U. S. DEPARTMENT OF COMMERCE
Roy D. Chapin, Secretary
BUREAU OF THE CENSUS
W. M. Steuart, Director

FIFTEENTH CENSUS OF THE UNITED STATES

CENSUS OF DISTRIBUTION

WHOLESALE DISTRIBUTION

(TRADE SERIES)

WHOLESALE ELECTRICAL TRADE

Distribution No. W-206

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1933

For sale by the Superintendent of Documents, Washington, D. C. - - - - Price 10 cents

CONTENTS

	Page
INTRODUCTION	5
THE ELECTRICAL INDUSTRY	5
What are electrical goods	5
Treatment by the census of manufactures	6
Volume of production of electrical goods	6
CHANNELS OF DISTRIBUTION USED BY MANUFACTURERS OF ELECTRICAL GOODS	8
Direct sales by manufacturers	9
Sales through manufacturer-owned retail stores	9
Sales to retailers	10
Sales to wholesale outlets	10
WHOLESALE DISTRIBUTION OF ELECTRICAL COMMODITIES, BY KIND OF BUSINESS	11
Electrical commodities	11
Sales of all electrical commodities, by kind of business	12
Sales of specified electrical commodities, by kind of business and type of establishments	13
SUMMARY OF WHOLESALE ELECTRICAL TRADE	21
General summary for the United States	21
COMMODITY SALES OF TYPICAL ELECTRICAL WHOLESALERS	23
General summary for the United States, by type of establishment	24
LENGTH OF LIFE AND CONTINUITY OF OWNERSHIP	28
Growth of electrical wholesalers	28
Growth of manufacturers' sales branches	30
Continuity and age of present ownership	31
LOCATION OF WHOLESALE ELECTRICAL ESTABLISHMENTS	31
Wholesale electrical trade, by States and geographic divisions	31
Wholesale electrical trade, by principal trade centers	34
Extent of the sales territory radius for 18 cities	36
ANALYSIS OF SALES IN THE WHOLESALE ELECTRICAL TRADE	38
Sales analysis by commodities	38
Sales made by electrical wholesale merchants, by commodities	40
Sales analysis—general summary	42
Returned goods and allowances	43
Credit sales in the wholesale electrical trade	44
Sales to industrial consumers	45
Sales to home consumers	47
Sales of goods of own manufacture	48

Page

OPERATING EXPENSES 49
The nature of the statistics 49
General summary of operating expenses 49
Analysis of operating expenses of wholesale merchants in the electrical trade 50
Analysis of operating expenses of manufacturers' sales branches in the electrical trade 54
Frequency distribution of operating expense percentages 56
Operating expenses in relation to the location of the establishments 57

SIZE OF ESTABLISHMENT 58
Distribution of net sales by size of establishment 58
Operating expenses of wholesale electrical merchants in relation to size of the business 60
Operating expenses of manufacturers' sales branches in the electrical trade in relation to size of the business 64

OTHER CENSUS OF DISTRIBUTION DATA ON THE WHOLESALE ELECTRICAL TRADE 65

APPENDIX 66
Reported sales of specified electrical commodities, by States and geographic divisions 66

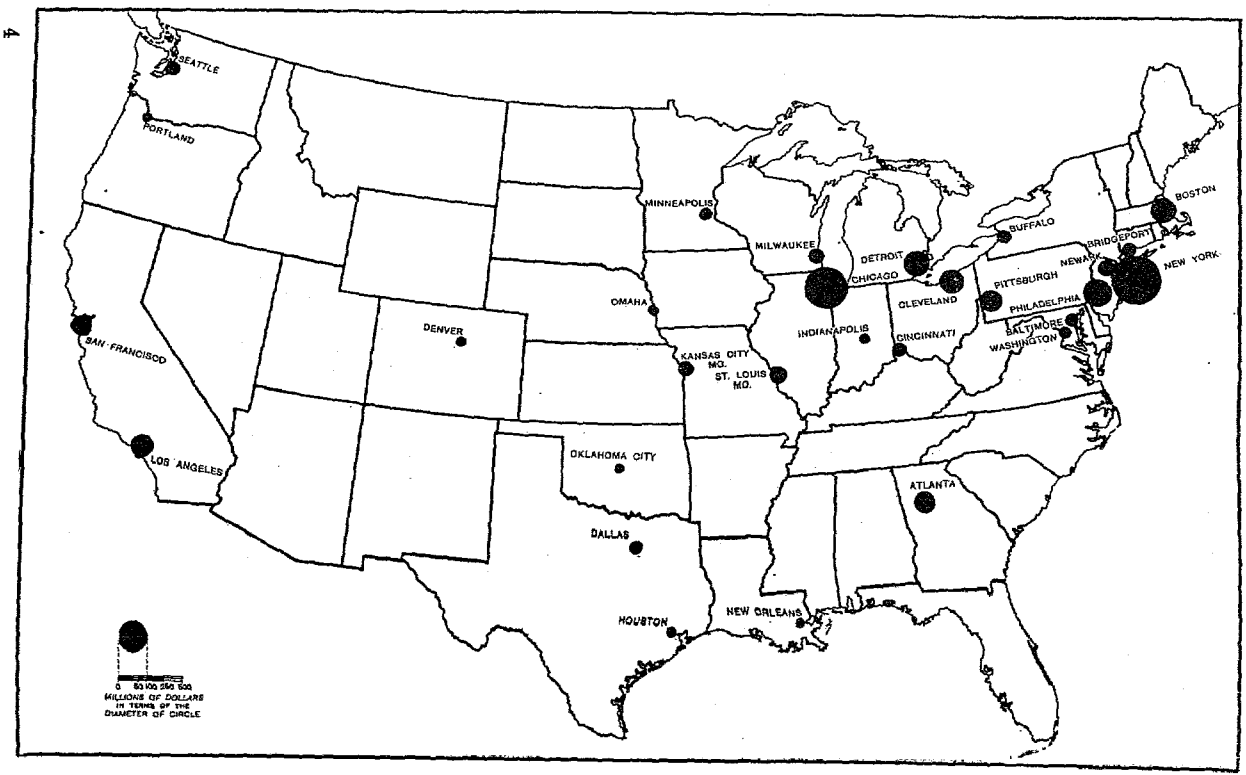
MAP

Wholesale electrical trade centers in the United States 4

ILLUSTRATIONS

CHRAT I.—Number of establishments and net sales, by size of business—wholesale merchants in the electrical trade (general line)—United States: 1929 58
CHART II.—Number of establishments and net sales by size of business—wholesale merchants in the electrical trade (specialty)—United States: 1929 59
CHART III.—Expenses, sales per salesman, and stocks on hand, by size of business—wholesale merchants in the electrical trade (general line)—United States: 1929 61
CHART IV.—Expenses, sales per salesman, and stocks on hand, by size of business—manufacturers' sales branches in the electrical trade (specialty)— United States: 1929 63

WHOLESALE ELECTRICAL TRADE CENTERS IN THE UNITED STATES



THE WHOLESALE ELECTRICAL TRADE

By Theodore N. Beckman, In Charge of Wholesale Distribution, and C. E. Warner, Jr.

INTRODUCTION

This is one of a series of trade reports presenting the findings of the first census of wholesale distribution, which is a part of the Fifteenth Decennial Census of the United States. The statistics were collected in 1930 and cover the wholesale operations for the year 1929. This report was prepared under the general supervision of Robert J. McFall, chief statistician for distribution.

The data were secured by a field canvass covering the entire continental United States. The canvass was based upon wholesale establishments which are defined, for census purposes, as places of business where goods are sold in a wholesale manner. *Consequently, no establishments are included in this report unless 50 per cent or more of their sales were made at wholesale.* An establishment may take the form of a store which does not generally sell to the public, a wholesaling warehouse, an office, or part of an office, as when the office is shared with other similar establishments. The census was taken on the basis of establishments in order to facilitate the canvass and to make it possible to present data by geographic areas. A separate report was required for each establishment, regardless of whether or not it was owned or operated as part of a larger business organization. Wholesale peddlers as well as others who maintained no place of business were not included in this census.

In preparing this report it was impossible to secure exact correspondence between the statistics presented herein and those appearing in the State series of reports and in the United States Summary of Wholesale Distribution. Differences are due, for the most part, to a certain amount of reclassification and regrouping of schedules for the purposes of this special trade analysis.

In the first part of this report an attempt is made to present a brief discussion of the scope of the electrical industry from the standpoint of production, drawing for the purpose upon the statistics compiled by the Census of Manufactures. Next follows an examination of the sales channels through which the goods flow, as they leave the manufacturing plants, based upon data compiled by the industrial goods section of the Census of Distribution. The main body of the report is devoted to an analysis of the wholesale establishments engaged in the distribution of electrical goods as revealed by the census of Wholesale Distribution.

THE ELECTRICAL INDUSTRY

What are electrical goods?—In an attempt to determine the amount of electrical goods produced in the United States for sale one is confronted with the question: What are electrical goods? A certain amount of overlapping may be found in practically all industries. In the same plant are frequently manufactured products belonging to entirely different categories. Some electrical manufacturers may produce goods belonging in the nonelectrical automotive classification. On the other hand, manufacturers of automotive equipment may produce in their plants some strictly electrical items such as radio apparatus and supplies.

Again, there are some lines of merchandise whose inclusion in the volume of production for the electrical industry may be debated on the ground that they, themselves, are not electrical but are used in conjunction with electrical goods, as in the case of porcelain electrical supplies or rubber and friction tape. Another question arises in connection with such items as washing machines, which become *electrical* only through the attachment of a motor thereto. Are electric washing machines a part of the electrical industry, or are only their motors to be regarded as electrical goods?

Treatment by the Census of Manufactures.—In the electrical industry as designated by the Census of Manufactures, known as the "electrical machinery, apparatus, and supplies" industry, are included establishments engaged primarily in the manufacture of machinery, apparatus, and supplies for employment directly in the generation, storage, transmission, or utilization of electric energy. This industry includes all of the first 19 classifications listed in Table 1 below, but it does *not* cover establishments whose principal products are electric lighting fixtures, electric signs, motor-driven tools, mechanical refrigerators, washing machines, and other machines and appliances constructed with built-in motors. These latter have been classified by the Census of Manufactures in other industries. Electric signs, for example, have been classified in the "signs and advertising novelties" industry and electric lighting fixtures have been classified in the "lighting equipment" industry, although the Census of Manufactures recognizes them as electrical equipment and supplies.[1] However, such items as electric clocks and porcelain electrical supplies do not seem to be recognized as electrical goods from a manufacturing standpoint, the former being classified in the "clocks, watches, and parts" industry and the latter in the "pottery" industry.

Volume of production of electrical goods.—From the standpoint of marketing or distribution, it becomes necessary to regard as electrical goods not only items that are *classified* in the electrical industry or otherwise recognized by the Census of Manufactures as electrical goods, but also those items that are normally sold in conjunction with strictly electrical merchandise. On this basis the aggregate value of electrical goods produced in 1929, at f. o. b. factory selling prices, amounted to $2,720,113,187, of which 85.8 per cent was produced by the 1,802 plants classified in the "electrical machinery, apparatus, and supplies" industry. The remaining 14.2 per cent of the electrical goods were produced by a number of plants classified in industries other than the electrical, but the exact number of plants producing these goods is not known, since some of these latter plants are listed two or more times because they manufactured goods belonging in two or more classifications. Thus, the electrical industry, in the sense in which it is used in this report, is one of the major industries of the country, accounting for approximately 3.9 per cent of the total value of all manufactures in the United States. (See Table 1.)

It is not to be inferred that the entire amount of goods shown in Table 1 was sold through electrical trade channels. As a matter of fact, large amounts of electrical goods were sold through different kinds of business or lines of trade, as indicated by the data in Tables 4 and 5. Furthermore, in the total production figure are included large amounts of merchandise which were sold to industrial consumers direct from the factory and hence are not covered by the statistics presented later for the wholesale electrical trade because such sales were not made through wholesale organizations.

Among the specific classes of commodities listed in Table 1, radio apparatus and tubes led in the volume of production, accounting for 15.1 per cent of the

[1] Census of Manufactures Report on the Electrical Machinery, Apparatus, and Supplies Industry; 1929.

total production of electrical goods. Insulated wire and cable made up 11.5 per cent; motors, parts, and supplies, 7.2 per cent; and batteries, parts, and supplies, 5.5 per cent. Almost 40 per cent (39.3 per cent) of all production in electrical goods was accounted for by the above mentioned four lines of merchandise. Of the 14.2 per cent in electrical products made by other industries, electric lighting fixtures and electric domestic refrigerators led with 4.5 per cent and 4.1 per cent, respectively.

TABLE 1.—PRODUCTION OF ELECTRICAL GOODS IN THE UNITED STATES:[1] 1929

NAME OF COMMODITY	Number of establishments	Value of production (f. o. b. factory)	Per cent of total
Grand total	(2)	$2,720,113,187	100.0
ELECTRICAL MACHINERY, APPARATUS, AND SUPPLIES INDUSTRY			
Batteries, parts, and supplies	235	$149,934,676	5.5
Conduits, interior	85	56,270,403	2.1
Control apparatus	56	44,288,544	1.6
Domestic heating and cooking appliances	210	84,485,468	3.1
Electric fans	33	10,196,353	0.4
Electrotherapeutic and electromedical apparatus	135	23,555,082	0.9
Fuses and fuse blocks	44	14,036,325	0.5
Generators	60	80,932,360	3.0
Ignition apparatus for internal-combustion engines	67	58,627,039	2.2
Industrial and commercial apparatus and appliances	140	28,636,077	1.1
Insulated wire and cable	102	312,592,093	11.5
Lamps, incandescent filament	34	85,319,515	3.1
Measuring instruments	56	36,812,777	1.4
Motors, parts and supplies	123	194,845,523	7.2
Radio apparatus and tubes	360	411,637,312	15.1
Switchboards, circuit breakers, and switches	169	81,201,122	2.9
Transformers	46	77,824,952	2.8
Wiring devices	63	38,395,283	1.4
Miscellaneous [3]	84	544,654,554	20.0
Total	1,802	2,334,246,358	85.8
ELECTRICAL PRODUCTS MADE BY OTHER INDUSTRIES			
Driers, ironing machines, and wringers	26	$7,622,679	0.3
Electric clocks, automobile and other	25	4,976,517	0.2
Electric lighting fixtures	704	121,284,435	4.5
Electric signs (neon and other)	376	34,906,933	1.3
Electric washing machines	60	59,930,902	2.2
Lighting plants, residence, etc. (complete units)	16	7,830,535	0.3
Porcelain electrical supplies	52	22,135,474	0.8
Refrigerators, domestic	32	111,674,520	4.1
Rubber and friction tape	14	4,950,125	0.1
Tools, portable	28	10,554,709	0.4
Total	(2)	385,866,329	14.2

[1] Electrical Machinery, Apparatus, and Supplies, Industry series report of the Census of Manufactures: 1929, U. S. Government Printing Office, 1931; also see Products of Manufacturing Industries, Distribution No. I. G. 201, U. S. Government Printing Office, 1932.

[2] The total number of establishments comprising the electrical machinery, apparatus, and supplies industry, as defined by the Census of Manufacturers, is 1,802. The exact number of the plants manufacturing the electrical products made by other industries is not known, since many of the establishments in this group engaged in the production of more than one of the products or classes of products listed; consequently, they were listed more than once.

[3] Includes, among others, carbons, electric locomotives, flashlight cases, lightning arrestors and choke coils, overhead trolley-line material, pole-line hardware, railway signals and attachments, searchlights and floodlights, telephone and telegraph apparatus, signaling apparatus (other than railway), and rectifying apparatus.

CHANNELS OF DISTRIBUTION USED BY MANUFACTURERS OF ELECTRICAL GOODS

On the returns made by manufacturers to the Census of Manufacturers for 1929 each plant reported the distribution of its sales through the various channels as far as the first step in the distribution process was concerned. In other words, manufacturers indicated how much of their sales during the year was made direct from factory to ultimate consumers, to retailers, to wholesalers, to industrial consumers, and how much was sold through their own retail and/or wholesale branches. They also indicated the amount, if any, that was sold to any of the above through the intervention of agents and brokers.

