sales of other corporations in the industry were substantially smaller.

Not only were there no direct interlocks between companies in this industry, but there were no indirect interlocks between companies in the same subindustry. The three indirect interlocks in the industry as a whole were:

1. Time, Inc. (periodicals) with Times Mirror Co. (newspaper).<sup>2</sup>
2. McGraw-Hill Publishing Co. (periodicals) with American Bank Note Co. (commercial printing).<sup>3</sup>

<sup>1</sup> Of 1,550,624 shares of common stock outstanding on December 31, 1949, 396,834 shares were reported to be owned by Publication Corp., a company not included in this analysis, which also owns and operates rotogravure printing plants.

<sup>2</sup> W. V. Griffin, vice chairman and director of Time, Inc., and Norman Chandler, president and director of Times Mirror Co. (Los Angeles Times), were directors of Dresser Industries, Inc.

<sup>3</sup> C. A. Wight, a director of McGraw-Hill, was vice president and director of Bankers Trust (subsequently becoming chairman of the executive committee of Freeport Sulphur Co.), S. S. Colt, a director of American Bank Note, was president and director of Bankers Trust. Also, E. Roland Harriman, partner in Brown Bros. Harriman & Co., member of the executive committee and director of American Bank Note and Newsweek, and Jerome C. Hunsaker, professor in the Massachusetts Institute of Technology and a director of McGraw-Hill, were directors of Cramp Shipbuilding Co. in 1946.



3. Chicago Daily News, Inc. (newspaper) with American Color-type Co. (lithographing).<sup>4</sup>

#### INTERLOCKING RELATIONS WITH POTENTIAL SUPPLIERS

Hearst Consolidated Publications had no interlocks with any of the 1,000 largest manufacturing corporations. Through subsidiaries acquired in 1946, however, it owns timber rights in New Brunswick and Nova Scotia, water-power properties in Nova Scotia and Maine, pulp and paper mills in Nova Scotia and Maine, and a paper manufacturing plant in Maine.

Curtis Publishing had a direct interlock with ATF, Inc.,<sup>5</sup> which manufactures printing presses and equipment, and with Great Northern Paper Co.,<sup>6</sup> largest domestic producer of newsprint. In addition to its own printing plant, Curtis Publishing is reported to own 100 percent of Colonial Electrotype Co.; 51 percent of Royal Electrotype Co.; 48.7 percent of the common and 40 percent of the preferred stock of New York and Pennsylvania Co., paper manufacturer, which sells a substantial part of its output to Curtis Publishing; and 42.5 percent of Bantam Books, Inc., publisher of 25-cent paper-bound books.

Included in the investments of Time, Inc., are interests in St. Regis Paper Co. and Pacific Press, Inc. In 1945, Time, Inc. acquired Bryant Paper Co., Maine Seaboard Paper Co., Hennepin Paper Co., and Bucksport Water Co.; these were sold in 1946 to St. Regis Paper Co. In 1949, St. Regis Paper also acquired a paper coating mill from Time, Inc.

The indirect interlock between McGraw-Hill and American Bank Note has already been described. It is also noteworthy that the Newton Falls Paper Mill is owned jointly by McGraw-Hill and the Chilton Co., publishers of numerous trade journals. Most of McGraw-Hill's paper requirements are supplied by this paper mill.

U. S. Printing & Lithograph Co. (printer, lithographer, converter of paper, and manufacturer of folding boxes) had a direct interlock with Sorg Paper Co. (manufacturer of sulfite and kraft papers).<sup>7</sup>

<sup>4</sup> Laird Bell, chairman of the board and director of Weyerhaeuser Timber Co. and a director of Chicago Daily News, and Philip L. Dodge, a limited partner of Laird, Bissell & Meeds and a director of American Colortype, were directors of Liquid Carbonic Corp.

<sup>5</sup> L. W. Trayser was vice president, director of manufacturing, and a director of Curtis Publishing, vice president and director of Colonial Electrotype Co. (owned by Curtis Publishing), and director of ATF, Inc., New York & Pennsylvania Co., and Bantam Books. The name of ATF, Inc. was changed from American Type Founders, Inc. in 1946.

<sup>6</sup> G. E. Paine was chairman of the board and member of the executive committee of New York & Pennsylvania Co., member of the executive committee of Great Northern Paper, and a director of Curtis Publishing.

<sup>7</sup> E. P. Bosworth, partner of Merrill Lynch, Pierce, Fenner & Beane and secretary and director of U. S. Playing Card, was also director of Sorg Paper and U. S. Printing & Lithograph.

## INTERLOCKING RELATIONS WITH POSSIBLE CUSTOMERS

McCall Corp., fifth largest in the industry, prints and publishes magazines and patterns. In addition, it produces under contract various magazines of other publishers, including *Popular Science Monthly*, *Newsweek*, *U. S. News*, *Outdoor Life*, *Mademoiselle*, *Charm*, and others, and about one-half of the domestic edition of *Readers Digest*.

Cuneo Press, Inc., ninth largest in the industry, is one of the world's largest printers and binders of magazines and periodicals of large established circulation. Included among these are publications of *Hearst Magazines, Inc.* (*Good Housekeeping*, *Cosmopolitan*, *House Beautiful*, *Harper's Bazaar*) and *Time, Inc.* (eastern editions of *Life* and *Time*), as well as the rotogravure sections of *The New York Times*.

The Conde Nast Publications, Inc. publishes and prints its own magazines, including *Vogue*, *Vogue Pattern Book*, and *House and Garden*. It also prints magazines for others, including *The New Yorker* and *Nation's Business*.

## SUMMARY

There were no direct interlocks and relatively few indirect interlocks among the 26 companies in the printing, publishing, and allied industries. Historically, interlocking directorates among newspapers have not been common. Furthermore, interlocks among magazine and book publishers are not usual, due to the individuality of each publication. Similarly, the diverse and specialized activities of the various printing establishments are not particularly conducive to the development of interlocking directorates.

There have been, however, effective interconnections, particularly with suppliers, through the investment by printers and publishers in paper companies. *Hearst Consolidated Publications*, for example, owns its own pulp and paper mills and a paper manufacturing plant; *McGraw-Hill* and the *Chilton Co.* jointly own a paper mill. To a lesser degree of ownership, but not necessarily to a lesser degree of interconnecting effectiveness, *Time, Inc.* has investments in *St. Regis Paper* and *Curtis Publishing* owns a minority interest in *New York and Pennsylvania Co.*, a paper manufacturer.

## Chapter 18

### LUMBER AND WOOD PRODUCTS, FURNITURE AND FIXTURES

Although there are some large companies in the lumber and furniture industries, the concentration of ownership is, on the whole, quite low. In the production of redwood, five companies control about 85 percent of the output. However, the largest four producers of western pine account for only about 16 percent of the total, while the largest four producers of southern pine account for only 3 percent of the production.<sup>1</sup> Concentration in the production of furniture and related items is usually low.<sup>2</sup>

There are 16 lumber companies and 8 furniture companies listed among the 1,000 largest corporations in 1946. Three-fifths of the 49 interlocks recorded for the lumber companies were with banks and the machinery, paper, chemical, and food industries. Only 14 interlocks were recorded for furniture companies; these were all with primary metals, machinery, investment trusts, paper, and utility companies.

Of the 11 lumber companies with interlocking directorships, the interlocks of only four companies appear to warrant discussion.

Weyerhaeuser Timber Co. is the world's largest manufacturer and distributor of timber products. Its holdings of timber in the Douglas fir region of Washington and Oregon exceed 2 million acres. The company's operations are completely integrated, including 11 sawmills, 3 pulp mills, a box factory, a container-board plant, a plywood plant, several logging projects, 2 railroad systems, a shipyard, 6

<sup>1</sup> House Small Business Committee, 79th Cong., *United States versus Economic Concentration and Monopoly*. December 27, 1946, p. 135.

<sup>2</sup> The Department of Commerce, *Report on Concentration in Manufacturing in 1947* (submitted to Subcommittee on Study of Monopoly Power, Committee on the Judiciary, House of Representatives, December 1, 1949) showed that in six furniture industries the largest four producers accounted for from 50 to 74.9 percent of the output; in two, the "Big Four" accounted for 25 to 49.9 percent; and in four others, the four largest accounted for less than 25 percent of the total. The furniture industries where the four largest companies produced the greatest shares of the total output were window shades, 71.7 percent; reed and rattan furniture, 67.5 percent; household furniture, n. e. c., 67.1 percent; furniture and fixtures, n. e. c., 55.0 percent; public building furniture, 51.6 percent; and professional furniture, 50.8 percent.

Liberty ships, a 10-story office building in Tacoma, Wash., and wholesale and retail subsidiaries. Weyerhaeuser's interlocks are few in number, and appear readily explainable. Laird Bell, who was chairman of the board and general counsel of Weyerhaeuser, was a partner in the law firm of Bell, Boyd, Marshall & Lloyd, of Chicago. He was also a director of Chicago Daily News<sup>3</sup> and Liquid Carbonic Corp. His firm is general counsel for Liquid Carbonic. One of the Weyerhaeuser's principal distributing yards is located at the Twin Cities, and two of the officials of the Weyerhaeuser Sales Co. served on the board of the First National Bank of St. Paul, Minn. One of these officials was a director of the Northern Pacific Railway Co., while the other was a director of Great Northern Railroad Co.<sup>4</sup> Both of these railroads run between the Pacific Northwest (where Weyerhaeuser's production facilities are located) and the Twin Cities (a large distribution center for the company). Both derive substantial portions of their freight revenues from forestry products.<sup>5</sup> Freight rates are, of course, crucial in the marketing of lumber and in influencing the profit margins of lumber companies.

Long-Bell Lumber Corp. is an integrated organization operating logging camps, railroads, saw mills, sash and door factories, and a large chain of retail lumber yards. The latter sell a wide variety of items entering into construction, such as building materials, electrical fixtures and appliances, air-conditioning units, and plumbing equipment.<sup>6</sup> The company's timber reserves in 1948 amounted to some 3 billion feet,<sup>7</sup> and one of its subsidiaries, Long-Bell Petroleum Corp., Inc., owns mineral rights on cut-over timber lands in five southern States. Long-Bell was directly and indirectly interlocked with Pickering Lumber Co. James M. Kemper, vice chairman and vice president of Pickering, was also a director of Long-Bell. He was

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<sup>3</sup> Chicago Daily News obtains its newsprint supply under long-term contracts from International Paper Sales Co., Inc. and The Great Lakes Paper Co., Ltd. (Standard & Poor's Corporation Records, p. 7271.)

<sup>4</sup> Horace H. Irving, president and director of Weyerhaeuser Timber Co. and vice president and director of Weyerhaeuser Sales Co., was also a director of the Northern Pacific Railway and of the First National Bank of St. Paul. Frederick K. Weyerhaeuser, president and director of Weyerhaeuser Sales Co., was also a director of the Great Northern Railway and of the First National Bank of St. Paul. In 1948, forestry products accounted for 21 percent of the total freight revenue for Northern Pacific, and 13 percent for Great Northern. (Moody's Railroads, 1949, pp. 1314 and 165.)

<sup>5</sup> The organization also operates eight retail department stores located in four States in which logging or lumber manufacturing activities are conducted, and a wholesale grocery which distributes its products to northern California points.

<sup>6</sup> These were located as follows: 57 percent in Oregon, 25 percent in Washington, 17 percent in California, and one percent in various southern States. (Standard & Poor's Corporation Records, p. 8669.)

also chairman of the board of Commerce Trust Co., of Kansas City, Mo.<sup>3</sup> Mack B. Nelson, president of Long-Bell, was also a director of Commerce Trust Co. Both Long-Bell and Pickering maintain offices in Kansas City, although their lumbering operations are principally on the Pacific coast.

The only other interlock of apparent significance in the lumber industry was provided by Lloyd S. Gilmour, a partner of Eastman, Dillon & Co., investment bankers, who was director of both United States Plywood Corp. and Farnsworth Television & Radio Corp. Plywood is used in the manufacture of television and radio cabinets.

There were relatively few interlocks between lumber companies and paper manufacturers probably reflecting the fact that many of the larger paper mills own their own pulp resources. McCloud River Lumber Co. interlocked with both Marathon Corp. and Masonite Corp. Atlas Plywood and Southern Advance Bag and Paper Co. had a director in common, as did Harbor Plywood Corp. and Hammermill Paper Co. Whether or not these tie-ups reflected supplier-customer connections cannot be ascertained from the information available to the Commission.<sup>4</sup>

Five of the eight listed members of the furniture and fixtures industry had interlocking directorates. One of these may have been significant: General Fireproofing Co., one of the leading manufacturers of metal office furniture, including superfiles, steel shelving and storage cabinets, had a common director with Youngstown Sheet & Tube Co., a large sheet steel producer.<sup>5</sup>

#### SUMMARY

In summary, the lumber and furniture industries were characterized both by a relatively low degree of concentration of ownership and few significant interlocking directorates. The largest lumber company, however, had directors in common with two large lumber haul-

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<sup>3</sup> Mr. Kemper was chairman of the board of Pickering in 1949 and retained his other positions with Long-Bell and Commerce Trust Co. See above for Long-Bell's timber holdings. Pickering, as of March 31, 1948, held 903,346 thousand feet in Standard, Calif.; its land holdings: (1) Standard cut-over, 21,989 acres; Standard timber, 23,755 acres; and (2) Louisiana cut-over, 22,470 acres. (Moody's Industrials, 1949, p. 189.)

<sup>4</sup> The common director between McCloud, Marathon, and Masonite was Aytch P. Woodson, president and director of Yawkey Lumber Co., of Wausan, Wis. Walter A. Dane, partner of Dane & How, of Boston, Mass., was general counsel and director of both Atlas Plywood and Southern Advance Bag & Paper. James H. Becker, vice president and director of A. G. Becker & Co., was on the boards of both Harbor Plywood and Hammermill Paper Co.

<sup>5</sup> George C. Brainard, president of Addressograph-Multigraph Corp., provided this interlock; besides being a director he was chairman of the executive committee of General Fireproofing.

ing railroads, a fact of some significance in view of the importance of freight rates in the marketing of lumber. There was also an indirect tie between the second largest lumber company and a small west coast rival. A plywood company was directly interlocked with a radio manufacturer—a connection of interest in view of the importance of plywood as a raw material for radio cabinets. And a leading manufacturer of office files was interlocked with a large manufacturer of sheet steel.



## Chapter 19

### STONE, CLAY, AND GLASS PRODUCTS

In this group of industries 34 companies are listed among the 1,000 largest manufacturing corporations. Thirty-two had 275 instances of interlocking relationships with other companies. Nearly three-fourths of these were with banking and other financial institutions, primary metals producers, utilities, transportation equipment manufacturers, food companies, railroad companies, and chemical producers.

The most interesting interlocks were as follows: Two large glass manufacturers, operating in different product fields, were both directly and indirectly interlocked; and several direct and indirect interlocks were maintained between glass producers and some of their potential customers. Three California cement producers were indirectly tied together. Refractory companies were directly and indirectly interlocked with some of their customers in the iron and steel and cement industries. Leading manufacturers of gypsum products maintained direct interlocking relationships with other large corporations, particularly financial institutions, although there were no direct interlocks between them and concerns that are primarily suppliers or customers. The leading asbestos manufacturer was similarly directly linked with large financial and industrial companies.

#### GLASS MANUFACTURING

The manufacture of glass falls into three fields according to products—window and plate glass, glass containers, electric bulbs, and specialty glass. There are one or two large specialized companies in each major field. Pittsburgh Plate Glass Co. and Libbey-Owens-Ford Glass Co. are the principal sources of window and plate glass. Owens-Illinois Glass Co. is the leader in the glass container field, followed by Hazel-Atlas Glass Co.<sup>1</sup> Corning Glass Works has a clear

<sup>1</sup> According to Standard & Poor's (Industry Surveys, Containers, Basic Analysis, April 7, 1949, pp. C4-5), Owens-Illinois accounts for approximately 40 percent of the glass-container output, while Hazel-Atlas Glass Co. is responsible for about 17 percent. Sales of the next three important glass-container companies total

supremacy in the production of electric light bulbs<sup>2</sup> and a number of specialty lines, such as a signal and optical glass.

There exists a sharp division of activities as between the three major categories of glass manufacture. Pittsburgh Plate Glass and Libbey-Owens-Ford do not make containers; Owens-Illinois does not make flat glass; and Corning manufactures neither bottles, jars, nor flat glass. However, certain joint activities cut across the divisions of the industry. Corning and Owens-Illinois jointly own the Fiberglas Corp., organized to manufacture glass wool<sup>3</sup>; through a holding company arrangement, the Houghton family was the dominant owner of both Corning, Hartford-Empire, and Owens-Illinois; Hartford-Empire, and the Lynch Corp., largest producer of glass-forming machinery, had cross-licensing agreements.<sup>4</sup> Owens-Illinois and Libbey-Owens-

about 15 percent of the aggregate volume, leaving 28 percent for the remaining 30 concerns in the field. These figures, however, cannot fully reflect the concentration resulting from patent license agreements. Companies producing 96 percent of all glass containers made in the United States operated under license of Owens-Illinois and the Hartford-Empire Co.; only three companies were not licensed. On January 8, 1945, the Supreme Court affirmed a lower court decision in favor of the Government in its antitrust suit against Owens-Illinois, Hartford-Empire, and others. The defendants had been charged with conspiring to obtain a monopoly in the glass-container industry. Owners of glass-making machinery patents are now required to license anyone who desires to engage in glass-container manufacturing at a "reasonable" royalty and all price restrictions on products so manufactured are prohibited.

Litigation over patent rights and alleged monopoly was ended May 1947, by court approval of an order which called for outright sale of glass-manufacturing machinery, if desired by the container manufacturers, reduced royalty payments, and cross-licensing to other machinery manufacturers (*U. S. v. Hartford-Empire Co.*, 323 U. S. 386 (1945)).

<sup>2</sup>According to *Fortune*, July 1945, p. 129, 45 percent of all the light bulbs sold in the United States are made of glass produced by Corning.

<sup>3</sup>In September 1947, the Department of Justice filed an antitrust suit against the Owens-Corning Fiberglas Corp., Owens-Illinois Glass Co., and Corning Glass Works charging monopoly in the production of glass fibers and glass fiber products. The complaint also accused the three companies of making cartel arrangements with eight foreign glass manufacturers in an effort to "buttress" a monopoly in this country. The cartels, the suit stated, sought to divide territories and obtain exclusive rights to patents and technical information. According to the Antitrust Division, Owens-Corning does 98 percent of the fiberglas business. Important glass fiber products include several forms of thermal and acoustical insulation for building and industrial uses, electrical insulation materials, air filters for warm-air furnaces, air-conditioning and ventilating systems, and fireproof fabrics for draperies and similar purposes. Fiber glass also has many new uses, including filling for sleeping pillows for allergy victims, interlining for clothing, etc.

<sup>4</sup>TNEC Hearings, Part 2, p. 384, *et seq.*; see also pp. 762-763 for a chart showing the major intercompany relations in the glass-container industry and data on the control centering in the Houghton interests.

Ford secure gas supplies from jointly owned facilities located in West Virginia.<sup>5</sup>

The most interesting interlocks among glass manufacturers in 1946 indicated both direct and indirect ties between Libbey-Owens-Ford and Owens-Illinois. The two companies (see chart 51) had three common directors; one was the trustee of the estate of Edward D. Libbey, another was chairman of Toledo Trust Co., and the third was secretary-treasurer of Owens-Illinois Glass Co.<sup>6</sup> Moreover, these two companies came together on the board of Toledo Trust Co. On the board of the latter bank, the chairman, who served on the boards of both glass companies, was joined by the president of Libbey-Owens-Ford, the president of Owens-Illinois, and the president of Fiberglas Corp., the last named also being a director of Owens-Illinois.<sup>7</sup>

The close association between Libbey-Owens-Ford and Owens-Illinois apparently dates back to the origins of the two firms. Edward D. Libbey was the organizer of both Libbey-Owens Sheet Glass Co., the forerunner of Libbey-Owens-Ford and the Owens Bottle Co., predecessor to Owens-Illinois Glass Co.<sup>8</sup>

Each of these companies undertook a major merger in the years 1929 and 1930. Libbey-Owens Glass Co. merged with Edward Ford Plate Glass Co. Owens-Illinois Glass Co. acquired the assets of the Illinois Glass Co.<sup>9</sup> The Libbey interests in the two companies were apparently supervised by Charles J. Wilcox, who served as a director of both companies.

Although the principal plate glass manufacturers have maintained

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<sup>5</sup> In 1949 this facility delivered gas from 608 producing wells located on 131,907 acres of land on which gas rights are held by lease or owned in full. The system includes 485 miles of pipeline. See Libbey-Owens-Ford Glass Co. annual report, 1949, pp. 8-9.

<sup>6</sup> These directors were respectively: Charles J. Wilcox, William W. Knight, who besides being chairman of Toledo Trust was also chairman of Bostwick-Braun Co., and John H. McNerney. Mr. McNerney was not a director of Owens-Illinois in 1949; the others were.

<sup>7</sup> These directors were in the order mentioned: William W. Knight, John D. Biggers, John P. Levis, and Harold Boechenstein.

<sup>8</sup> Who Was Who in America, 1943, p. 729.

<sup>9</sup> The Illinois Glass Co., a holding company for members of the Levis Family and associates, in March 1938, was the largest stockholder in Owens-Illinois Glass Co., with 16.82 percent of the total voting shares outstanding. Allied Chemical & Dye Corp. owned 6.24 percent and had a representative, Francis H. McAdoo, on the board. C. J. Root interests owned 3.61 percent; Boldt Webber owned 2.58 percent, and the Libbey family owned 2.46 percent of the common. Illinois Glass Co. was dissolved August 1938 and its assets distributed to its various stockholders, which consisted chiefly of members of the Levis family. TNEC Monograph No. 29, pp. 1164 and 1490.

# PRINCIPAL INTERLOCKS OF GLASS COMPANIES, 1946

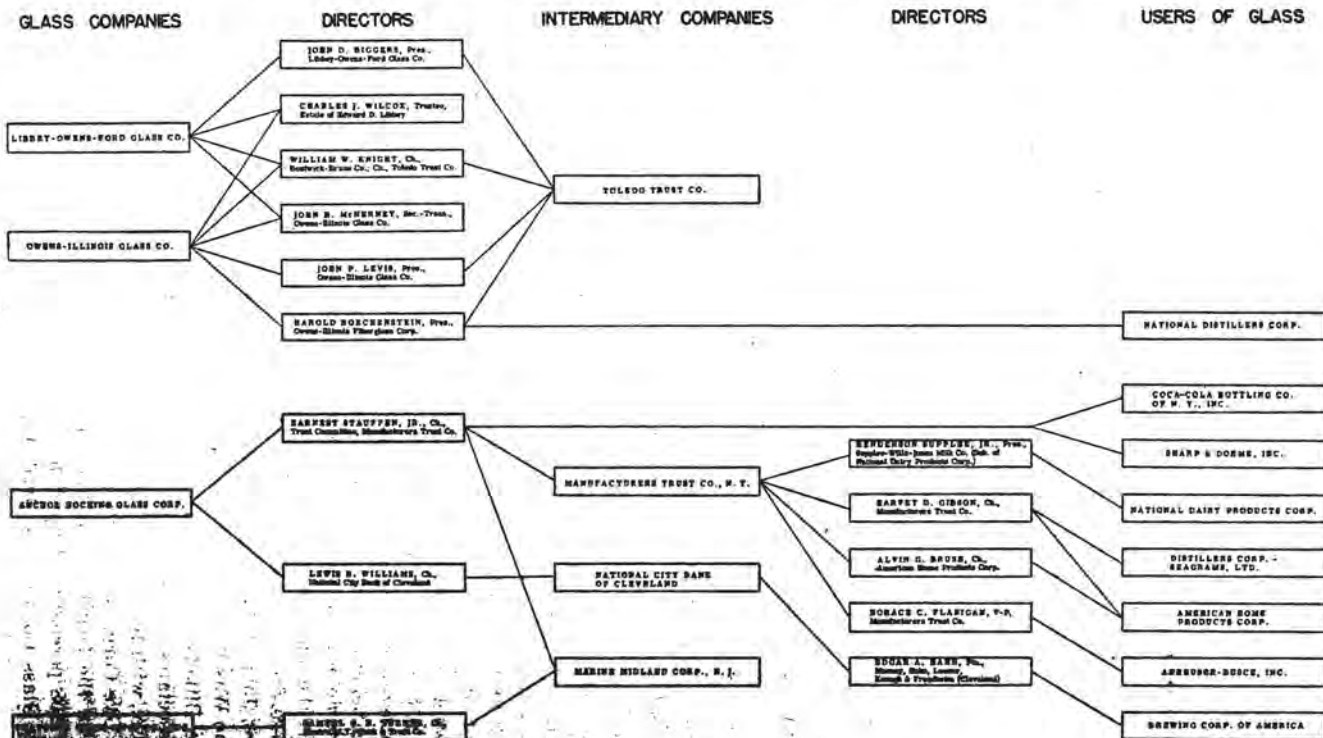


CHART 51.

long-term contracts with some of their major customers,<sup>10</sup> no interlocking directorates between them and their outlets were apparent in 1946. On the other hand, there were some significant interlocks between glass container manufacturers and their customers.

Approximately 40 percent of the glass containers are currently used by the food industry. Other important outlets include medicine and toiletries firms, chemicals, etc. Owens-Illinois, which blankets the glass container field, maintained a direct interlock (see chart 51) with National Distillers Corp., one of the leading liquor companies.<sup>11</sup>

Anchor Hocking Glass Corp., producing a diversified line of containers, maintained direct and indirect interlocks with important outlets, through representatives of two banks serving on its board. Ernest Stauffen, Jr., chairman of the trust committee of Manufacturers Trust Co. and a director of Anchor Hocking, was also a director of Coca-Cola Bottling Co. of New York, Inc., and Sharp & Dohme, Inc., drug firm. Also on the board of Manufacturers Trust Co. (see chart) were prominent officials of National Dairy Products Corp., Distillers Corp.—Seagrams, Ltd., American Home Products Corp., and Anheuser-Busch, Inc.<sup>12a</sup> Lewis B. Williams, chairman of National City Bank of Cleveland, and an Anchor Hocking director, provided the glass container company with an indirect interlock with Brewing Corp. of America.<sup>12b</sup>

Thatcher Glass Manufacturing Co., Inc., which is noted for producing about one-third of the domestic milk bottles, but which recently diversified its operations to enter other fields, had an indirect interlock with Anchor Hocking.<sup>12</sup>

<sup>10</sup> For example, Libbey-Owens-Ford, the leading domestic manufacturer of safety glass, sells approximately 38 percent of its products to the automobile industry. It has been the source of General Motors' supply of safety glass since 1931, when Libbey-Owens-Ford purchased the National Plate Glass Co., a General Motors subsidiary. (See Standard & Poor's Corporation Records, p. 9327.) Pittsburgh Plate Glass is a major supplier of Chrysler. (See Standard & Poor's Industry Surveys, Building Basic Analysis, Dec. 1, 1949, p. B5-13.)

<sup>11</sup> Mr. Boechenstein was the Owens-Illinois director on the board of National Distillers Corp. At the time of the TNEC hearings (*op. cit.*, p. 490). William E. Levis, then president of Owens-Illinois, was on the board of National Distillers, and acknowledged that the liquor company bought bottles from Owens-Illinois.

<sup>12a</sup> Henderson Supplee Jr., president of Supplee-Wills-Jones Milk Co., and a director of National Dairy Products; Harvey D. Gibson, chairman of Manufacturers Trust Co., and a director of Distillers Corp.-Seagrams, Ltd. and American Home Products; Alvin G. Brush, chairman and a director of American Home Products; and Horace C. Flanagan, vice president of Manufacturers Trust Co. and a director of Anheuser-Busch, Inc., all served on the Board of Manufacturers Trust Co.

<sup>12b</sup> Edgar A. Hahn, partner in Mooney, Hahn, Loeser, Klough & Freedheiss (Cleveland), was a director of Brewing Corp. of America and National City Bank of Cleveland.

<sup>12</sup> Samuel G. H. Turner, chairman of the Board of Elmira Bank & Trust Co., was a director of Marine Midland Corp. and of Thatcher Manufacturing Co. Ernest Stauffen, Jr., chairman of the trust committee and director of Manufac-



## CEMENT

The cement industry is characterized by a relatively high degree of concentration. In 1945, the five largest companies controlled about 44 percent and the 10 largest over 60 percent of the industry's capacity.<sup>13</sup> On a regional basis the concentration is decidedly greater.<sup>14</sup>

The two largest producers, with more than one-fourth of the national capacity, had no significant interlocking directorships in 1946.<sup>15</sup> Interlocks of the other larger members of the industry did not bring together competitors or suggest outstanding links with suppliers or customers. A group of smaller west coast manufacturers of cement, however, were linked through large western banking, utility and railroad interests.

The Pacific group consists of the Pacific Portland Cement Co., Santa Cruz Portland Cement Co., and Riverside Cement Co. These companies have their home offices in San Francisco, and their major affiliations were with prominent Pacific coast companies. Pacific Portland and Santa Cruz Portland came together on the board of the Paraffine Cos., Inc.;<sup>16a</sup> Santa Cruz and Riverside Cement were inter-

turers Trust Co., was also a director of Marine Midland Corp. and of Anchor Hocking. It was brought out in the TNEC hearings that the Levis group, the controlling factor in Owens-Illinois, also held shares in Hazel-Atlas Glass Co., the Anchor Hocking Glass Corp., the Thatcher Manufacturing Co., and the Kimble Glass Co. William E. Levis resigned from the board of Hazel-Atlas in 1935 because of publicity given by Senator Borah to the Owens-Illinois investment in Hazel-Atlas. Mr. Levis recommended that George Quay, secretary of the company, be elected in his place "with the understanding that he would be representing us and that I would receive from him the same type of information I now receive as a director." (From a letter written by Mr. Levis to his uncle.) The representative of the Levis group on the board of Thatcher was William Mandeville. Mr. Mandeville in 1950 is still a director of Thatcher, serving the company as vice president and chairman of the executive committee. Mr. Levis acknowledged that both Hazel-Atlas and Thatcher were competitors of Owens-Illinois. (See TNEC Hearings, op. cit., pp. 478-483.)

<sup>13</sup> Federal Trade Commission, *The Merger Movement: a Summary Report*, 1948, pp. 9-10.

<sup>14</sup> Cf. "Economic Concentration and World War II", S. Doc. 206, 79th Cong., 1948: p. 291.

<sup>15</sup> Universal Atlas Cement Co., a wholly owned subsidiary of U. S. Steel, in 1945 owned 14.9 percent, and Lehigh Portland Cement Co. owned 12 percent, of the industry's capacity. Blain S. Smith, president of Universal Atlas, was a director of the parent corporation, U. S. Steel, and also served on the board of Walworth Co., a manufacturer of iron, bronze and steel valves, cast-iron pipe and fittings, and wrenches. None of the other directors of U. S. Steel afforded an indirect interlock between Universal Atlas and other cement manufacturers, and none of the remaining Universal Atlas directors (all operating officials of the company) had interlocking directorships. No interlocks were found for Lehigh Portland Cement Co.

<sup>16a</sup> Jesse B. McCargar, chairman of Farnsworth Television & Radio Corp., was a director of Pacific Portland and The Paraffine Cos. Daniel J. Murphy, vice



locked through Southern Pacific Co.<sup>15b</sup>; and all three companies were represented on the board of Pacific Gas & Electric Co.<sup>15c</sup>

As indicated on chart 52, four prominent directors of Pacific Portland were directors of American Trust. Two of the four were John D. McKee, chairman of the board of American Trust, and Charles Elsey, president of Western Pacific Railroad.<sup>15d</sup>

Three of the directors of Santa Cruz Portland Cement Co., were directors of Crocker First National Bank of San Francisco;<sup>15</sup> Riverside Cement had two directors on the board of Pacific Gas & Electric, and one on the board of Wells Fargo Bank & Union Trust Co.<sup>15a</sup>

The Paraffine Cos. Inc., not only was a meeting ground for two of the cement companies mentioned, but produces a line of products competitive with those of one of them. Although its principal business is the manufacture and sale of linoleum and floor covering, Paraffine also produces gypsum products. Pacific Portland Cement Co., which had a common director with Paraffine also produces plaster and gypsum products. The primary significance of the interlocks just described, however, is that they may have established or reflected an affiliation among three substantial cement companies serving the same industrial area of the country.

## REFRATORIES

Refractories are used for lining blast furnaces, Bessemer converters, open hearth furnaces, kilns, smelters, etc. Thus, the chief markets for refractories are the iron and steel, cement, and similar industries.

president and a director of Crocker First National Bank, was a director of Santa Cruz and The Paraffine Cos.

<sup>15b</sup> Allen L. Chickering, a partner in Chickering & Gregorn (San Francisco), was a director of Riverside Cement and of Southern Pacific Co. William W. Crocker, president and a director of the Crocker First National Bank of San Francisco, was a director of Santa Cruz and of Southern Pacific Co.

<sup>15c</sup> A. L. Chickering and Henry D. Nichols, president and a director of Tubbs Cordage Co. (San Francisco), were directors of Riverside Cement and of Pacific Gas & Electric. William W. Crocker was a director of Santa Cruz and of Pacific Gas & Electric. John D. McKee, chairman of the American Trust Co., was a director of Pacific Portland and of Pacific Gas & Electric.

<sup>15d</sup> The other two were—Jesse B. McCargar, a director of Pacific Portland and of American Trust; and Wakefield Baker, president and director of Baker & Hamilton (San Francisco), and a director of Pacific Portland, American Trust, and Western Pacific Railroad.

<sup>15</sup> There was William Willard Crocker, president of the bank, Daniel J. Murphy, vice president of the bank, and Walter H. Sullivan, president of H. S. Crocker Co. Mr. Murphy provided the contact with Pacific Portland by serving as a director of the Paraffine Cos. Mr. Crocker was a Director of Southern Pacific Co., in company with Allen L. Chickering, director of Riverside Cement Co.

<sup>15a</sup> H. D. Nichols, president and director of Tubbs Cordage Co., was a director of Riverside Cement and of Wells Fargo.

# INDIRECT INTERLOCKS AMONG THREE PACIFIC COAST CEMENT COMPANIES

1946

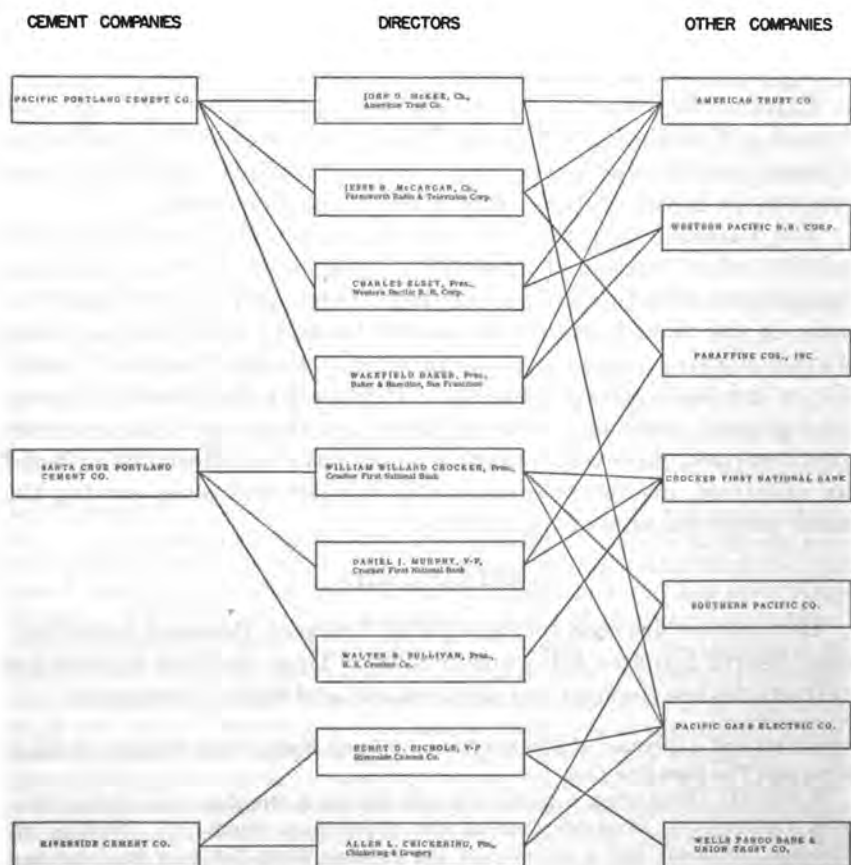


CHART 52.

No interlocking of directors, direct or indirect, appears to have existed among the refractory producers. The refractory producers did, however, have interlocks with potential customers. General Refractories Co. had a director in common with Vanadium Corp. of America, and, through Mack Trucks, Inc., interlocked with Lone Star Cement Co.<sup>17</sup> Gladding McBean & Co. had a number of interlocks with other California concerns, with the result that it was linked either

<sup>17</sup> E. D. Bransome, president and director of Vanadium Corp., was also a director of General Refractories and Mack Trucks. Also on the board of Mack Trucks was George Evans Clark, a director of Lone Star Cement Co. Mr. Clark was executive vice president and manager of Adams Express Co., investment trust.

directly or indirectly to Santa Cruz Portland Cement Co., and Pacific Portland Cement Co.<sup>18</sup> Harbison-Walker Refractories Co. had a common director with Lima Locomotive Works, Inc., one with Allegheny-Ludlum Steel Corp., and, through the Mellon National Bank, was linked with a number of other steel companies.<sup>19</sup>

### GYPSUM PRODUCTS

Gypsum is a basic material used in the preparation of building plaster and in the production of lath, wallboard, and tile. It has been estimated that over 90 percent of the gypsum is consumed by the construction trades.<sup>20</sup> Despite the relative abundance of gypsum deposits, the industry is highly concentrated, largely as a result of numerous mergers and acquisitions. The four major producers are United States Gypsum Co., National Gypsum Co., Certain-Teed Products Co., and Celotex Corp.<sup>21</sup>

The interlocking directorates of United States Gypsum centered principally in Sewell Avery, chairman of the board of United States Gypsum and its principal stockholder.<sup>22</sup> Mr. Avery, who was chairman of the board of Montgomery Ward & Co., also served as director of United States Steel, Pullman, Northern Trust Co., and a number of other companies. Champ Carry, president and a director of Pullman, was a director of United States Gypsum. A similar reciprocal relationship prevailed between United States Gypsum and Northern Trust Co. Mr. Avery was a director of Northern Trust Co., while

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<sup>18</sup> Gladding McBean appeared to be part of the same group as the three San Francisco cement companies discussed above. It had two directors in common with Santa Cruz Portland Cement Co., one with Paraffine Cos. (on which a director of Pacific Portland sat), American Trust Co., Pacific Gas & Electric and Southern Pacific, and three with Crocker First National. It also interlocked with such California firms as Standard Oil of California, Union Oil of California, Consolidated Steel Corp., California Bank of Los Angeles, and Southern California Edison.

<sup>19</sup> See chapter on primary iron and steel in this report for other interlocks. Berthold A. Clements, president of American Arch Co., which manufactures arches and arch brick for locomotives, power plants and furnaces, was a director of both Harbison-Walker and Lima. Arthur E. Braun, president of Farmers Deposit National Bank (Pittsburgh), was on the boards of Harbison-Walker and Allegheny-Ludlum.

<sup>20</sup> Standard & Poor's Industry Surveys, Building, Basic Analysis, December 1, 1949, p. B5-7.

<sup>21</sup> According to Standard & Poor's, "Ownership of deposits and processing plants in most major consuming areas enables these large producers to serve wide areas without the relatively high transportation costs that would otherwise be necessary on the bulk product." *Ibid*, p. B5-15.

<sup>22</sup> The Avery family in 1938 owned 15.3 percent of the common and 10.4 percent of the voting preferred in U. S. Gypsum Co., T. N. E. C. Monograph 29, p. 1490.

Solomon A. Smith, president and a director of Northern Trust Co., was a director of United States Gypsum.

National Gypsum had few interlocks, but in one instance the relationship was of a reciprocal character similar to those mentioned in the case of United States Gypsum. Melvin H. Baker, president and a director of National Gypsum, was a director of Manufacturers & Traders Trust Co. of Buffalo, and Lewis G. Harriman, president and a director of the bank, was a director of National Gypsum. National Gypsum's home office is in Buffalo.

Two interlocks maintained by Celotex Corp. had some significance with regard to possible outlets for the company's products, Celotex insulation materials are used in the manufacture of household refrigerators, cold-storage plants, and the like. One director of Celotex was on the boards of both Doehler-Jarvis Corp., and Borg-Warner, both of which, among other things, produce refrigerators.<sup>23</sup> Celotex Corp. was interlocked with South Porto Rico Sugar.<sup>23a</sup>

### ASBESTOS

The principal maker of asbestos products is Johns-Manville Corp. This company owns mines in Canada. Its products, used largely in the building trades, include asphalt shingles, rolled roofing, wall-board, rock wool insulation, and asphalt floor tiles. Its volume is substantially greater than that of its rivals, such companies as Ruberoid Co., Paraffine Cos., Raybestos-Manhattan, and Garlock Packing Co.<sup>24</sup>

Johns-Manville had interlocks with a number of companies, few of which appear to have had any functional significance in relation to Johns-Manville's principal activities. It had a director in common with the following companies: U. S. Steel, Kennecott Copper, Standard Brands, American Viscose, American Telephone & Telegraph, and Mutual Life Insurance Co. It had two directors in common with Bankers Trust Co. of New York and two in common with J. P. Morgan & Co.<sup>25</sup> Its interlocks with the last-mentioned companies indicate its close ties with the financial community.

<sup>23</sup> This director was Paul Hazlett Davis, senior partner of Paul H. Davis & Co., Chicago.

<sup>23a</sup> See Chapter 4.

<sup>24</sup> Ruberoid and Paraffine are not classified in the stone, clay, and glass industries. Raybestos-Manhattan overlaps with Johns-Manville Corp., in the insulation materials field, but many of its products are quite different, including asbestos fiber yarn, cloth, electric cable fillers, automobile clutch facings, rubber hose and automotive hose. Garlock Packing Co., manufactures mechanical packings, gaskets, and oil seals used in moving or stationary parts of mechanical equipment. It also produces asbestos brushes for tin-plate mills.

<sup>25</sup> Lewis H. Brown, chairman of the board of Johns-Manville served on the boards of American Telephone & Telegraph, Mutual Life, and Bankers Trust;

## SUMMARY

The principal significance of the direct interlock found between one of the largest flat glass manufacturers and the leading glass container manufacturer is that it reflects a general characteristic of the glass industry, namely, the division of fields into distinct categories. The historical background of this interlocking arrangement fortifies the conclusion that the interrelations between the companies may have forestalled the invasion of one another's markets by either of the participants. Significant interlocks were found of a supplier-customer character between glass container manufacturers and food, beverage and drug manufacturers.

In the cement industry, three rival manufacturers on the Pacific coast were indirectly interlocked through prominent banking, railroads, and utility companies operating in the area. Refractory manufacturers gained access to possible customers through interlocking directorates with cement and steel companies. The outstanding interlocks of leading gypsum and asbestos manufacturers were with prominent financial institutions.

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Enders M. Voorhees, chairman of the finance committee of U. S. Steel, provided the link with that company; E. Tappan Stannard, president of Kennecott, was the common director with the latter company, as well as with J. P. Morgan & Co., Inc.; Henry Clay Alexander, vice president and a director of J. P. Morgan, was a director of Johns-Manville, Standard Brands, and American Viscose; and John W. Hanes provided a second interlock between Johns-Manville and Bankers Trust Co. Mr. Hanes was formerly a senior partner of Charles D. Barney & Co., investment bankers.

## Chapter 20

### LEATHER AND LEATHER PRODUCTS

This group of 11 companies is composed of shoe manufacturers and manufacturers of leather used primarily in the making of shoes. International Shoe Co. and Endicott Johnson Corp.<sup>1</sup> are the country's largest shoe manufactures and are tanners of major importance. Brown Shoe Co., Inc., and General Shoe Corp. next in order, manufacture shoes and also engage in some tanning operations. These four companies and another company on the list—Craddock-Terry Shoe Corp.—manufacture men's, women's, and children's shoes. Florsheim Shoe Co. and George E. Keith Co. make men's and women's shoes; The Selby Shoe Co. confines its production to women's shoes.

The remaining three companies manufacture leather, tanned from cattlehides, kip skins, calfskins, goatskins, and other raw materials.<sup>2</sup> The United States Leather Co. is a sole leather tanner. American Hide & Leather Co. produces shoe upper leather from the various kinds of bovine raw stock. The Allied Kid Co. uses some raw materials besides goatskins, but kid leather is its main product.

The trade-marks and brand names of the tanners are little known to the public, but are familiar to buyers of leather. All of the shoe manufacturers sell under brand names at least some of the shoes they make; and certain companies—notably Florsheim, George E. Keith, and Selby—market most of their output under brand names which, through advertising, have become widely recognized.

Ten of the 11 corporations in the leather and leather products list had, in all, 83 interlocking directorships in 1946 with 73 of the

<sup>1</sup> Endicott Johnson is also listed under the heading "retail stores," where it does not seem to belong for purposes of the present study. While in 1946 it operated more than 500 retail stores, it also sold to more than 30,000 independent retailers, as well as to jobbers, chain stores, and mail-order houses.

<sup>2</sup> Leather raw materials include, besides cattlehides, kips, and calfskins, and goatskins and kidskins, the hides or skins of the following: Sheep, cabretta, horse, colt, ass, water buffalo, pig, peccary, carpincho, deer, lizard, snake, alligator, seal, shark, kangaroo, wallaby, ostrich.

The products of the tanning industry are used for shoes, garments, gloves, handbags, hat sweat bands, waist belts, upholstery, luggage, straps, harness and saddlery, rawhide, sporting goods, industrial belting, in pumps and hydraulic machinery, in loom parts and action parts of pianos, for bookbinding and in the bellows of gas meters.



manufacturing and nonmanufacturing companies chosen for study. Twenty-six individuals held all of the 83 interlocking directorships; of this number, seven were responsible for 57 (or more than 68 per cent) of the total number of interlocks. These seven individuals were all officers of commercial banks or partners in investment banks or stock-exchange firms. Virtually all of the interlocks of any significance stemmed from these financial institutions. The seven individuals, their primary connections, and the number of their directorates—total and with manufacturing corporation—were as follows:

	Total	Manufacturing corporations
Boylston A. Tompkins, Bankers Trust Co., New York.....	11	6
John M. Hancock, Lehman Bros.....	17	8
Henry S. Bowers, Goldman, Sachs & Co.....	11	8
Walter E. Sachs, Goldman, Sachs & Co.....	4	2
Lewis L. Strauss, Kuhn, Loeb & Co.....	3	2
Otis A. Glazebrook, Jr., Hornblower & Weeks.....	7	3
James J. Minot, Paine, Webber, Jackson & Curtis.....	4	3

#### INTERLOCKING RELATIONS WITHIN THE LEATHER INDUSTRY

None of the 11 companies in the list interlocked directly with each other. Two of them, however, interlocked indirectly through an investment bank. H. S. Bowers, partner in Goldman, Sachs & Co., was a director of Endicott Johnson; Walter E. Sachs, another partner in Goldman, Sachs & Co., sat on the board of the Brown Shoe Co. These two companies have been interlocked in this manner almost continuously since 1919. With the single exception of International Shoe Co., they are the country's largest manufacturers of shoes, and both are engaged in tanning operations. Thus the two companies have interests in common at various strategic points in the shoe manufacturing process.

Endicott Johnson was also interlocked indirectly with Florsheim through investment bank connections with retail stores. The directorships held by Mr. Bowers of Goldman, Sachs & Co. included S. H. Kress Co. (retail variety chain) and the Jewel Tea Co. (retail grocery chain). The Florsheim Shoe Co. had on its board John Milton Hancock of Lehman Brothers, who was also a director of S. H. Kress and Jewel Tea Co. Although Endicott Johnson makes medium-priced and lower-priced shoes, and Florsheim's operations are in the higher-priced class, as two of the largest shoe manufacturers in the United States the companies have a variety of interests in common.

Two companies were indirectly linked—through two separate individuals—on the board of Sears, Roebuck & Co. In the case of Florsheim, the interlock with Sears, Roebuck & Co. was J. M. Hancock,

partner in Lehman Brothers; for Geo. E. Keith, the common director with Sears, Roebuck & Co. was H. Wendell Endicott. Both Florshheim and Geo. E. Keith are manufacturers of men's and women's shoes; both are in the relatively high-priced field, manufacturing their products under well-known brand names.

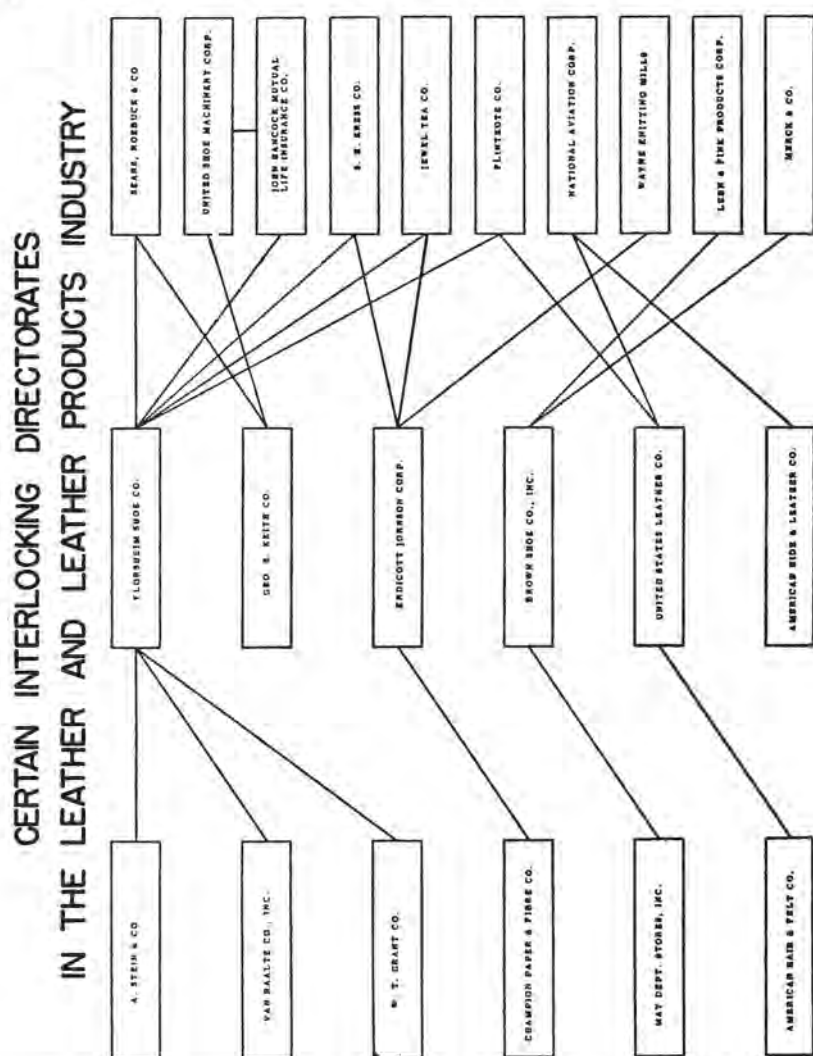


CHART 53.

Only one company—Geo. E. Keith Co.—had a direct interlock with United Shoe Machinery Corp. The latter has played a significant role in the development of the shoe industry in the United States. From the beginning it has pursued the policy of leasing shoe machinery, rather than selling it outright. The result has been that United Shoe Machinery has been in a position, through refusal or

willingness to lease, to guide the competitive structure of the industry. To a considerable extent its leasing practices have fostered a highly competitive industry; small units, without the necessary capital to purchase machinery, have been able to gain entrance into the industry under the leasing arrangements made possible by United Shoe Machinery. Though the basic patents on its machinery have long since expired, United Shoe Machinery has maintained its dominant position in the shoe-machinery field through improvement patents.<sup>3</sup>

All but one of the shoe manufacturers in this list were licensees of United Shoe Machinery,<sup>4</sup> leasing the latter's machinery and making royalty payments for use of the machines. The interlock of the Geo. E. Keith Co. was through its president, Harold C. Keith, whose father was one of the early directors of the shoe-machinery company. This historical family relationship may explain the continued representation of the Geo. E. Keith Co. on United Shoe Machinery's board.