Information on the distribution of sales by channels is available only for 1,875 plants, with an f. o. b. factory selling value of electrical goods amounting to $2,472,933,000, or 90.9 per cent of the total production of such goods during the year 1929. Some of the plants in the industry did only contract work and hence showed no distribution of sales; others transferred their entire output to other plants of the same company (interplant transfers not being regarded as sales); while still others failed to give data on this item because of inadequate records from which to report such information.

For all of the 1,875 plants producing electrical goods for which a distribution of sales by channels is available, the percentage of such distribution was as follows (see Table 2):

	Per cent
To wholesalers and to manufacturers' own wholesale branches	54.5
To manufacturers' own retail branches	2.7
To retailers	7.3
To industrial consumers (such as manufacturers, contractors, railroads, public utilities, and institutions)	35.1
To household consumers	0.4
Total	100.0
Sales of above through agents and brokers	5.9

Considerable variation may be noted, however, from the data shown in Table 3, in the relative importance of the different channels through which certain types of electrical goods were distributed. Table 3 was designed primarily to bring out the differences in the methods of distribution for electrical household appliances as compared with electrical equipment and other types of electrical merchandise.

TABLE 2.—DISTRIBUTION OF SALES DURING THE YEAR 1929 OF THE MANUFACTURING PLANTS PRODUCING ELECTRICAL GOODS [1]—UNITED STATES

	Selling value (f. o. b. factory)	Per cent of sales	Number of plants: Total	Number of plants: Selling exclusively as indicated
Total production of electrical goods	$2,720,113,187			
Amount reported by channels of distribution	2,472,933,000	100.0	1,875	
Sales to wholesalers and to manufacturers' own wholesale branches	1,345,620,000	54.5	1,241	457
Sales to manufacturers' own retail branches	67,762,000	2.7	49	
Sales to retailers	183,657,000	7.3	571	112
Sales to consumers:				
Industrial	867,117,000	35.1	875	383
Household	8,777,000	0.4	246	54
Sales of above through agents and brokers	147,139,000	5.9	[2] 428	[2] 81

[1] Distribution of Sales of Manufacturing Plants by Industries, Distribution No. IG-202, pp. 38-39, United States Government Printing Office, 1932.
[2] Approximate number.

Direct sales by manufacturers.—The term "direct selling" has many meanings and connotations. It may refer to sales made by manufacturers to retailers without going through the wholesaler. Occasionally, it is applied to sales made *to* wholesalers without the intervention of another middleman, such as a broker or manufacturers' agent. Frequently, the term is used to indicate sales made by a manufacturer through his own outlets either direct to retailers or direct to consumers (both ultimate and industrial). However, it has generally been applied to sales made by manufacturers from their plants direct to consumers. *It is in this latter and restricted sense that the term is used in this report.*

The electrical manufacturers sold very little (0.4 per cent of total sales) direct to ultimate or household consumers. While 246 plants reported such sales, only 54 of them sold exclusively to household consumers without the use of any wholesale or retail organizations, either owned or independent. Such sales were made largely through salesmen, on a salary or commission basis. This method of selling was restricted largely to electrical goods of a high unit value, such as refrigerators, washing machines, radio receiving sets, and vacuum cleaners. Of the 12 classifications shown separately in Table 3 sales direct from factory to household consumers are shown only by four.

Direct sales to industrial consumers, however, were very substantial, amounting to 35.1 per cent of the total sales reported by channels. Among those classified as industrial consumers are manufacturers, contractors, railroads, public utilities, and institutions. Direct sales to such consumers were made by 875 of the 1,875 plants, 383 of which sold their entire output in this manner.

Great variation may be noted from Table 3 in this method of distribution. While all of the 12 industries listed in that table reported some sales direct to industrial consumers, the volume of their respective goods sold in this manner varied from less than 1 per cent to approximately 90 per cent. Plants producing signaling apparatus and attachments sold 89.7 per cent of their goods direct to industrial consumers. A very high percentage of such sales (83.8 per cent) was also reported by the plants producing switchboards, circuit breakers, and switches. Approximately 20 per cent of the ignition apparatus for internal-combustion engines was disposed of in the same manner. However, in the case of what may be termed "strictly home consumer goods" but small quantities were sold direct to industrial consumers.

Many of the items sold to industrial consumers are semimanufactured products intended for further processing, or take the form of supplies. In order to arrive at a truer picture of household consumer goods it is necessary to deduct from the total the sales that were made to industrial consumers. While the total amount thus sold is not readily available, it is possible to deduct at least the sales that were made *direct from factory* to industrial consumers. When such sales are deducted from the total and the amounts sold through each of the other channels are converted into a percentage of the remainder the following percentage distribution is obtained:

	Per cent
To wholesalers and to manufacturers' own wholesale branches	83.8
To manufacturers' own retail stores	4.2
To retailers	11.4
To household consumers	0.6
Total	100.0

Sales through manufacturer-owned retail stores.—Of the sales reported by producers of electrical goods, 2.7 per cent was made through their own retail outlets. When calculated on the basis of total sales, less sales made direct from factory to industrial consumers, the percentage sold through such manufacturer-owned outlets is 4.2. Of the 1,875 plants producing electrical goods, 49 main-

tained their own retail outlets for their goods, but none of them sold exclusively in that manner.

Sales to retailers.—Sales made from factories to retailers of all kinds, including sales to chain stores, department stores, and mail-order houses, amounted to 7.3 per cent of the total sales reported by channels. Of all goods intended primarily for the home consumer market (arrived at by deducting sales made direct from factory to industrial consumers from the total as indicated above), manufacturers sold to retailers direct from their factories 11.4 per cent of their products. These sales were reported by 571 plants, 112 of which sold exclusively to retailers. Of the 12 industries listed in Table 3, the highest percentage of sales from factory to retailers is shown for washing machines, wringers, driers, and ironing machines for household use, for which this constituted the most important channel of distribution, accounting for 62.6 per cent of the sales. Next in importance along this line was the industry producing electrical storage batteries, of which approximately 20 per cent (19.8) was sold direct to retailers, the majority of whom, no doubt, acted as licensed agents selected by their respective producers. Three of the 12 industries made less than 1 per cent of their sales from factory to retailers, and 4 others sold under 10 per cent in this manner.

Sales to wholesale outlets.—For the purposes of this presentation it was impractical to show separately the sales made by manufacturers to or through their own wholesale sales branches and the sales made to wholesalers. Wholesalers and manufacturers' sales branches together accounted for 54.5 per cent of sales made by manufacturers during the year. When the sales direct from factory to industrial consumers are deducted from the total, the percentage of merchandise (based on the remainder) sold to wholesalers and through manufacturers' sales branches rises to 83.8. In other words, over seven times as much was sold through wholesalers and manufacturers' sales branches as the amount sold by manufacturers to retailers direct from the plants. As many as 1,241 manufacturing plants sold some of their goods to wholesalers and through manufacturers' sales branches and 457 plants confined all of their sales to these channels.

TABLE 3.—DISTRIBUTION OF SALES DURING THE YEAR 1929 THROUGH THE CHANNELS INDICATED, BY SELECTED INDUSTRIES, FOR THE UNITED STATES

INDUSTRY	Total selling value of products (000 omitted)	SALES AS A PER CENT OF TOTALS— To wholesalers and to manufacturers' own wholesale branches	To retailers	To industrial and other large consumers	To household consumers	Through agents and brokers
Domestic apparatus and appliances (miscellaneous)	$25,562	81.1	13.7	4.4	0.8	5.8
Dry batteries and flashlight cases	21,298	88.6	10.8	0.6	(1)	8.0
Electrical storage batteries	100,744	63.5	19.8	16.7	-------	5.9
Fuses	6,311	87.1	(1)	12.9	-------	15.5
Ignition apparatus for internal combustion engines	22,816	67.6	12.5	19.9	(1)	1.4
Interior conduits and fittings	21,591	95.9	0.5	3.6	-------	28.8
Radio receiving sets	160,783	85.5	6.8	7.3	0.4	5.0
Radio tubes	47,928	87.7	3.7	8.6	-------	20.3
Refrigerators, mechanical	161,538	96.6	1.2	1.4	0.8	(1)
Signaling apparatus and attachments	19,436	5.2	5.1	89.7	-------	3.0
Switchboards, circuit breakers, and switches	39,792	15.3	0.9	83.8	-------	9.5
Washing machines, wringers, driers, and ironing machines for household use	81,036	30.9	62.6	6.0	0.5	4.2

[1] Combined to avoid disclosure of individual operations.

In some of the electrical industry classifications, according to Table 3, these wholesale organizations handled the great bulk of the merchandise: 96.6 per cent of the total sales of mechanical refrigerators; 95.9 per cent of the sales in interior conduits and fittings; 88.6 per cent of the dry batteries and flashlight cases; 87.7 per cent of the radio tubes; 87.1 per cent of the fuses; 85.5 per cent of the radio receiving sets; and 81.1 per cent of domestic apparatus and appliances. Only two of the 12 industries reported less than 20 per cent of their sales being made to wholesalers or through manufacturers' sales branches.

WHOLESALE DISTRIBUTION OF ELECTRICAL COMMODITIES, BY KIND OF BUSINESS [2]

The foregoing analysis is based upon statistics which were collected and compiled by the Census of Manufactures and by the Distribution of Sales Section of the Census of Distribution. The data were taken from the schedules filed by the manufacturers and therefore present the producer's point of view. The remainder of this report deals with statistics based upon schedules made out by wholesale establishments for the Census of Distribution.

Separate reports for the Census of Distribution were not solicited from manufacturers who sold direct from their factories. Only when wholesale establishments were maintained by manufacturers, physically apart from their producing plants, were they required to furnish separate distribution reports. This is one of the reasons why Census of Distribution figures used throughout the following pages are not completely comparable with those of the Census of Manufactures. Another reason explaining the difference between the two sets of statistics lies in the amount of duplication. Just as manufacturers sell to other manufacturers goods for industrial use or for resale, so do wholesale organizations sell to other wholesale establishments certain amounts of goods. Agents and brokers, for example, whose sales are included in the figures of the wholesale census sell large quantities to wholesalers in which case the same goods are counted twice, since the wholesaling functions have been performed by two distinct types of organizations. Then, there is a difference in the selling prices at which the goods were reported, since selling prices of wholesale establishments must be higher than f. o. b. factory prices by the amount of the wholesale margin. It may also be that the inventories at the end of the year in the hands of wholesale organizations were smaller than those carried by them at the beginning of the year, which would mean that some of the goods sold were carried over from the preceding period so that the sales reported by wholesale organizations would differ from the amounts reported by the manufacturers to that extent.

Electrical commodities.—In presenting sales data by electrical commodities limitations were placed by the schedules on which the reports were filed with the Census of Distribution. The schedules provided spaces only for the following electrical commodity classifications: Storage batteries; household appliances, such as washing machines, ironing machines, vacuum cleaners, fans, etc.; electric motors, generators, and control apparatus; interior construction materials, including electric fixtures; radio sets, parts, and accessories; mechanical refrigerators; and all other electric appliances and supplies. Table 4 shows the wholesale trade channels through which these commodities move. In this table the statistics are given for all electrical commodities combined, by kind of business or line of trade, but without showing the types of wholesale organizations in a given line of trade handling them. Data for each of the commodities listed above are presented separately and in greater detail in Table 5.

[2] In this report the terms "kind of business," "trade," and "line of trade," are used interchangeably, since they are so recognized in actual practice.

Sales of electrical commodities, by kind of business.—The total volume of electrical commodities sold by wholesale establishments, according to the schedules on which such commodities were listed, was $2,423,624,000. The statistics in Table 4 show the kinds of business through which these commodities were distributed. Of the total amount reported, 89.7 per cent was sold through wholesale establishments operating in the electrical trade, i. e., specializing in the distribution of electrical commodities. Next in importance is the machinery, equipment, and supplies (except electrical) trade, with 3 per cent of the business; the automotive trade and the hardware trade, each with 1.8 per cent of the sales; and the remaining 3.7 per cent of the sales of electrical commodities being distributed over a number of trades, as shown in the table below.

TABLE 4.—SALES OF ELECTRICAL COMMODITIES, BY TRADES—UNITED STATES: 1929

[Amounts expressed in thousands of dollars]

Trade	Amount	Per cent of total
Total	$2,423,624	100.0
Amusement and sporting goods	9,538	0.4
Amusement and sporting goods (except cameras and motion-picture equipment and supplies)	6,669	
Cameras and motion-picture equipment and supplies	2,869	
Automotive	42,902	1.8
Automobiles and other motor vehicles	4,348	
Automotive equipment	36,567	
Automobile parts (new and used)	1,336	
Tires and tubes	651	
Chemicals, drugs, and allied products	1,340	0.1
Chemicals	160	
Drugs and drug sundries (general line)	999	
Drugs and drug sundries (specialty)	149	
Paints, varnishes, and lacquers	19	
Toilet goods and preparations	13	
Dry goods and apparel	529	0.0
Clothing and furnishings (other than millinery and footwear)	24	
Dry goods (general line)	394	
Piece goods	29	
Shoes and other footwear	82	
Electrical	2,173,158	89.7
Electrical goods (including appliances)	716,700	
Electrical equipment and supplies	901,314	
Radios and radio equipment	457,154	
Refrigerators (electric)	97,990	
Farm products (not elsewhere specified)	35	0.0
Farm supplies (except machinery and equipment)—feed	2	0.0
Food products not elsewhere specified	20	0.0
Forest products (except lumber)	54	0.0
Furniture and house furnishings	16,273	0.7
Furniture	3,239	
House furnishings	8,325	
Musical instruments and sheet music	4,709	
General merchandise	9,785	0.4
Groceries	19	0.0
Hardware	44,409	1.8
Iron and steel scrap	87	0.0
Jewelry and optical goods	479	0.0
Jewelry	392	
Optical goods	87	
Leather and leather goods (except gloves and shoes)	1,080	0.0
Leather and leather goods (general line)	530	
Leather and leather belting	120	
Luggage and leather goods	225	
Shoe findings and cut stock	205	
Lumber and building material (other than metal)	397	0.0
Construction and building materials	379	
Lumber and millwork	18	
Machinery, equipment, and supplies (except electrical)	73,302	3.0
Commercial equipment and supplies	5,100	
Construction equipment and supplies	619	
Farm machinery and equipment	1,718	
Manufacturing, mining, and drilling machinery, equipment, and supplies	52,684	
Professional equipment and supplies	2,926	
Service equipment and supplies	6,639	
Transportation equipment and supplies	3,616	

TABLE 4.—SALES OF ELECTRICAL COMMODITIES, BY TRADES—UNITED STATES: 1929—Continued

[Amounts expressed in thousands of dollars]

Trade	Amount	Per cent of total
Metals and minerals (except petroleum and scrap)	$21,487	0.9
Iron and steel (except scrap)	18,030	
Metals and metal work (other than iron and steel)	3,457	
Paper and paper products	1,903	0.1
Paper and paper products (general line)	1,643	
Stationery and stationery supplies	260	
Petroleum and petroleum products	205	0.0
Plumbing and heating equipment and supplies	10,699	0.4
Plumbing equipment and supplies	8,290	
Heating equipment and supplies	2,409	
Tobacco and tobacco products (except leaf)	26	0.0
All other	15,895	0.7
Books	47	
Rubber goods	3,731	
Textiles (other than dry goods)	17	
Miscellaneous	12,100	

Sales of specified electrical commodities, by kind of business and type of establishment.[3]—For a proper understanding of the distribution of electrical commodities, it is necessary to show separately for each commodity not only the kinds of business or lines of trade by which it is handled but also the types of functional organizations in each trade that deal in it. Such information, which is of greatest significance in an analysis of the manufacturer's market and its potentials, is shown in Table 5.

This table gives total sales by *specified* electrical commodities to the extent of $2,355,569,000, *which is 95.2 per cent of all reported sales in electrical commodities.* In other words, while some firms found it impossible to break down their electrical-goods sales in detail, such a breakdown for as high as 96 per cent was secured.

The amounts shown for each of the specified commodities in Table 5 are subject, however, to certain limitations. In the first place, as already indicated, there is a certain amount of duplication. Agents and brokers, for example, sold quantities of these goods to wholesalers, in which case the same commodity was involved twice in wholesale transactions. The same is true to a smaller degree of manufacturer's sales branches, which sold certain amounts of these commodities to wholesalers for resale to retailers or to industrial consumers. Duplication is also involved in connection with "all other" types of distributors to the extent to which this classification includes district and general sales offices, selling agents, etc. It is probable that the duplication involved in the handling of electrical commodities varied from 10 to 20 per cent. To the extent to which duplication was involved, the amounts shown in Table 5 must be reduced. On the other hand, only about 98 per cent of the net sales of the electrical trade was reported by commodities, which means that to the extent of 2 per cent the amounts shown in the table are understated.

In the second place, wholesale establishments in the electrical trade, with net sales in electrical *commodities* of $68,055,000, failed to report their commodities in *detail.* While they indicated just how much of their business consisted in electrical goods, they did not show what proportion of that business was in household appliances, in batteries, in refrigerators, or in any other of the specified electrical commodities. For this reason the sum of the totals for the specified

[3] For a definition of the different types of wholesale organizations, see Bulletin: Distribution W-100 U. S. Government Printing Office, 1931.

commodities shown in Table 5 falls short of the sales of all electrical commodities as presented in Table 4 by $68,055,000.

In order to determine approximately what the total sales were in storage batteries, for example (disregarding the fact that only 98.1 per cent coverage was secured for the electrical trade or the extent of duplication as indicated above), it is necessary to project the figure given in Table 5 so as to include that portion of the $68,055,000 which presumably consisted of storage batteries. Inasmuch as radios and refrigerators constituted major commodity classifications on the schedule, reports for them are nearly complete, but for electrical goods other than radios and refrigerators some establishments reported a single figure while the great majority reported such data in detail. Assuming that the $68,055,000 worth of electrical commodity sales were distributed among the specified electrical commodities (other than radios and refrigerators) in the same proportion as the $1,638,021,000 actually reported under electrical goods in detail,[4] the amount of storage batteries sold during the year would then be $83,813,000, instead of $80,470,000, as shown in the table below. The same procedure can be followed for each of the specified commodities, the reported and projected amounts of which are presented herewith:

Electrical commodities reported by wholesale establishments	$2,423,624,000
Less sales of radios and refrigerators which were reported in detail	717,548,000
Amount of electrical commodities (other than radios and refrigerators) reported	1,706,076,000
Electrical goods (other than radios and refrigerators) reported, but *not in detail*	68,055,000
Amount of electrical goods (other than radios and refrigerators), reported by commodities *in detail*	1,638,021,000
Detailed commodity coverage ($1,638,021,000—$1,706,076,000) per cent	96.01

	Amount reported	Amount projected
Batteries, storage	$80,470,000	$83,813,000
Household appliances	120,413,000	125,410,000
Motors, generators, and control apparatus	289,464,000	301,490,000
Interior electric construction materials	251,446,000	261,893,000
All other electrical appliances and supplies	896,228,000	933,464,000
Total	1,638,021,000	1,706,076,000

An examination of the sales of storage batteries indicates that 85.6 per cent of that commodity was handled in the electrical trade proper and 10.8 per cent was handled in the automotive trade, the two trades together accounting for 96.4 per cent of the sales in storage batteries. The hardware trade was third in importance, with 1.3 per cent of the sales.

Wholesale merchants or service wholesalers in all trades sold 26.8 per cent of the batteries, while manufacturers' sales branches in all trades cared for 68.3 per cent of the business. Of the wholesale merchants selling storage batteries, 59.8 per cent operated in the electrical trade, the remainder being largely in the automotive and hardware trades. Practically all of the manufacturers' sales branches selling batteries were in the electrical trade proper (96.2 per cent). In the case of household electric appliances (not including radio and refrigerator dealers) 86.6 per cent of the sales were made by electrical concerns and 5.3 per cent by hard-

[4] In view of the fact that 96 per cent of the reported electrical commodity sales, exclusive of radios and refrigerators, was shown *in detail* ($1,638,021,000—$1,706,076,000), the assumption that each of the 5 specified commodities bears the same relationship to the total as it does to the 96 per cent of the total appears sound and logical.

ware establishments. Among the other important outlets for household appliances were the machinery and equipment trade and the furniture and house furnishings trade. A rather large number of trades sold varying amounts of electrical appliances. Wholesale merchants occupied a very important position in the sale of household appliances, handling 40 per cent of such business, while manufacturers' sales branches accounted for 42.5 per cent of the business and manufacturers' agents cared for 7.4 per cent.

In the sale of electric motors, generators, and control apparatus, manufacturers' sales branches were most prominent since they handled 74.6 per cent of the sales in that commodity. Furthermore, electric motors were handled largely through the electrical trade proper (92.8 per cent), followed in importance by the machinery and equipment trade, the two trades together handling 97.7 per cent of the sales in this type of merchandise. The sales of interior electrical construction materials were also concentrated largely in the electrical trade (94 per cent), the bulk of which was handled by wholesale merchants (64.3 per cent), manufacturers' sales branches accounting for only 13.9 per cent of the sales in such merchandise. The importance of the wholesale merchant in the distribution of interior electrical construction materials is no doubt explained, at least in part, by the fact that the electrical contractor (sometimes called electrical wiring contractor) is a very important outlet for the electrical wholesaler. These and many other important facts may also be gleaned from the data in Table 5 concerning the sale of radios and mechanical refrigerators.

The statistics presented in Tables 4 and 5 should prove valuable to the manufacturer in planning the distribution of his products. They show all possible outlets in different lines of trade as they existed in 1929, and the relative importance of each for a given electrical commodity, based on the volume of sales. Not only that, but they indicate the prevailing types of distributors for the handling of a given commodity through a certain line of trade. This information is also of great significance to the wholesaler, since it shows in what other lines of trade wholesalers handle a given electrical commodity. A wholesaler specializing in household appliances, for example, will find that hardware wholesalers handled large quantities of household appliances, and that such commodities were also sold by wholesalers of machinery, equipment, and supplies, by house-furnishing concerns, and by wholesale merchants operating in other lines of trade.

TABLE 5.—SALES OF SPECIFIED ELECTRICAL COMMODITIES,[1] BY TRADE AND TYPE OF ESTABLISHMENT—UNITED STATES: 1929

[Expressed in thousands of dollars]

TRADE	TOTAL		Wholesale merchants	Manufacturers' sales branches	Agents	All other types
	Amount	Per cent of total				
1. BATTERIES (STORAGE)						
Total	$80,470	100.0	$21,591	$54,992	$1,742	$2,146
Per cent of total	100.0		26.8	68.3	2.2	2.7
Amusement and sporting goods (except cameras and motion-picture equipment and supplies)	$7	0.0	$7			
Automotive	8,708	10.8	7,268	$1,106	$63	$271
Automobiles and other motor vehicles	2,071		1,441	630		
Automotive equipment	5,625		5,239	52	63	271
Automobile parts (new and used)	492		492			
Tires and tubes	520		96	424		
Chemicals, drugs, and allied products (drugs and drug sundries—general line)	31	0.0	31			
Dry goods and apparel (shoes and other footwear)	5	0.0		5		

[1] For the distribution of sales by specified electrical commodities by States and Geographic divisions, see Appendix.

TABLE 5.—SALES OF SPECIFIED ELECTRICAL COMMODITIES, BY TRADE AND TYPE OF ESTABLISHMENT—UNITED STATES: 1929—Continued

[Expressed in thousands of dollars]

TRADE	TOTAL		Wholesale merchants	Manufacturers' sales branches	Agents	All other types
	Amount	Per cent of total				
1. BATTERIES (STORAGE)—Continued						
Electrical	$68,802	85.6	$12,917	$52,874	$1,426	$1,585
Electrical goods (including appliances)	9,342		8,383	909	50	
Electrical equipment and supplies	55,607		3,588	49,556	879	1,584
Radios and radio equipment	3,811		904	2,409	497	1
Refrigerators (electric)	42		42			
Furniture and house furnishings (house furnishings)	33	0.0	33			
General merchandise	152	0.2	20		3	129
Hardware (general line)	1,053	1.3	1,029	10	4	10
Leather and leather goods (except gloves and shoes)	7	0.0	7			
Machinery, equipment, and supplies	466	0.6	178	195	52	41
Paper and paper products (general line)	10	0.0	10			
Petroleum and petroleum products	7	0.0	7			
Plumbing equipment and supplies	4	0.0	4			
Tobacco and tobacco products (except leaf)	2	0.0	2			
All other	1,183	1.5	78	802	194	109
Rubber goods (general line)	802			802		
Miscellaneous	381		78		194	109
2. HOUSEHOLD APPLIANCES (NOT INCLUDING REFRIGERATOR OR RADIO DEALERS)						
Total	$120,413	100.0	$48,121	$51,154	$8,921	$12,217
Per cent of total	100.0		40.0	42.5	7.4	10.1
Amusement and sporting goods (except cameras and motion-picture equipment and supplies)	$132	0.1	$131			$1
Automotive (automotive equipment)	360	0.3	350		$3	7
Chemical, drugs, and allied products (drugs and drug sundries—general line)	138	0.1	135		3	
Dry goods and apparel	131	0.1	131			
Electrical	104,340	86.6	35,819	$49,829	8,290	10,306
Electrical goods (including appliances)	94,783		34,294	46,852	7,239	6,398
Electrical equipment and supplies	8,655		757	2,875	1,054	3,969
Radios and radio equipment	699		667		3	29
Refrigerators (electric)	203		101	102		
Food products (confectionery and soft drinks)	2	0.0	2			
Forest products (except lumber)	36	0.0	36			
Furniture and house furnishings	2,147	1.8	1,266	51	194	636
Furniture	241		18	51	2	170
House furnishings	1,906		1,248		192	466
General merchandise	1,304	1.1	530			774
Groceries	1	0.0				1
Hardware	6,330	5.3	6,200		123	7
Jewelry and optical goods	227	0.2	227			
Leather and leather goods (luggage and leather goods)	121	0.1	121			
Lumber and building material (other than metal and wood)	61	0.1	61			
Machinery, equipment, and supplies (except electrical)	3,007	2.5	2,063	776	10	158
Commercial equipment and supplies	243		203		7	33
Farm machinery and equipment	308		275	33		
Manufacturing, mining, and drilling machinery, equipment, and supplies	1,850		979	743	3	125
Professional equipment and supplies	17		17			
Service equipment and supplies	589		589			
Metals and minerals (except petroleum and scrap)	1	0.0				1
Paper and paper products (general line)	59	0.0	59			
Plumbing and heating equipment and supplies	1,086	0.9	271	427	206	182
Plumbing equipment and supplies	400		239	46	90	25
Heating equipment and supplies	686		32	381	116	157
All other	930	0.8	719	71	86	54
Rubber goods (general line)	71			71		
Miscellaneous	859		719		86	54

TABLE 5.—SALES OF SPECIFIED ELECTRICAL COMMODITIES, BY TRADE AND TYPE OF ESTABLISHMENT—UNITED STATES: 1929—Continued

[Expressed in thousands of dollars]

TRADE	TOTAL		Wholesale merchants	Manufacturers' sales branches	Agents	All other types
	Amount	Per cent of total				
3. ELECTRIC MOTORS, GENERATORS, AND CONTROL APPARATUS						
Total	$289,464	100.0	$51,168	$215,872	$12,267	$10,157
Per cent of total	100.0		17.7	74.6	4.2	3.5
Amusement and sporting goods	53	0.0	53			
Amusement and sporting goods (except cameras and motion-picture equipment and supplies)	20		20			
Cameras and motion-picture equipment and supplies	33		33			
Automotive	437	0.2	380		16	41
Automobile and other motor vehicles	41					41
Automotive equipment	323		307		16	
Automobile parts (new and used)	73		73			
Chemicals, drugs, and allied products (chemicals)	12	0.0	12			
Dry goods and apparel	14	0.0	10			4
Electrical	208,482	92.8	42,663	$208,919	11,363	5,537
Electrical goods, including appliances	89,895		30,735	58,996	86	78
Electrical equipment and supplies	176,622		10,628	149,650	10,889	5,455
Radios and radio equipment	736		430	273	29	4
Refrigerators (electric)	1,229		870		359	
Farm supplies (feed)	15	0.0	15			
Furniture and house furnishings (house furnishings)	80	0.0	80			
General merchandise	1,611	0.6	180		1	1,430
Hardware	1,390	0.5	1,320		69	1
Iron and steel scrap and other waste materials	62	0.0	62			
Leather and leather goods (except gloves and shoes)	14	0.0	14			
Lumber and building materials (other than metal)	25	0.0	25			
Machinery, equipment, and supplies (except electrical)	14,222	4.9	5,253	5,332	569	3,068
Commercial equipment and supplies	66		46	19	1	
Construction equipment and supplies	63		5	10		48
Farm machinery and equipment	92		89		3	
Manufacturing, mining, and drilling machinery, equipment, and supplies	12,535		4,351	4,710	543	2,931
Professional equipment and supplies	592			592		
Service equipment and supplies	743		742	1		
Transportation equipment and supplies	131		20		22	89
Metals and minerals (except petroleum and scrap)	98	0.0	30	22	20	26
Paper and paper products (general line)	2	0.0	2			
Plumbing and heating equipment and supplies	2,618	0.9	977	1,390	217	34
Plumbing equipment and supplies	2,609		968	1,390	217	34
Heating equipment and supplies	9		9			
All other (miscellaneous)	329	0.1	92	209	12	16
4. INTERIOR ELECTRIC CONSTRUCTION MATERIALS (INCLUDING ELECTRIC FIXTURES)						
Total	$251,446	100.0	$161,753	$34,991	$32,149	$22,553
Per cent of total	100.0		64.3	13.9	12.8	9.0
Amusement and sporting goods	$3	0.0	$3			
Automotive (automotive equipment)	919	0.4	677	$26	$196	$20
Chemicals, drugs, and allied products	105	0.0	10	95		
Drugs and drug sundries (general line)	10		10			
Drugs and drug sundries (specialty)	95			95		
Dry goods and apparel	87	0.0		77		10
Electrical	236,317	94.0	154,476	30,220	30,515	21,106
Electrical goods (including appliances)	119,945		111,688	7,277	542	438
Electrical equipment and supplies	114,070		40,574	22,943	29,885	20,668
Radios and radio equipment	2,068		1,980		88	
Refrigerators (electric)	234		234			

TABLE 5.—SALES OF SPECIFIED ELECTRICAL COMMODITIES, BY TRADE AND TYPE OF ESTABLISHMENT—UNITED STATES: 1929—Continued

[Expressed in thousands of dollars]

TRADE	TOTAL		Wholesale merchants	Manufacturers' sales branches	Agents	All other types
	Amount	Per cent of total				
4. INTERIOR ELECTRIC CONSTRUCTION MATERIALS (INCLUDING ELECTRIC FIXTURES)—Continued						
Furniture and house furnishings	$1,679	0.7	$106	$535	$565	$473
Furniture	25		2		23	
House furnishings	1,654		104	535	542	473
General merchandise	580	0.2	25			555
Hardware	3,548	1.4	3,014		314	220
Jewelry and optical goods (jewelry)	8	0.0	8			
Leather and leather goods (except gloves and shoes)	5	0.0	5			
Lumber and building materials (other than metal)	35	0.0	35			
Machinery, equipment, and supplies (except electrical)	2,399	1.0	2,052	142	150	55
Commercial equipment and supplies	50		50			
Manufacturing, mining, and drilling machinery, equipment, and supplies	1,946		1,742		150	54
Professional equipment and supplies	142			142		
Service equipment and supplies	250		250			
Transportation equipment and supplies	11		10			1
Metals and minerals (except petroleum and scrap)	506	0.2		216	190	100
Iron and steel (except scrap)	101				1	100
Metals and metal work (other than iron and steel)	405			216	189	
Paper and paper products (general line)	108	0.1	13	95		
Plumbing and heating equipment and supplies	587	0.2	567	15		5
Plumbing equipment and supplies	478		458	15		5
Heating equipment and supplies	109		109			
All other	4,560	1.8	762	3,570	210	0
Rubber goods (general line)	2,858			2,858		
Miscellaneous	1,702		762	712	219	0
5. ALL OTHER ELECTRICAL APPLIANCES AND SUPPLIES						
Total	$896,228	100.0	$171,824	$669,109	$35,964	$19,331
Per cent of total	100.0		19.2	74.7	4.0	2.1
Amusement and sporting goods	$2,924	0.3	$2,439		$193	$292
Amusement and sporting goods (except cameras and motion-picture equipment and supplies)	242		49		58	135
Cameras and motion-picture equipment and supplies	2,682		2,390		135	157
Automotive (equipment)	1,096	0.1	713		351	32
Chemicals, drugs, and allied products	745	0.1	107		15	623
Chemicals	15				15	
Drugs and drug sundries (general line)	713		103			610
Drugs and drug sundries (specialty)	4		4			
Toilet articles and preparations	13					13
Dry goods and apparel	53	0.0	23			30
Clothing and furnishings	19		4			15
Dry goods (general line)	19		19			
Piece goods	15					15
Electrical	809,092	90.3	148,138	$616,054	29,357	15,543
Electrical goods (including appliances)	281,420		119,190	153,242	4,379	4,609
Electrical equipment and supplies	522,668		26,801	462,416	24,466	8,895
Radios and radio equipment	4,011		1,655	35	282	2,039
Refrigerators (electric)	993		402	361	230	
Farm products (not elsewhere specified)	14	0.0	14			
Food products (confectionery and soft drinks)	17	0.0	17			
Furniture and house furnishings	3,232	0.4	635	2,084	188	325
Furniture	7		2		5	
House furnishings	3,190		608	2,084	173	325
Musical instruments and sheet music	35		25		10	
General merchandise	1,309	0.1	124		6	1,179
Hardware	18,245	2.0	5,936	11,728	574	7
Jewelry and optical goods (jewelry)	151	0.0	151			