#### INTERLOCKS OF LEATHER COMPANIES WITH OTHER COMPANIES

Other interlocks represent supply connections for the shoe and leather companies or marketing outlets for their products.

Two companies with which Endicott Johnson was directly interlocked were potential suppliers: The Champion Paper & Fibre Co. is a leading producer of chestnut extract used in tanning sole leather; from Wayne Knitting Mills<sup>5</sup> might have been bought some of the hosiery sold in Endicott Johnson's retail stores. As a shoe manufacturer producing shoes in various price brackets for other retailers, Endicott Johnson might have found a customer in S. H. Kress & Co.

For the Brown Shoe Co., the May Department Stores might have been a potential sales outlet, while the Goldman, Sachs & Co. con-

<sup>3</sup> On December 15, 1947, the U. S. Department of Justice instituted a civil action against the United Shoe Machinery Corp. for violation of the Sherman Act by monopolization of the shoe-machinery industry. The complaint charged the company with acquiring the assets and employing the key men of competitors; inducing companies engaged in the manufacture of shoe machinery to confine their operations to certain machines, to distribute their machinery exclusively through United, and to refrain from selling shoe-repair machinery to shoe factories; pursuing a manufacturing and marketing policy designed to prevent the installation of competitors' machines and to replace such machines with those of United; engrossing patents and inventions in shoe machinery and using such patents to prevent competitors from manufacturing and distributing shoe machinery; preventing the distribution of second-hand shoe machinery; requiring lessees to purchase from United all parts for shoe machinery leased by it; acquiring the capital stock and assets of corporations engaged in the manufacture and sale of shoe-factory supplies and of tanning machinery. Civil Action No. 7198, filed in the District Court of the United States for the District of Massachusetts.

<sup>4</sup> The Craddock-Terry Shoe Corp. owned the machinery and equipment in its seven manufacturing plants (*Moody's Industrials, 1947*, p. 205).

<sup>5</sup> Henry S. Bowers was a director of Champion Paper & Fibre, Wayne Knitting Mills and Endicott Johnson.

nection might also have served to promote mutually satisfactory relations with the Lehn & Fink Products Corp. and Merck & Co.<sup>40</sup> as suppliers of tanning chemicals.<sup>41</sup>

United States Leather, one of the largest tanning companies in the United States, had three directors<sup>42</sup> in common with American Hair & Felt Co.<sup>43</sup> The latter deals in washed cattle, kip, calf, and goat hair, removed in an early stage of the tanning process, and obtained principally if not almost exclusively from tanneries, of which they are major byproducts.

To the extent that the 73 retail stores operated by Florsheim subsidiaries sold men's garters and belts and women's hosiery and gloves, the relationships with A. Stein & Co. ("Paris" garters, suspenders, and belts) and the Van Raalte Co., Inc. (women's hosiery and gloves) might have been advantageous.<sup>44</sup> The products of these potential suppliers are well known by brand or trade names which are kept before the public by advertising.

Another supply interlock of potential importance was that afforded Florsheim<sup>45</sup> and U. S. Leather<sup>46</sup> through directors on the board of Flintkote Co. Florsheim makes a larger proportion of its shoes with leather soles than do many other manufacturers of men's shoes, and its volume is sufficient to make it a desirable customer. U. S. Leather is one of the major sources of supply for sole leather.

<sup>40</sup> Walter E. Sachs, partner in Goldman, Sachs & Co., was a director of Lehn & Fink Products Corp. Merck & Co., and Brown Shoe Co.

<sup>41</sup> The Shoe and Leather Reporter Annual, 1946, in its "guide for buyers in tanneries," which is "a classified list of products used and the names and addresses of the leading manufacturers of each product," shows the names of Merck and Lehn & Fink under the heading "Chemicals."

<sup>42</sup> These were Henry M. McAdoo, president and a director of U. S. Leather; R. H. Zinn, vice president, comptroller, secretary, and director of U. S. Leather; and Sherwood B. Gay, president and a director of Blanchard Bros. & Lane, and a director of U. S. Leather. For several years before joining the board of U. S. Leather, Mr. Gay had represented his own company on the board of American Hair & Felt.

<sup>43</sup> In 1946 American Hair & Felt had a board of 21 directors. Of these, 18 were directors or officers of tanning companies, 17 of which were represented on the board. Tanners' Products Co., predecessor of American Hair & Felt, had 115 tanning companies as stockholders in 1927. In 1936 (the latest year on which information is available) U. S. Leather held approximately 18 percent of the outstanding shares of American Hair & Felt's second preferred and also of its common stock. (Listing statements of New York Stock Exchange, A-10919, U. S. Leather Co., June 5, 1937, vol. CXIX.)

<sup>44</sup> John M. Hancock, a partner in Lehman Bros., was a director of Florsheim Shoe Co., A. Stein & Co., and Van Raalte Co.

<sup>45</sup> John M. Hancock, a partner of Lehman Bros., was a director of the Florsheim Shoe Co. and a director of the Flintkote Co.

<sup>46</sup> Boylston A. Tompkins, a vice president of the Bankers Trust Co., New York, was a director of U. S. Leather and a director of the Flintkote Co.

The direct interlock of Geo. E. Keith Co. with United Shoe Machinery gave it indirect connections of some importance. Through the chairman of the board of United Shoe Machinery, Keith was connected with the John Hancock Mutual Life Insurance Co.,<sup>9</sup> important in the Boston financial community. One of the directors of John Hancock was also chairman of the board of Winslow Brothers & Smith, Inc., tanners of shoe-upper leathers and of all types of sheepskin leather, including shoe-lining leather. He was also a director of the Dewey & Almy Chemical Co., makers of rubber and fiber heels and soles.<sup>10</sup>

Through the chairman of the board of United Shoe Machinery, Keith was also indirectly interlocked with the Boston Herald-Traveler Corp.,<sup>11</sup> of which the Fidelity Broadcasting Co. is a wholly owned subsidiary. The association of a company with a leading newspaper and the operator of a radio station has certain obvious advantages. Keith was also interlocked—through United Shoe Machinery—with the Linen Thread Co.<sup>12</sup> The latter is a leading supplier of thread to shoe manufacturers.

The Allied Kid Co., producer of kid leather, had an indirect interlock with a potential supplier through the Merchants National Bank of Boston. Along with this tanning company on the board of the bank, there was a director of United Shoe Machinery.<sup>13</sup> The Turner Tanning Machinery Co., one of the United Shoe Machinery's subsidiaries, is among the principal manufacturers of tanning machinery.

International Shoe Co. had similar interlocks through banks with a potential supplier. International Shoe's president and vice president were directors of the First National Bank of St. Louis;<sup>14</sup> another di-

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<sup>9</sup> S. W. Winslow, Jr., was chairman of the board and a director of the United Shoe Machinery Corp., and was a director of the John Hancock Mutual Life Insurance Co.

<sup>10</sup> Frank G. Allen was chairman of the board and a director of Winslow Bros. & Smith Inc., and was also a director of the John Hancock Mutual Life Insurance Co. and of the Dewey & Almy Chemical Co.

<sup>11</sup> S. W. Winslow, Jr., chairman of the board and a director of The United Shoe Machinery Corp., was president and a director of the Boston Herald-Traveler Corp. (not one of the 1,000 largest manufacturing corporations).

<sup>12</sup> Two directors of the Linen Thread Co.—F. K. Barbour, president, and Samuel Barbour, vice president—were directors of the United Shoe Machinery Corp.

<sup>13</sup> Frank L. Converse, a director and vice president of the Merchants National Bank of Boston, was a director and a member of the executive committee of the Allied Kid Co. John L. Hall, senior partner, Choate, Hall & Stewart, was a director of the United Shoe Machinery Corp. and of the Merchants National Bank.

<sup>14</sup> Byron A. Gray, president and director, and Andrew W. Johnson, a vice president, treasurer, and director of the International Shoe Co., were both directors of the First National Bank of St. Louis.



rector of the bank was the president of Monsanto Chemical Co.<sup>15</sup> International Shoe's chairman of the board and Monsanto Chemical's chairman were also associated on the boards of Mercantile-Commerce Bank & Trust Co., St. Louis.<sup>16</sup> As a tanner, International was a potential buyer of the tanning agents and of chemicals for the leather industry which are among Monsanto's products.

#### SUMMARY

This far from homogeneous industry group consists of 11 corporations, of which eight are shoe manufacturers and three tanners. Five of the shoe manufacturers make men's, women's, and children's shoes; two produce men's and women's; one makes women's exclusively. Four of the shoe manufacturers also manufacture leather for their own use; and five shoe manufacturers operate retail stores—one very few, and one about 500. Because of product specialization, the three tanners who are only tanners scarcely compete either as sellers or for their most important raw materials.

No two of the 11 companies included among the 1,000 largest manufacturing corporations had a common director. Two of the companies, however, were indirectly interlocked through an investment bank. A partner in Goldman, Sachs & Co. was a director of Endicott Johnson; another partner of the same bank was on the board of the Brown Shoe Co. Endicott Johnson was also interlocked indirectly with the Florsheim Shoe Co., through investment banking directors who sat on the boards of S. H. Kress & Co. and Jewel Tea Co. In turn, Florsheim was interlocked indirectly with Geo. E. Keith Co. through directorships on the board of Sears, Roebuck & Co. Endicott Johnson and Brown Shoe are the second and third largest shoe manufacturers in the United States; and both are engaged in tanning operations. Endicott Johnson and Florsheim produce shoes selling in different price ranges; Florsheim and Geo. E. Keith are both manufacturers in the high-price class.

Only one company—George E. Keith—had a direct interlock with United Shoe Machinery, the largest manufacturer of shoe machinery in the world, which leases rather than sells its machines. This interlock provided indirect relations between George E. Keith and Winslow Bros. & Smith, tanners of shoe-upper leathers; Dewey & Almy Chemical, makers of rubber and fiber heels and soles; and the Linen Thread, a leading supplier of thread to shoe manufacturers.

<sup>15</sup> William M. Rand (born in Massachusetts), president and a director of the Monsanto Chemical Co., was a director of the First National Bank of St. Louis.

<sup>16</sup> Frank C. Rand (born in Mississippi; died December 1949), chairman of the board and a director of the International Shoe Co., was a director of the Mercantile-Commerce Bank & Trust Co. of St. Louis. Edgar M. Queeny, chairman of the board and a director of Monsanto Chemical Co., was a director of the Mercantile-Commerce Bank & Trust Co., of St. Louis.



Other interlocks appeared to represent supply connections for the shoe and leather companies or marketing outlets. Endicott Johnson was directly interlocked with Champion Paper & Fibre Co., a leading producer of chestnut extract used in tanning sole leather; and with Wayne Knitting Mills, whose hosiery products might have supplied Endicott Johnson's retail stores. Endicott Johnson was also directly linked with S. H. Kress & Co., a potential marketing outlet for low-priced shoes.

Brown Shoe was interlocked with Lehn & Fink Products Corp. and Merck & Co., manufacturers of tanning chemicals. Its directorate relations with the May Department Stores, might have provided a sales outlet for Brown's products. U. S. Leather, a large tanner, was interlocked with American Hair & Felt. The latter uses animal hair obtained from tanneries to manufacture rug cushions, carpet linings, and insulation products.

Florsheim was directly linked with A. Stein & Co. and Van Raalte. The shoe company operates some 70 retail stores and thus may have provided marketing outlets for A. Stein's line of "Paris" garters, suspenders, belts, and Van Raalte's hosiery and gloves. Through the Flintkote Co., Florsheim was indirectly linked with U. S. Leather, manufacturer of sole leather.

Through the Merchants National Bank of Boston, the Allied Kid Co. was indirectly interlocked with United Shoe Machinery. The latter's subsidiary, Turner Tanning Machinery Co., is among the principal manufacturers of tanning machinery. Two bank interlocks—through the First National Bank of St. Louis and the Mercantile-Commerce Bank & Trust Co., St. Louis—brought together the International Shoe and Monsanto Chemical, manufacturer of tanning agents and other chemicals for the leather industry.

## Chapter 21

### TOBACCO MANUFACTURES

There were 13 tobacco manufacturers listed among the 1,000 largest manufacturing corporations in 1946. Seven of these maintained interlocking directors with 38 other companies, manufacturing and non-manufacturing, among those selected for study.

Most of the interlocking directorates found in the tobacco industry were interlocks between cigar companies and other companies. Interlocks of cigarette companies and pipe- and chewing-tobacco companies with other companies accounted for a very small portion of the total number of interlocks in the industry.

#### INTERLOCKS AMONG PRODUCERS OF COMPETITIVE PRODUCTS

There was no case in which a director of any tobacco company under study was a director of another company manufacturing tobacco products. General Cigar Co., the largest of the cigar manufacturers, and Consolidated Cigar Corp., the second largest of the cigar manufacturers, had directors who also sat on the board of Manufacturers Trust Co. (New York).<sup>1</sup>

#### INTERLOCKS WITH POTENTIAL SUPPLIERS OR CUSTOMERS

Predominant among the links between tobacco companies and potential suppliers, were a series of direct and indirect ties with the country's largest manufacturers of paper products. Paper and paper-board are, of course, used in wrapping and packing tobacco products.

General Cigar, the largest of the cigar companies in the country, had two indirect ties, one through Sears, Roebuck & Co.<sup>2</sup> and the other through Lehman Corp.,<sup>3</sup> with Kimberly-Clark Corp., the fourth largest paper manufacturer.

<sup>1</sup> Henry C. Von Elm, vice chairman of the board and director of Manufacturers Trust, was a director of General Cigar. Samuel McRoberts, director and member of the executive committee of American Alliance Insurance, was a director of Consolidated Cigar and Manufacturers Trust.

<sup>2</sup> S. J. Weinberg, a partner in Goldman, Sachs & Co., was a director of General Cigar and Sears, Roebuck. J. M. Hancock, a partner in Lehman Bros., was a director of Kimberly-Clark and Sears, Roebuck.

<sup>3</sup> Robert Lehman, partner in Lehman Bros., was a director of General Cigar and Lehman Corp. John M. Hancock, partner in Lehman Bros., was a director of Kimberly-Clark and Lehman Corp.

Consolidated Cigar had a director in common with Southland Paper Mills, Inc.\* Southland Paper Mills manufactures miscellaneous papers of various kinds. Consolidated Cigar also had a direct tie with Tennessee Corp.,<sup>5</sup> a manufacturer of fertilizer. Stems trimmed from tobacco leaves in the cigar manufacturing process can be used as a filler for fertilizer.

R. J. Reynolds Tobacco Co., manufacturer of Camels, had an indirect tie with International Paper Co., through American Telephone & Telegraph Co.<sup>6</sup> International Paper, the largest of the paper manufacturers, numbers wrapping papers and carton board among its products.

United States Tobacco Co., which manufactures snuff and smoking and chewing tobacco, had an indirect tie, through Irving Trust Co. (New York)<sup>7</sup> with St. Regis Paper Co., the third largest of the paper manufacturers.

#### GENERAL CIGAR INTERLOCKING DIRECTORS

General Cigar Co. had 29 of the 45 interlocking directorates in the tobacco industry. Several of these interlocks served to bring together groups of manufacturers who produce products competitive with each other or who may be linked in a customer-supplier relationship, but without apparent connection with cigars.

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\* J. K. Crossman, director of Consolidated Cigar, was on the board of Southland Paper Mills.

<sup>5</sup> William B. Joyce, president of William B. Joyce & Co., was a director of Consolidated Cigar and Tennessee Corp.

<sup>6</sup> S. Clay Williams, chairman of the board and director of R. J. Reynolds Tobacco, was a director of American Telephone & Telegraph. Winthrop W. Aldrich, chairman of the board and director of Chase National Bank of the City of New York, was a director of American Telephone & Telegraph and International Paper.

<sup>7</sup> J. W. Peterson, president and director of U. S. Tobacco, was a director of Irving Trust Co. William K. Dick, chairman of the executive committee of St. Regis Paper, was a director of Irving Trust Co.

## Chapter 22

### PROFESSIONAL, SCIENTIFIC, AND CONTROLLING INSTRUMENTS; PHOTOGRAPHIC AND OPTICAL GOODS; WATCHES AND CLOCKS

This industry includes establishments engaged in manufacturing mechanical measuring, laboratory, and scientific instruments; optical instruments and lenses; surgical, medical, and dental instruments; photographic equipment; and watches, clocks, etc.

Products of the industry are highly diversified and serve a wide range of uses in industry, in the professions, and in the home. They include such highly complicated devices as bomb sights, gunnery fire controls and airplane instruments, and such simple instruments as fever thermometers and alarm clocks.

The companies in this industry are relatively small consumers of the basic materials, especially those in short supply, such as metals. Therefore there is less incentive than in other cases for these companies to establish interlocking relations as a means of obtaining essential materials. This motive may exist, however, with reference to the supply of cellulose to Johnson & Johnson and the International Cellucotton Products Co. and the supply of cellulose and chemicals to Eastman Kodak Co. It is also possible that some companies supply components to others in this industry, and that their interlocks with each other facilitate supply relationships.

Twenty-one companies in this industry were classified among the 1,000 largest corporations in the United States. Eastman Kodak, Johnson & Johnson, and Sperry Corp. ranked among the top 200 companies in assets.

Fifteen of these 21 companies were directly interlocked with 103 other companies in a total of 143 interlocks. Six companies showed no interlocks. (See Tables 50 and 51.)

The 15 companies that had interlocks were classified in the following six groups: one manufacturer of laboratory, scientific, and measuring instruments; three producing mechanical measuring and controlling instruments; one company making surgical, medical, and dental instruments; two producing ophthalmic goods; three producing photographic equipment and supplies; and five producing watches, clocks, etc.

## INTRAINDUSTRY INTERLOCKS

The direct interlocks within the industry were solely between companies located in Rochester, N. Y.; namely, Taylor Instrument Companies, Bausch & Lomb Optical Co., and Eastman Kodak.<sup>1</sup> Eastman Kodak and Bausch & Lomb both make lenses and may be competitive in the photographic lens business. Bausch & Lomb is also a potential supplier of lenses for Eastman Kodak. Taylor Instrument makes instruments for temperature and pressure indication and control and apparently does not compete with either Eastman Kodak or Bausch & Lomb.<sup>2</sup>

## DIRECT INTERLOCKS WITH OTHER INDUSTRIES

The 15 companies in this group had direct interlocks with 103 companies in 26 other industry or business groups. Apart from financial institutions, the largest number of interlocks was with companies producing machinery, electrical machinery, transportation equipment, and paper. There were 46 interlocks with 31 banks and other financial houses, principally with regional institutions rather than the large New York banks.

Sperry is the most important producer of gyroscopic and electronic control devices used in aviation and in ordnance. It also produces printing presses and hydraulic devices, including various controls and transmissions used by automotive machine tool manufacturers and by road machinery equipment builders. Its principal market is in the aviation field; it also sells largely to the Armed Services. Sperry had direct interlocks with Curtiss-Wright Corp. and Douglas Aircraft Co., both important users of equipment such as Sperry produces.<sup>3</sup> Sperry also had a director in common with the Cramp Shipbuilding Co. and Goodyear Tire & Rubber Co.<sup>4</sup> Goodyear is interested in avia-

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<sup>1</sup> M. H. Eisenhart, president and director of Bausch & Lomb, was a director of Taylor Instrument. Raymond N. Ball, president of Lincoln Rochester Trust Co. (Rochester, N. Y.), was a director of Eastman Kodak and Bausch & Lomb.

<sup>2</sup> Indirect interlocks between the three companies were also provided by memberships on the boards of directors of other Rochester companies, Rochester Gas & Electric Corp. and Lincoln Rochester Trust Co. M. H. Eisenhart and Raymond N. Ball provided an indirect interlock between the three companies through membership on the board of Rochester Gas & Electric Corp. M. B. Folsom, treasurer, and Thomas J. Hargrave, president of Eastman Kodak, and David C. Barry, a director of Taylor Instrument, provided an indirect interlock between Eastman Kodak and Taylor Instrument through membership on the board of Lincoln Rochester Trust Co.

<sup>3</sup> J. Cheever Cowdin, chairman of the Board of Universal Pictures, was the interlocking director between Sperry, Curtiss-Wright and Douglas Aircraft.

<sup>4</sup> J. C. Hunsaker, a professor at Massachusetts Institute of Technology, was the interlocking director between Sperry, Cramp Shipbuilding, and Goodyear.

TABLE 50.—*Direct interlocks between manufacturers of professional, scientific, controlling instruments, etc., and other manufacturers*

Designated industry	Primary metals						Fabri- cated metals	Machinery								Electrical machinery	Transportation equipment							Miscel- laneous manufac- turing industries										
	Eastman Kodak Co.	Bausch & Lomb Optical Co.	Taylor Instrument Co.	Kennecott Copper Co.	Bridgeport Brass Co.	Washburn Wire Co.	Associated Spring Corp.	United Carr Fastener Corp.	International Harvester Co.	Allis-Chalmers Manufacturing Co.	United Shoe Machine Co.	Cincinnati Milling Machine Co.	Underwood Corp.	Joy Manufacturing Co.	Carrier Corp.	Saco Lowell Shops	Royal Typewriter Co.	Maytag Co.	General Electric Co.	Stromberg-Carlson Co.	McGraw Electric Co.	Robbins & Myers	Pullman, Inc.	Curtiss-Wright Corp.	Douglas Aircraft Co.	American Locomotive Co.	Clark Equipment Co.	Republic Aviation Corp.	Trailmobile Co.	Cramp Shipbuilding Co.	International Silver Co.	Wurlitzer (Rudolph) Co.	Parker Pen Co.	
Sperry Corp.																								1	1					1				
Minneapolis Honeywell Regulator Co.																																		
Veeder Root, Inc.												1						1																
Taylor Instrument Co.		1		1			2										1															1		
International Cellulose Products Co.																																		
American Optical Co.																												2					1	
Bausch & Lomb Optical Co.	1		1					1			1																							
Eastman Kodak Co.		1																		1			1											
General Precision Equipment Corp.													1	1														2						
Bell & Howell Co.															2																			
Elgin National Watch Co.									1												1													
General Time Instrument Corp.						1																												
Gruen Watch Co.																						1								1		1		
Hamilton Watch Co.																																		
Waltham Watch Co.																1			1															



Designated industry	Ordnance		Food and kindred products		Textile mill products	Lumber	Furniture	Paper and allied products	Printing and publishing	Chemicals	Petroleum	Rubber	Leather	Stone, clay, and glass																	
	Colt's Manufacturing Co.	Savage Arms Corp.	National Distillers Products Corp.	General Foods Corp.	General Mills Inc.	Quaker Oats Co.	Continental Baking Co.	United Merchants & Manufacturers	Armstrong Cork Co.	Chicago Mill & Lumber Co.	Art Metal Construction Co.	Kimberly Clark Corp.	Container Corp. of America	Minnesota & Ontario Paper Co.	McGraw-Hill Publishing Co.	Chicago Daily News Inc.	U. S. Printing & Lithograph	Colgate-Palmolive-Pest Co.	National Minerals & Chemicals	Mathieson Alkali Works	Sinclair Oil Corp.	Shell Union Oil Co.	Goodyear Tire & Rubber	Dewey & Almy Chemical Co.	Boston Woven Hose & Rubber	American Hide & Leather Co.	U. S. Gypsum Co.	Lone Star Cement Co.	Penn Dixie Cement Co.	Raymond Concrete Pipe Co.	
Sperry Corp.					1									1	1											1					
Minneapolis Honeywell Regulator Co.														1								2	1								
Veeder Root, Inc.	4																														
Taylor Instrument Co.																															
International Cellulose Products Co.												4						1													
American Optical Co.																															
Bausch & Lomb Optical Co.					1																										
Eastman Kodak Co.																															
General Precision Equipment Co.		1	2				1				1											1									
Bell & Howell Co.																															
Elgin National Watch Co.										1						1															
General Time Instrument Corp.			1	1									1															1			
Gruen Watch Co.																	1														
Hamilton Watch Co.									1																				1		
Waltham Watch Co.								1												1				1	1						

TABLE 51.—*Direct interlocks between manufacturers of professional, scientific, controlling instruments, etc., and financial institutions, utilities, railroads, and trade*

Designated industry	Banks										Investment banks		Investment trusts							
	Guaranty Trust Co., New York	Central Hanover Bank	First National Bank, Boston	New York Trust Co.	Northern Trust Co., New York	Northwestern National Bank	First National Bank, Minneapolis	Fifth-Third Union Trust Co.	Second National Bank, Boston	Hartford National Bank & Trust	Lincoln Rochester Trust Co.	Kidder, Peabody & Co.	Union Securities Corp.	Tri-Continental Group	Lehman Corp.	United Corp.	Adams Express Group	Pennroad Corp.	Schoellkopf Group	Kidder Peabody Group
Sperry Corp.						1	1							1	(1)		(2)		(3)	
Minneapolis-Honeywell Regulator Co.		1		1						1										
Veeder-Root, Inc.											1									
Taylor Instrument Co.																				
American Optical Co.			2								1									
Bausch & Lomb Optical Co.											1									
Eastman Kodak Co.						1					3									
General Precision Equipment Corp.				1													3	1		
Elgin National Watch Co.	1				2			3												
Gruen Watch Co.									1											
Waltham Watch Co.			1									1	1	1		1			1	1

Designated industry	Investment trusts—Continued				Utilities				Life-insurance companies				Fire- and casualty-insurance companies	Railroads		Retail stores				
	Boston Fund Inc.	Century Shares Trust	Stone & Webster	Tobacco & Allied Stocks Inc.	American Telephone & Telegraph Co.	Associated Gas & Electric Co.	Commonwealth Edison Co.	Columbia Gas & Electric Co.	Northwestern Mutual Life Insurance Co.	Penn. Mutual Life Insurance Co.	New England Mutual Life Insurance Co.	Connecticut Mutual Life Insurance Co.	Union Central Life Insurance Co.	Connecticut General Life Insurance Co.	American Fire Insurance & Indemnity Group	Aetna Insurance Co.	Chicago, Milwaukee, St. Paul & Pacific	Chicago & North-western R. R.	Montgomery Ward	Mercantile Stores
Sperry Corp.					(4)	(5)		(5)							(7)			1		
Minneapolis-Honeywell Regulator Co.																				
Veeder-Root, Inc.					2	1						2		1		1		1		
Taylor Instrument Co.																				
International Cellucotton Products Co.									1											
American Optical Co.					1															
Bausch & Lomb Optical Co.						2														
Eastman Kodak Co.					1	1														
General Precision Equipment Corp.				1											1				1	
Elgin National Watch Co.							1													
General Time Instrument Corp.													1							
Gruen Watch Co.								1		1										
Waltham Watch Co.	1	1	1		1						1									

<sup>1</sup> Sperry Corp. and Lehman Corp. had 1 director in common.