TABLE 5.—SALES OF SPECIFIED ELECTRICAL COMMODITIES, BY TRADE AND TYPE OF ESTABLISHMENT—UNITED STATES: 1929—Continued

[Expressed in thousands of dollars]

TRADE	TOTAL		Wholesale merchants	Manufacturers' sales branches	Agents	All other types
	Amount	Per cent of total				
5. ALL OTHER ELECTRIC APPLIANCES AND SUPPLIES—Continued						
Leather and leather goods (except gloves and shoes)	$6	0.0	$6			
Lumber and building materials (other than metal)	211	0.0	13	$41	$157	
Machinery, equipment, and supplies (except electrical)	33,881	3.8	9,104	19,778	4,393	$546
Commercial equipment and supplies	1,344		1,202	15	125	2
Construction equipment and supplies	16			16		
Farm machinery and equipment	41		41			
Manufacturing, mining, and drilling machinery, equipment, and supplies	24,505		4,629	16,186	3,586	104
Professional equipment and supplies	1,317		611	588	112	6
Service equipment and supplies	3,846		2,215	1,543	88	
Transportation equipment and supplies	2,812		466	1,430	482	434
Metals and minerals (except petroleum and scrap)	16,932	1.9	971	15,605	62	294
Iron and steel (except scrap)	15,984		813	15,089	52	30
Metals and metal work (other than iron and steel)	948		158	516	10	264
Paper and paper products	391	0.1	366	25		
Petroleum and petroleum products	104	0.0	104			
Plumbing and heating equipment and supplies	2,954	0.3	857	2,046	47	4
Plumbing equipment and supplies	2,754		767	1,974	13	
Heating equipment and supplies	200		90	72	34	4
Tobacco and tobacco products (except leaf)	23	0.0	23			
All other	4,788	0.6	1,063	1,748	621	456
6. RADIOS AND RADIO EQUIPMENT						
Total	$597,341	100.0	$388,334	$83,701	$23,792	$101,514
Per cent of toal	100.0		65.0	14.0	4.0	17.0
Amusement and sporting goods	$6,106	1.0	$1,228	$4,859	$14	$5
Amusement and sporting goods (except cameras and motion-picture equipment and supplies)	5,979		1,215	4,759		5
Cameras and motion-picture equipment and supplies	127		13	100	14	
Automotive	30,052	5.0	27,571	324	661	1,496
Automobiles and other motor vehicles	2,061		1,947			114
Automotive equipment	27,302		25,039	220	661	1,382
Automobile parts (new and used)	632		528	104		
Tires and tubes	57		57			
Chemicals, drugs, and allied products	82	0.0	71		1	10
Drugs and drug sundries (general line)	62		52			10
Drugs and drug sundries (specialty)	1				1	
Paints, varnishes, lacquers, and enamels	19		19			
Dry goods (general line)	163	0.0	163			
Electrical	524,447	87.7	331,642	74,502	21,360	96,943
Electrical goods (including appliances)	74,456		43,440	29,500	766	750
Electrical equipment and supplies	4,172		1,368	1,268	1,371	165
Radios and radio equipment	445,724		286,751	43,734	19,211	96,028
Refrigerators (electric)	95		83		12	
Farm products	21	0.0	21			
Farm supplies (feed)	2	0.0				2
Food products (confectionery and soft drinks)	1	0.0	1			
Forest products (except lumber)	15	0.0		15		
Furniture and house furnishings	7,004	1.2	3,243	808	1,461	1,492
Furniture	1,568		384		501	683
House furnishings	846		346		500	
Musical instruments and sheet music	4,590		2,513	808	460	809
General merchandise	1,507	0.3	1,041		43	423
Hardware	17,303	2.9	16,930	115	30	228
Jewelry and optical goods	71	0.0	31			40
Jewelry	8		8			
Optical goods	63		23			40
Leather and leather goods (except gloves and shoes)	327	0.1	151		176	
Leather and leather goods (general line)	230		150		80	
Shoe findings and cut stock	97		1		96	

TABLE 5.—SALES OF SPECIFIED ELECTRICAL COMMODITIES, BY TRADE AND TYPE OF ESTABLISHMENT—UNITED STATES: 1929—Continued

[Expressed in thousands of dollars]

TRADE	TOTAL		Wholesale merchants	Manufacturers' sales branches	Agents	All other types
	Amount	Per cent of total				
6. RADIOS AND RADIO EQUIPMENT—Continued						
Lumber and building materials (construction and building materials, other than metal and wood)	$35	0.0	$35			
Machinery, equipment, and supplies (except electrical)	2,710	0.5	2,626	$76		$8
Commercial equipment and supplies	173		100	70		3
Construction equipment and supplies	40		40			
Farm machinery and equipment	61		61			
Manufacturing, mining, and drilling machinery, equipment, and supplies	2,191		2,180	6		5
Professional equipment and supplies	170		170			
Service equipment and supplies	66		66			
Transportation equipment and supplies	9		9			
Metals and minerals (except petroleum and scrap)	2,999	0.5	182	2,817		
Iron and steel (except scrap)	1,262		182	1,080		
Metals and metal work (other than iron and steel)	1,737			1,737		
Paper and paper products	1,251	0.2	1,066	185		
Paper and paper products (general line)	1,066		1,066			
Stationery and stationery supplies	185			185		
Petroleum and petroleum products	20	0.0	20			
Plumbing and heating equipment and supplies	307	0.1	307			
Plumbing equipment and supplies	275		275			
Heating equipment and supplies	32		32			
All other	2,918	0.5	2,005		$46	867
Books, periodicals, and newspapers	47					47
Textiles and textile materials (other than dry goods)	15		15			
All other	2,856		1,990		46	820
7. REFRIGERATORS						
Total	$120,207	100.0	$50,440	$45,823	$19,611	$4,333
Per cent of total	100.0		42.0	38.1	16.3	3.6
Amusement and sporting goods (except cameras and motion-picture equipment and supplies)	265	0.2	$220		$45	
Automotive	1,451	1.2	1,353		17	81
Automobiles and other motor vehicles	75					75
Automotive equipment	1,338		1,332			6
Automobile parts (new and used)	38		21		17	
Chemicals, drugs, and allied products (chemicals)	121	0.1	121			
Dry goods and apparel	23	0.0	23			
Electrical	103,759	86.3	40,567	$43,261	17,318	2,613
Electrical goods (including appliances)	6,139		4,435	128	369	1,207
Electrical equipment and supplies	271		105		41	125
Radios and radio equipment	1,753		1,753			
Refrigerators (electric)	95,596		34,274	43,133	16,908	1,281
Furniture and house furnishings	1,732	1.4	582		1,078	72
Furniture	1,298		326		922	50
House furnishings	434		256		156	22
General merchandise	54	0.0	8			46
Hardware	1,632	1.4	1,501		52	79
Jewelry and optical goods (optical goods)	24	0.0			24	
Lumber and building materials (other than metal)	4	0.0	3		1	
Machinery, equipment, and supplies (except electrical)	8,327	6.9	4,737	2,200	757	633
Commercial equipment and supplies	2,840		500	1,296	502	542
Farm machinery and equipment	714		210	504		
Manufacturing, mining, and drilling machinery, equipment and supplies	4,642		3,907	399	245	91
Service equipment and supplies	71		70	1		
Transportation equipment and supplies	60		50		10	
Paper and paper products (general line)	78	0.1	78			
Petroleum and petroleum products	6	0.0	6			
Plumbing and heating equipment and supplies	1,755	1.5	1,023	362	221	149
Plumbing equipment and supplies	393		233	25		135
Heating equipment and supplies	1,362		790	337	221	14
All other	976	0.9	218		98	660

SUMMARY OF WHOLESALE ELECTRICAL TRADE[5]

The foregoing analysis deals solely with the distribution of *electrical commodities* by all kinds of business or lines of trade. It does not show what *other* commodities are handled in the electrical trade, nor is any attempt made therein to discuss the *electrical wholesale trade* as such. The latter kind of analysis and discussion has been reserved for the pages immediately following. In these pages are analyzed the wholesale organizations that specialized in the sale of electrical goods to the extent that such sales constituted more than 50 per cent of their total net sales. In other words, only those establishments are included in what is here termed the *wholesale electrical trade*, the bulk of whose business (over 50 per cent of the total) consisted in electrical commodities proper. To this there are two important exceptions. Although radio receiving sets and mechanical refrigerators are included in the production and distribution of sales statistics in Tables 1, 2, and 3 and are also included in the commodity data shown in Tables 4 and 5, the following tabulations do *not* include wholesale organizations specializing in these commodities. A separate report has already been issued on radio receiving sets,[6] and the plan of this study warranted the exclusion of establishments specializing in the distribution of mechanical refrigerators. These two items are included, however, among the sales made by electrical concerns other than those specializing in them. Thus, when an electrical wholesaler also handled radios and refrigerators, total sales of that wholesaler were counted including sales in the two commodities mentioned. But when a wholesaler specialized in radios or refrigerators, his schedule was not included in these statistics for the reasons indicated above.

General summary for the United States.—As already indicated in Table 4, the total sales in electrical goods (other than radios and refrigerators) made by wholesale organizations operating in all lines of trade amounted to $1,706,076,000 ($2,423,624,000 less $717,548,000 of sales in radios and refrigerators). Of this amount, $1,618,014,000 was sold by wholesale establishments classified in the electrical trade, inasmuch as the sales of such establishments consisted chiefly of those commodities. The remainder of the electrical commodities was sold through other lines of wholesale trade.

However, for the purposes of the following tabulations some few schedules with total net sales of $35,141,714, which are included in the above figures, have been classified outside the electrical trade. When the proper adjustments are effected and the commodity amounts shown in Table 15 are projected into totals (since only 95.9 per cent of the sales made by electrical wholesale organizations were broken down by commodities) we find that the wholesale establishments in the electrical trade (as shown in Table 15) sold $1,582,872,000 in electrical goods (including radios and refrigerators handled as auxiliary lines of merchandise) and $265,420,000 worth of other commodities, or a total of $1,848,292,786. This is the total volume of business which is analyzed in the following tables and consists of 88 per cent in electrical goods (other than radios and refrigerators) and 12 per cent in all other commodities. Just what the various products are that make up the 12 per cent of the wholesale electrical trade and in what quantities they are handled will be shown in Table 15.

The wholesale electrical trade in the United States was transacted by 2,845 establishments with net sales of $1,848,292,786. (See Table 6.) Of this amount $1,772,236,000 worth of business was broken down by commodities, of which $1,497,975,000 consisted of electrical goods proper, $53,997,000 in radios, and

[5] Throughout this report the term "wholesale trade" or "wholesale electrical trade" refers to the combined total of all wholesale organizations, including service wholesalers, manufacturers' sales branches, agents, brokers, and all other types of wholesale middlemen.

The term "wholesale merchant" throughout this report is used in a much narrower sense and refers only to the service type of wholesaler as defined on page 24.

[6] See Radio Sets, Parts, and Accessories, Distribution No. W-202, U. S. Government Printing Office, 1932.

$6,516,000 in refrigerators. This means that 88 per cent of the sales of all commodities reported by electrical wholesale establishments was in electrical commodities proper. Assuming that the remaining 4.1 per cent for which no commodity information is available was divided in the same proportion as between electrical commodities and other types of goods as the 95.9 per cent, for which such data are at hand, it means that the electrical wholesale organizations sold $1,582,872,000 of electrical goods, and $265,420,000 consisted of sales of many other lines of merchandise that are normally classified in the automotive, machinery and equipment, and in other lines of trade.

The 2,845 electrical wholesale establishments employed 48,686 people, paying them almost $100,000,000 ($99,560,988) annually in salaries and wages. They incurred total operating expenses (not including the cost of merchandize nor capital investment) of $177,409,578, and carried stocks of merchandise at the end of the year 1929 valued on a cost or replacement basis at $113,568,461.

As shown in Table 6, the wholesale electrical trade is made up of three distinct types of houses or establishments from the standpoint of the kind of electrical goods handled. First, there are houses carrying a general line of electrical merchandise, including a variety of electrical equipment and supplies, as well as a large assortment of electrical appliances. Second, there are wholesale concerns dealing in electrical equipment and supplies but which do not handle household appliances to any extent. The third group consists of establishments dealing primarily in appliances but not in equipment and supplies. Establishments in the equipment and supply business may, in turn, handle a general line of such goods or may confine their activities to a single class of equipment. The same is true of establishments carrying household appliances; they may either handle a general line of such appliances, including radios, washing machines, vacuum cleaners, electric fans, toasters, ranges, refrigerators, etc., or they may specialize in the sale of a single one of the above-named products.

The distinction between the various classes of houses on the basis of goods handled may best be seen fron the following examples. Examples 1 to 4 show the type of merchandise carried by typical electrical wholesalers (wholesale merchants or service type wholesalers) in the general line electrical merchandise field (handling both a general line of equipment and a general line of appliances). Examples 5 and 6 indicate the nature of general line wholesaling in electrical equipment and supplies. Examples 7 and 8 are indicative of specialty wholesaling in electrical equipment and supplies. Examples 9 and 10 show what goods are handled by general line wholesalers of electrical appliances, while Examples 11 and 12 are indicative of the nature of specialty wholesaling in electrical appliances.

TABLE 6.—GENERAL SUMMARY OF WHOLESALE ELECTRICAL TRADE IN THE UNITED STATES, BY PRINCIPAL CLASSES: 1929

	Total	CLASSES OF ELECTRICAL ESTABLISHMENTS					
		Electrical merchandise (general line)		Electrical equipment and supplies		Electrical appliances	
		Number or amount	Per cent of total	Number or amount	Per cent of total	Number or amount	Per cent of total
Number of establishments	2,845	692	24.3	1,709	60.1	444	15.6
Net sales	$1,848,292,786	$528,702,332	28.6	$1,123,682,861	60.8	$195,907,593	10.6
Total employees	48,686	15,826	32.5	23,857	49.0	9,003	18.5
Male	38,422	12,214	31.8	18,781	48.9	7,427	19.3
Female	10,264	3,612	35.1	5,076	49.5	1,576	15.4
Total salaries and wages	$99,560,988	$33,814,065	34.0	$50,512,651	50.7	$15,234,272	15.3
Total expenses	$177,409,578	$63,068,347	35.6	$85,695,852	48.3	$28,645,379	16.1
Stock on hand, Dec. 31, 1929	$113,568,461	$40,493,748	35.6	$62,069,275	54.7	$11,005,438	9.7

COMMODITY SALES OF TYPICAL ELECTRICAL WHOLESALERS

[The following examples are confined to wholesale merchants or wholesalers of the service type]

EXAMPLE 1.—GENERAL LINE ELECTRICAL MERCHANDISE WHOLESALER OPERATING WITHIN A RADIUS OF 50 MILES (ANNUAL SALES, $500,000)

ITEM	Per cent of net sales
Batteries, storage	0.1
Electric household appliances	17.0
Electric motors, generators, and control apparatus	5.7
Interior electric construction materials, including electric fixtures	45.4
All other electrical appliances and supplies	31.8
Total	100.0

EXAMPLE 2.—GENERAL LINE ELECTRICAL MERCHANDISE WHOLESALER COVERING TWO STATES (ANNUAL SALES APPROXIMATELY $1,000,000)

ITEM	Per cent of net sales
Electric household appliances	14.4
Electric motors, generators, and control apparatus	6.6
Interior electric construction materials, including electric fixtures	29.7
All other electrical appliances and supplies	32.5
Radio sets, parts, and accessories	16.8
Total	100.0

EXAMPLE 3.—GENERAL LINE ELECTRICAL MERCHANDISE WHOLESALER COVERING A SECTION OF THE UNITED STATES (ANNUAL SALES APPROXIMATELY $2,200,000)

ITEM	Per cent of net sales
Bare wire	2.6
Electric household appliances	6.5
Electric motors, generators, and control apparatus	26.2
Interior electric construction materials, including electric fixtures	28.5
All other electrical appliances and supplies	30.5
Radio sets, parts, and accessories	5.7
Total	100.0

EXAMPLE 4.—GENERAL LINE ELECTRICAL MERCHANDISE WHOLESALER OPERATING SECTIONALLY (ANNUAL SALES OVER $2,000,000)

ITEM	Per cent of net sales
Automotive equipment and supplies	9.2
Electric household appliances	3.8
All other electrical appliances and supplies	34.1
Radio sets, parts, and accessories	17.8
Refrigerators, gas and electric	35.1
Total	100.0

EXAMPLE 5.—GENERAL LINE WHOLESALER OF ELECTRICAL EQUIPMENT AND SUPPLIES OPERATING NATION-WIDE (ANNUAL SALES APPROXIMATELY $3,000,000)

ITEM	Per cent of net sales
Interior electric construction materials, including electric fixtures	89.0
All other electrical appliances and supplies	11.0
Total	100.0

EXAMPLE 6.—GENERAL WHOLESALER OF ELECTRICAL EQUIPMENT AND SUPPLIES OPERATING LOCALLY (ANNUAL SALES $168,000)

ITEM	Per cent of net sales
Electric motors, generators, and control apparatus	21.3
Interior electric construction materials, including electric fixtures	67.4
All other electrical appliances and supplies	11.3
Total	100.0

EXAMPLE 7.—SPECIALTY LINE WHOLESALER OF ELECTRICAL EQUIPMENT AND SUPPLIES OPERATING LOCALLY (ANNUAL SALES $130,000)

ITEM	Per cent of net sales
Batteries, storage	0.4
Electric household appliances	0.8
Electric motors, generators, and control apparatus	0.8
Interior electric construction materials, including electric fixtures	97.6
All other electrical appliances and supplies	0.4
Total	100.0

EXAMPLE 8.—SPECIALTY WHOLESALER OF ELECTRICAL EQUIPMENT AND SUPPLIES OPERATING NATION-WIDE (ANNUAL SALES APPROXIMATELY $2,000,000)

ITEM	Per cent of net sales
Electrical equipment and supplies (Neon lights and lightning arresters, etc.)	100.0

EXAMPLE 9.—GENERAL LINE WHOLESALER OF ELECTRICAL APPLIANCES OPERATING LOCALLY (ANNUAL SALES, $504,000)

ITEM	Per cent of net sales
Electric household appliances (washing machines, vacuum cleaners, ironers, etc.)	93.9
Radio sets, parts, and accessories	6.1
Total	100.0

EXAMPLE 10.—GENERAL LINE WHOLESALER OF ELECTRICAL APPLIANCES OPERATING IN A SALES TERRITORY RADIUS OVER 500 MILES, BUT NOT NATION-WIDE (ANNUAL SALES, $776,000)

ITEM	Per cent of net sales
Electric household appliances	97.3
All other electrical appliances and supplies	0.6
Radio sets, parts, and accessories	1.5
Refrigerators, gas and electric	0.1
Second-hand merchandise	0.1
All other	0.4
Total	100.0

EXAMPLE 11.—SPECIALTY WHOLESALER OF ELECTRICAL APPLIANCES OPERATING LOCALLY (ANNUAL SALES, $201,000)

ITEM	Per cent of net sales
Electric household appliances	3.0
Radio sets, parts, and accessories	6.3
Refrigerators, gas and electric	90.7
Total	100.0

EXAMPLE 12.—SPECIALTY WHOLESALER OF ELECTRICAL APPLIANCES OPERATING LOCALLY (ANNUAL SALES, $582,000)

ITEM	Per cent of net sales
Vacuum cleaners	100.0

Of the total number of wholesale electrical establishments, 692 handled a general line of electrical merchandise, 1,709 specialized in the sale of electrical equipment and supplies, and 444 were in the appliance business exclusively. Not only did the electrical equipment establishments constitute 60.1 per cent of all the establishments in the wholesale electrical trade but they also accounted for 60.8 per cent of the business. Next in importance were the concerns handling a general line of electrical merchandise. Although they claimed but 24.3 per cent of the establishments, they did 28.6 per cent of the business, employed 32.5 per cent of the people, and carried 35.6 per cent of the total stocks for the entire trade. Consequently they incurred the largest proportionate expenses of operation. (See Table 6.)

General summary for the United States, by type of establishment.—The 2,845 electrical establishments consisted of 1,384 wholesale merchants of the service type (commonly known as wholesalers or jobbers), 845 manufacturers' sales branches, 467 manufacturers' agents, and 149 establishments listed under "all other" types of distributors.[7] (See Table 7.) The wholesale merchants, with

[7] For the purpose of this report the following definitions are pertinent at this point:

Wholesale merchants, sometimes designated as service wholesalers, jobbers, or full-function wholesalers, perform all of the principal wholesale functions. They buy merchandise outright and sell on their own account. They maintain places of business, including warehouses for the storage of the surplus merchandise required by their communities. In most of the trades they usually sell to dealers by means of salesmen who call upon the trade regularly. In the electrical trade wholesale merchants sell to retail dealers, to electrical contractors, to industrial plants, and to the commercial field, including public buildings and institutions. They extend credit and make deliveries. They assemble certain lines of merchandise in large lots and redistribute them in smaller quantities. In some trades, particularly where the merchandise is of a perishable nature or derived from unstandardized production, the wholesale merchants must perform the function of grading and standardization. Finally, it is necessary that the wholesale merchants assume the risk incident to their type of business activities.

Manufacturers' sales branches are wholesale outlets owned and operated by manufacturers largely or entirely for the distribution of their own products. The purchasing aspect is stressed little, since most or all of the merchandise is manufactured by the parent concerns. The emphasis is largely upon the selling function. Most of the manufacturers' sales branches in the electrical trade usually operate like bona fide service wholesalers but with little or no emphasis on buying.

District sales offices are manufacturers' establishments engaged in the supervision of wholesale branches or of independent distributors operating in certain districts. While their chief function is that of a supervising

48.6 per cent of the establishments, occupied a dominant position from the standpoint of numbers, but manufacturers' sales branches, with but 29.7 per cent of the establishments, made 65.8 per cent of the sales as against 25.7 per cent of the sales for the former. Manufacturers' agents also bulked large in number but cared for but 5.2 per cent of the business (but which amounted to more than $96,000,000), while all other types of distributors specializing in the wholesale distribution of electrical goods contributed 3.3 per cent of the sales.

The wholesale merchants in the electrical trade did 25.7 per cent of the business, carried 46.4 per cent of the stocks, employed 44 per cent of the people, and incurred 45.9 per cent of the operating expenses. Manufacturers' sales branches accounted for 65.8 per cent of the business, but carried 46.4 per cent of the stocks, and employed 48.8 per cent of the people, while manufacturers' agents, as may be expected, had a very low ratio of stocks to sales.

TABLE 7.—GENERAL SUMMARY OF WHOLESALE ELECTRICAL TRADE, BY TYPE OF DISTRIBUTOR, UNITED STATES: 1929

	Total	WHOLESALE MERCHANTS		MANUFACTURERS' SALES BRANCHES		MANUFACTURERS' AGENTS		ALL OTHER TYPES	
		Number or amount	Per cent of total	Number or amount	Per cent of total	Number or amount	Per cent of total	Number or amount	Per cent of total
Number of establishments	2,845	1,384	48.6	845	29.7	467	16.5	149	5.2
Net sales	$1,848,292,786	$473,986,987	25.7	$1,216,634,065	65.8	$96,368,387	5.2	$61,303,347	3.3
Total employees	48,686	21,438	44.0	23,729	48.8	2,337	4.8	1,182	2.4
Male	38,422	17,113	44.5	18,683	48.6	1,745	4.6	881	2.3
Female	10,264	4,325	42.1	5,046	49.2	592	5.8	301	2.9
Total salaries and wages	$99,560,988	$43,432,085	43.6	$48,377,114	48.6	$4,896,824	4.9	$2,854,965	2.9
Total expenses	$177,409,578	$81,475,058	45.9	$81,090,578	45.8	$8,214,216	4.6	$6,629,726	3.7
Stocks on hand, Dec. 31, 1929	$113,568,461	$52,660,425	46.4	$52,716,870	46.4	$1,443,783	1.3	$6,747,383	5.9

Table 8 presents the same type of summarized information as shown in Table 7, except that such information is given separately for each of five types of electrical wholesale houses distinguished by the kind of electrical merchandise handled and referred to as principal classifications. Among the interesting observations based on these data is the wide variation in the importance of the different types of distributors with the kind of electrical goods handled. Practically all (98.6 per cent) of the general line electrical merchandise business was

sales office, they may also handle the sales in the immediate vicinity or sell to a selected group of customers throughout the entire district. Such offices may in some cases provide warehouses for the storage of goods to expedite delivery. In such cases all of the wholesale functions are performed and the district sales office resembles to that extent a manufacturer's sales branch. The volume of sales by all branch establishments in the district was reported by the district sales office in addition to, and consolidated with, the sales made by the office itself.

General sales offices are separate wholesale sales departments of manufacturers, whose function it is to supervise the sales of district offices and of manufacturers' sales branches. In addition, general sales offices frequently handle institutional business consisting of sales to very large purchasers, institutions, or departments of government. Export sales are also normally handled through these offices.

Manufacturers' agents sell part of the output of certain manufacturers with whom continuous relations are maintained. These agents are limited with respect to (*a*) territory of operations, and (*b*) prices and terms of sale. Their principal function is selling, although they may also warehouse some of the goods. The compensation of manufacturers' agents is usually in the form of commissions but sometimes they may work on a salary basis. Manufacturers' agents, as used in this census, usually represent two or more manufacturers, the accounts consisting ordinarily of noncompeting but supplementing lines of merchandise, and are in business for themselves. (This type of middleman is not to be confused with brokers or with selling agents.)

handled by two types of distributing establishments—wholesale merchants and manufacturers' sales branches. The wholesale merchants handled a little over two-thirds (66.5 per cent) of the business in this classification, while manufacturers' sales branches handled somewhat less than a third (32.1 per cent).

Wholesale merchants also constituted an important factor in the distribution of a general line of equipment and supplies, handling over one-half (50.1 per cent) of such business, as against 6.9 per cent for manufacturers' sales branches. Manufacturers' agents were fairly prominent in the distribution of a general line of electrical equipment, accounting for 12 per cent of the business in this classification, but all other types, which included one large general sales office and several selling agents, handled as high as 31 per cent of the business going through general line equipment houses.

In the specialty electrical equipment field, however, an entirely different situation may be noted. In the first place, the houses handling a limited line of electrical equipment (specialty equipment houses) constituted the largest classification, with 56.1 per cent of all the business of the wholesale electrical trade and 92.2 per cent of the business reported by all wholesale establishments in the electrical equipment classification. In the second place, the position of wholesale merchants as compared with manufacturers' sales branches, noted in connection with general line equipment houses and general line electrical merchandise concerns, is completely reversed. Fully 86.3 per cent of the specialty equipment business was in the hands of manufacturers' sales branches, many of which operated on a large scale since this percentage of the business was handled by but 43.8 per cent of the establishments in this field. While a relatively large number of wholesalers or jobbers operated in the specialty equipment trade (26.7 per cent of the establishments in the trade), they did but 4.8 per cent of the equipment business of the specialty equipment houses. These wholesale merchants carried, however, 15.8 per cent of the total stocks, which may be due, at least in part, to the fact that they served largely the small and medium-sized manufacturers, who do not carry any inventories in equipment. Furthermore, while wholesale merchants were *relatively* unimportant among the specialty equipment houses, they sold nearly 50 million dollars worth of goods during the year.

In the household appliance field, 26.9 per cent of the business was in the hands of general line firms and 73.1 per cent was handled by concerns specializing in the wholesale distribution of a limited line of appliances. As high as 39 per cent of all establishments dealing in a general line of electrical appliances operated as wholesale merchants and reported a volume of business of 34.9 per cent of the total for the trade. These wholesale merchants, however, carried 55.3 per cent of the stocks and naturally incurred the highest expenses. They also constituted the largest source for employment. Manufacturers' sales branches, while accounting for only 30.5 per cent of the establishments, handled 44 per cent of the business. Both manufacturers' agents and other types of distributors played important parts in the distribution of a general line of electrical appliances. Among the specialty electrical appliance concerns, however, the same story as related in connection with the specialty equipment houses is duplicated. Here, too, manufacturers' sales branches handled the bulk of the business (86.2 per cent) and carried stocks to the extent of 81.8 per cent of the total for such wholesale establishments.

TABLE 8.—SUMMARY OF WHOLESALE ELECTRICAL TRADE, BY PRINCIPAL CLASSIFICATION AND TYPE OF DISTRIBUTOR, UNITED STATES: 1929

	Total	WHOLESALE MERCHANTS [1]		MANUFACTURERS' SALES BRANCHES		MANUFACTURERS' AGENTS		ALL OTHER TYPES	
		Number or amount	Per cent of total	Number or amount	Per cent of total	Number or amount	Per cent of total	Number or amount	Per cent of total
1. ELECTRICAL MERCHANDISE (GENERAL LINE)									
Number of establishments	692	631	91.2	50	7.2	7	1.0	4	0.6
Net sales	$528,702,332	$351,899,377	66.5	$169,649,252	32.1	$3,636,409	0.7	$3,517,294	0.7
Total employees	15,826	13,646	86.2	1,993	12.6	120	0.8	67	0.4
Male	12,214	10,629	87.0	1,447	11.9	87	0.7	51	0.4
Female	3,612	3,017	83.5	546	15.1	33	0.9	16	0.5
Total salaries and wages	$33,814,065	$28,531,127	84.4	$4,910,487	14.5	$236,889	0.7	$135,562	0.4
Total expenses	$63,068,347	$54,522,745	86.5	$7,964,730	12.6	$317,375	0.5	$263,497	0.4
Stocks on hand, Dec. 31, 1929	$40,493,748	$35,306,871	87.2	$4,827,530	11.9	$198,801	0.5	$160,546	0.4
2. ELECTRICAL EQUIPMENT AND SUPPLIES (GENERAL LINE)									
Number of establishments	248	211	85.1	4	1.6	25	10.1	8	3.2
Net sales	$87,002,289	$43,565,785	50.1	$5,967,579	6.9	$10,439,947	12.0	$27,028,978	31.0
Total employees	2,670	2,069	77.5	57	2.1	151	5.7	393	14.7
Male	2,116	1,708	80.7	39	1.8	105	5.0	264	12.5
Female	554	361	65.2	18	3.2	46	8.3	129	23.3
Total salaries and wages	$6,148,515	$4,587,070	74.6	$164,553	2.7	$380,805	6.2	$1,016,087	16.5
Total expenses	$11,863,262	$8,096,439	68.2	$266,197	2.2	$585,638	5.0	$2,914,988	24.6
Stocks on hand, Dec. 31, 1929	$11,034,280	$6,397,367	58.0	----------	-----	$68,722	0.6	$4,568,191	41.4
3. ELECTRICAL EQUIPMENT AND SUPPLIES (SPECIALTY)									
Number of establishments	1,461	390	26.7	640	43.8	339	23.2	92	6.3
Net sales	$1,036,080,572	$49,420,146	4.8	$894,470,193	86.3	$69,985,532	6.8	$22,804,701	2.1
Total employees	21,187	3,330	15.7	15,848	74.8	1,549	7.3	460	2.2
Male	16,665	2,800	16.7	12,346	74.1	1,143	6.9	376	2.3
Female	4,522	530	11.7	3,502	77.4	406	9.0	84	1.9
Total salaries and wages	$44,364,136	$6,806,567	15.3	$33,196,170	74.8	$3,315,990	7.5	$1,045,403	2.4
Total expenses	$73,832,590	$12,065,997	16.3	$54,188,823	73.4	$5,706,564	7.7	$1,871,206	2.6
Stocks on hand, Dec. 31, 1929	$51,034,995	$8,108,099	15.8	$40,762,780	79.9	$739,907	1.5	$1,424,209	2.8
4. ELECTRICAL APPLIANCES (GENERAL LINE)									
Number of establishments	177	69	39.0	54	30.5	26	14.7	28	15.8
Net sales	$52,858,865	$18,471,207	34.9	$23,251,250	44.0	$6,314,830	12.0	$4,815,578	9.1
Total employees	2,344	1,140	48.6	918	39.2	116	4.9	170	7.3
Male	1,861	899	48.3	746	40.1	89	4.8	127	6.8
Female	483	241	49.9	172	35.6	27	5.6	43	8.9
Total salaries and wages	$5,180,658	$1,967,457	38.0	$2,477,555	47.8	$266,750	5.1	$468,887	9.1
Total expenses	$8,761,699	$3,847,940	43.9	$3,270,585	37.4	$458,957	5.2	$1,178,217	13.5
Stocks on hand, Dec. 31, 1929	$3,533,723	$1,953,965	55.3	$1,011,050	28.6	$110,992	3.1	$457,710	13.0