<sup>2</sup> General Precision Equipment Corp. was interlocked with the Adams Express Group through 1 director on the boards of Adams Express Co., American International Corp., and Petroleum Corp. of America, and through 2 directors on National Aviation Corp.

<sup>3</sup> Waltham Watch Co. was interlocked with the Schoellkopf Group through 1 director on Insuranshare Certificates, Inc.

<sup>4</sup> Interlocks through subsidiaries of American Telephone & Telegraph Co. were; Veeder-Root, Inc., with New York Telephone Co., by 2 directors; and American Optical Co. with New England Telephone and Telegraph Co., by 1 director.

<sup>5</sup> Rochester Gas & Electric Corp., affiliated with Associated Gas & Electric Corp., interlocked 3 Rochester, N. Y. companies through 1 director on Taylor Instrument Co.; 1 director on Eastman Kodak Co.; and 2 directors on the Bausch & Lomb board.

<sup>6</sup> Gruen Watch Co. and Cincinnati Gas & Electric Co. had 1 director in common.

<sup>7</sup> General Precision Equipment Corp. and Fidelity & Casualty Co., New York had 1 director in common.

tion and potentially in the products of Sperry. Cramp Shipbuilding is also a potential customer. Sperry was directly interlocked with Shell Union Oil Corp.,<sup>5</sup> which was potentially a customer.

Minneapolis-Honeywell Regulator Co. is a leading manufacturer of temperature controls, thermostatic devices, controls for air-conditioning equipment, regulators and combustion controls for boilers, and other pressure and temperature indicating and control apparatus. The company's direct interlocks with Maytag Co., a leading manufacturer of washing machines, and with American Locomotive Co., linked it to potential customers.<sup>6</sup> It was also directly interlocked with General Mills, which may have used the former's thermostatic control devices for the domestic appliances which it now produces.<sup>7</sup>

Minneapolis-Honeywell also had an indirect interlock with Eastman Kodak through common membership on the boards of directors of General Mills and of Northwestern National Bank of Minneapolis.<sup>8</sup>

Veeder-Root, Inc., is a manufacturer of mechanical, accounting, and computing devices which are used in many industries. It also manufactures hinges and die castings. It had nine direct interlocks with neighboring concerns in Connecticut, five industrial companies and four banking and insurance houses. The industrial concerns were Washburn Wire Co. and Associated Spring Corp., both potential suppliers, and Royal Typewriter Co. and Colt's Manufacturing Co., both potential customers. An interlock with International Silver Co. did not appear to have special significance. In the case of the interlock with Colt's Manufacturing, four directors were common to the boards of the two companies, one of whom was chairman of the board of both companies.<sup>9</sup> There was also a direct interlock with Kennecott

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<sup>5</sup> Thomas A. Morgan, chairman of the board and president of Sperry, and Jerome Hunsaker, of Massachusetts Institute of Technology, were also directors of Shell Union Oil.

<sup>6</sup> The interlocking director in each of these cases was Cyril J. C. Quinn, a partner of J. & W. Seligman & Co., investment banker.

<sup>7</sup> Harold W. Sweatt, president and director of Minneapolis-Honeywell, was a director of General Mills.

<sup>8</sup> James F. Bell, chairman of General Mills, was a director of Northwestern National Bank of Minneapolis and of Eastman Kodak; H. W. Sweatt, president of Minneapolis-Honeywell, was a director of Northwestern National Bank of Minneapolis.

<sup>9</sup> F. F. Barnes, a vice president and director of Washburn Wire, was a director of Veeder-Root, and president and a director of Associated Spring Corp. Charles B. Cook, vice president of Royal Typewriter, was a director of Veeder-Root, Royal Typewriter, and Colt's Manufacturing.

Edward Ingraham was a director of Associated Spring Corp., Veeder-Root, and International Silver.

Graham H. Anthony, president of Colt's Manufacturing, William A. Purtell, and L. F. Robinson, Jr., were directors of Colt's Manufacturing and Veeder-Root. Mr. Anthony was also chairman of the board of Veeder-Root.

Copper Corp. which may have promoted commodity transactions between these two companies.<sup>10</sup>

International Cellucotton Products Co. is engaged in the purchase and sale of sanitary specialties which are manufactured for it by Kimberly-Clark Corp., one of the largest producers of paper and related products in the country. International Cellucotton Products had four directors in common with Kimberly-Clark.<sup>11</sup> This appeared to be a case of forward integration.

General Precision Equipment Corp. operates primarily as a management company directing the operations of various subsidiaries that produce motion picture and theater equipment and supplies, ordnance devices such as direction finders and computers, marine equipment, including depth-sounding devices and other marine instruments, and hydraulic and electronic control and regulation apparatus for industrial equipment. The company had direct interlocks with 14 concerns through five men, only one of whom was an officer in the company.<sup>12</sup>

Joy Manufacturing Co. as a producer of heavy mining machinery, especially coal cutting and handling equipment, may have an interest in the hydraulic control devices produced by General Precision Equipment; Republic Aviation Corp., as a large manufacturer of airplanes may also have been interested in precision equipment produced by the company; and Savage Arms Corp., as a producer of ordnance, may have been interested in the fire-control equipment produced by the company.

The interlock with Art Metal Construction Co. may have afforded a sure source of supply of metal stampings for use in the production of its equipment.

General Precision Equipment had an indirect interlock through the New York Trust Co. with Veeder-Root, which may have been a

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<sup>10</sup> Fred S. Chase of Waterbury, Conn., a director of Kennecott Copper and of its subsidiary, Chase Brass & Copper Co., Inc., was a director of Veeder-Root.

<sup>11</sup> Ernst Mahler, executive vice president and director of Kimberly-Clark, F. J. Sensenbrenner, a director, John R. Kimberly, vice president and director, and J. S. Sensenbrenner, a director of Kimberly-Clark, were all directors of International Cellucotton Products.

<sup>12</sup> George M. Gillies, Jr., president of the board of trustees of Adams Express Co., provided interlocks between the General Precision Equipment and National Aviation Corp., Art Metal Construction, and Joy Manufacturing. Robert L. Clarkson was a director of Underwood Corp., Republic Aviation, Continental Baking Co., and General Precision Equipment. Alfred Marchev was president and director of Republic Aviation and director of General Precision Equipment. Edward C. Delafeld was a director of Savage Arms and General Precision Equipment. Earle G. Hines, president and a director of General Precision Equipment, was also a director of Raybestor-Manhattan, Inc.

source of supply of components for General Precision Equipment's apparatus.<sup>13</sup>

Elgin National Watch Co. was interlocked with nine concerns, all but one of which have principal operating offices in Illinois. It appears that these interlocks carried no special significance except one with Montgomery Ward & Co., which was a potential customer.<sup>14</sup>

General Time Instruments Corp. manufactures a broad line of time-recording instruments, clocks, and related devices. The company had a direct interlock with Bridgeport Brass Co., a producer of copper and brass.<sup>15</sup>

There was also an indirect interlock with General Precision Equipment, a potential customer.<sup>16</sup>

Waltham Watch Co. had six directors who provided interlocks with 21 other concerns. Twelve of these interlocks were with financial institutions.<sup>17</sup> The company filed a bankruptcy petition December 28, 1948, and is now undergoing reorganization.

### SUMMARY

The companies in this industry group produce a great variety of commodities. They range from such relatively simple items as alarm clocks to the most complicated assemblies of scientific equipment as exemplified in gunnery fire-control systems, and they include such items as photographic supplies and medical and sanitary supplies. The products of one company may be essential components for another manufacturer. Optical goods and time-measuring equipment, for example, are important parts of scientific instruments.

<sup>13</sup> Seton Porter, formerly president and now chairman of National Distillers Products Corp., was a director of General Precision Equipment and New York Trust Co.; G. H. Anthony was a director of New York Trust Co. and Veeder-Root.

<sup>14</sup> Solomon A. Smith, president of Northern Trust Co., was a director of Elgin National Watch and Montgomery Ward & Co.

<sup>15</sup> John E. Bierwirth, formerly president of New York Trust Co. and subsequently president of National Distillers Products, was a director of General Time Instruments and Bridgeport Brass.

<sup>16</sup> Seton Porter was a director of National Distillers Products and General Precision Equipment; John E. Bierwirth was a director of National Distillers Products and General Time Instruments.

<sup>17</sup> The directors of Waltham Watch who provided the interlocks with financial houses were O. K. Anderson, president of Consolidated Investment Corp. G. P. Gardner, member of the financial committee of General Electric Co.; John P. Chase, member of the executive committee of Mathieson Alkali; Allan Forbes, president of State Street Trust Co.; Chandler Hovey, a partner in Kidder Peabody & Co.; and Henry C. Breck, a partner in J. & W. Seligman & Co. Messrs. Breck, Gardner, Anderson, Chase, and Hovey were reported as members of the board of directors in 1949.



The direct and indirect interlocks between Eastman Kodak, Bausch & Lomb, and Taylor Instrument, all located in Rochester, New York, may have been an expression of such community of interests as to result in a degree of integration. There was a similar direct interlock between Veeder-Root, a manufacturer of computing devices, and Colt's Manufacturing Co., a producer of ordnance material, and an indirect interlock with General Precision Equipment.

There were various direct interlocks that appeared to be of a customer-supply nature, such as Sperry with Curtiss-Wright and Douglas Aircraft, Minneapolis-Honeywell with Maytag and American Locomotive Co., and General Precision Equipment with Republic Aviation and Savage Arms. Other interlocks, all direct, having a supply significance include General Precision Equipment's direct interlocks with Art Metal Construction, Veeder-Root's interlocks with Washburn Wire and Associated Spring and General Time Instrument's interlock with Bridgeport Brass. The direct interlock between Kimberly-Clark and International Cellucotton Products appeared to be a case of forward integration since International Cellucotton Products distributed the cellulose products produced for it by Kimberly-Clark.

## Chapter 23

### MISCELLANEOUS MANUFACTURING INDUSTRIES

The miscellaneous manufacturing industries are primarily engaged in manufacturing products that do not fall within any other major product classification. Twenty-five such companies are listed among the 1,000 largest manufacturing corporations. They are relatively small concerns; the Diamond Match Co., with total assets of \$40,445,000 in 1946, was the largest in the industry. More than half of the companies listed ranked amongst the lower third of the 1,000 companies in amount of assets.

Only 13 of the 25 companies listed showed interlocks with other companies among the 1,000 largest manufacturing corporations. These companies are classified by subgroups as follows: Jewelry, silverware, and plated ware, two companies; pens, pencils, and other office and artists' materials, two companies; and miscellaneous manufacturing industries, nine companies.

The 13 companies had a total of 90 interlocks with 66 companies in other industry groups (see tables 49 and 50). Eleven of these interlocks were with nine companies in the machinery group; 10 were with seven banks; and 13 were with six companies in retail trade. There appeared to be no distinguishing pattern for the remainder of the interlocks.

There were no significant intraindustry interlocks between companies in this industry group. The single direct interlock disclosed, that between International Silver Co. and Brunswick-Balke-Collender Co., does not appear to represent anything more than an incidental relationship consequent upon the fact that the director in question served on the boards of 18 companies. This director, an investment banker, alone accounts for 36 of the 90 interlocks tabulated for this group.<sup>1</sup>

Three producers of matches, Diamond Match, Universal Match Corp., and Ohio Match Co., were, with others, defendants in a Sherman antitrust suit which resulted in a consent decree, entered April 9, 1946, that enjoined the companies from having interlocking directorates with any other company, not a wholly owned subsidiary, en-

<sup>1</sup> John M. Hancock, a partner in Lehman Bros., was a director of International Silver and Brunswick-Balke-Collender.

gaged in the manufacture, distribution, or sale of matches, match machinery, or match chemicals. Two of the companies, Diamond Match and Universal Match, are shown herein as having had direct interlocks with companies in other industries.

Diamond Match had interlocks with six companies through an investment banker.<sup>2</sup> One of these companies, Rockwell Manufacturing Co., which includes woodworking and other machinery among its products, may be a source of supply of equipment; another, Kuhn, Loeb & Co., may provide an important connection for company financing. Another interlock through one director with Mead Corp.,<sup>3</sup> producer of paper and paper products, may have had significance with respect to a source of supply of paper and paperboard.

The three interlocks of Universal Match with Mississippi Valley Trust Co. (St. Louis, Mo.), Scullin Steel Co., and Emerson Electrical Manufacturing Co. through a single director do not appear to have had other significance than in establishing financial connections.<sup>4</sup>

International Silver, a producer of tableware, had an important financial connection in its direct interlocks with Lehman Bros., investment bankers, and the Lehman Corp., an investment trust. It also had potentially important connections for the distribution of its products in its interlocks with Sears, Roebuck & Co., American Stores Co., W. T. Grant Co., and S. H. Kress & Co.<sup>5</sup>

Brunswick-Balke-Collender, a manufacturer of bowling alleys, billiard and pool tables, and related supplies, had a direct interlock with the Flintkote Co., a producer of bituminous and asbestos goods and compounds. This tie may have facilitated a supply of raw materials for the manufacture of bowling balls. Brunswick-Balke-Collender also had a direct interlock with Kimberly-Clark Corp., and was an actual or potential buyer of the hardwood lumber produced by the latter. These interlocks, together with others of less apparent significance, were provided by one director, an investment banker, who also provided an important financial link with Lehman Bros.<sup>6</sup>

Bastian-Blessing Co., a manufacturer of liquefied petroleum gas pressure-regulating equipment, soda-fountain equipment, and oxygen-acetylene welding equipment was directly interlocked through an investment banker with Parker Appliance Co.,<sup>7</sup> a manufacturer of products closely related to those of Bastian-Blessing, i. e., valves and

<sup>2</sup> Elisha Walker was a partner of Kuhn, Loeb & Co.

<sup>3</sup> Edward T. Gardner was president of Gardner-Richardson Co.

<sup>4</sup> Hord Hardin was executive vice president of Mississippi Valley Trust Co.

<sup>5</sup> John M. Hancock was the interlocking director between these retail establishments and International Silver.

<sup>6</sup> John M. Hancock, a partner in Lehman Bros., was also a director on the boards of Brunswick-Balke-Collender, Flintkote Co., and Kimberly-Clark Corp.

<sup>7</sup> Herbert I. Markham, a partner of Paul H. Davis, was chairman of the board of Parker Appliance and a director of Bastian-Blessing.

Designated industry	Miscellaneous manufacturing industries	Primary metal industries					Machinery (except electrical)						Electrical machinery, equipment, and supplies	Transportation equipment	Professional, scientific, and controlling instruments	Ordinance
	International Silver Co. Brunswick-Balke-Collender Co., The American Smelting & Refining Co. Continental Foundry & Machine Co. Poor & Co. Scullin Steel Co. Remington Rand, Inc. Rockwell Manufacturing Co. Underwood Corp. Carrier Corp. Grinnell Corp. ATF, Inc. Gardner-Denver Co. New Britain Machine Co. Parker Appliances Co. Radio Corporation of America Emerson Electric Manufacturing Co. Sangamo Electric Co. Clark Equipment Co. International Cotton Products Co. Gruen Watch Co. Veeder Root, Inc. Savage Arms Corp.															
International Silver Co.	1						1			1						
Gorham Manufacturing						1				1						1
Eversharp, Inc.			1	1												
Parker Pen Co.											1			1		
Diamond Match Co.							1							1		
Brunswick-Balke-Collender Co.	1							1								
Wurlitzer, Rudolph, Co.			1													
Spalding (A. G.) & Bros., Inc.															1	
Universal Match Corp.						1				1						
Pastian-Blessing Co.													1			
American-LaFrance Foamite Corp.									1				1			

Designated industry	Food and kindred products			Textile-mill products			Apparel		Paper and allied products				Printing, publishing, and allied industries		Chemicals and allied products		Products of petroleum and coal			Rubber products	Leather and leather products	Stone clay and glass products
	Armour & Co.	Colorado Milling & Elevator Co.	MacAndrews & Forbes Co.	Stetson (John B.) Co.	Van Raalte Co., Inc.	United States Finishing Co.	Hat Corporation of America	Stein (A.) & Co.	Kimberly-Clark Corp.	Meed Corp., The	United States Playing Card Co.	United Wallpaper, Inc.	American Colortype Co.	U. S. Printing & Lithograph Co.	Colgate-Palmolive-Peet Co.	Liquid Carbonic Corp., The	Tide Water Associated Oil Co.	Flintkote Co., The	Deep Rock Oil Corp.	American Hard Rubber Co.	Florsheim Shoe Co., The	Raybestos-Manhattan, Inc.
International Silver Co.						1		1										1	1		1	
Gorham Manufacturing Co.																						
Parker Pen Co.	1			1			1			1	1	1		1	1							
Diamond Match Co.																						
Talon, Inc.																						
Wurlitzer, Rudolph, Co.					1			1	1		1						1					
Spalding (A. G.) & Bros., Inc.														1				1				
Kiddie (Walter) & Co., Inc.													1					1			1	
Bastian-Blessing Co.		1														1				1		
American-LaFrance Foamite Corp.			2																			1
Brunswick-Balke-Collender									1									1				





fittings for hydraulic control systems, parts for aircraft oxygen, deicer, vacuum, and hydraulic systems, and tube bending and fabricating equipment. The products of one company appear to supplement or serve as component parts for the products of the other company.

American-LaFrance-Foamite Corp. produces fire-fighting equipment and fire-protection systems. It was directly interlocked by two directors with MacAndrews & Forbes Co.,<sup>8</sup> a processor of licorice and manufacturer of various products related thereto. Among these are substances used in fire-extinguishing systems. The assets of a subsidiary, Foamite-Childs Corp., were sold to American LaFrance Fire Engine Co. in 1927, and in 1946 MacAndrews & Forbes owned 27.43 percent of the common shares of American-LaFrance-Foamite. Foamite is used for fighting difficult fires; it forms a fog blanket over the fire to cut off air. It has wide application in the petroleum industry, especially through built-in fire-fighting systems.

American-LaFrance-Foamite also had a direct interlock through an investment banker<sup>9</sup> with Raybestos-Manhattan, Inc., a manufacturer of asbestos goods and fire hose.

#### SUMMARY

Only six of the 25 companies in the miscellaneous group had interlocks that appeared to call for comment. Seven men, four of whom were investment bankers, provided the interlocking connections among the 16 companies mentioned herein.

The interlocks with other manufacturers appeared, for the most part, to involve customer-supplier relationships, with little indication, except in one case, that these interlocks might significantly affect competition. In the case of the relationship between American-LaFrance-Foamite and MacAndrews & Forbes, the interlocking directors, supplemented by stock ownership, control of raw materials, and perhaps patent control, may affect competition adversely.

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<sup>8</sup> William E. Ransom, president, and William W. Walker, vice president, of MacAndrews & Forbes Co., were directors of American-LaFrance-Foamite.

<sup>9</sup> Clifford Hemphill, a partner of Hemphill, Noyes & Co., was a director of American-LaFrance-Foamite and of Raybestos-Manhattan.



## **APPENDIXES**



## Appendix A

### ONE THOUSAND LARGEST MANUFACTURING CORPORATIONS, BY INDUSTRY GROUPS: TOTAL ASSETS AND SALES, 1945 AND 1946

(Selection of the corporations was based on total assets in 1946)

Prepared by the United States Department of Commerce, Office of Business Economics; based on data from Moody's Investors Service and the Securities and Exchange Commission.

#### ONE THOUSAND LARGEST MANUFACTURING CORPORATIONS

<i>Summary data</i>	
Manufacturing industry group:	<i>Number of corporations</i>
19. Ordnance and accessories.....	8
20. Food and kindred products.....	126
21. Tobacco manufactures.....	13
22. Textile-mill products.....	85
23. Apparel and other finished products made from fabrics and similar materials.....	7
24. Lumber and wood products (except furniture).....	16
25. Furniture and fixtures.....	8
26. Paper and allied products.....	59
27. Printing, publishing, and allied industries.....	26
28. Chemicals and allied products.....	91
29. Products of petroleum and coal.....	41
30. Rubber products.....	16
31. Leather and leather products.....	11
32. Stone, clay, and glass products.....	34
33. Primary metal industries.....	82
34. Fabricated metal products (except ordnance, machinery, and transportation equipment).....	59
35. Machinery (except electrical).....	134
36. Electrical machinery, equipment, and supplies.....	53
37. Transportation equipment.....	90
38. Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks.....	21
39. Miscellaneous manufacturing industries.....	25
Total .....	1,000

*General note.*—The list is approximate. A few corporations for which complete financial data are not publicly available are necessarily omitted. Im-

portant among the large corporations known to have been omitted are the following: Lever Bros. Co.; Swedish Ball Bearing Co.; Campbell Soup Co.; Portsmouth Steel Corp.; Max Factor & Co.; and National Alfalfa and Dehydrating Co.

Data are largely on a consolidated basis, hence the number of individual corporations represented is considerably more than 1,000. Corporation reports were included under the year covering the greater part of the 12-month accounting period; a report for 12 months ended May 31, 1947, for example, was included under the year 1946. Total assets include United States tax notes.

Sales are net of returns and allowances; they may include or exclude excise and/or sales taxes depending upon the general treatment given to these items in the corporation reports. Sales data for some corporations include operating revenues.

Industry group and name of corporation	Rank in 1946 total assets		Total assets—end of fiscal year		Sales	
	In the industry group	In all manufacturing	Thousands of dollars			
			1945	1946	1945	1946
GROUP 19						
Ordnance and accessories:						
Remington Arms Co., Inc.	1	271	39,119	36,700	37,351	30,954
Colt's Manufacturing Co.	2	563	17,464	15,286	30,207	5,060
Savage Arms Corp.	3	735	10,670	10,682	17,863	9,857
GROUP 20						
Food and kindred products:						
Armour & Co. (Ill.)	1	25	349,487	374,559	1,212,961	1,183,538
Swift & Co.	2	26	353,247	366,137	1,307,632	1,308,364
Schenley Distillers Corp.	3	38	187,047	278,474	561,657	643,867
National Dairy Products Corp.	4	41	242,475	265,198	632,769	742,409
Borden Co., The	5	51	205,476	218,987	459,455	542,999
Distillers Corp.—Seagrams, Ltd.	6	59	190,873	201,373	400,055	477,472
National Distillers Products Corp.	7	65	135,480	182,484	385,801	450,280
Coca-Cola Co., The	8	68	169,252	175,972	148,621	125,406
General Foods Corp.	9	70	162,783	171,819	307,085	330,879
Standard Brands, Inc.	10	79	119,776	143,326	259,781	261,176
National Biscuit Co.	11	81	132,459	138,625	204,995	220,195
American Sugar Refining Co., The	12	85	126,726	132,959	174,084	169,886
Corn Products Refining Co.	13	88	119,379	131,152	106,477	131,897
Wilson & Co., Inc.	14	91	128,024	128,322	468,639	440,572
General Mills, Inc.	15	96	108,991	115,751	298,675	370,932
Heinz (H. J.) Co.	16	103	83,755	102,842	114,151	144,246
Walker (Hiram)—Gooderham & Worts, Ltd.	17	108	110,473	101,193	254,618	266,846
California Packing Corp.	18	134	79,904	81,621	111,776	151,360
Quaker Oats Co., The	19	137	81,795	80,567	151,084	154,831
Cudahy Packing Co., The	20	138	73,508	79,986	344,910	349,902
Anheuser-Busch, Inc.	21	150	68,328	73,136	(1)	(1)
Libby, McNeill & Libby	22	154	65,614	72,223	101,195	127,111
Wrigley (William), Jr., Co.	23	161	65,144	67,648	29,411	37,593
Staley (A. E.) Manufacturing Co.	24	162	49,388	66,255	78,134	99,763
Wesson Oil & Snowdrift Co., Inc.	25	170	57,027	62,009	126,788	126,385
Carnation Co.	26	174	52,109	60,187	168,828	186,930
Great Western Sugar Co., The	27	177	56,924	59,621	30,520	37,692
Continental Baking Co.	28	182	49,675	56,728	103,925	125,761
Pillsbury Mills, Inc.	29	185	42,435	56,450	140,305	188,270
International Milling Co.	30	188	52,016	55,922	(1)	115,215
City Ice & Fuel Co., The	31	197	46,078	53,865	54,059	57,707
Ralston Purina Co.	32	201	49,912	52,279	157,525	160,270
Stokely-Van Camp, Inc.	33	236	34,120	43,748	88,969	107,019
Pabst Brewing Co.	34	239	41,887	43,342	74,997	87,820
Hershey Chocolate Corp.	35	240	39,366	43,110	71,241	77,222
Hunt Foods, Inc.	36	257	16,171	39,783	16,251	64,181
Morrell (John) & Co. (Maine)	37	258	39,628	39,561	158,217	153,494
Beatrice Foods Co.	38	262	33,693	39,064	125,110	170,006
South Porto Rico Sugar Co.	39	266	37,411	38,296	15,633	18,823
Cuban-American Sugar Co.	40	277	34,162	35,856	39,501	37,165
National Sugar Refining Co., The	41	280	35,145	35,292	104,140	103,844
Sunshine Biscuits, Inc.	42	283	34,054	34,715	74,017	76,329
American Crystal Sugar Co.	43	286	28,699	34,494	14,643	25,376
Brown-Forman Distillers Corp.	44	291	17,364	33,717	38,782	52,502
General Baking Co.	45	294	30,923	32,827	73,338	78,989

<sup>1</sup> Not available.



Industry group and name of corporation	Rank in 1946 total assets		Total assets—end of fiscal year		Sales	
	In the industry group	In all manufacturing	Thousands of dollars			
			1945	1946	1945	1946
GROUP 20—continued						
Food and kindred products—Continued						
Pet Milk Co.	46	298	32,875	33,177	114,771	113,330
Beech-Nut Packing Co.	47	299	28,566	32,811	41,080	42,227
Golden State Co., Ltd.	48	304	28,632	32,054	108,538	93,719
Best Foods, Inc., The	49	315	33,348	31,045	81,588	70,772
Pepsi-Cola Co.	50	318	31,291	30,814	43,141	45,078
Canada Dry Ginger Ale, Inc.	51	331	26,362	29,538	32,479	37,587
Hawaiian Pineapple Co., Ltd.	52	332	30,609	29,447	28,239	28,937
Holly Sugar Corp.	53	333	24,711	29,428	16,730	27,182
Kellogg Co.	54	337	27,783	29,277	68,106	79,160
Allied Mills, Inc.	55	342	28,697	28,776	55,318	56,163
Fairmont Foods Co. (Del.)	56	347	24,424	28,125	79,296	108,943
United Biscuit Co. of America	57	355	31,119	27,419	50,594	60,877
Utah-Idaho Sugar Co.	58	358	24,530	27,263	14,374	21,188
Rath Packing Co.	59	374	24,683	26,482	100,155	100,300
Hormel (George A.) & Co.	60	378	20,431	24,954	114,214	126,083
Ward Baking Co.	61	379	22,280	24,952	60,248	70,528
Purity Bakeries Corp.	62	389	28,459	24,404	56,596	59,115
United States Sugar Corp.	63	398	23,182	23,423	8,080	11,921
Glenmore Distilleries Co.	64	405	16,028	23,012	36,630	43,830
Clinton Industries, Inc.	65	411	15,283	22,745	36,378	44,368
American Chicle Co.	66	414	20,603	22,596	26,125	27,341
Arden Farms Co.	67	418	20,627	22,525	57,922	71,061
Hygrade Food Products Corp.	68	419	13,070	22,477	110,987	154,950
American Distilling Co., The	69	429	17,910	22,070	40,812	59,242
Wahala Agricultural Co., Ltd.	70	438	20,757	21,610	5,412	5,888
Russell-Miller Milling Co.	71	447	28,478	21,134	(1)	(1)
Central Aguirre Associates	72	481	19,853	19,310	3,281	4,226
Kingan & Co., Inc.	73	493	18,128	18,695	80,958	90,022
Tex-O-Kan Flour Mills Co.	74	494	13,227	18,688	53,297	68,543
Atlantic Co.	75	498	20,890	18,514	27,611	28,606
Colorado Milling & Elevator Co.	76	506	13,810	18,174	61,728	95,951
Ruppert (Jacob)	77	510	16,432	17,920	38,203	38,629
Mayer (Oscar) & Co., Inc.	78	515	12,539	17,061	73,051	81,494
Amalgamated Sugar Co.	79	522	15,437	17,313	11,167	17,616
Hawaiian Commercial & Sugar Co., Ltd.	80	524	16,723	17,122	5,431	5,505
Planters Nut & Chocolate Co.	81	531	16,454	16,833	(1)	(1)
Creameries of America, Inc.	82	544	13,236	16,072	29,645	35,556
Penick & Ford, Ltd., Inc.	83	560	15,280	15,316	28,481	34,169
Godchaux Sugars, Inc.	84	561	14,978	15,297	28,239	30,983
Standard Milling Co.	85	567	7,128	15,076	34,257	41,339
Brewing Corp. of America	86	584	13,461	14,561	22,704	20,705
Minnesota Valley Canning Co.	87	587	12,169	14,472	(1)	(1)
Deerfield Packing Corp.	88	588	7,463	14,466	16,362	14,778
Fajardo Sugar Co. of Porto Rico, The	89	597	14,573	14,236	5,802	6,241
Gerber Products Co.	90	620	11,215	13,565	19,707	19,481
Pittsburgh Brewing Co.	91	623	13,556	13,462	17,127	15,766
Eastern Sugar Associates	92	626	16,318	13,328	7,863	6,732
Oahu Sugar Co., Ltd.	93	633	12,777	13,216	4,400	5,171
Brach (E. J.) & Sons	94	636	11,272	13,183	21,516	27,662
Alaska Packers Association	95	643	12,850	12,969	8,814	10,388
Interstate Bakeries Corp.	96	655	9,847	12,574	37,197	41,670
Froedtert Grain & Malting Co., Inc.	97	656	10,537	12,571	24,953	23,789
Phillips Packing Co., Inc.	98	694	11,770	12,230	27,353	22,450
American Ice Co.	99	680	13,994	11,702	15,164	15,710
Blum (Philip) & Co., Inc.	100	688	(1)	11,887	17,723	27,892
Duquesne Brewing Co. of Pittsburgh	101	689	11,471	11,558	22,678	20,597
Falstaff Brewing Corp.	102	701	10,336	11,227	14,407	13,254
American Maltz-Products Co.	103	703	10,193	11,220	21,019	28,586
MacAndrews & Forbes Co.	104	708	10,650	11,135	8,136	10,322
Tobin Packing Co., Inc.	105	720	9,127	10,942	44,094	47,559
American Molasses Co.	106	751	9,064	10,355	25,327	20,988
Carr-Consolidated Biscuit Co.	107	769	(1)	10,096	11,906	26,310
Chase Candy Co.	108	780	1,444	9,938	(1)	(1)
South Coast Corp.	109	793	7,370	9,746	9,648	9,009
Ewa Plantation Co.	110	799	9,617	9,617	6,773	5,646
Pacific American Fisheries, Inc.	111	842	9,197	8,978	6,419	5,699
Merchants Distilling Corp.	112	858	4,366	8,821	19,441	25,006
Visking Corp.	113	868	7,336	8,728	10,453	12,260
Michigan Sugar Co.	114	873	8,460	8,658	5,960	6,109
Olau Sugar Co., Ltd. (Hawaii)	115	877	8,373	8,632	3,884	3,591
American Bakeries Co.	116	888	9,222	8,447	22,090	24,614
Life Savors Corp.	117	901	8,023	8,265	9,989	8,444

<sup>1</sup> Not available.

<sup>2</sup> Data for 1945.

945693—51—32

Industry group and name of corporation	Rank in 1946 total assets		Total assets—end of fiscal year		Sales	
	In the industry group	In all manufacturing	Thousands of dollars			
			1945	1946	1945	1946
GROUP 20—continued						
Food and kindred products—Continued						
Krueger (G.) Brewing Co.	118	904	7,292	8,243	10,389	10,795
Omar, Inc.	119	910	7,481	8,172	23,022	25,744
Rockwood & Co.	120	928	7,504	8,037	(1)	(1)
Peter Paul, Inc.	121	952	7,236	7,755	(1)	(1)
Logansport Distilling Co., Inc.	122	954	2,389	7,726	5,779	15,585
Foremost Dairies, Inc.	123	965	7,124	7,671	12,829	26,384
New England Confectionery Co.	124	973	7,108	7,565	(1)	(1)
Griggs, Cooper & Co.	125	984	6,415	7,443	20,118	22,450
McBryde Sugar Co., Ltd.	126	993	7,201	7,383	1,804	1,678
GROUP 21						
Tobacco manufactures:						
American Tobacco Co., The	1	15	483,509	552,529	557,558	764,168
Reynolds (R. J.) Tobacco Co.	2	24	315,227	390,182	430,967	613,106
Liggett & Myers Tobacco Co.	3	29	293,355	338,001	399,213	464,508
Philip Morris & Co., Ltd., Inc.	4	95	131,187	116,744	178,686	170,906
Lorillard (P.) Co.	5	110	104,885	100,739	126,429	124,047
General Cigar Co., Inc.	6	320	30,157	30,542	25,474	27,283
United States Tobacco Co.	7	348	28,307	28,064	18,447	18,154
Consolidated Cigar Corp.	8	383	23,423	24,801	25,135	29,166
American Snuff Co.	9	400	20,739	20,467	9,260	10,046
Bayuk Cigars, Inc.	10	462	17,377	20,412	21,554	26,280
Helme (George W.) Co.	11	559	15,457	15,425	8,356	6,864
Webster Tobacco Co., Inc.	12	695	10,013	11,340	9,580	14,317
DWG Cigar Corp.	13	758	9,903	10,260	10,750	14,155
GROUP 22						
Textile-mill products:						
Celanese Corp. of America	1	57	146,733	204,595	104,197	135,202
Stevens (J. P.) & Co., Inc.	2	80	(1)	139,032	(1)	(1)
American Woolen Co.	3	101	104,337	104,382	162,680	170,811
Burlington Mills Corp.	4	114	64,757	96,388	108,200	141,544
Cannon Mills Co.	5	122	74,498	93,024	79,386	113,955
United Merchants & Manufacturers, Inc.	6	127	66,290	90,076	103,854	129,831
Armstrong Cork Co.	7	133	79,911	82,680	108,820	104,717
Pacific Mills	8	186	46,439	56,315	64,023	78,304
Textron, Inc.	9	189	27,378	55,706	46,853	112,952
Smith (Alexander) & Sons Carpet Co.	10	213	35,489	50,071	30,617	45,292
Dan River Mills, Inc.	11	214	42,135	49,472	53,828	77,346
Bemis Bros. Bag Co.	12	220	36,411	47,765	(1)	(1)
Lowenstein (M.) & Sons, Inc.	13	259	22,531	39,488	49,467	64,708
West Point Manufacturing Co.	14	260	38,097	39,457	51,010	58,852
Bibb Manufacturing Co.	15	265	38,420	38,420	(1)	(1)
Bigelow-Sanford Carpet Co., Inc.	16	281	29,493	35,202	34,679	39,222
Congoleum-Nairn, Inc.	17	290	32,206	33,776	32,319	24,551
Pepperell Manufacturing Co.	18	312	32,255	31,519	52,070	49,270
Ludlow Manufacturing & Sales Co.	19	322	30,033	30,481	17,692	21,584
American Thread Co., Inc.	20	324	26,572	30,289	(1)	(1)
Collins & Altman Corp.	21	327	26,526	30,150	36,551	40,890
Berkshire Fine Spinning Associates, Inc.	22	343	23,833	28,622	36,043	42,861
Paraffine Cos., Inc., The	23	360	29,447	26,933	26,703	14,472
Goodall-Sanford, Inc.	24	351	26,010	28,738	21,672	30,662
Riegel Textile Corp. (Delaware)	25	366	21,171	26,337	34,295	44,400
Kendall Co., The	26	369	22,462	26,078	46,403	57,437
Mohawk Carpet Mills, Inc.	27	370	22,659	25,795	30,435	33,332
Bates Manufacturing Co.	28	380	16,186	24,033	8,031	48,180
Reeves Bros., Inc.	29	407	(1)	22,942	81,182	50,282
Nashua Manufacturing Co.	30	417	18,356	22,532	32,345	36,745
Beaunit Mills, Inc.	31	423	19,445	22,326	28,616	37,542
Lees (James) & Sons Co.	32	431	(1)	22,044	22,625	31,344
Avondale Mills	33	435	17,911	21,855	41,262	42,628
Fulton Bag & Cotton Mills	34	457	18,820	20,804	(1)	(1)
Whitman (William) Co., Inc. (Massachusetts)	35	488	18,761	18,952	28,236	29,796
Callaway Mills	36	590	20,449	18,363	(1)	(1)
Mount Vernon-Woodberry Mills, Inc.	37	514	15,676	17,690	20,508	33,743
Plymouth Cordage Co.	38	526	18,244	17,020	23,086	16,851
Graniteville Co.	39	532	13,369	16,728	20,107	37,801
Kayser (Julius) & Co.	40	543	15,670	16,223	22,134	19,733

<sup>1</sup> Not available.

<sup>2</sup> Data for 1944.

Industry group and name of corporation	Rank in 1946 total assets		Total assets—end of fiscal year		Sales	
	In the industry group	In all manufacturing	Thousands of dollars			
			1945	1946	1945	1946
GROUP 22—continued						
Textile-mill products—Continued						
Botony Mills, Inc.	41	545	24,667	16,059	32,403	37,635
Stetson (John B.) Co.	42	546	12,431	16,056	15,949	20,423
Duplan Corp.	43	547	14,165	16,030	21,048	28,954
Colonial Mills, Inc.	44	550	7,025	15,955	13,470	29,297
National Automotive Fibres, Inc.	45	569	9,554	15,014	15,889	18,592
Cleveland Worsted Mills Co.	46	573	11,927	14,911	(1)	(1)
Verney Corp.	47	601	12,714	14,990	17,100	24,469
Pacolet Manufacturing Co.	48	612	9,928	13,813	(1)	(1)
American Manufacturing Co.	49	627	12,517	13,315	9,755	9,944
Bancroft (Joseph) & Sons Co.	50	628	11,576	13,297	11,010	16,408
Thomaston Mills	51	642	11,695	13,068	20,714	23,297
Chatham Manufacturing Co.	52	653	8,861	12,616	(1)	(1)
May McEwen Kaiser Co.	53	686	8,110	11,634	(1)	(1)
Blumenthal (Sidney) & Co., Inc.	54	711	10,064	11,092	15,537	22,256
Textiles, Inc.	55	716	9,720	11,030	17,986	21,188
Dwight Manufacturing Co.	56	731	9,248	10,808	15,334	22,823
American Yarn & Processing Co.	57	734	6,197	10,703	11,962	16,983
Van Raalte Co., Inc.	58	740	9,031	10,538	11,243	15,684
Powdrell & Alexander, Inc.	59	743	7,840	10,500	16,116	20,575
Munsingwear, Inc.	60	744	8,243	10,474	11,806	15,853
United Elastic Corp.	61	747	7,969	10,440	11,180	15,022
Wamsutta Mills	62	748	10,076	10,434	(1)	(1)
Standard-Coosa-Thatcher Co.	63	752	10,531	10,340	18,081	18,274
Utica & Mohawk Cotton Mills, Inc.	64	774	8,032	10,017	10,900	14,933
Naumkeag Steam Cotton Co.	65	786	9,218	9,848	9,843	11,472
Sagamore Manufacturing Co.	66	805	7,585	9,513	8,646	13,133
Cheney Bros.	67	806	10,266	9,512	(1)	(1)
Susquehanna Mills, Inc.	68	813	4,692	9,428	11,695	14,337
Hathaway Manufacturing Co.	69	843	6,754	8,069	11,622	14,997
United States Finishing Co.	70	844	7,448	8,957	10,945	15,999
Firth Carpet Co.	71	857	7,314	8,838	9,810	10,860
Utica Knitting Co.	72	875	7,800	8,639	16,236	16,074
Brandon Corp.	73	887	7,918	8,482	(1)	(1)
Alabama Mills, Inc.	74	893	5,801	8,379	11,292	18,953
Wayne Knitting Mills	75	911	4,933	8,171	4,952	8,029
Wyandotte Worsted Co.	76	915	7,616	8,122	18,255	16,135
Real Silk Hosiery Mills, Inc.	77	933	7,704	7,999	12,732	15,236
American Hair & Felt Co.	78	934	7,057	7,998	8,176	9,552
Monarch Mills	79	937	5,672	7,935	9,148	11,259
Adams-Millis Corp.	80	943	7,341	7,830	10,606	11,016
Allen Industries, Inc.	81	949	5,301	7,778	5,897	14,300
Belding Heminway Co.	82	953	6,945	7,744	14,097	16,137
La France Industries	83	962	5,247	7,681	7,063	10,196
Phoenix Hosiery Co.	84	976	8,547	7,536	9,038	10,374
Holeproof Hosiery Co.	85	978	5,105	7,510	(1)	(1)
GROUP 23						
Apparel and other finished products made from fabrics and similar materials:						
Cluett, Peabody & Co., Inc.	1	329	24,701	29,699	31,258	44,440
Hart, Schaffner & Marx	2	394	18,934	24,053	33,805	45,508
Reliance Manufacturing Co.	3	586	12,994	14,483	36,623	37,214
Manhattan Shirt Co.	4	622	10,352	13,464	14,704	19,625
Hat Corp. of America	5	890	7,720	8,424	14,013	17,688
Phillips-Jones Corp.	6	891	5,741	8,401	9,377	13,923
Stein (A.) & Co.	7	977	6,739	7,520	11,413	14,995
GROUP 24						
Lumber and wood products (except furniture):						
Weyerhaeuser Timber Co.	1	71	160,575	166,540	60,657	66,272
Long-Bell Lumber Co.	2	245	37,306	41,738	40,032	48,738
United States Plywood Corp.	3	325	20,642	20,244	27,083	43,016
Pacific Lumber Co.	4	491	19,817	18,775	6,972	3,437
Mengel Co.	5	519	16,468	17,420	25,118	25,342
Hines (Edward) Lumber Co.	6	527	14,085	16,979	19,620	25,005
Evans Products Co.	7	591	13,312	14,376	17,061	20,130
Greif Bros. Cooperative Corp.	8	632	13,221	13,225	26,059	26,077
Coosa Bay Lumber Co.	9	650	11,666	12,761	3,307	10,519
McCloud River Lumber Co.	10	665	12,212	12,212	(1)	(1)
Atlas Plywood Corp.	11	694	11,000	11,352	14,332	15,590

1 Data not available.

2 Data for 1945.

Industry group and name of corporation	Rank in 1946 total assets		Total assets—end of fiscal year		Sales	
	In the industry group	In all manufacturing	Thousands of dollars			
			1945	1946	1945	1946
GROUP 24—continued						
Lumber and wood products—Continued						
Pickering Lumber Corp.	12	759	9,193	10,254	1,286	1,767
Kirby Lumber Corp.	13	796	9,468	9,643	4,529	6,600
Chicago Mill & Lumber Co.	14	927	6,938	8,038	(1)	(1)
General Box Co.	15	955	5,644	7,719	15,612	17,651
Harbor Plywood Corp.	16	982	4,705	7,464	7,537	10,075
GROUP 25						
Furniture and fixtures:						
Simmons Co.	1	200	40,700	52,310	62,001	92,925
Kroehler Manufacturing Co.	2	615	13,843	13,754	21,733	17,696
General Fireproofing Co.	3	667	12,812	12,205	15,050	15,958
Art Metal Construction Co.	4	673	12,533	12,014	(1)	(1)
Bassett Furniture Industries, Inc.	5	691	10,547	11,500	13,845	20,418
Heywood-Wakefield Co.	6	736	9,450	10,663	(1)	(1)
Weber Showcase & Fixture Co., Inc.	7	790	7,994	9,792	14,531	14,286
American Seating Co.	8	818	8,925	9,310	11,802	10,537
GROUP 26						
Paper and allied products:						
International Paper Co.	1	40	258,746	269,090	234,246	287,868
Crown Zellerbach Corp.	2	82	116,471	137,016	102,075	127,797
St. Regis Paper Co.	3	106	72,095	101,520	52,501	82,782
Kimberly-Clark Corp.	4	143	66,068	76,734	56,882	66,377
West Virginia Pulp & Paper Co.	5	153	68,194	72,569	59,188	67,212
Champion Paper & Fibre Co.	6	172	53,577	60,972	49,218	67,611
Mead Corp., The	7	206	39,615	51,716	40,857	53,429
Brown Co.	8	211	43,881	50,706	33,284	36,087
Container Corp. of America	9	212	38,609	50,159	74,138	91,090
Minnesota & Ontario Paper Co.	10	218	46,810	48,515	24,480	29,464
Marathon Corp.	11	222	35,580	46,985	31,941	33,244
Great Northern Paper Co.	12	223	45,650	46,888	(1)	(1)
Rayonier, Inc.	13	248	36,769	41,445	27,033	435,000
Oxford Paper Co.	14	249	29,577	41,178	(1)	(1)
Consolidated Water Power & Paper Co.	15	282	30,272	35,178	22,329	26,945
Union Bag & Paper Corp.	16	307	26,085	31,859	41,391	44,871
Gair (Robert) Co., Inc.	17	317	19,113	30,912	28,093	33,697
Scott Paper Co.	18	341	25,976	28,804	37,680	46,223
Hollingsworth & Whitney Co.	19	353	23,618	27,590	17,924	21,432
Kalamazoo Vegetable Parchment Co.	20	357	18,526	27,324	13,761	21,613
Gaylord Container Corp.	21	359	22,653	27,262	38,307	44,284
National Container Corp. (Del.)	22	365	18,521	26,457	18,767	28,776
Hammermill Paper Co.	23	458	19,664	20,756	11,856	14,107
Hinde & Danach Paper Co., The	24	521	16,886	17,390	24,054	22,946
Warren (S. D.) Co.	25	534	14,808	16,658	15,896	21,855
Nekoosa-Edwards Paper Co.	26	555	13,590	15,679	11,352	13,018
Masonite Corp.	27	575	17,674	14,840	17,531	16,448
United States Envelope Co.	28	604	13,809	13,931	(1)	(1)
Soundview Pulp Co.	29	607	11,690	13,874	10,386	12,359
United States Playing Card Co.	30	609	14,169	13,847	16,834	20,781
Oswego Falls Corp.	31	631	10,116	13,258	17,916	23,709
Riegel Paper Corp.	32	635	11,778	13,184	15,626	20,086
Consolidated Paper Co.	33	637	12,148	13,115	17,773	23,296
Sutherland Paper Co.	34	638	10,615	13,080	14,908	19,730
Dennison Manufacturing Co.	35	646	13,624	12,921	19,447	21,649
Eastern Corp.	36	658	11,922	12,434	10,187	11,886
Puget Sound Pulp & Timber Co.	37	661	10,543	12,377	6,217	7,188
United Wallpaper, Inc.	38	677	8,670	11,876	16,327	14,373
Lilly-Tulip Cup Corp.	39	685	10,606	11,676	17,619	18,758
Hudson Pulp & Paper Corp.	40	705	5,308	11,203	6,378	7,725
Dixie Cup Co.	41	710	11,998	11,063	14,905	13,625
Eddy Paper Corp.	42	739	10,883	10,559	10,534	19,852
Southland Paper Mills, Inc.	43	753	8,859	10,339	6,358	7,099
Camp Manufacturing Co., Inc.	44	772	9,171	10,070	7,241	9,849
Rhinolander Paper Co.	45	792	9,316	9,755	6,828	7,483
American Writing Paper Corp.	46	800	9,394	9,585	9,211	11,397
Sorz Paper Co.	47	820	7,640	9,284	8,683	10,851
Southern Advance Bag & Paper Co., Inc.	48	827	11,591	9,209	9,127	12,008
Central Fibre Products Co., Inc.	49	837	8,302	9,048	(1)	(1)
Western Tablet & Stationery Corp.	50	838	9,247	9,036	(1)	(1)

† Data not available.

\* Estimated.

Industry group and name of corporation	Rank in 1946 total assets		Total assets—end of fiscal year		Sales	
	In the industry group	In all manufacturing	Thousands of dollars			
			1945	1946	1945	1946
GROUP 26—continued						
Paper and allied products—Continued						
Chesapeake Corp. of Va.....	51	864	7,124	8,789	6,208	8,454
Oregon Pulp & Paper Co.....	52	882	7,725	8,565	(1)	(1)
Fort Wayne Corrugated Paper Co.....	53	892	5,320	8,400	10,180	11,786
Cornell Wood Products Co.....	54	900	6,922	8,260	13,995	14,503
Northern Paper Mills.....	55	902	7,862	8,248	8,946	10,034
Shellmar Products Corp.....	56	926	10,074	8,053	28,992	15,740
Allied Paper Mills.....	57	959	6,154	7,687	9,540	13,266
Morris Paper Mills.....	58	961	(1)	7,681	5,196	8,891
Sonoco Products Co.....	59	999	6,621	7,340	8,896	10,526
GROUP 27						
Printing, publishing, and allied industries:						
Hearst Consolidated Publications, Inc.	1	73	142,874	156,288	108,990	132,033
Curtis Publishing Co.....	2	152	67,606	72,578	72,164	100,012
Time, Inc.....	3	176	59,154	59,859	74,157	95,955
Crowell-Collier Publishing Co.....	4	243	42,945	42,757	51,276	58,646
McCall Corp.....	5	338	26,043	29,268	24,362	28,884
McGraw-Hill Publishing Co., Inc.....	6	352	29,931	27,687	28,254	32,600
American Bank Note Co.....	7	354	30,209	27,564	16,854	17,515
Chicago Daily News, Inc., The.....	8	384	24,763	24,638	11,241	14,139
Cunco Press, Inc.....	9	448	18,567	21,133	27,785	37,002
Hall (W. F.) Printing Co.....	10	450	18,526	20,972	23,867	33,113
Times-Mirror Co.....	11	465	17,955	20,304	11,722	14,109
Gannett Co., Inc.....	12	507	18,111	18,111	(1)	(1)
Conde Nast Publications, Inc.....	13	570	15,099	14,960	15,911	20,351
Copley Press, Inc.....	14	644	12,954	12,954	10,085	(1)
Brown & Bigelow.....	15	669	9,863	12,120	26,546	29,304
Meredith Publishing Co.....	16	679	9,669	11,704	8,275	11,064
Macfadden Publications, Inc.....	17	692	12,436	11,392	13,280	13,660
Western Newspaper Union.....	18	707	9,557	11,138	10,535	14,489
American Colortype Co.....	19	715	9,721	11,066	14,253	17,503
Capper Publications, Inc.....	20	777	10,423	9,980	7,907	8,206
United States Printing & Lithograph Co.....	21	810	8,024	9,492	9,847	13,072
American Book Co.....	22	832	10,784	9,140	(1)	(1)
Chilton Co.....	23	867	9,247	8,735	7,919	8,578
Macmillan Co.....	24	941	8,061	7,861	(1)	(1)
Houghton Mifflin Co.....	25	945	7,335	7,816	(1)	(1)
United Printers & Publishers, Inc.....	26	981	7,361	7,480	12,995	13,909
GROUP 28						
Chemicals and allied products:						
du Pont (E. I.) de Nemours & Co.....	1	6	1,025,308	1,053,496	631,575	661,824
Union Carbide & Carbon Corp.....	2	21	428,078	439,013	481,521	414,988
Allied Chemical & Dye Corp.....	3	33	285,893	301,370	286,742	280,484
Dow Chemical Co.....	4	53	128,756	213,638	101,814	130,427
Proctor & Gamble Co., The.....	5	61	187,816	192,998	342,512	309,834
American Viscose Corp.....	6	67	139,728	176,135	119,376	138,827
American Cyanamid Co.....	7	72	145,263	162,121	159,053	178,953
Monsanto Chemical Co.....	8	83	90,734	135,762	95,339	99,591
Publisher Industries, Inc.....	9	86	70,637	131,757	272,746	355,169
Sterling Drug, Inc.....	10	112	88,883	98,090	104,585	121,488
Colgate-Palmolive-Peet Co.....	11	116	85,904	95,656	135,368	146,372
American Home Products Corp.....	12	121	63,257	93,770	108,767	132,342
Rexall Drug, Inc.....	13	126	70,070	90,792	158,183	178,856
Sherwin-Williams Co., The.....	14	129	81,566	88,815	(1)	(1)
Air Reduction Co., Inc.....	15	135	83,054	81,354	80,689	71,218
General Aniline & Film Corp.....	16	141	78,811	79,439	68,559	64,190
Hercules Powder Co.....	17	158	71,959	70,513	100,556	100,728
Archer-Daniels-Midland Co.....	18	168	59,000	63,243	172,720	181,996
Parke, Davis & Co.....	19	173	49,660	60,790	54,665	66,208
Glidden Co., The.....	20	178	67,036	59,113	111,616	122,439
Abbot Laboratories.....	21	196	37,241	53,865	37,930	54,210
U. S. Industrial Chemicals, Inc.....	22	205	45,979	51,960	48,182	69,706
Squibb (E. R.) & Sons.....	23	208	44,357	51,117	53,553	59,836
Merck & Co., Inc.....	24	225	37,453	46,347	55,002	61,554
International Minerals & Chemical Corp.....	25	247	37,950	41,714	30,301	34,373
Columbian Carbon Co.....	26	250	37,615	41,079	27,244	34,363
Industrial Rayon Corp.....	27	251	38,715	40,507	32,872	39,059
Diamond Alkali Co.....	28	255	38,451	40,046	29,949	32,203

\* Not available.