[1] Altogether this table shows 1,384 wholesale merchants of the full-function type, sometimes called service wholesalers or jobbers. Of this number 631 carried a full line of electrical merchandise, 211 carried a full or general line of electrical equipment and supplies but handled no domestic appliances, 390 specialized in certain types of equipment and supplies and carried no domestic appliances, 69 handled a general line of appliances but did not have in stock any equipment and supplies, and 84 specialized in certain types of electrical appliances and carried no equipment and supplies whatever. For a further definition of these types of houses, see pp. 24 and 25.

TABLE 8.—SUMMARY OF WHOLESALE ELECTRICAL TRADE, BY PRINCIPAL CLASSIFICATION AND TYPE OF DISTRIBUTOR, UNITED STATES: 1929—Continued

	Total	WHOLESALE MERCHANTS		MANUFACTURERS' SALES BRANCHES		MANUFACTURERS' AGENTS		ALL OTHER TYPES	
		Number or amount	Per cent of total	Number or amount	Per cent of total	Number or amount	Per cent of total	Number or amount	Per cent of total
5. ELECTRICAL APPLIANCES (SPECIALTY)									
Number of establishments	267	83	31.1	97	36.3	70	26.2	17	6.4
Net sales	$143,048,728	$10,630,472	7.4	$123,289,791	86.2	$5,991,669	4.2	$3,136,796	2.2
Total employees	6,659	1,253	18.8	4,913	73.8	401	6.0	92	1.4
Male	5,566	1,077	19.4	4,105	73.7	321	5.8	63	1.1
Female	1,093	176	16.1	808	73.9	80	7.3	29	2.7
Total salaries and wages	$10,053,614	$1,539,864	15.3	$7,628,349	75.9	$696,375	6.9	$189,026	1.9
Total expenses	$19,883,680	$2,941,937	14.8	$15,394,243	77.4	$1,145,682	5.8	$401,818	2.0
Stocks on hand, Dec. 31, 1929	$7,471,715	$894,123	12.0	$6,115,498	81.8	$325,361	4.4	$136,733	1.8

LENGTH OF LIFE AND CONTINUITY OF OWNERSHIP

Growth of electrical wholesalers.—Significant facts on the approximate growth and stability of the service wholesalers or jobbers operating in the electrical trade are revealed from reports made on these points by 1,384 wholesale merchants, 631 carrying a general line of electrical merchandise, 601 handling only electrical equipment and supplies, and 152 dealing in electrical household appliances exclusively. These concerns reported the year in which the business was established or first organized, as well as the year in which it came under present 1930 ownership. (See Table 9.) Like all other items, these points were reported for each establishment or place of business, even though some of the establishments were but part of a larger organization.

It is impossible from census statistics to determine how many electrical wholesalers came into being and went out of business during the period covered by Table 9. In other words, no mortality figures or data can be shown in this report. It was not feasible to count "ghosts," or concerns not in existence at the time the census was taken. It is possible, however, to show the age of the establishments that were in existence when the enumerators called. This, in a way, points to the probable longevity of merchants operating in the wholesale electrical field, although in a very imperfect manner.

Only 73 of the 1,384 wholesale merchant establishments were in business prior to 1900, practically 95 per cent of the wholesale merchants in existence at the end of 1929 having come into being during that time. Almost two-thirds (65.7 per cent) of the wholesalers handling a general line of electrical merchandise (based on the number in existence when the canvass was taken) were established during the first quarter of this century ending with the year 1924. A smaller percentage of the equipment wholesalers (60.5 per cent) came into being during that period, and a still smaller number of appliance wholesalers (49 per cent) began operations in the same interval.

The greatest rate of growth in the number of electrical wholesalers apparently took place during the five years beginning with 1925. A little over-one-fourth (25.2 per cent) of the general line electrical merchandise wholesalers were organized in the 5-year period of 1925–1929, as against 23.9 per cent for the preceding 5-year period, and only 17.1 for the 5-year period of 1914–1919. Wholesalers in the electrical equipment and supply field show even a greater develop-

ment in number during the period of 1925–1929, 37.1 per cent of such establishments being organized during that time, as against 27.6 per cent during the preceding five years and 15.3 per cent in the period of 1914–1919. Almost one-half (48.3 per cent) of the wholesalers handling only electrical household appliances came into existence in the five years beginning with 1925, as compared with 19.9 per cent during the period of 1920–1924 and 17.2 per cent for the period of 1914–1919.

Wholesalers specializing in either equipment or in household appliances have increased in *numbers* faster than those handling a general line of electrical merchandise. It must be remembered, however, that many of the specialty wholesalers operated on a much smaller scale than was true of the general line firms, so that while fewer firms came into being since 1925 as compared with specialty houses, they handled a much greater volume of business in proportion to that of the newly established specialty concerns. To what extent the newly formed organizations took the place of those that passed on and to what extent they constituted net accretions to the number in existence during the periods involved, are facts that can not be revealed from the schedules on which these data were based.

TABLE 9.—DATE OF ESTABLISHMENT AND DATE OF PRESENT OWNERSHIP, WHOLESALE MERCHANTS—UNITED STATES: 1930

YEAR BUSINESS WAS ESTABLISHED	Total	YEAR BUSINESS CAME UNDER PRESENT OWNERSHIP									
		1929	1928	1927	1926	1925	1920–1924	1914–1919	1900–1913	1875–1899	Unknown
1. ELECTRICAL MERCHANDISE (GENERAL LINE)											
Total	631	113	41	46	50	32	159	84	91	14	1
1929	25	25									
1928	32	8	24								
1927	30	6	1	23							
1926	37	4		2	31						
1925	34	8			1	25					
1920–1924	151	11	7	5	3	1	124				
1914–1919	108	17	4	5	3	1	11	67			
1900–1913	156	28	4	6	8	4	20	12	74		
1875–1899	56	6	1	5	4	1	4	5	16	14	
Unknown	2								1		1
2. ELECTRICAL EQUIPMENT AND SUPPLIES											
Total	601	88	69	53	44	36	146	83	76	6	
1929	52	52									
1928	51	2	49								
1927	47	7	1	39							
1926	41	3	2	2	34						
1925	32		3		3	26					
1920–1924	166	14	8	8	3	5	128				
1914–1919	92	5	3	2	4	1	7	70			
1900–1913	106	5	1	2		2	10	10	76		
1875–1899	13		1			2	1	3		6	
1850–1874	1		1								
3. ELECTRICAL APPLIANCES											
Total	152	27	25	24	6	8	24	20	16	1	1
1929	15	15									
1928	20	4	16								
1927	22	1	4	17							
1926	7	1	1		5						
1925	9	1			1	7					
1920–1924	30	5	1	3			21				
1914–1919	26		2	3			3	18			
1900–1913	18			1		1		2	14		
1875–1899	3		1						2	1	
Unknown	1										1

Growth of manufacturers' sales branches.[8]—A somewhat different picture is portrayed by the data pertaining to manufacturers' sales branches. Of the 845 such establishments that were in existence when the canvass was taken, 50 operated in the general electrical merchandise field, 644 handled equipment and supplies exclusively, and 151 specialized in household appliances. Furthermore, 248, or 29.3 per cent of all of these establishments, came into being prior to 1900, and a few of them (47) were organized prior to 1875. It is possible, of course, that some of these early branches engaged in a different kind of business during their initial stages. Only 10 per cent of the manufacturers' sales branches handling a general line of electrical merchandise came into existence during the first quarter of the present century ending with 1924, as compared with 47.3 per cent for the manufacturers' sales branches handling electrical equipment and supplies exclusively and 72.8 per cent for the branches specializing in household appliances.

TABLE 10.—DATE OF ESTABLISHMENT AND DATE OF PRESENT OWNERSHIP, MANUFACTURERS' SALES BRANCHES—UNITED STATES: 1930

YEAR BUSINESS WAS ESTABLISHED	Total	YEAR BUSINESS CAME UNDER PRESENT OWNERSHIP										
		1929	1928	1927	1926	1925	1920–1924	1914–1919	1900–1913	1875–1899	1850–1874	Unknown
1. ELECTRICAL MERCHANDISE (GENERAL LINE)												
Total	50	2	2		1	2		1	3	39		
1929	1	1										
1928	2		2									
1925	2					2						
1900–1913	5	1						1	3			
1875–1899	40				1					39		
2. ELECTRICAL EQUIPMENT AND SUPPLIES												
Total	644	49	65	46	27	38	131	54	100	125	2	7
1929	29	29										
1928	36	1	35									
1927	25	4		21								
1926	21		1		20							
1925	38			1		37						
1920–1924	109	11	6	3	1		88					
1914–1919	65		6	3	3		1	52				
1900–1913	131	1	6	6	1		23	2	92			
1875–1899	139		11	12	1	1	19		5	90		
1850–1874	43	2			1				3	35	2	
Prior to 1850	1	1										
Unknown	7											7
3. ELECTRICAL APPLIANCES												
Total	151	11	7	3	10	1	21	62	33	2		1
1929	4	4										
1928	4		4									
1927	3			3								
1926	4				4							
1925	1		1									
1920–1924	20						19					1
1914–1919	50							50				
1900–1913	40						2	12	26			
1875–1899	22	7	2		3	1			7	2		
1850–1874	3				3							

[8] The statistics relating to manufacturers' sales branches are subject to the same limitations as those referring to wholesale merchants. See p. 24.

Most of the general line electrical merchandise branches (80 per cent) were established prior to 1900, but the greatest rate of growth for the branches handling only equipment and supplies apparently occurred in the 5-year period beginning with 1925 and ending with 1929, during which time 23.1 per cent of such branches were organized as compared with 16.9 per cent for the preceding five years and 10.1 per cent for the five years beginning with 1914. In the household appliance field, however, the greatest development took place in the period of 1914–1919. In these five years approximately one-third (33.2 per cent) of the branches specializing in appliances were established, as compared with 10.5 per cent for the period of 1924–1929 and 13.2 per cent for the preceding five years.

Continuity and age of ownership.—The data relating to the continuity of ownership as well as the statements based thereon are subject to important qualifications. This is due to the fact that some of the statistics are presented for *periods* involving more than one year. For example, if a business was established in 1921 and came into its present ownership in 1930, it would not be included in the establishments changing ownership. What the data really indicate is that of the 151 wholesale merchant establishments carrying a general line of electrical merchandise, for example, that came into being during the period 1920–1924 (see Table 9), 124 houses have not changed hands since 1925, although some of them may have changed hands prior to 1925 but after 1921 and they may have changed hands during that period more than once. The same observation applies to all data shown in Tables 9 and 10, except where they are given for individual years beginning with 1925. Furthermore, all of these data are based on the number of establishments that existed when the canvass was taken and do not cover the unknown number of organizations that have come and gone prior to 1930. Nevertheless, they present a rough approximation of the continuity of ownership, which is particularly valuable for comparison with other lines of trade, similar data for which are subject to the same general qualifications.

Of the 1,384 wholesale merchants engaged in the electrical trade, 1,001 or about 72 per cent, were under the same ownership since their organization. The greatest number of changes in ownership (48.3 per cent) took place among the general line electrical merchandise concerns, largely since 1925, 56.2 per cent of the changes of such establishments having taken place during that time. In 1929 alone 88 general line electrical merchandise houses changed hands, constituting 32 per cent of all changes in these houses that have taken place during the entire period covered by the statistics in Table 9. The changes in ownership were fewer among the wholesalers handling equipment or household appliances exclusively, partly because they were of more recent origin. Here, too, many of the changes occurred in 1929 and in the years immediately preceding.

Of the manufacturers' sales branches, 74 per cent remained under the original ownership. (See Table 10.) The smallest number of changes among the branches occurred in the general line electrical merchandise field—just the opposite of what took place among wholesale merchant houses. Approximately 28 per cent of the manufacturers' sales branches handling equipment and supplies exclusively changed hands since their inception, about 45 per cent of the changes taking place in 1927, 1928, and 1929.

LOCATION OF WHOLESALE ELECTRICAL ESTABLISHMENTS

Wholesale electrical trade, by States and geographic divisions.—In canvassing establishments for the census it was deemed impracticable to secure information on the geographic *movement* of goods that would indicate just where the goods sold by wholesale organizations were consumed. To do so would have necessitated a

complete analysis of sales for each wholesale establishment *by territories*. It is therefore impossible to show *where* the wholesale establishments had made their sales (the location of their customers), particularly since many of them operated over wide areas. The statistics presented in Table 11 show, by States and by geographic divisions, the location of the wholesale establishments and their net sales. The data are given, first, for all types of establishments combined, and, second, for wholesale merchants only. The States are ranked according to the volume of business of the establishments located therein.

An examination of Table 12 reveals a fairly high degree of geographic concentration in the wholesale electrical trade as far as the location of the establishments is concerned. No wholesale electrical houses may be found in 4 of the States, while another 26 States and the District of Columbia reported each less than 1 per cent of the business of all establishments operating in the wholesale electrical trade. In fact, 18 States accounted for 90.9 per cent of the business, and exactly 60 per cent of the total was concentrated in the hands of firms located in the 5 leading States of New York, Illinois, Ohio, Pennsylvania, and California (ranked in the order of their importance as electrical trade centers). The 5 States of Massachusetts, Michigan, Missouri, Georgia, and Texas (ranked in the order of their net sales) cared for another 18.5 per cent. Thus, the leading 10 States in the trade accounted for 78.5 per cent of the business. The 8 additional States with more than 1 per cent each contributed 12.4 per cent of the business.

According to these statistics a manufacturer desirous of securing adequate distribution through a limited number of wholesale outlets may accomplish such end by selecting the proper outlets for his goods located in 18 of the States, which account for 90.9 per cent of the distribution in the electrical trade. To obtain the additional 9.1 per cent of the distribution he would have to sell through wholesale outlets located in as many as 26 additional States and in the District of Columbia. This statement, of course, is subject to the modification that any one wholesale house may cover the entire United States and that a given area may be served by two or more electrical wholesalers or manufacturers' sales branches operating from the same city or from different cities. When overlapping in territories occurs it varies, however, considerably in the intensity of cultivation and in the types of merchandise handled. That is, it may be that a given territory is covered by two or more wholesalers in the electrical trade, but that each sells a different line of merchandise in the territory involved.

As shown in Table 14, the bulk of electrical goods is distributed by wholesale organizations locally and on a sectional basis, with State boundaries forming no special barriers. It is essential, therefore, in attempting any correlations, to present the statistics on a sectional basis rather than by States. This method has been followed in connection with Table 11 below.

Relatively little positive correspondence may be noted between the sales of electrical goods and the populations of the respective geographic divisions of the United States, except for the Middle Atlantic and the East North Central divisions, which rank first and second, respectively, both in population and in sales of electrical products. The Pacific division is third in sales of electrical goods but seventh in population. On the other hand, the South Atlantic division is third in population but sixth in electrical sales. New England ranks fourth in sales but is eighth in population, while the East South Central division is sixth in population but last in wholesale sales of electrical merchandise.

TABLE 11.—WHOLESALE ELECTRICAL TRADE IN RELATION TO POPULATION AND NUMBER OF HOMES WIRED FOR ELECTRICITY, BY GEOGRAPHIC DIVISIONS: 1929

GEOGRAPHIC DIVISION	NET SALES OF ELECTRICAL WHOLESALERS				POPULATION [1]		WIRED HOMES (1929) [2]	
	All types		Wholesale merchants		Number	Rank	Number	Rank
	Amount	Rank	Amount	Rank				
United States	$1,848,292,786	------	$473,986,987	------	122,775,046	------	19,967,154	------
New England	138,730,838	4	41,291,238	5	8,166,341	8	1,809,850	5
Middle Atlantic	574,853,996	1	143,888,105	1	26,260,750	1	5,677,480	1
East North Central	567,198,750	2	105,807,933	2	25,297,185	2	4,960,210	2
West North Central	137,513,030	5	45,715,725	4	13,296,915	4	1,921,563	4
South Atlantic	119,433,866	6	33,644,180	6	15,793,589	3	1,466,003	6
East South Central	21,529,848	9	9,395,172	9	9,887,214	6	659,615	8
West South Central	71,324,996	7	26,857,995	7	12,176,830	5	1,022,452	7
Mountain	31,126,719	8	9,891,445	8	3,701,789	9	499,533	9
Pacific	186,580,743	3	57,495,194	3	8,194,433	7	1,950,448	3

[1] Census of Population (1930).
[2] Electrical Merchandising, January, 1932.

Such lack of correlation of net sales with population, with but few exceptions, is even more conspicuous when data are shown on a State basis, as in Table 12. The State of Washington, for example, while thirtieth in population is thirteenth in sales. Georgia is ninth in sales volume but fourteenth in population, and Connecticut is twenty-ninth in population but eleventh in sales. On the other hand, some of the States that ranked high in population showed small sales in electrical goods.

The data in Table 11 show, however, a close positive correlation of sales of electrical goods with the number of wired homes or domestic-lighting customers. This would seem to point to the wisdom of using the number of wired homes as one of the bases in allocating sales by territories, particularly for the wholesale sale of goods intended primarily for home consumption, since the correlation between the sales of wholesale merchants (who handle largely appliances and supplies) correspond closely to the number of wired homes. It also points to the potential market for electrical goods as the number of wired homes increases from year to year in different sections of the United States and as the rise in the standard of living makes that possible.

As far as the sale of electrical goods for industrial uses is concerned, the number of certain types of manufacturing plants, together with their size as measured by value of products made in them, would no doubt serve as a useful basis for planning sales-promotion activities. Part of the discrepancy between sales of electrical goods and population is due to the fact that electrical goods intended for industrial use have not been segregated. Connecticut, for example, ranks but twenty-ninth in population but is eleventh in the sales of electrical goods because its many factories have purchased large quantities of electrical goods for industrial purposes.

TABLE 12.—WHOLESALE ELECTRICAL TRADE, BY STATES AND GEOGRAPHIC DIVISIONS: 1929

DIVISION AND STATE	ALL TYPES					WHOLESALE MERCHANTS				
	Number of establishments	Net sales		Rank in—		Number of establishments	Net sales		Rank in—	
		Amount	Per cent of total	Net sales	Population		Amount	Per cent of total	Net sales	Population
United States	**2,845**	**$1,848,292,786**	**100.0**			**1,384**	**$473,986,987**	**100.0**		
NEW ENGLAND	216	138,730,838				130	41,291,238			
Maine	15	2,777,462	0.2	36	35	14	2,719,121	0.6	32	35
New Hampshire	2	256,000	(1)	44	42	2	256,000	0.1	44	42
Vermont	2	358,395	(1)	43	46	2	358,395	0.1	43	46
Massachusetts	148	89,738,175	4.9	6	8	77	26,970,469	5.7	6	8
Rhode Island	13	3,415,000	0.2	35	37	11	3,395,000	0.7	27	37
Connecticut	36	42,185,806	2.3	11	29	24	7,592,253	1.6	16	29
MIDDLE ATLANTIC	883	574,853,996				456	143,888,105			
New York	536	359,640,625	19.5	1	1	284	88,168,117	18.6	1	1
New Jersey	50	39,665,726	2.2	12	9	40	11,735,220	2.5	11	9
Pennsylvania	297	175,541,645	9.5	4	2	132	43,984,768	9.3	2	2
EAST NORTH CENTRAL	628	567,198,750				266	105,807,933			
Ohio	191	178,610,074	9.7	3	4	82	29,029,695	6.1	5	4
Indiana	45	20,324,861	1.1	17	11	28	8,212,457	1.7	15	11
Illinois	235	249,881,492	13.5	2	3	85	33,330,265	7.0	4	3
Michigan	114	88,748,380	4.8	7	7	43	22,965,934	4.8	7	7
Wisconsin	43	29,633,443	1.6	14	13	28	12,269,582	2.6	10	13
WEST NORTH CENTRAL	273	137,513,030				132	45,715,725			
Minnesota	65	25,076,230	1.4	15	18	27	11,602,876	2.4	12	18
Iowa	35	19,053,093	1.0	18	19	26	8,212,979	1.7	14	19
Missouri	129	70,240,175	3.8	8	10	50	17,509,142	3.7	8	10
North Dakota	7	1,602,663	0.1	38	38	5	1,158,864	0.2	39	38
South Dakota	5	664,496	(1)	42	36	3	547,534	0.1	42	36
Nebraska	17	16,714,270	0.9	19	32	8	3,379,933	0.7	28	32
Kansas	15	4,162,103	0.2	33	24	13	3,307,397	0.7	29	24
SOUTH ATLANTIC	198	119,433,866				100	33,644,180			
Delaware	4	1,057,738	0.1	40	47	4	1,057,738	0.2	40	47
Maryland	34	21,402,951	1.2	16	28	15	6,392,600	1.3	17	28
District of Columbia	17	13,168,563	0.7	24	41	11	4,917,319	1.0	23	41
Virginia	12	5,177,312	0.3	32	20	12	5,177,312	1.1	21	20
West Virginia	21	7,655,613	0.4	28	27	13	3,557,421	0.8	26	27
North Carolina	18	13,756,153	0.7	21	12	8	2,411,035	0.5	34	12
South Carolina	6	1,285,713	0.1	39	26	6	1,285,713	0.3	38	26
Georgia	56	48,745,553	2.6	9	14	12	4,960,726	1.0	22	14
Florida	30	7,184,270	0.4	30	31	19	3,884,316	0.8	24	31
EAST SOUTH CENTRAL	42	21,520,848				21	9,395,172			
Kentucky	14	5,647,814	0.3	31	17	8	2,223,779	0.5	35	17
Tennessee	14	7,823,589	0.4	27	16	7	3,166,650	0.7	31	16
Alabama	12	7,244,967	0.4	29	15	4	3,191,265	0.7	30	15
Mississippi	2	813,478	(1)	41	23	2	813,478	0.2	41	23
WEST SOUTH CENTRAL	113	71,324,996				71	26,857,995			
Arkansas	1	227,132	(1)	45	25	1	227,132	0.1	45	25
Louisiana	19	13,493,495	0.7	22	22	9	5,385,730	1.1	20	22
Oklahoma	17	13,220,601	0.7	23	21	14	6,069,872	1.3	19	21
Texas	76	44,383,768	2.4	10	5	47	15,175,261	3.2	9	5
MOUNTAIN	72	31,126,719				36	9,891,445			
Montana	13	4,145,869	0.2	34	39	10	1,936,835	0.4	36	39
Idaho					43					43
Wyoming					48					48
Colorado	42	14,248,508	0.8	20	33	17	2,544,106	0.5	33	33
New Mexico					45					45
Arizona	7	2,698,497	0.2	37	44	4	1,680,352	0.4	37	44
Utah	10	10,033,845	0.5	26	40	5	3,730,152	0.8	25	40
Nevada					49					49
PACIFIC	420	186,580,743				172	57,495,194			
Washington	80	30,299,914	1.6	13	30	39	10,682,241	2.3	13	30
Oregon	32	11,913,857	0.6	25	34	15	6,169,955	1.3	18	34
California	308	144,366,972	7.8	5	6	118	40,642,998	8.6	3	6

[1] Less than one-tenth of 1 per cent.

Wholesale electrical trade, by principal trade centers.—For the purposes of the trade series of reports of the Census of Wholesale Distribution, of which this is one, 18 cities have been selected for which information is given in addition to the data shown by other areas. These cities either have a population of 500,000 or more inhabitants or are so located as to be representative of their respective sections of the country.

TABLE 13.—WHOLESALE ELECTRICAL TRADE CENTERS IN THE UNITED STATES: 1929

CITY (Arranged according to population)	Number of establishments	NET SALES		RANK IN—		NUMBER OF ESTABLISHMENTS BY TYPE			
		Amount	Per cent of total	Net sales	Population	Wholesale merchants	Manufactures' sales branches	Manufactures' agents	All other types
United States total	2,845	$1,848,292,786	100.0	------	------	1,384	845	467	149
Total for 49 cities	2,249	1,578,794,071	85.4	------	------	944	739	443	123
New York City	403	299,682,593	16.2	1	1	209	93	69	32
Chicago, Ill	197	232,472,348	12.6	2	2	59	81	38	19
Philadelphia, Pa	145	102,194,478	5.5	3	3	58	46	33	8
Detroit, Mich	93	83,104,621	4.5	4	4	25	35	28	5
Los Angles, Calif	117	63,303,613	3.4	7	5	46	27	36	8
Cleveland, Ohio	85	73,509,499	4.0	6	6	19	34	26	6
St. Louis, Mo	66	38,590,185	2.1	11	7	24	30	9	3
Baltimore, Md	32	21,097,877	1.1	19	8	13	10	8	1
Boston, Mass	108	81,402,552	4.4	5	9	42	43	19	4
Pittsburgh, Pa	90	61,296,659	3.3	8	10	28	34	19	9
San Francisco, Calif	141	55,638,114	3.0	9	11	39	54	42	6
Milwaukee, Wis	35	28,840,813	1.6	14	12	22	9	2	2
Buffalo, N. Y	31	23,788,632	1.3	18	13	15	8	6	2
Washington, D. C	17	18,085,882	1.0	22	14	11	4	------	2
Minneapolis, Minn	40	18,694,247	1.0	21	15	10	20	9	1
New Orleans, La	15	10,063,551	0.6	29	16	7	5	2	1
Cincinnati, Ohio	34	25,344,645	1.4	16	17	12	16	3	3
Newark, N. J	15	34,591,126	1.9	12	18	11	3	1	------
Kansas City, Mo	56	29,574,252	1.6	13	19	19	26	10	1
Seattle, Wash	60	25,976,365	1.4	15	20	25	16	18	1
Indianapolis, Ind	23	13,763,218	0.8	25	21	9	9	3	2
Rochester, N. Y	26	7,506,339	0.4	32	22	13	8	4	1
Louisville, Ky	11	5,021,022	0.3	35	24	7	1	3	------
Portland, Oreg	31	11,897,913	0.6	26	25	14	9	8	------
Houston, Tex	13	11,701,751	0.6	27	26	8	4	1	------
Columbus, Ohio	16	7,743,011	0.4	31	28	10	4	2	------
Denver, Colo	42	14,248,508	0.8	24	29	17	12	12	1
Oakland, Calif	17	5,981,470	0.3	34	30	10	5	2	------
St. Paul, Minn	18	4,910,252	0.3	36	31	11	1	6	------
Atlanta, Ga	50	47,351,080	2.6	10	32	6	37	4	3
Dallas, Tex	31	20,427,802	1.1	20	33	9	18	3	1
Providence, R. I	13	3,426,621	0.2	39	37	11	2	------	------
San Antonio, Tex	9	2,184,907	0.1	45	38	9	------	------	------
Omaha, Nebr	12	15,503,912	0.8	23	39	4	8	------	------
Syracuse, N. Y	23	9,458,948	0.5	30	40	13	7	3	------
Worcester, Mass	9	1,746,427	0.1	47	42	7	1	1	------
Oklahoma City, Okla	9	10,950,684	0.6	28	43	7	1	1	------
Youngstown, Ohio	8	2,876,731	0.2	42	45	7	------	1	------
Hartford, Conn	15	3,821,049	0.2	38	47	9	3	3	------
Bridgeport, Conn	6	24,862,224	1.4	17	54	5	------	------	1
Scranton, Pa	10	2,454,205	0.1	43	55	7	1	2	------
Des Moines, Iowa	12	7,000,189	0.4	33	56	7	5	------	------
Jacksonville, Fla	9	4,423,737	0.2	37	63	6	2	1	------
Albany, N. Y	10	2,939,670	0.2	41	64	7	2	1	------
Trenton, N. J	7	991,706	0.1	48	65	6	------	1	------
Spokane, Wash	11	3,292,540	0.2	40	70	8	3	------	------
Tampa, Fla	10	1,812,819	0.1	46	91	6	2	2	------
Allentown, Pa	7	646,125	0.0	49	------	6	------	1	------
Portland Me	11	2,447,159	0.1	44	------	11	------	------	------

Table 13 shows for each of these cities the total number of establishments engaged in the wholesale electrical trade, their net sales, the rank of each city according to the volume of business in electrical goods as compared with its rank in population, and the number of establishments serving as wholesale outlets for such goods by types of organization. In addition, such information is given for 31 other cities, having six or more wholesale merchants in the electrical trade.

This indicates the relative importance of each of the cities as an electrical trade center and the types of wholesale outlets available to a manufacturer, as well as the nature of competition in the wholesale electrical trade among the different types of establishments. (See Table 13 and the map showing Wholesale Electrical Trade Centers in the United States.)

The five leading wholesale centers in the electrical trade are New York, Chicago, Philadelphia, Detroit, and Boston. These five cities accounted for 43.2 per cent of the total business reported by electrical wholesale establishments for the entire country. The next five cities also ranked in the order of their importance based on net sales, are Cleveland, Los Angeles, Pittsburgh, San Francisco, and Atlanta. They contributed another 16.3 per cent, so that the 10 leading centers handled almost 60 per cent (59.5 per cent) of the business. All of the 49 cities included in Table 13 handled fully 85.4 per cent of the wholesale electrical trade.

The information disclosed in Table 13 points to the possibility of securing fair coverage on the part of a manufacturer of electrical goods, either through a limited number of sales branches or through the selection of a limited number of independent wholesale merchants, provided that such establishments are properly located. It also furnishes an excellent basis for charting sales quotas by territories and for the ascertainment of changes in trend as future censuses of distribution are taken. According to these data San Francisco distributors should be selling three times as much in electrical goods as Washington, D. C. distributors and somewhat more than one-half as much as the wholesale electrical establishments of Philadelphia.

Extent of the sales territory radius for 18 cities.—Additional light is thrown on the wholesale electrical goods market by the statistics in Table 14 showing the extent of the sales territory covered regularly by wholesale establishments located in each of 18 cities so chosen as to be representative of all sections of the country. This information is shown *for all types of establishments combined.* The total volume of electrical business for these cities was $1,283,139,290, or 69.4 per cent of the total for the United States. Their stragetic locations, together with the large proportion of total sales (although as indicated in Table 13, there are cities with greater volume of electrical business than some that are included among the 18 centers listed in Table 14), make this analysis significant in the study of market areas.