\* Data for 1945.

Industry group and name of corporation	Rank in 1946 total assets		Total assets—end of fiscal year		Sales	
	In the industry group	In all manufacturing	Thousands of dollars			
			1945	1946	1945	1946
GROUP 28—continued						
Chemicals and allied products—Continued						
Kellogg (Spencer) & Sons, Inc.	29	270	35,435	37,223	73,363	74,776
Liquid Carbonic Corp., The	30	284	27,720	34,691	21,614	23,747
Virginia-Carolina Chemical Corp.	31	285	33,386	34,542	33,425	36,604
Pfizer (Charles) & Co., Inc.	32	289	23,695	33,783	27,538	43,658
Commercial Solvents Corp.	33	292	30,670	33,573	40,285	41,875
Bristol-Myers Co.	34	296	29,035	33,256	36,759	47,828
American Agricultural Chemical Co. (of Delaware)	35	301	30,654	32,465	40,908	43,654
Eagle-Picher Co.	36	326	26,363	30,203	41,291	40,989
Interchemical Corp.	37	328	26,850	29,739	44,100	52,678
Atlas Powder Co.	38	334	31,736	29,387	44,381	32,184
Mathieson Alkali Works, Inc.	39	339	28,076	28,890	19,590	20,624
Tennessee Corp.	40	362	25,513	26,669	24,878	27,689
American Enka Corp.	41	372	19,945	25,306	(1)	(1)
United Carbon Co.	42	386	21,739	24,484	9,980	16,572
Pennsylvania Salt Manufacturing Co.	43	395	24,783	23,742	26,210	23,763
Vick Chemical Co.	44	396	20,728	23,710	35,608	37,186
Heyden Chemical Corp.	45	404	16,531	23,108	17,156	18,858
Devoe & Reynolds Co., Inc.	46	442	17,716	21,467	27,252	34,097
National Cylinder Gas Co.	47	452	20,611	20,935	21,149	19,878
Westvaco Chlorine Products Corp.	48	463	18,991	20,398	17,973	17,784
American Potash & Chemical Corp.	49	467	18,973	20,288	10,342	10,645
Sharp & Dohme, Inc.	50	471	19,132	20,047	25,611	26,610
North American Rayon Corp.	51	501	17,368	18,291	19,256	20,111
Victor Chemical Works	52	504	13,901	18,223	16,548	19,409
Central Soya Co., Inc.	53	516	14,700	17,484	54,864	62,703
Mead Johnson & Co.	54	518	16,086	17,428	18,999	22,927
Sun Chemical Corp.	55	523	13,567	17,235	17,547	29,046
El Dorado Oil Works	56	536	3,208	16,517	4,278	18,827
Davison Chemical Corp.	57	537	18,658	16,459	33,399	23,321
Lambert Co., The	58	565	15,762	15,177	30,952	30,224
Royster (F. S.) Guano Co.	59	571	13,351	14,946	(1)	(1)
Hooker Electrochemical Co.	60	572	16,096	14,934	19,075	14,885
Potash Co. of America	61	581	13,087	14,672	12,694	13,127
Consolidated Chemical Industries, Inc.	62	589	12,414	14,408	15,248	16,311
International Salt Co.	63	596	15,066	14,290	11,682	10,779
Ferro Enamel Corp.	64	606	8,327	13,889	13,335	19,416
Newport Industries, Inc.	65	608	7,994	13,866	9,719	13,363
Standard Wholesale Phosphate & Acid Works, Inc.	66	621	13,529	13,550	9,066	11,755
West End Chemical Co.	67	675	11,614	11,941	1,886	2,300
American Bemberg Corp.	68	684	11,256	11,080	(1)	(1)
American-Marletta Co.	69	696	7,347	11,327	13,439	19,410
Coty, Inc.	70	706	10,289	11,153	15,267	19,107
Cook Paint & Varnish Co.	71	723	9,338	10,857	16,719	20,941
Harshaw Chemical Co.	72	750	8,599	10,368	23,921	21,342
Continental-Diamond Fibre Co.	73	766	9,785	10,145	10,787	11,033
Nopec Chemical Co.	74	767	8,406	10,129	15,270	16,951
Bon Ami Co., The	75	807	9,343	9,510	5,610	(1)
Chesebrough Manufacturing Co. (Cons.)	76	808	9,879	9,505	(1)	(1)
Avon Allied Products, Inc.	77	814	8,966	9,404	15,798	17,216
National Vulcanized Fibre Co.	78	829	8,372	9,161	10,411	13,465
Emerson Drug Co. of Baltimore City	79	831	8,213	9,148	9,446	11,774
Lehn & Fink Products Corp.	80	841	8,130	8,982	16,431	16,281
Durez Plastics & Chemicals, Inc.	81	851	7,812	8,899	7,047	9,604
Drackett Co., The	82	855	5,774	8,854	12,929	16,263
Bourjois, Inc.	83	863	8,339	8,796	11,172	10,852
Chickasha Cotton Oil Co.	84	872	9,684	8,692	21,845	18,490
Pratt & Lambert, Inc.	85	906	7,376	8,231	7,184	8,934
Imperial Paper & Color Corp.	86	935	7,443	7,967	10,702	11,337
West Disinfecting Co.	87	940	5,479	7,863	12,430	11,409
Norwich Pharmacal Co.	88	950	6,184	7,775	11,857	10,239
United States Potash Co.	89	983	7,627	7,461	8,039	9,109
Rubinstein (Helena) Inc.	90	985	7,526	7,443	10,937	10,336
Consolidated Rendering Co.	91	998	7,072	7,342	(1)	(1)
GROUP 29						
Products of petroleum and coal:						
Standard Oil Co. (N. J.)	1	1	2,531,808	2,650,988	1,618,075	1,622,339
Soco-Vacuum Oil Co., Inc.	2	4	1,043,665	1,110,166	778,676	760,950

<sup>1</sup> Not available.

<sup>2</sup> Investment in Standard-Vacuum Oil Co. was shown in the balance sheet after deducting Soco-Vacuum's indebtedness to that company (25 million dollars in 1945 and 1946).



Industry group and name of corporation	Rank in 1946 total assets		Total assets—end of fiscal year		Sales	
	In the industry group	In all manufacturing	Thousands of dollars			
			1945	1946	1945	1946
GROUP 29—continued						
Products of petroleum and coal—Con.						
Standard Oil Co. (Ind.)	3	5	946,136	1,065,901	620,138	650,616
Texas Co., The	4	7	833,854	937,302	577,077	586,537
Standard Oil Co. of Calif.	5	11	738,346	785,467	343,328	372,797
Gulf Oil Corp.	6	12	652,811	722,319	504,692	562,241
Sinclair Oil Corp.	7	17	456,090	484,743	406,310	376,535
Shell Union Oil Corp.	8	18	435,117	477,479	475,911	442,828
Phillips Petroleum Co.	9	30	317,022	332,059	212,459	220,075
Atlantic Refining Co., The	10	34	272,000	296,265	259,004	229,227
Empire Gas & Fuel Co.	11	37	274,157	278,972	144,355	141,978
Union Oil Co. of California	12	45	228,519	238,626	138,512	121,674
Tide Water Associated Oil Co.	13	46	233,071	238,599	244,317	216,302
Pure Oil Co., The	14	47	215,254	229,101	165,310	178,888
Sun Oil Co.	15	55	196,756	206,543	471,743	349,000
Continental Oil Co.	16	66	173,241	178,183	144,164	159,231
Standard Oil Co. (Ohio), The	17	74	142,294	155,626	124,909	160,565
Skelly Oil Co.	18	104	92,958	102,458	61,414	78,498
Richfield Oil Corp.	19	109	98,006	101,139	84,875	68,855
Mid-Continent Petroleum Corp.	20	118	85,257	94,815	65,628	80,113
Sunray Oil Corp.	21	124	33,484	91,936	12,621	20,822
Koppers Co., Inc.	22	125	81,215	91,380	119,610	112,597
Barber Asphalt Corp.	23	229	18,024	45,305	10,509	7,467
Flintkote Co., The	24	233	31,923	44,838	37,022	52,580
Lion Oil Co.	25	287	22,672	33,963	22,964	36,642
Alabama By-Products Corp.	26	350	27,124	27,797	(1)	(1)
Ruberoid Co., The	27	382	21,493	24,804	30,715	39,191
Certain-Teed Products Corp.	28	393	18,835	24,081	24,311	34,959
Quaker State Oil Refining Corp.	29	401	22,319	23,238	31,062	33,988
Carey (Philip) Manufacturing Co.	30	412	19,034	22,632	30,586	40,341
Deep Rock Oil Corp.	31	455	19,675	20,821	20,422	23,908
Ashland Oil & Refining Co.	32	469	22,128	20,120	34,813	20,401
Bird & Son, Inc.	33	503	17,199	18,226	22,617	27,872
Hickok Oil Corp.	34	540	16,616	16,312	19,545	22,726
Shamrock Oil & Gas Corp.	35	674	9,061	11,989	7,148	7,759
Hancock Oil Co. of Calif.	36	729	9,809	10,812	10,753	11,664
Bay Petroleum Corp.	37	741	10,036	10,526	11,559	14,037
Kendall Refining Co.	38	768	10,253	10,106	10,786	11,311
Crown Central Petroleum Corp.	39	811	9,919	9,488	22,367	11,956
Cosden Petroleum Corp.	40	914	7,393	8,147	9,374	12,059
Panhandle Producing & Refining Co.	41	922	6,579	8,090	5,173	5,752
GROUP 30						
Rubber products:						
Goodyear Tire & Rubber Co.	1	27	340,836	356,317	716,177	616,508
Firestone Tire & Rubber Co.	2	32	300,136	313,715	681,744	577,833
United States Rubber Co.	3	39	242,552	276,018	472,602	494,753
Goodrich (B. F.) Co., The	4	44	222,441	239,421	372,083	361,471
General Tire & Rubber Co., The	5	180	41,895	58,481	87,095	105,884
Lee Rubber & Tire Corp.	6	497	16,448	18,590	28,365	32,150
Dayton Rubber Co.	7	562	12,459	16,292	25,849	32,625
Seiberling Rubber Co.	8	599	11,271	14,179	26,280	30,517
Thermoid Co.	9	613	11,783	13,769	20,872	20,436
Mansfield Tire & Rubber Co.	10	617	11,791	13,703	25,903	25,266
Hewitt-Robins, Inc.	11	639	9,229	13,066	14,403	15,426
Armstrong Rubber Co.	12	713	8,424	11,070	10,683	17,092
American Hard Rubber Co.	13	726	9,977	10,845	11,959	13,625
Dewey & Almy Chemical Co.	14	737	7,566	10,587	11,033	12,575
Pharis Tire & Rubber Co.	15	782	6,179	9,876	13,216	19,914
Boston Woven Hose & Rubber Co.	16	847	9,174	8,942	11,887	11,243
GROUP 31						
Leather and leather products:						
International Shoe Co.	1	120	94,819	93,895	148,784	135,031
Endicott Johnson Corp.	2	171	57,414	61,632	102,093	105,859
Brown Shoe Co., Inc.	3	340	24,233	28,873	56,458	54,966
General Shoe Corp.	4	413	19,254	22,624	51,178	61,134
United States Leather Co., The	5	577	15,122	14,758	20,601	18,708
Florsheim Shoe Co., The	6	678	11,629	11,818	16,587	17,559
Selby Shoe Co.	7	722	9,808	10,905	13,065	20,755
American Hide & Leather Co.	8	931	8,898	8,009	11,099	6,786
Keith (George E.) Co.	9	969	6,846	7,642	12,862	15,002
Craddock-Terry Shoe Corp.	10	965	5,351	7,348	13,958	17,224
Allied Kid Co.	11	996	6,634	7,347	10,134	10,412

Not available.

Industry group and name of corporation	Rank in 1946 total assets		Total assets—end of fiscal year		Sales	
	In the industry group	In all manufacturing	Thousands of dollars			
			1945	1946	1945	1946
GROUP 32						
Stone, clay, and glass products:						
Pittsburgh Plate Glass Co.	1	69	154,425	174,003	144,109	184,661
Owens-Illinois Glass Co.	2	92	122,750	127,126	108,671	196,260
United States Gypsum Co.	3	115	81,078	95,694	65,786	85,361
Johns-Manville Corp.	4	117	88,918	95,297	85,994	92,049
Libbey-Owens-Ford Glass Co.	5	164	59,132	65,167	61,382	68,349
Lone Star Cement Corp.	6	191	51,749	55,259	31,093	39,848
Norton Co.	7	203	53,086	52,227	(1)	(1)
Minnesota Mining & Manufacturing Co.	8	221	37,441	47,394	63,548	75,170
National Gypsum Co.	9	227	30,856	45,593	26,742	38,057
Lehigh Portland Cement Co.	10	242	39,291	42,984	14,652	25,831
Harbison-Walker Refractories Co.	11	263	36,462	39,015	27,821	31,262
Corning Glass Works	12	267	35,797	37,922	48,202	55,852
Hazel-Atlas Glass Co.	13	293	35,480	35,487	52,235	58,165
Anchor Hocking Glass Corp.	14	297	35,541	33,199	52,657	64,400
Carborundum Co. (Del.)	15	300	31,228	32,699	40,416	37,069
Celotex Corp., The	16	306	20,629	31,946	22,186	33,090
Raybestos-Manhattan, Inc.	17	336	28,194	29,320	49,633	51,986
Ideal Cement Co.	18	374	21,702	25,194	9,314	14,596
General Refractories Co.	19	410	21,777	22,760	19,337	21,945
Alpha Portland Cement Co.	20	444	19,636	21,414	6,607	13,187
General Portland Cement Co.	21	564	(1)	15,282	(1)	15,510
Pennsylvania-Dixie Cement Corp.	22	690	10,900	12,418	5,021	11,910
Gladding, McBean & Co.	23	666	10,153	12,206	8,213	11,313
Garlock Packing Co.	24	670	10,793	12,112	(1)	(1)
Thatcher Glass Manufacturing Co., Inc.	25	687	8,924	11,619	13,834	18,225
Medusa Portland Cement Co.	26	725	9,978	10,854	6,097	10,153
National Fireproofing Corp.	27	760	9,082	10,242	3,332	6,621
Pacific Portland Cement Co.	28	787	10,243	9,843	4,298	5,884
Santa Cruz Portland Cement Co.	29	797	(1)	9,642	(1)	2,109
Missouri Portland Cement Co.	30	803	8,598	9,546	3,516	5,823
Raymond Concrete Pile Co.	31	819	6,194	9,300	(1)	(1)
Riverside Cement Co.	32	869	7,474	8,725	(1)	(1)
Kelley Island Lime & Transport Co.	33	874	8,174	8,648	4,945	6,048
American Window Glass Co.	34	947	7,942	7,803	(1)	(1)
GROUP 33						
Primary metal industries:						
United States Steel Corp.	1	2	1,890,769	2,003,517	1,740,123	1,485,667
Bethlehem Steel Corp.	2	10	880,880	867,667	1,326,564	787,721
Anaconda Copper Mining Co.	3	13	616,058	621,835	328,466	293,738
Kennecott Copper Corp.	4	20	464,800	459,670	209,618	155,215
Republic Steel Corp.	5	22	412,934	412,069	497,675	412,756
Aluminum Co. of America	6	28	427,173	349,907	(1)	(1)
National Steel Corp.	7	35	260,624	284,949	271,833	239,764
Jones & Laughlin Steel Corp.	8	36	276,077	280,768	284,742	246,298
Youngstown Sheet & Tube Co., The	9	43	239,875	244,884	230,399	216,276
American Rolling Mill Co., The	10	48	206,969	227,150	220,145	231,951
Inland Steel Co.	11	50	191,199	224,100	217,386	217,739
American Smelting & Refining Co.	12	52	200,600	217,363	143,948	164,181
Phelps Dodge Corp.	13	54	195,425	206,697	137,835	99,674
National Lead Co.	14	78	133,232	145,143	167,563	167,447
Reynolds Metals Co.	15	87	87,095	131,273	148,309	131,034
Wheeling Steel Corp.	16	89	135,989	130,882	143,154	110,388
Crucible Steel Co. of America	17	98	95,221	107,999	141,423	88,125
New Jersey Zinc Co.	18	113	(1)	(1)	(1)	(1)
American Metal Co., Ltd., The	19	130	85,996	87,657	96,288	93,588
Colorado Fuel & Iron Corp.	20	149	53,372	73,406	57,172	58,118
United States Smelting, Refining & Mining Co.	21	155	73,323	72,172	34,805	37,122
Climax Molybdenum Co.	22	157	74,666	71,022	15,219	8,633
Scovill Manufacturing Co.	23	167	60,775	64,169	85,080	62,917
American Brake Shoe Co.	24	179	47,967	59,080	77,236	77,590
Allegheny Ludlum Steel Corp.	25	184	50,887	56,518	100,337	95,063
Pittsburgh Steel Co.	26	190	55,419	55,342	53,604	54,193
Revere Copper & Brass, Inc.	27	194	45,341	54,306	119,710	118,082
Interlake Iron Corp.	28	210	48,343	50,788	37,565	42,226
American Steel Foundries	29	230	54,750	45,173	73,734	40,041
St. Joseph Lead Co.	30	232	42,965	44,916	47,679	40,405
Sharon Steel Corp.	31	256	35,569	39,887	40,693	54,164
General Steel Castings Corp.	32	272	35,706	36,677	34,642	24,130

1 Not available.

\* Estimated.

Industry group and name of corporation	Rank in 1946 total assets		Total assets—end of fiscal year		Sales	
	In the industry group	In all manufacturing	Thousands of dollars			
			1945	1946	1945	1946
GROUP 33—continued						
Primary metal industries—Continued						
Calumet & Hecla Consolidated Copper Co.	33	273	34,213	36,041	13,444	18,852
Anaconda Wire & Cable Co.	34	276	32,259	35,877	68,180	68,061
United States Pipe & Foundry Co.	35	295	34,133	33,258	22,148	18,904
Blaw-Knox Co.	36	303	45,724	32,381	141,450	46,068
Bridgeport Brass Co.	37	316	23,826	30,918	53,162	57,783
Acme Steel Co.	38	367	27,197	26,119	40,958	39,846
Midvale Co., The.	39	381	25,937	24,876	39,713	(1)
Sloss-Sheffield Steel & Iron Co.	40	387	24,071	24,452	16,474	17,565
National Malleable & Steel Castings Co.	41	402	21,711	23,206	34,207	29,825
Bohn Aluminum & Brass Corp.	42	421	27,322	22,457	57,010	33,326
Doehler-Jarvis Corp.	43	432	21,610	22,030	49,802	44,167
Woodward Iron Co.	44	434	21,988	21,897	11,838	13,235
Granite City Steel Co.	45	473	15,660	19,993	18,878	8,542
Wood (Alan) Steel Co.	46	474	18,410	19,955	26,058	25,264
Copperweld Steel Co.	47	479	17,660	19,601	33,479	25,389
Byers (A. M.) Co.	48	486	20,637	19,223	18,178	13,858
Lukens Steel Co.	49	489	21,028	18,860	45,244	30,289
Pittsburgh Coke & Chemical Co.	50	528	15,882	16,965	15,911	12,029
Continental Foundry & Machine Co.	51	538	23,935	16,454	(1)	(1)
Copper Range Co.	52	539	15,210	16,414	14,425	14,721
Carpenter Steel Co.	53	542	18,839	16,275	26,241	22,023
Continental Steel Corp.	54	549	14,579	15,976	23,564	24,331
Keystone Steel & Wire Co.	55	555	16,361	15,715	22,227	20,429
Mueller Brass Co.	56	574	14,221	14,865	30,389	21,070
American Zinc, Lead & Smelting Co.	57	592	13,048	14,360	25,899	26,605
Vanadium Corp. of America.	58	595	13,787	14,295	13,298	11,731
Poor & Co.	59	645	13,794	12,951	19,193	16,957
Campbell, Wyant & Cannon Foundry Co.	60	659	9,777	12,432	18,632	19,467
Follansbee Steel Corp.	61	663	10,584	12,293	16,475	17,420
Laclede Steel Co.	62	699	8,157	11,251	15,158	17,140
Detroit Steel Corp.	63	717	11,455	11,006	21,405	19,461
Universal-Cyclops Steel Corp.	64	727	11,117	10,819	18,270	15,321
Clow (James B.) & Sons.	65	763	9,107	10,217	(1)	(1)
Symington-Gould Corp., The.	66	789	10,184	9,811	16,691	10,388
Magma Copper Co.	67	794	9,738	9,743	4,029	4,347
Eastern Stainless Steel Corp.	68	809	5,889	9,503	20,426	22,960
Washburn Wire Co.	69	812	9,624	9,481	(1)	(1)
National-Standard Co.	70	845	9,139	8,949	17,257	14,769
Dayton Malleable Iron Co.	71	848	8,065	8,929	(1)	(1)
Vanadium-Alloys Steel Corp.	72	880	9,527	8,589	9,825	7,557
Warren Foundry & Pipe Corp.	73	886	8,412	8,493	3,004	4,223
Metal & Thermit Corp.	74	896	8,569	8,321	13,265	8,414
Fansteel Metallurgical Corp.	75	897	10,252	8,311	10,798	5,621
Buckeye Steel Castings Co.	76	898	7,613	8,262	(1)	(1)
Firth Sterling Steel & Carbide Corp.	77	905	8,139	8,238	(1)	(1)
Scullin Steel Co.	78	916	9,018	8,122	18,221	5,716
Superior Steel Corp.	79	948	6,672	7,784	13,857	14,152
Tennessee Products Corp.	80	971	6,182	7,583	8,676	9,845
Pittsburgh Forgings Co.	81	975	7,287	7,538	21,814	14,796
Continental-United Industries Co., Inc.	82	991	(1)	7,398	(1)	(1)
GROUP 34						
Fabricated metal products (except ordinance, machinery, and transportation equipment):						
American Can Co.	1	49	231,816	225,869	242,352	258,065
Continental Can Co., Inc.	2	64	177,667	183,854	206,071	212,924
American Radiator & Standard Sanitary Corp.	3	84	126,880	133,712	120,002	123,734
Crane Co.	4	90	125,459	128,851	140,115	142,446
Crown Cork & Seal Co., Inc.	5	163	61,890	65,868	66,662	62,231
Babcock & Wilcox Co., The.	6	195	59,307	54,228	(1)	(1)
Gillette Safety Razor Co.	7	204	40,562	51,970	37,854	51,757
Smith (A. O.) Corp.	8	217	111,834	48,714	194,464	82,483
Yale & Towne Manufacturing Co.	9	268	35,298	37,378	48,562	39,996
Stanley Works	10	274	36,057	35,936	36,586	42,055
American Chain & Cable Co., Inc.	11	302	34,142	32,414	50,769	45,076
Murray Corp. of America.	12	305	34,591	31,996	63,699	31,058
Consolidated Steel Corp.	13	321	40,128	30,517	299,303	91,677

Not available.

Industry group and name of corporation	Rank in 1946 total assets		Total assets—end of fiscal year		Sales	
	In the industry group	In all manufacturing	Thousands of dollars			
			1945	1946	1945	1946
GROUP 34—continued						
Fabricated metal products—Continued						
Rheem Manufacturing Co.	14	368	33,810	26,094	91,310	39,265
American Safety Razor Corp.	15	373	26,914	25,239	22,761	19,555
Marshall-Wells Co.	16	391	18,731	24,177	(1)	(1)
Standard Steel Spring Co.	17	403	31,855	23,293	114,330	21,661
American Fork & Hoe Co.	18	428	18,566	22,145	(1)	(1)
American Hardware Corp., The	19	464	20,356	20,333	(1)	(1)
Standard Screw Co.	20	470	21,318	20,081	(1)	(1)
Holland Furnace Co.	21	472	17,233	20,001	18,292	25,197
Ekeo Products Co.	22	475	12,354	19,921	16,447	30,244
Associated Spring Corp.	23	485	18,070	19,225	23,865	22,900
Simonds Saw & Steel Co.	24	487	17,779	19,163	22,067	26,059
Aluminum Goods Manufacturing Co.	25	511	16,726	17,919	12,395	17,575
Nicholson File Co.	26	513	16,679	17,723	(1)	(1)
American Stove Co.	27	525	15,907	17,035	26,869	20,649
National Can Corp.	28	530	17,372	16,944	18,540	16,626
Young (L. A.) Spring & Wire Corp.	29	552	16,335	15,853	35,592	16,924
Perfection Stove Co.	30	624	13,174	13,456	(1)	(1)
Mullins Manufacturing Corp.	31	671	12,596	12,065	30,170	19,938
Pittsburgh Screw & Bolt Corp.	32	672	12,556	12,061	19,857	17,453
Coleman Co., Inc.	33	698	8,424	11,261	11,991	17,152
Florence Stove Co.	34	709	11,367	11,114	23,835	11,314
National Enameling & Stamping Co.	35	730	13,806	10,810	21,222	7,975
National Pressure Cooker Co.	36	733	6,090	10,574	11,031	19,697
Robertson (H. H.) Co.	37	755	8,940	10,331	9,511	16,405
Lamson & Sessions Co.	38	801	10,060	9,551	16,308	13,334
Kalamazoo Stove & Furnace Co.	39	821	9,015	9,274	7,903	3,021
United States Radiator Corp.	40	824	6,235	9,238	11,066	17,971
Iron Fireman Manufacturing Co.	41	833	10,354	9,105	17,262	11,516
Detroit Steel Products Co.	42	836	7,173	9,065	8,484	13,052
Black, Sivalis & Bryson, Inc.	43	849	7,779	8,914	10,465	8,714
Struthers Wells Corp.	44	850	10,781	8,910	19,232	8,666
Detroit-Michigan Stove Co.	45	859	6,575	8,814	(1)	14,955
Martin-Parry Corp.	46	881	6,557	8,575	10,326	7,353
United-Carr Fastener Corp.	47	895	8,789	8,338	17,677	14,626
Signode Steel Strapping Co.	48	903	9,344	8,244	15,714	9,820
National Radiator Co.	49	930	7,149	8,014	6,315	(1)
Buffalo Bolt Co.	50	932	8,125	8,008	9,676	8,842
Mahou (R. C.) Co.	51	939	6,219	7,864	11,517	11,822
Hajoca Corp.	52	957	4,871	7,701	14,686	23,155
Butler Manufacturing Co.	53	966	8,204	7,660	(1)	(1)
American Screw Co.	54	968	5,587	7,654	5,940	7,239
National Lock Co.	55	972	8,557	7,568	14,149	12,741
National Screw & Manufacturing Co.	56	979	9,779	7,503	16,173	(1)
Petroleum Heat & Power Co.	57	986	6,848	7,434	15,465	19,905
Diebold, Inc.	58	988	6,264	7,425	8,085	9,608
Trane Co.	59	997	5,306	7,347	10,827	13,840
GROUP 35						
Machinery (except electrical):						
International Harvester Co.	1	14	558,755	559,961	622,011	482,328
Singer Manufacturing Co.	2	56	225,428	205,790	(1)	(1)
Deere & Co.	3	58	195,245	203,223	137,743	143,000
Allis-Chalmers Manufacturing Co.	4	63	198,009	185,940	290,303	93,840
International Business Machines Corp.	5	76	134,086	148,405	141,696	119,418
Remington Rand, Inc.	6	97	74,569	110,455	107,985	147,136
United Shoe Machinery Corp.	7	100	103,797	104,859	58,956	69,638
Caterpillar Tractor Co.	8	105	86,466	102,052	230,600	128,437
National Cash Register Co., The	9	132	57,426	84,028	68,442	77,377
National Supply Co., The	10	151	76,879	72,707	147,025	98,895
Ingersoll-Rand Co.	11	156	69,699	71,949	70,043	62,587
Timken Roller Bearing Co., The	12	159	65,955	69,593	80,343	80,484
Food Machinery Corp.	13	181	99,086	57,829	240,769	53,651
Otis Elevator Co.	14	183	60,899	56,706	88,291	46,165
Fairbanks, Morse & Co.	15	198	56,484	53,729	39,676	56,551
Worthington Pump & Machinery Corp.	16	199	52,506	53,705	93,994	59,788
Continental Motors Corp.	17	202	90,104	52,256	205,952	46,498
Case (J. I.) Co.	18	207	63,774	51,335	79,625	35,488
Oliver Corp., The	19	215	46,511	49,377	58,554	50,841
Burroughs Adding Machine Co.	20	226	46,018	45,863	37,592	46,241
Cincinnati Milling Machine Co.	21	228	46,650	45,580	45,111	33,931
Link-Belt Co.	22	237	44,666	43,664	68,213	61,560
Dresser Industries, Inc.	23	246	46,340	41,716	80,545	54,783

1 Not available.

Industry group and name of corporation	Rank in 1946 total assets		Total assets—end of fiscal year		Sales	
	In the industry group	In all manufacturing	Thousands of dollars			
			1945	1946	1945	1946
GROUP 35—continued						
Machinery—Continued						
Bucyrus-Erie Co.	24	261	38,228	39,144	33,678	33,746
Rockwell Manufacturing Co.	25	308	23,183	31,793	26,360	42,159
Underwood Corp.	26	309	29,564	31,629	28,980	37,164
York Corp.	27	313	29,283	31,388	38,365	32,052
Brown & Sharpe Manufacturing Co.	28	314	30,348	31,260	24,817	27,353
Le Tourneau (R. G.), Inc.	29	319	23,533	30,548	37,655	28,299
Joy Manufacturing Co.	30	330	10,558	29,661	13,752	29,534
Minneapolis-Moline Power Implement Co.	31	335	25,622	29,327	42,186	31,874
American Laundry Machinery Co., The	32	344	28,024	28,372	17,166	15,317
Chicago Pneumatic Tool Co.	33	345	33,582	28,239	38,754	21,625
Servel, Inc.	34	346	25,068	28,139	47,569	37,342
Mergenthaler Linotype Co.	35	351	29,415	27,748	22,816	6,522
Gar Wood Industries, Inc.	36	363	26,712	26,537	42,108	22,252
Carrier Corp.	37	371	18,332	25,647	29,144	23,476
Grinnell Corp.	38	376	22,150	25,042	(1)	(1)
United States Hoffman Machinery Corp.	39	388	15,509	24,408	30,125	24,118
American Machine & Foundry Co.	40	392	15,467	24,164	11,931	15,896
Addressograph-Multigraph Corp.	41	399	20,595	23,410	27,065	25,660
Whitin Machine Works	42	409	18,999	22,849	(1)	(1)
Draper Corp.	43	415	20,187	22,555	(1)	(1)
United Engineering & Foundry Co.	44	420	22,440	22,475	41,545	24,195
Electrolux Corp.	45	424	15,417	22,321	(1)	(1)
Niles-Bement-Pond Co.	46	426	26,951	22,271	(1)	12,902
Bliss (E. W.) Co.	47	440	17,889	21,539	19,066	24,176
Mesta Machine Co.	48	441	25,493	21,499	39,417	17,859
Cleveland Graphite Bronze Co., The	49	453	20,892	20,893	37,941	28,230
Walworth Co.	50	456	18,592	20,807	35,982	28,462
Ex-Cell-O Corp.	51	461	22,509	20,420	55,881	19,302
Foster Wheeler Corp.	52	468	27,015	20,123	37,806	26,773
National Acme Co., The	53	476	25,442	19,882	34,833	17,546
Harnischfeger Corp.	54	478	16,655	19,625	29,545	28,731
Hoover Co.	55	490	22,468	18,824	39,403	21,781
ATF, Inc.	56	495	19,351	18,685	31,116	26,459
Seeger Refrigerator Co.	57	502	14,571	18,249	14,538	16,160
Warner & Swasey Co.	58	505	19,934	18,190	28,305	15,445
Bowser, Inc.	59	512	14,959	17,855	39,810	22,235
De Laval Separator Co.	60	517	19,562	17,462	(1)	(1)
Cherry-Burrell Corp.	61	529	10,621	16,964	17,819	22,877
Saco-Loell Shops	62	533	11,403	16,699	12,350	19,498
Hobart Manufacturing Co.	63	535	16,450	16,570	12,446	13,090
Kearney & Trecker Corp.	64	551	21,008	15,885	33,559	12,796
Torrington Co. (Maine)	65	553	21,082	15,761	29,510	22,781
Royal Typewriter Co., Inc.	66	554	16,743	15,723	22,556	19,242
Cooper-Bessemer Corp., The	67	557	16,594	15,626	27,259	16,274
Manning, Maxwell & Moore, Inc.	68	566	15,057	15,170	21,073	20,813
Outboard, Marine & Manufacturing Co.	69	578	17,099	14,733	27,568	17,036
Maytag Co., The	70	580	11,402	14,692	12,819	26,822
Farrel-Birmingham Co., Inc.	71	590	11,724	14,397	20,804	18,150
De Laval Steam Turbine Co.	72	603	17,401	13,975	(1)	(1)
Hercules Motors Corp.	73	610	17,230	13,828	61,326	24,156
Chain Belt Co.	74	618	17,059	13,062	28,198	13,286
Crompton & Knowles Loom Works.	75	625	11,968	13,441	(1)	(1)
General Machinery Corp.	76	629	22,108	13,290	(1)	15,487
Fafnir Bearing Co.	77	640	14,904	13,054	(1)	(1)
Marlin-Rockwell Corp.	78	641	20,196	13,018	(1)	(1)
Federal-Mogul Corp.	79	647	9,875	12,856	24,115	21,570
Gardner-Denver Co.	80	649	10,873	12,805	16,131	14,798
Elliott Co.	81	654	13,756	12,900	20,986	9,874
Smith (L. C.) & Corona Typewriters, Inc.	82	657	12,829	12,455	14,207	14,085
Union Twist Drill Co.	83	662	13,086	12,344	13,468	11,080
Black & Decker Manufacturing Co., The	84	682	11,611	11,686	16,561	17,008
Northwest Engineering Co.	85	690	11,829	11,550	(1)	(1)
Creamery Package Manufacturing Co.	86	693	9,962	11,365	(1)	(1)
Bullard Co., The	87	697	10,737	11,271	21,855	13,424
Monroe Calculating Machine Co.	88	704	11,628	11,215	(1)	(1)
American Machine & Metals, Inc.	89	712	8,712	11,075	12,533	14,364
Van Norman Co.	90	714	6,597	11,066	12,109	17,332
Frick Co., Inc.	91	719	11,141	10,943	10,612	7,939

\* Not available.

Industry group and name of corporation	Rank in 1946 total assets		Total assets—end of fiscal year		Sales	
	In the industry group	In all manufacturing	Thousands of dollars			
			1945	1946	1945	1946
GROUP 35—continued						
Machinery—Continued						
Goodman Manufacturing Co.	92	732	9,726	10,764	10,769	11,123
Reed Roller Bit Co.	93	733	10,716	10,715	22,019	15,466
Hoe (R.) & Co., Inc.	94	742	10,152	10,509	21,371	6,221
Byron Jackson Co.	95	746	8,307	10,448	13,281	10,167
New Britain Machine Co.	96	749	13,163	10,382	16,915	15,517
United Drill & Tool Corp.	97	754	8,413	10,339	(1)	(1)
Marion Power Shovel Co.	98	756	9,400	10,307	(1)	9,416
Gisholt Machine Co.	99	762	11,106	10,221	13,611	8,072
Parker Appliance Co.	100	764	13,578	10,162	21,875	8,261
Electric Household Utilities Corp.	101	765	9,389	10,156	9,337	12,198
Pitney-Bowes, Inc.	102	770	7,604	10,096	7,228	9,907
Independent Pneumatic Tool Co.	103	771	10,610	10,087	12,582	13,307
Buffalo Forge Co.	104	779	13,732	9,951	25,026	15,806
Emseo Derrick & Equipment Co.	105	815	8,429	9,373	11,888	10,914
De Vilbiss Co.	106	817	7,328	9,322	12,667	15,026
Lukenheimer Co.	107	822	9,342	9,274	8,694	8,725
Koehring Co.	108	823	9,924	9,272	(1)	(1)
Perfect Circle Corp.	109	825	8,012	9,234	15,917	13,652
Wayne Pump Co.	110	856	6,918	8,838	6,356	10,224
Prosperity Co., Inc.	111	862	5,690	8,797	(1)	(1)
Harris-Seybold Co.	112	865	8,676	8,757	11,088	9,470
Landis Tool Co.	113	871	8,696	8,716	(1)	(1)
Continental Gin Co.	114	878	9,340	8,611	12,872	6,903
Apex Electrical Manufacturing Co.	115	879	8,551	8,596	22,960	19,240
Greenfield Tap & Die Corp.	116	884	8,498	8,533	13,296	12,450
Starrett (L. S.) Co.	117	907	9,442	8,212	9,369	6,698
Marchant Calculating Machine Co.	118	908	6,677	8,204	9,049	12,016
Black-Clawson Co.	119	909	6,076	8,195	5,450	6,872
Landis Machine Co. (Pa.)	120	913	9,424	8,152	4,111	2,043
Thew Shovel Co.	121	917	8,116	8,108	(1)	(1)
Austin-Western Co.	122	919	8,327	8,104	10,794	6,873
Felt & Tarrant Manufacturing Co.	123	921	6,256	8,090	3,355	7,678
Bower Roller Bearing Co.	124	923	6,903	8,082	11,104	14,364
Atlas Imperial Diesel Engine Co.	125	924	5,970	8,070	13,247	6,903
Scott & Williams, Inc.	126	925	6,197	8,062	(1)	(1)
Easy Washing Machine Corp.	127	938	8,980	7,888	18,738	19,245
Chapman Valve Manufacturing Co.	128	942	8,479	7,849	17,465	11,900
Eureka Williams Corp.	129	946	12,634	7,807	12,372	17,767
Clearing Machine Corp.	130	956	5,870	7,711	8,203	13,734
Jones & Lamson Machine Co.	131	958	8,706	7,698	11,076	6,211
Jenkins Bros.	132	980	7,604	7,499	10,418	9,056
Jaeger Machine Co.	133	990	5,871	7,408	7,600	11,130
Le Roi Co.	134	994	6,557	7,376	18,712	8,570
GROUP 36						
Electrical machinery, equipment, and supplies:						
General Electric Co.	1	8	891,769	909,708	1,466,477	911,087
Westinghouse Electric Corp.	2	16	449,844	498,478	684,730	372,052
Western Electric Co., Inc.	3	19	346,550	472,287	860,713	610,356
Radio Corp. of America	4	62	159,664	189,626	278,328	236,146
Electric Auto-Lite Co., The	5	142	62,815	79,160	124,402	122,803
Philco Corp.	6	165	65,539	64,915	115,603	121,597
Sylvania Electric Products, Inc.	7	209	59,931	60,920	126,793	69,313
Electric Storage Battery Co., The	8	224	47,710	46,534	68,346	55,720
General Cable Corp.	9	241	53,478	43,083	129,369	70,755
Raytheon Manufacturing Co.	10	264	54,269	38,946	105,887	66,414
International Detrola Corp.	11	356	27,423	27,369	36,244	40,810
Wagner Electric Corp.	12	375	19,801	25,104	39,603	44,657
Zenith Radio Corp.	13	400	19,681	23,330	39,567	57,363
Landers, Frary & Clark	14	436	22,641	21,820	(1)	(1)
Noma Electric Corp.	15	437	18,034	21,751	13,387	32,373
Joslyn Manufacturing & Supply Co.	16	466	15,490	20,289	30,301	38,867
Stromberg-Carlson Co.	17	480	21,421	19,404	33,145	21,513
Edison (Thomas A.), Inc.	18	484	19,025	19,248	27,101	19,116
Square D Co.	19	499	18,050	18,387	40,318	29,155
Cutler-Hammer, Inc.	20	509	17,690	17,952	36,747	30,284
Line Material Co.	21	548	12,017	15,998	22,808	25,267
Jack & Heintz Precision Industries, Inc.	22	568	30,719	15,050	84,628	(1)
National Battery Co.	23	576	10,552	14,766	24,880	27,299
General Railway Signal Co.	24	598	23,635	14,182	81,186	10,248
Farnsworth Television & Radio Corp.	25	600	11,358	14,177	20,325	13,483
Galvin Manufacturing Corp.	26	602	26,776	14,004	67,897	23,201

1 Not available.



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	In the industry group	In all manufacturing	Thousands of dollars			
			1945	1946	1945	1946
GROUP 26—continued						
Electrical machinery, equipment, and supplies—Continued						
Admiral Corp.	27	648	10,658	12,819	30,534	36,170
Mallory (P. R.) & Co., Inc.	28	676	16,788	11,901	47,198	18,708
Decca Records, Inc.	29	681	7,204	11,690	15,571	20,675
Collins Radio Co.	30	700	20,527	11,232	43,518	13,023
Century Electric Co.	31	724	9,027	10,857	13,863	14,020
American Bosch Corp.	32	728	18,075	10,818	47,939	13,694
Rome Cable Corp.	33	757	6,863	10,293	16,975	18,436
Arrow-Hart & Hegeman Electric Co.	34	761	8,656	10,242	(1)	(1)
Okonite Co.	35	773	8,503	10,033	(1)	(1)
Ohio Brass Co.	36	776	9,371	9,980	10,208	11,230
Emerson Electric Manufacturing Co.	37	781	19,544	9,828	60,226	11,888
Cornell-Dubilier Electric Corp.	38	783	10,516	9,875	19,852	15,564
Sunbeam Corp.	39	788	9,436	9,814	12,285	15,003
Emerson Radio & Phonograph Corp.	40	791	12,659	9,758	32,491	23,089
Magnavox Co.	41	795	10,626	9,673	16,802	24,014
Sangamo Electric Co.	42	846	9,132	8,944	11,680	9,904
McGraw Electric Co.	43	854	6,951	8,579	9,029	13,317
Kellogg Switchboard & Supply Co.	44	889	7,907	8,435	11,274	8,710
Weston Electrical Instrument Corp.	45	894	6,674	8,341	12,661	11,372
Master Electric Co.	46	912	7,497	8,165	13,055	11,632
Gamewell Co.	47	920	7,691	8,101	10,716	10,043
Reliance Electric & Engineering Co.	48	929	6,613	8,024	14,518	12,343
Sparks-Withington Co.	49	963	11,915	7,677	31,019	11,896
General Instrument Corp.	50	967	8,010	7,658	10,114	22,670
Federal Machine & Welder Co.	51	970	11,690	7,633	35,675	6,242
Maguire Industries, Inc.	52	974	10,731	7,539	18,437	10,329
Robbins & Myers, Inc.	53	1,000	9,782	7,307	(1)	(1)
GROUP 37						
Transportation equipment:						
General Motors Corp.	1	3	1,813,886	1,982,602	3,127,935	1,962,502
Ford Motor Co.	2	9	815,515	880,047	(1)	(1)
Chrysler Corp.	3	23	414,229	390,495	994,546	870,000
Pullman, Inc.	4	42	272,801	256,779	342,443	261,931
Curtiss-Wright Corp.	5	60	353,833	193,272	1,197,705	71,984
United Aircraft Corp.	6	75	178,770	154,223	484,311	120,263
American Car & Foundry Co.	7	77	149,801	145,674	118,114	132,820
Bendix Aviation Corp.	8	93	259,677	124,139	637,390	106,002
Borg-Warner Corp.	9	94	126,497	118,975	227,251	138,864
Lockheed Aircraft Corp.	10	99	162,811	105,678	415,076	112,683
Douglas Aircraft Co., Inc.	11	102	156,279	103,954	744,683	106,721
Martin (Glenn L.) Co., The	12	107	137,948	101,349	356,162	37,641
General American Transportation Corp.	13	111	97,402	100,303	77,679	65,902
Budd Co., The	14	119	54,077	93,897	81,273	122,254
American Locomotive Co.	15	123	127,993	92,082	236,045	115,074
Baldwin Locomotive Works, The	16	128	100,261	89,686	155,954	85,329
Nash-Kelvinator Corp.	17	131	78,997	86,292	183,051	121,556
Packard Motor Car Co.	18	136	108,871	81,065	216,129	92,815
Studebaker Corp., The	19	139	65,012	79,741	212,167	141,564
Westinghouse Air Brake Co., The	20	140	77,259	79,572	72,615	63,608
Consolidated Vultee Aircraft Corp.	21	144	125,429	76,032	644,054	13,706
Fruehauf Trailer Co.	22	146	42,403	74,854	71,698	76,658
Boeing Airplane Co.	23	147	107,477	74,265	420,979	13,984
Willys-Overland Motors, Inc.	24	148	61,322	74,184	179,319	60,241
Avco Manufacturing Corp.	25	160	64,146	69,054	52,102	52,781
Mack Trucks, Inc.	26	169	64,034	62,857	122,208	36,715
Briggs Manufacturing Co.	27	175	67,173	60,044	174,039	125,598
Hudson Motor Car Co.	28	187	44,935	55,933	71,741	120,716
North American Aviation, Inc.	29	192	111,933	55,174	377,402	55,819
Todd Shipyards Corp.	30	193	43,855	55,162	110,435	72,994
White Motor Co., The	31	216	44,301	48,029	100,508	73,858
Kaiser-Frazer Corp.	32	219	20,215	48,288	(1)	11,504
Thompson Products, Inc.	33	234	36,135	44,471	94,911	62,451
Newport News Shipbuilding & Dry Dock Co.	34	235	73,557	44,461	114,800	59,642
Stewart-Warner Corp.	35	238	48,684	43,434	78,430	58,805
Eaton Manufacturing Co.	36	244	37,681	42,158	87,190	66,495
Grumman Aircraft Engineering Corp.	37	253	67,542	40,380	236,847	37,616
Dana Corp.	38	269	36,396	37,308	108,162	46,724
New York Shipbuilding Corp.	39	275	69,476	35,911	117,075	56,463
Timken-Detroit Axle Co., The	40	278	57,873	35,676	189,519	58,708

<sup>1</sup> Not available.

Industry group and name of corporation	Rank in 1946 total assets		Total assets—end of fiscal year		Total	
	In the industry group	In all manufacturing	Thousands of dollars			
			1945	1946	1945	1946
GROUP 37—continued						
Transportation equipment—Continued						
Houdaille-Hershey Corp.	41	288	29,444	33,952	45,333	34,515
Bell Aircraft Corp.	42	310	54,593	31,611	270,417	13,262
Trico Products Corp.	43	311	26,177	31,573	(1)	(1)
Pressed Steel Car Co., Inc.	44	349	26,695	27,879	30,026	25,211
Autocar Co.	45	390	25,293	24,232	49,109	36,036
Kelsey-Hayes Wheel Co.	46	397	33,247	23,467	91,007	29,612
ACF-Bright Motors Co.	47	416	22,265	22,543	22,807	24,326
Clark Equipment Co.	48	422	21,456	22,328	54,878	38,244
Electric Boat Co.	49	425	23,629	22,298	45,439	14,369
Superheater Co., The	50	427	21,799	22,231	13,474	11,289
Lima Locomotive Works, Inc.	51	430	24,909	22,061	40,886	35,750
Reo Motors, Inc.	52	445	20,355	21,312	72,243	42,496
Midland Steel Products Co., The	53	446	23,590	21,270	29,985	33,406
Republic Aviation Corp.	54	451	32,999	20,952	222,148	29,507
Motor Wheel Corp.	55	454	25,538	20,824	56,737	27,755
Traffimobile Co.	56	477	12,916	19,649	18,423	28,341
Bath Iron Works Corp.	57	482	36,075	19,295	82,134	15,199
Beech Aircraft Corp.	58	483	35,229	19,281	123,762	24,396
Graham-Paige Motors Corp.	59	492	14,078	18,698	41,270	11,514
New York Air Brake Co., The	60	508	18,592	18,086	18,547	15,033
Fairchild Engine & Airplane Corp.	61	520	16,850	17,399	41,831	48,526
Buda Co.	62	541	25,416	16,290	45,437	22,802
Diamond T Motor Car Co.	63	558	18,623	15,623	87,923	22,692
Motor Products Corp.	64	579	14,825	14,707	23,981	16,845
Pacific Car & Foundry Co.	65	585	12,207	14,504	49,406	19,420
Higgins, Inc.	66	605	12,140	13,911	(1)	8,952
McQuay-Norris Manufacturing Co. (Del.)	67	616	12,552	13,748	16,301	22,273
Weatherhead Co.	68	630	10,741	13,273	26,854	24,389
Jacobs (F. L.) Co.	69	634	26,858	13,212	84,784	10,676
St. Louis Car Co.	70	652	15,506	12,656	40,896	2,877
Twin Coach Co.	71	668	5,529	12,193	7,939	11,652
Standard Railway Equipment Manufacturing Co.	72	683	(1)	11,686	15,365	13,613
Waukesha Motor Co.	73	702	12,798	11,225	28,217	15,593
American Ship Building Co.	74	718	13,063	10,971	22,670	5,472
Brockway Motor Co., Inc.	75	778	9,995	9,961	19,614	19,798
King-Seely Corp.	76	784	8,931	9,871	12,364	13,268
Checker Cab Manufacturing Corp.	77	798	9,507	9,621	6,870	2,834
Cramp Shipbuilding Co.	78	804	15,869	9,530	38,089	10,584
Northrop Aircraft, Inc.	79	816	20,249	9,346	86,413	26,416
Maryland Drydock Co.	80	826	10,493	9,223	36,235	15,657
Noblitt-Sparks Industries, Inc.	81	835	10,113	9,069	21,263	20,365
Safety Car Heating & Lighting Co., Inc.	82	852	8,674	8,894	(1)	(1)
Solar Aircraft Co. (Calif.)	83	853	9,989	8,894	22,776	11,299
Porter (H. K.) Co., Inc.	84	860	11,601	8,811	24,948	7,358
McCord Corp.	85	870	8,539	8,720	30,834	16,840
Hastings Manufacturing Co.	86	883	5,550	8,551	(1)	(1)
McDonnell Aircraft Corp.	87	918	8,776	8,105	20,668	6,562
Four Wheel Drive Auto Co.	88	936	16,254	7,936	40,258	18,629
Universal Products Co., Inc.	89	951	4,815	7,769	5,187	11,671
Hupp Corp.	90	987	6,115	7,433	11,339	4,449
GROUP 38						
Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks:						
Eastman Kodak Co.	1	31	306,658	317,119	301,502	274,703
Johnson & Johnson	2	145	58,973	75,424	96,021	112,628
Sperry Corp., The	3	169	104,389	64,770	291,281	65,779
American Optical Co.	4	231	42,273	44,971	56,276	55,477
Minneapolis-Honeywell Regulator Co.	5	254	35,334	40,303	84,392	45,940
Bausch & Lomb Optical Co.	6	279	34,929	35,617	53,643	37,880
Bulova Watch Co., Inc.	7	323	31,840	30,433	40,959	38,394
Elgin National Watch Co.	8	439	21,536	21,591	20,676	17,689
General Precision Equipment Corp.	9	449	20,686	21,071	25,484	23,262
International Cellulose Products Co.	10	459	16,072	20,532	41,497	51,050
General Time Instruments Corp.	11	490	19,483	18,633	23,928	21,152
White (S. S.) Dental Manufacturing Co.	12	593	13,444	14,343	16,758	19,786
Bell & Howell Co.	13	594	15,990	14,337	21,931	10,388
Gruen Watch Co.	14	721	10,475	10,911	(1)	(1)

1 Not available.

Industry group and name of corporation	Rank in 1946 total assets		Total assets—end of fiscal year		Sales	
	In the industry group	In all manufacturing	Thousands of dollars			
			1945	1946	1945	1946
GROUP 38—continued						
Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks—Continued						
Hamilton Watch Co.....	15	775	8,796	9,983	11,826	10,980
Veeder Root, Inc.....	16	802	8,007	9,549	8,761	12,044
Dentists' Supply Co. of New York.....	17	830	11,796	9,152	(1)	(1)
Waltham Watch Co.....	18	834	6,731	9,076	9,544	9,790
Taylor Instrument Companies.....	19	839	9,287	9,026	12,765	10,894
American Meter Co., Inc.....	20	899	7,439	8,273	9,864	8,184
Ritter Co., Inc.....	21	989	6,632	7,416	6,615	7,780
GROUP 39						
Miscellaneous manufacturing industries:						
Diamond Match Co.....	1	252	40,676	40,445	42,497	48,218
Talon, Inc.....	2	377	20,380	24,977	22,370	29,143
International Silver Co.....	3	385	23,564	24,519	37,312	41,032
Brunswick-Balke-Collender Co., The.....	4	406	20,292	22,966	15,209	22,269
Eversharp, Inc.....	5	408	17,678	22,897	29,081	46,370
Wurlitzer (Rudolph) Co.....	6	433	17,255	21,921	(1)	(1)
Parker Pen Co.....	7	443	16,635	21,451	27,004	35,021
Oneida Ltd.....	8	582	10,576	14,641	(1)	(1)
Sheaffer (W. A.) Pen Co.....	9	583	9,645	14,637	14,659	23,515
Spalding (A. G.) & Bros., Inc.....	10	611	12,003	13,816	16,259	19,480
Kidde (Walter) & Co., Inc.....	11	614	13,428	13,784	34,644	8,658
Great American Industries.....	12	619	15,931	13,637	41,888	20,263
National Casket Co., Inc.....	13	651	13,804	12,663	(1)	(1)
Gorham Manufacturing Co.....	14	745	8,418	10,474	(1)	(1)
Universal Match Corp.....	15	785	9,915	9,855	16,532	19,171
Richardson Co.....	16	828	10,614	9,195	(1)	(1)
Fuller Brush Co.....	17	840	6,825	9,004	15,110	20,377
Boyetown Burial Casket Co.....	18	861	9,222	8,803	4,539	4,078
Bastian-Blessing Co.....	19	866	7,072	8,743	9,657	12,844
Helene Curtis Industries, Inc.....	20	876	(1)	8,637	13,351	14,295
Ohio Match Co.....	21	885	8,467	8,522	(1)	(1)
Dixon (Joseph) Crucible Co.....	22	944	7,584	7,827	9,205	9,944
American-La France-Foamite Corp.....	23	960	7,331	7,685	9,265	7,410
Steinway & Sons.....	24	964	7,340	7,676	2,529	2,957
Ronson Art Metal Works, Inc.....	25	992	6,201	7,393	7,802	11,001

1 Not available.

## Appendix B

### ONE HUNDRED LARGEST COMMERCIAL BANKS

<i>Rank</i>	<i>Company</i>
97	American National Bank & Trust Co. of Chicago.
98	American Trust Co. (Charlotte, N. C.).
20	American Trust Co. (San Francisco, Calif.).
45	Anglo California National Bank of San Francisco.
2	Bank of America National Trust & Savings Association (California).
55	Bank of California N. A. (San Francisco, Calif.).
85	Bank of Hawaii (Honolulu, T. H.).
15	Bank of the Manhattan Co. (New York).
43	Bank of New York.
9	Bankers Trust Co. (New York, N. Y.).
70	Bishop National Bank of Hawaii (Honolulu, T. H.).
74	Brooklyn Trust Co. (Brooklyn, N. Y.).
41	California Bank (Los Angeles).
8	Central Hanover Bank & Trust Co. (New York).
48	Central National Bank (Cleveland, Ohio).
88	Central Trust Co. (Cincinnati, Ohio).
1	Chase National Bank of the City of New York.
10	Chemical Bank & Trust Co. (New York).
83	Citizens Fidelity Bank & Trust Co. (Louisville, Ky.).
56	Citizens National Trust & Savings Bank of Los Angeles (Los Angeles, Calif.).
63	Citizens & Southern National Bank (Savannah, Ga.).
53	City National Bank & Trust Co. (Chicago, Ill.).
18	Cleveland Trust Co. (Cleveland, Ohio).
42	Commerce Trust Co. (Kansas City, Mo.).
67	Commercial National Bank & Trust Co. of New York.
94	Commonwealth Bank (Detroit, Mich.).
100	Continental Bank & Trust Co. of New York.
5	Continental Illinois National Bank & Trust Co. of Chicago.
25	Corn Exchange Bank Trust Co. (New York).
66	Corn Exchange National Bank & Trust Co. (Philadelphia, Pa.).
58	Crocker First National Bank of San Francisco.
34	Detroit Bank (Detroit, Mich.).
60	Farmers & Merchants National Bank of Los Angeles.
23	Fidelity-Philadelphia Trust Co. (Philadelphia, Pa.).
46	Fidelity Union Trust Co. (Newark, N. J.).
71	Fifth Third Union Trust Co. (Cincinnati, Ohio).
95	First & Merchants National Bank of Richmond (Va.).
59	First National Bank of Atlanta (Atlanta, Ga.).
51	First National Bank of Baltimore (Md.).
87	First National Bank of Birmingham (Ala.).

<i>Rank</i>	<i>Company</i>
11	First National Bank of Boston (Mass.).
6	First National Bank of Chicago.
81	First National Bank (Cincinnati, Ohio).
57	First National Bank in Dallas (Dallas, Tex.).
73	First National Bank (Kansas City, Mo.).
47	First National Bank of Minneapolis.
16	First National Bank of the City of New York.
99	First National Bank of Philadelphia.
37	First National Bank of Portland (Portland, Oreg.).
38	First National Bank in St. Louis (St. Louis, Mo.).
62	First National Bank of St. Paul (Minn.).
28	First Wisconsin National Bank (Milwaukee, Wis.).
75	Girard Trust Co. (Philadelphia, Pa.).
4	Guaranty Trust Co. of New York.
30	Harris Trust & Savings Bank (Chicago).
80	Hartford National Bank & Trust Co. (Hartford, Conn.).
64	Indiana National Bank of Indianapolis (Ind.).
72	Industrial Trust Co. (Providence, R. I.).
14	Irving Trust Co. (New York).
90	Lincoln Rochester Trust Co. (Rochester, N. Y.).
29	Manufacturers National Bank of Detroit (Detroit, Mich.).
86	Manufacturers and Traders Trust Co. (Buffalo, N. Y.).
7	Manufacturers Trust Co. (New York).
17	Marine Midland Corp. (Jersey City, N. J.).
61	Marine Midland Trust Co. of New York (New York).
50	Marine Trust Co. of Buffalo (Buffalo, N. Y.).
27	Mellon National Bank & Trust Co. (Pittsburgh, Pa.).
52	Mercantile-Commerce Bank & Trust Co. (St. Louis, Mo.).
89	Merchants National Bank of Boston (Boston, Mass.).
78	Mississippi Valley Trust Co. (St. Louis, Mo.).
21	J. P. Morgan & Co., Inc. (New York, N. Y.).
49	National Bank of Commerce of Seattle (Seattle, Wash.).
13	National Bank of Detroit.
86	National City Bank of Cleveland.
3	National City Bank of New York.
44	National Shawmut Bank of Boston (Mass.).
22	New York Trust Co.
23	Northern Trust Co. (Chicago).
40	Northwestern National Bank of Minneapolis.
96	Ohio National Bank (Columbus, Ohio).
32	Pennsylvania Company for Insurance on Lives and Granting Annuities (Philadelphia).
84	Peoples First National Bank & Trust Co. (Pittsburgh, Pa.).
24	Philadelphia National Bank (Philadelphia, Pa.).
39	Public National Bank & Trust Co. of New York.
77	Republic National Bank of Dallas (Dallas, Tex.).
65	Riggs National Bank (Washington, D. C.).
76	San Francisco Bank (San Francisco, Calif.).
19	Savings Bank Trust Co. (New York).
26	Seattle-First National Bank (Seattle, Wash.).
79	Second National Bank of Boston (Boston, Mass.).
12	Security-First National Bank of Los Angeles (Los Angeles).
69	Toledo Trust Co. (Toledo, Ohio).

<i>Rank</i>	<i>Company</i>
82	Union Planters National Bank & Trust Co. (Memphis, Tenn.).
91	Union Trust Co. of Maryland (Baltimore).
31	Union Trust Co. of Pittsburgh (merged into Mellon National Bank & Trust Co., September 23, 1946).
33	United States National Bank (Portland, Oreg.).
68	Wachovia Bank & Trust Co. (Winston-Salem, N. C.).
35	Wells Fargo Bank & Union Trust Co. (San Francisco).
54	Whitney National Bank (New Orleans).
92	Wilmington Trust Co. (Wilmington, Del.).



## Appendix C

### TWENTY LARGEST INVESTMENT BANKS

<i>Rank</i>	<i>Company</i>	<i>Rank</i>	<i>Company</i>
5	Blyth & Co., Inc.	10	Kidder Peabody & Co.
3	Dillon, Read & Co.	4	Kuhn, Loeb & Co.
17	Drexel & Co.	7	Lehman Bros.
15	Eastman Dillon & Co.	2a	Mellon Securities Corp.
2	First Boston Corp.	1	Morgan Stanley & Co.
9	Glore Forgan & Co.	18	Otis & Co.
12	Goldman, Sachs & Co.	6	Smith Barney & Co.
19	Halsey, Stuart & Co.	11	Stone & Webster Securities Corp
8	Harriman Ripley & Co.	16	Union Securities Corp.
13	Harris, Hall & Co.	14	White, Weld & Co.

## Appendix D

### FIFTY LARGEST INVESTMENT TRUSTS

<i>Rank</i>	<i>Company</i>	<i>Rank</i>	<i>Company</i>
7a	Adams Express Co.	45	General Public Service Corp.
10f	Aeronautical Securities, Inc.	3c	General Shareholders Corp.
16b	Affiliated Fund, Inc.	8	Group Securities, Inc.
16a	American Business Shares Inc.	15a	Incorporated Investors.
11b	American Cities Power & Light Corp.	46	Institutional Shares, Ltd.
34	American European Securities Co.	23b	Insuranshares Certificates, Inc.
13a	American General Corp.	28b	Investment Co. of America.
7b	American International Corp.	22b	Investors Management Fund, Inc.
32	The American Superpower Corp.	6	Investors Mutual, Inc.
12	Atlas Corp.	6b	Investors Selective Fund, Inc.
15b	Axe-Houghton Fund, Inc.	6a	Investors Stock Fund, Inc.
11a	Blue Ridge Corp.	2	Keystone Custodian Funds, Inc.
43	Bond Investment Trust of America.	41	Knickerbocker Fund for the Diversification, Supervision and Safe-keeping of Investments
26	Boston Fund, Inc.	4a	Lehman Corp.
14c	Boston Personal Property Trust.	36b	Loomis-Sayles Mutual Fund, Inc.
3e	Broad Street investing Corp.	36a	Loomis-Sayles Second Fund, Inc.
10d	Bullock Fund, Ltd.	18b	Manhattan Bond Fund, Inc.
10e	Canadian Investment Fund, Ltd.	1a	Massachusetts Investors Second Fund, Inc.
3f	Capital Administration Co., Ltd.	1	Massachusetts Investors Trust.
37b	Capital Managers, Inc.	7d	National Aviation Corp.
10b	Carriers & General Corp.	38	National Bond & Share Corp.
47	Central-Illinois Securities Corp.	3d	National Investors Corp. (Md.)
31	Century Shares Trust.	20a	National Securities Series.
29	Chemical Fund, Inc.	10c	Nation-wide Securities Co., Inc.
11c	Chicago Corp.	48a	New England Fund.
40b	Commonwealth Investment Co.	17	Newmont Mining Corp.
24	Consolidated Investment Trust.	18a	New York Stocks Inc.
10a	Dividend Shares, Inc.	23a	Niagara Share Corp.
25a	Eaton & Howard Balanced Fund.	40a	North American Investors Corp.
25b	Eaton & Howard Stock Fund.	28a	Pacific-American Investors, Inc.
13b	The Equity Corp.	19	Pennroad Corp.
50	The Equity Fund, Inc.	7c	Petroleum Corp. of America.
35	Fidelity Fund, Inc.	30	George Putnam Fund of Boston.
20b	First Mutual Trust Fund.	39	Railway & Light Securities Co.
13c	First York Corp.	27	Scudder, Stevens & Clark Fund, Inc.
22a	Fundamental Investors Inc.	33	Selected American Shares, Inc.
4b	General American Investors, Inc.	3b	Selected Industries, Inc.
37a	General Capital Corp.	14b	Shawmut Association.
48b	General Investors Trust.		

<i>Rank</i>	<i>Company</i>	<i>Rank</i>	<i>Company</i>
14a	State Street Investment Corp.	42c	United Bond Fund.
44	Tobacco & Allied Stocks, Inc.	5	The United Corporation.
3a	Tri-Continental Corp.	42a	United Income Fund.
49	Trusted Industry Shares.	9a	U. S. & Foreign Securities Corp.
16c	Union Trusteed Funds, Inc.	9b	U. S. & International Securities Corp.
42b	United Series (T. A.) Accumulative Fund.	21	Wellington Fund, Inc.

## Appendix E

### SEVENTEEN LARGEST LIFE INSURANCE COMPANIES

(Ranked by Admitted Assets) <sup>1</sup>

<i>Rank</i>	<i>Company</i>	<i>Rank</i>	<i>Company</i>
9	Aetna Life Insurance Co.	6	Mutual Life Insurance Co. of New York.
17	Connecticut General Life Insurance Co.	13	New England Mutual Life Insurance Co.
14	Connecticut Mutual Life Insurance Co.	3	New York Life Insurance Co.
4	Equitable Life Assurance Society of the United States.	5	Northwestern Mutual Life Insurance Co.
7	John Hancock Mutual Life Insurance Co.	10	Penn Mutual Life Insurance Co
12	Massachusetts Mutual Life Insurance Co.	16	Provident Mutual Life Insurance Co. of Philadelphia.
1	Metropolitan Life Insurance Co.	2	The Prudential Insurance Co. of America.
11	Mutual Benefit Life Insurance Co.	8	Travelers Insurance Co.
		15	Union Central Life Insurance Co.

<sup>1</sup> Best's Insurance Reports, 1945.

## Appendix F

### NINE LARGEST FIRE AND CASUALTY INSURANCE COMPANIES

<i>Rank</i>	<i>Company</i>	<i>Rank</i>	<i>Company</i>
5	America Fore Group.	2c	Hartford Live Stock Insurance of New York.
3	Aetna Casualty & Surety Co.	4m	Home Fire Security Corp.
8	Aetna Insurance Co.	4	Home Indemnity Co.
7a	Alliance Insurance Co.	4a	Home Insurance Co. of New York.
5c	American Eagle Fire Insurance Co.	4b	Homestead Fire Insurance Co.
4e	Baltimore American Insurance Co. of New York.	7c	Indemnity Insurance Co. of North America.
4f	Carolina Insurance Co.	7	Insurance Co. of North America.
7b	Central Insurance Co. of Baltimore. <sup>1</sup>	2f	London Canada Insurance Co.
8a	Century Indemnity Co.	5g	Maryland Insurance Co. <sup>2</sup>
2a	Citizens Insurance Co. of New Jersey.	4l	National Liberty Insurance Co. of America.
4g	City of New York Insurance Co.	7d	National Security Insurance Co. of Omaha <sup>1</sup>
5a	Continental Insurance Co.	4j	New Brunswick Fire Insurance Co.
5d	Fidelity & Casualty Co. of New York.	2d	New York Underwriters Insurance Co.
5b	Fidelity-Phenix Fire Insurance Co.	4k	Paul Revere Fire Insurance Co.
5e	First American Fire Insurance Co. <sup>3</sup>	7e	Philadelphia Fire & Marine Insurance Co. <sup>1</sup>
4h	Franklin Fire Insurance Co.	8h	Piedmont Fire Insurance Co.
4c	Georgia Home Insurance Co.	8d	Standard Insurance Co. of New York.
4d	Gibraltar Fire & Marine Insurance Co.	1	Travelers Indemnity Co.
4i	Halifax Insurance Co.	2e	Twin City Fire Insurance Co.
2b	Hartford Accident & Indemnity Co.	9	United States Fidelity & Guaranty Co.
2	Hartford Fire Insurance Co.	8e	World Fire & Marine Insurance Co.

<sup>1</sup> Central Insurance Co. of Baltimore and National Security Insurance Co. of Omaha were merged on January 1, 1946, into Philadelphia Fire & Marine Insurance Co.

<sup>2</sup> First American Fire Insurance Co. was merged into American Eagle Fire Insurance Co. on April 1, 1946.

<sup>3</sup> Maryland Insurance Co. was merged into Niagara Fire Insurance Co. on April 1, 1946.

## Appendix G

### TWENTY-FIVE LARGEST RAILROADS

Rank	Company	Rank	Company
3	The Atchison, Topeka & Santa Fe Railway Co.	10	Missouri Pacific Railroad Co.
22	Atlantic Coast Line Railroad Co.	15	Norfolk & Western Railway Co.
5a	Arizona Eastern Railroad Co.	8	Northern Pacific Railway Co.
6	The Baltimore & Ohio Railroad Co.	2	New York Central Railroad Co.
25	Boston & Maine Railroad.	13a	The New York, Chicago & St. Louis Railroad Co.
11b	Central of Georgia Railway Co.	18	The New York, New Haven & Hartford Railroad Co.
13	The Chesapeake & Ohio Railway Co.	1a	The Ohio Connecting Railway Co.
12	Chicago, Burlington & Quincy Railroad Co.	1	The Pennsylvania Railroad Co.
7	Chicago, Milwaukee, St. Paul & Pacific Railroad Co.	1d	Pennsylvania Tunnel & Terminal Railroad Co.
17	Chicago & North Western Railway Co.	1b	The Philadelphia, Baltimore & Washington Railroad Co.
16	Chicago, Rock Island & Pacific Railroad Co.	13b	Pere Marquette Railway Co.
11a	Chicago, St. Louis & New Orleans Railroad Co.	19	Reading Co.
24	The Denver & Rio Grande Western Railroad Co.	23	Seaboard Air Line Railroad Co.
20	Erie Railroad Co.	5	Southern Pacific Co.
9	Great Northern Railway Co.	14	Southern Railway Co.
11	Illinois Central Railroad Co.	21	St. Louis-San Francisco Railway Co.
1c	The Long Island Rail Road Co.	10a	The Texas & Pacific Railway Co.
2a	The Michigan Central Railroad Co.	4	Union Pacific Railroad Co.
		13c	The Wheeling and Lake Erie Railway Co.



## Appendix H

### FIFTY LARGEST PUBLIC UTILITIES

Rank	Company	Rank	Company
3c	Alabama Power Co.	2b	Consolidated Telegraph & Electric Subway Co.
15	American Gas & Electric Co.	3a	Consumers Power Co.
17a	American Light & Traction Co.	45	Community Water Service Co.
7	American Power & Light Co.	23	Detroit Edison Co.
1	American Telephone & Telegraph Co.	26	Duke Power Co.
21	American Water Works & Electric Co.	10b	Duquesne Light Co.
15a	Appalachian Electric Power Co.	13	Electric Power & Light Corp.
4b	Associated Electric Co.	9a	Empire Gas & Fuel Co.
4	Associated Gas & Electric Corp.	50	Federal Water & Gas Corp.
46	The Baltimore Transit Co.	7b	Florida Power & Light Co.
1b	Illinois Bell Telephone Co.	4c	General Gas & Electric Corp.
1g	The Bell Telephone Co. of Pennsylvania.	3b	Georgia Power Co.
35	Boston Elevated Railway Co.	33	Hudson & Manhattan Railroad Co.
2a	Brooklyn Edison Co. Inc.	8d	Illinois Power Co.
37	Brooklyn Union Gas Co.	16	International Hydro-Electric System.
14a	Buffalo, Niagara and Eastern Power Corp.	18	International Telephone & Telegraph Co.
20a	Central Illinois Public Service Co.	41	Jersey Central Power & Light Co.
14c	Central New York Power Corp.	34	Lone Star Gas Corp.
48	Central Public Utility Corp.	31	Long Island Lighting Co.
20a	Central & South West Utilities Co.	4a2	Metropolitan Edison Co.
30	Chicago Railways Co.	1j	Michigan Bell Telephone Co.
12a	Cincinnati Gas & Electric Co.	20	Middle West Corp.
9	Cities Service Co.	7a	Montana Power Co.
9b	Cities Service Power & Light Co.	1n	Mountain States Telephone & Telegraph Co.
8c	Cleveland Electric Illuminating Co.	38	National Fuel Gas Co.
12	Columbia Gas & Electric Corp.	19	National Power & Light Co.
5	Commonwealth Edison Co.	42	Natural Gas Pipeline Co. of America.
3	The Commonwealth & Southern Corp.	39	New England Gas & Electric Association.
2	Consolidated Edison Co. of New York, Inc.	16a	New England Power Association.
43	Consolidated Electric & Gas Co.	1f	New England Telephone & Telegraph Co.
27	Consolidated Gas Electric Light & Power Co. of Baltimore.	1k	New Jersey Bell Telephone Co.
		4a	NY PA NJ Utilities Co.
		14b	New York Power & Light Corp.

<i>Rank</i>	<i>Company</i>	<i>Rank</i>	<i>Company</i>
2c	New York & Queens Electric Light & Power Co.	11a	Public Service Electric & Gas Co.
4a1	New York State Electric & Gas Corp.	4a3	Rochester Gas & Electric Corp.
14	New York Telephone Co.	47	St. Louis Public Service Co.
14	Niagara Hudson Power Corp.	1e	Southern Bell Telephone & Telegraph Co.
8	North American Co.	22	Southern California Edison Co.
36	Northern Indiana Public Service Co.	11	Southern California Telephone Co.
1m	Northwestern Bell Telephone Co.	1o	The Southern New England Telephone Co.
20b	North West Utilities Co.	1d	Southwestern Bell Telephone Co.
1-L	The Ohio Bell Telephone Co.	10	Standard Gas & Electric Co.
3d	Ohio Edison Co.	49	Stone & Webster, Inc.
13b	Ohio Power Co.	44	Third Avenue Transit Corp.
6	Pacific Gas & Electric Co.	8a	Union Electric Co. of Missouri.
25	Pacific Lighting Corp.	13a	United Gas Corp.
1b	The Pacific Telephone & Telegraph Co.	29	United Gas Improvement Co.
19a	Pennsylvania Power & Light Co.	17	The United Light & Railways Co.
28	Peoples Gas Light & Coke Co.	2d	Westchester Lighting Co.
10a	Philadelphia Co.	1c	Western Electric Co., Inc.
32	Philadelphia Transportation Co.	24	Western Union Telegraph Co.
40	Portland Electric Power Co.	8b	Wisconsin Electric Power Co.
11b	Public Service Coordinated Transport.	1p	Wisconsin Telephone Co.
11	Public Service Corp. of New Jersey.		

## Appendix I

### TEN LARGEST WHOLESALE TRADE COMPANIES

<i>Rank</i>	<i>Company</i>	<i>Rank</i>	<i>Company</i>
W 1	Anderson, Clayton & Co.	W 4	Ely & Walker Dry Goods Co.
W 8	Blue Moon Foods, Inc.	W 2	McKesson & Robbins, Inc.
W 3	Butler Bros.	W 6	Rise-Stix, Inc.
W 7	Carpenter Paper Co.	W 9	Southwestern Drug Corp.
W 5	Consolidated Grocers Corp.	W 10	Winston & Newell Co.

## Appendix J

### FIFTY LARGEST RETAIL STORES

<i>Rank</i>	<i>Company</i>	<i>Rank</i>	<i>Company</i>
13b	Abraham-Straus, Inc.	41	Hecht Co.
39	Alden's, Inc.	29	Jewel Tea Co.
9	Allied Stores Corp.	15	Kresge (S. S.) Co.
19	American News Co.	42	Kress (S. H.) & Co.
8	American Stores Co.	6	Kroger Co.
26	Associated Dry Goods Corp.	12	Macy (R. H.) & Co.
46	Beck (A. S.) Shoe Corp.	10	May Department Stores.
13a	Bloomingdale Bros.	33	McCrary Stores Corp.
36	Bohack (H. C.) Co.	38	Melville Shoe Corp.
31	Bullock's, Inc.	30	Mercantile Stores Co.
44	Carson Pirie Scott & Co.	4	Montgomery Ward & Co.
22	City Stores Co.	27	Murphy (G. C.) Co.
49	Emporium-Capwell Co.	37	National Department Stores.
24	Endicott Johnson Corp.	16	National Tea Co.
13	Federated Department Stores.	47	Neisner Bros.
18	Field (Marshall) & Co.	28	Newberry (J. J.) Co.
13c	Filene's (William) & Sons Co.	50	Park & Tilford, Inc.
11	First National Stores, Inc.	5	Penney (J. C.) Co.
45	Fisher Bros. Co.	20	Rexall Drug, Inc.
25	Food Fair Stores, Inc.	3	Safeway Stores, Inc.
23	Gamble-Skogmo, Inc.	48	Scruggs-Vandervoot-Barney, Inc.
14	Gimbel Bros.	2	Sears, Roebuck & Co.
35	Goldblatt Bros.	40	United Cigar-Whelan Stores Corp.
32	Grand Union Co.	21	Walgreen Co.
17	Grant (W. T.) Co.	43	Western Auto Supply Co.
1	Great Atlantic & Pacific Tea Co.	7	Woolworth (F. W.) Co.
34	Green (H. L.) Co., Inc.		

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