Only 3.9 per cent of the wholesale electrical business (based on the total for the 18 cities) was transacted by concerns with national distribution. *This means that electrical goods are not normally distributed on a nation-wide basis from a single establishment.* The three cities which led in this respect are New York, Chicago, and San Francisco, in the order named. If these cities were ranked on the basis of the proportion of their respective sales in the hands of firms with national distribution, instead of absolute amounts, San Francisco would take first position, Chicago second, and New York third.

At the other extreme from national distribution lies what is commonly known as local distribution, which, for census purposes, means distribution with a sales territory radius under 75 miles. Table 14 shows that those houses whose sales territory did not extend beyond a radius of 75 miles did over one-fourth (26.3 per cent) of the total business for all 18 cities combined. The local houses (concerns covering a territory of not more than 75 miles) located in New York City did as high as 47 per cent of the business of all the city's electrical wholesale establishments, and four other cities—Buffalo, Chicago, Philadelphia, and Detroit—showed more than one-fourth of the business each in the hands of local concerns. Each and every one of the 18 cities reported establishments that confined their operations to a 75-mile radius, which indicates that local distribution of electrical goods at wholesale is not peculiar to any one section of the United States, although 10 of the cities showed less than 15 per cent of their

respective volumes of business handled by houses that operated on a purely local scale.

Sectional wholesaling in the electrical trade from a single establishment seems to be considerably more prominent than either local or national distribution, 43.5 per cent of all the business being handled by concerns with sales territories extending to a radius of 150 or 250 miles, and another 11.7 per cent of the business was handled by firms located in the 18 cities and covering a territory up to 500 miles in radius. The wholesale establishments of Baltimore, Md., for example, operated over a radius of 150 miles to the extent of 71.1 per cent of their total electrical business. The same situation virtually obtained in Pittsburgh, Cleveland, and Buffalo. Over 80 per cent (80.7 per cent) of the wholesale electrical trade reported by the establishments of Milwaukee was in the hands of firms operating over a 250-mile radius, while over half of the business of Detroit and St. Louis was in the hands of firms similarly operating. The facts disclosed in Table 14 should prove of real value to wholesale organizations in establishing the best size sales territory. They may be equally valuable to a manufacturer who is desirous of working out a scientific distribution program, for these data may enable him to select the cities in which to secure outlets and to determine the extent of their respective territorial cultivation.

TABLE 14.—THE MARKET RADIUS [1] FOR 18 CITIES, WHOLESALE ELECTRICAL TRADE: 1929

CITY (Arranged according to population)	TOTAL NET SALES		PER CENT OF TOTAL NET SALES						
			Made by concerns whose sales territory extends from their respective locations to a radius of—						
	Amount	Per cent of total	Not over 75 miles	76 to 150 miles	151 to 250 miles	251 to 500 miles	Over 500 miles: But not nationwide	Over 500 miles: Nationwide	All other[2]
Total for 18 cities	$1,288,139,290	69.4	26.3	22.5	21.0	11.7	9.3	3.9	5.3
New York, N. Y.	299,682,593	16.2	47.0	20.1	10.1	4.5	3.1	5.9	9.3
Chicago, Ill.	232,472,348	12.6	29.8	3.2	19.9	10.6	17.8	6.6	12.1
Philadelphia, Pa.	102,194,478	5.5	29.4	36.5	23.1	2.2	2.4	2.0	4.4
Detroit, Mich.	83,104,621	4.5	28.4	10.4	58.7	2.1	0.2	------	0.2
Los Angeles, Calif.	63,363,613	3.4	12.9	18.3	42.8	15.1	10.7	0.1	0.1
Cleveland, Ohio	73,509,499	4.0	24.1	62.4	4.9	7.4	------	1.1	0.1
St. Louis, Mo.	38,590,185	2.1	8.5	14.1	51.1	18.5	6.9	0.9	------
Baltimore, Md.	21,097,877	1.1	14.9	71.1	12.4	0.5	1.1	------	------
Boston, Mass.	81,492,552	4.4	10.2	38.0	18.8	31.8	0.4	0.2	0.6
Pittsburgh, Pa.	61,296,659	3.3	11.3	69.3	11.6	1.7	0.6	5.4	0.1
San Francisco, Calif.	55,638,114	3.0	9.3	0.4	14.6	31.3	26.2	17.4	0.8
Milwaukee, Wis.	28,840,813	1.6	4.2	9.2	80.7	1.9	0.1	0.3	3.6
Buffalo, N. Y.	23,788,632	1.3	39.2	60.4	0.3	------	------	0.1	------
New Orleans, La.	10,063,551	0.5	16.2	9.5	45.6	28.7	------	------	------
Seattle, Wash.	25,976,365	1.4	16.4	12.6	8.0	39.1	1.4	------	22.5
Denver, Colo.	14,248,508	0.8	1.2	4.2	6.2	31.7	56.7	------	------
Atlanta, Ga.	47,351,080	2.6	7.6	0.2	11.6	20.3	60.0	------	0.3
Dallas, Tex.	20,427,802	1.1	5.2	6.1	1.0	68.7	19.0	------	------

[1] The length of the sales territory radius should not be interpreted as meaning that the sales territory is circular in character. It may constitute only a segment of a circle, as in the case of a seacoast city. Furthermore, the territory radius does not mean that trade is not secured locally, as well as at all points within the radius. If a given city shows no business for a particular radius, such as 76 to 150 miles, for example, this does not mean that such territory was not covered, but merely that no establishments in the city reported that particular radius for the outer limit of their sales territory. Such territory was either covered by establishments reporting a longer radius for the same city, or in the absence of the latter by establishments in other marketing centers. The chief value of these statistics is that they indicate how far from the home city trade is sought and the volume of business of the concerns operating within a given radius.

[2] Includes establishments engaged in foreign trade, in domestic and foreign trade, and a few establishments that did not report the sale territory covered.

ANALYSIS OF SALES IN THE WHOLESALE ELECTRICAL TRADE

Sales analysis by commodities.—Tables 4 and 5 show how electrical goods move through wholesale channels. From those data it is possible to ascertain the relative importance of the various *types of wholesale organizations* operating in *different lines of trade* which serve as outlets for electrical goods. This is of tremendous significance to the manufacturer of these products, inasmuch as it shows the movement of electrical goods outside of the electrical trade proper as well as through electrical establishments. Tables 4 and 5 do not show, however, what percentage of the business of the wholesale electrical trade consists in electrical commodities and what other commodities are normally handled in the wholesale electrical trade. Such information is presented in Tables 15 and 16 below.

It is interesting to note that 95.9 per cent of the sales made by wholesale electrical firms was reported by commodites, which is an unusually high coverage. It may, therefore, be assumed that the remaining 4.1 per cent is distributed by lines of trade and by types of establishments in the same proportion as the 95.9 per cent. In this manner total amounts can be projected from the percentages given in Table 15. For example, the amount in electrical goods proper (other than radios and refrigerators) handled by wholesale electrical establishments of all types is shown to be $1,497,975,000 which is 84.5 per cent of the amount broken down by commodities. But the total amount broken down by commodities is 95.9 per cent of total net sales; hence, 84.5 per cent of the $1,848,292,000 (total net sales), or $1,561,806,000 which may be assumed to be the actual amount of electrical commodities (other than radios and refrigerators) sold by electrical establishments.

As already indicated, for all types of wholesale electrical establishments combined, electrical commodities proper (other than radios and refrigerators) made up 84.5 per cent of the volume. Copper ingots, bars, shapes, and sheets contributed 3.6 per cent of the business; radio sets, parts, and accessories, 3.1 per cent; and industrial machinery, equipment and supplies, 2.2 per cent. Many other commodities were handled by wholesale electrical firms as indicated by the amounts in the table.

The information in Table 15 affords an opportunity to the manufacturer to determine to what extent, if any, electrical wholesale establishments can be used as outlets for his type of product. It also enables an electrical wholesaler to discover what items of merchandise are handled by others that he does not carry and, conversely, what items of merchandise he handles that are not normally carried by similar firms. To facilitate such comparisons, the data are presented separately for each of the important types of wholesale organizations, namely, wholesale merchants or service wholesalers, manufacturers' sales branches, and manufacturers' agents. In this way a service wholesaler, for example, may compare his figures with totals for that group as well as with the totals for all types combined. This kind of presentation should also prove valuable to manufacturers. To illustrate, wholesale merchants reported 85.5 per cent of their sales to consist in electrical goods proper (other than radios and refrigerators), while manufacturers' sales branches sold but 78.7 per cent of their total volume in such commodities. This means at least on the surface,[9] that, relatively, wholesale electrical merchants do not offer so good an opportunity as outlets for goods other than electrical as do manufacturers' sales branches. Just in what specific commodities

[9] Contrary to popular conceptions, some manufacturers' sales branches handle noncompeting goods produced by other than the parent manufacturing company. To that extent they should be regarded as at least semipublic *outlets* for producers' goods, although the merchandising activities of manufacturers' sales branches are generally centered upon their own products or upon goods produced by plants that are closely connected with the parent company.

these relative opportunities lie can be discovered through an examination of the data in Table 15. Relatively little brick, tile, and terra cotta was handled by wholesale merchants ($5,000) as compared with manufacturers' sales branches, which sold over $7,000,000 of this commodity ($7,105,000). The same is true of hardware, which was handled only to the extent of $690,000 by electrical service wholesalers, as compared with $6,652,000 worth of the commodity sold by manufacturers' sales branches operating in the electrical trade. A similar situation may be noted in connection with industrial machinery, equipment, and supplies. On the other hand, electrical wholesale merchants handled $781,000 of paints, varnishes, and lacquers, while manufacturers' sales branches in the electrical trade handled none of these commodities.

TABLE 15.—COMMODITY SALES IN THE WHOLESALE ELECTRICAL TRADE—UNITED STATES: 1929

[Sales expressed in thousands of dollars]

COMMODITIES	TOTAL		Wholesale merchants	Manufacturers' sales branches	Agents and brokers	All other types
	Amount [1]	Per cent of total				
Total net sales	$1,848,292		$473,987	$1,216,634	$96,368	$61,303
Reported commodity sales, per cent of total net sales	95.9		99.9	94.2	97.1	96.9
Reported commodity sales, total	$1,772,236	100.0	$473,427	$1,145,811	$93,600	$59,398
Per cent of total reported commodity sales	100.0		26.7	64.6	5.3	3.4
Aluminum ingots, bars, sheets, shapes, etc.	$103	(2)	$3			$100
Automobiles and trucks	1,469	0.1		$1,382	$12	75
Automotive equipment, parts and accessories	5,610	0.3	2,428	1,781	617	784
Automobile accessories	1,836		503	1,056	234	43
Automotive equipment and supplies	2,000		1,112	1	171	716
Automotive parts	764		387	250	122	5
Tires and tubes	503		190	293		20
Reported without breakdown	507		236	181	90	
Brick, tile, and terra cotta	7,127	0.4	5	7,105	17	
Building metal work	120	(2)	120			
Cameras and photographic supplies	36	(2)	36			
Cement, lime, and plaster	49	(2)	9			40
Chemicals, refined	140	(2)		122	18	
China, glassware, and crockery	390	(2)	48	5	137	200
China	3		3			
Glassware	333		15		118	200
Crockery	54		30	5	19	
Coal	287	(2)				287
Copper ingots, bars, shapes, and sheets	62,993	3.6	3,393	57,123	1,815	662
Crude nonmetallic minerals	169	(2)		169		
Electrical goods (other than radios and refrigerators)	1,497,975	84.5	405,347	957,577	82,845	52,206
Batteries, storage	64,949		11,971	50,465	929	1,584
Electric household appliances	103,439		35,051	49,728	8,293	10,367
Electric motors, generators, and control apparatus	266,516		41,363	208,645	10,975	5,533
Interior electric construction material	234,015		152,262	30,221	30,427	21,105
All other electric appliances and supplies	804,088		146,081	615,658	28,845	13,504
Reported without breakdown	24,968		18,619	2,860	3,376	113
Fertilizer and fertilizer materials	15	(2)				15
Furniture, wooden and metal	790	0.1	476	248	59	7
Household furniture	325		25	248	50	2
Office and store furniture	5					5
Reported without breakdown	400		451		9	
Glass	2,619	0.2	11	2,376	219	13
Hardware	7,528	0.4	690	6,652	186	
Builders' hardware	20				20	
Tools and cutlery	151		26	118	7	
Heavy hardware	191		30	63	98	
All other hardware not listed elsewhere	6,713		503	6,149	61	
Reported without breadkown	453		131	322		

[1] As reported. The amounts given in this column for any one commodity may be projected to a total figure by multiplying the percentage by the total net sales ($1,848,292,000). Where the percentage is not given in the table it is necessary to obtain it by dividing the amount of the commodity by $1,772,236,000 and then to multiply the percentage by $1,848,292,000.

[2] Less than one-tenth of 1 per cent.

TABLE 15.—COMMODITY SALES IN THE WHOLESALE ELECTRICAL TRADE—UNITED STATES: 1929—Continued

[Sales expressed in thousands of dollars]

COMMODITIES	TOTAL		Wholesale merchants	Manufacturers' sales branches	Agents and brokers	All other types
	Amount	Per cent of total				
House furnishings	250	(2)	146		104	
Linoleums, felt base, and all other carpets	45		45			
House furnishings, not listed elsewhere	79		79			
Reported without breakdown	126		22		104	
Iron and steel products	12,028	0.7	1,435	6,418	3,000	1,175
Scrap iron and steel	252		2	250		
Rough castings and forgings	50		5	43		2
Structural iron and steel and reenforcing bars	219		5		14	200
Iron and steel pipe and tubes	3,411		251	25	2,855	280
Wire, wire rope, screening, and fencing	4,978		347	4,580	22	20
All other rolled iron and steel	2,860		567	1,511	109	673
Reported without breakdown	258		258			
Jewelry (clocks and watches)	600	(2)	55		545	
Junk and scrap	1,369	0.1		1,369		
Logs, piles, posts, hewn ties, pulpwoods and cordwood	15,177	0.9	267	14,625	145	140
Lumber	1,721	0.1		1,711		10
Machinery, equipment, and supplies (industrial)	39,253	2.2	2,220	35,251	700	1,082
Machine tools (power-driven)	184		31		3	150
Power plant machinery and equipment (except electrical)	16,430		925	14,775	80	650
Construction machinery	454		15	429		10
Mining, quarrying, well digging, and pumping machinery, not listed elsewhere	145		72	8	55	10
Belting, hose, packing, and mechanical rubber goods	399		29	362	4	4
Pipe fittings, valves, and specialties	509		276	3	80	150
Rope, cordage, and twine	189		6		181	2
Industrial machinery and equipment not listed elsewhere	20,943		866	19,674	297	106
Musical instruments, accessories, and parts	26	(2)	18		8	
Notions and dry goods small wares	27	(2)		27		
Other nonferrous metals	285	(2)	76	57	68	84
Office and store machinery and equipment	29	(2)		14		15
Paints, varnishes, and lacquers	791	0.1	781			10
Petroleum and petroleum products	111	(2)	18			93
Planing mill products—woodwork	153	(2)	153			
Plumbing and heating equipment and supplies	1,015	0.1	249	435	177	154
Plumbing fixtures, equipment, and supplies	567		51	435	71	10
Stoves, ranges, furnaces, heating apparatus and parts	448		198		106	144
Printed books and magazines	7,651	0.4		7,651		
Radio sets, parts and accessories	53,997	3.1	48,064	3,006	2,119	808
Refrigerators, gas and electric	6,516	0.4	4,646	128	410	1,332
Secondhand merchandise	562	(2)	541		21	
Furniture	132		111		21	
Reported without breakdown	430		430			
Sheet-metal work	83	(2)	4	70	9	
Soap	28	(2)	7	15	6	
Sporting goods, including arms and ammunition	77	(2)	52		25	
Stationery and stationery supplies	9,550	0.5		9,549	1	
Toys and games	36	(2)	36			
Wood products not listed elsewhere	4,176	0.2	62	4,114		
Zinc bars, plates, shapes, and sheets	283	(2)	54	229		
Miscellaneous commodities	29,022	1.6	1,977	26,602	337	106

[2] Less than one-tenth of 1 per cent.

Sales made by electrical wholesale merchants, by commodities.—Table 16 shows not only what types of commodities are handled by wholesale merchants (service wholesalers) in the electrical trade and how much of each commodity they sold during the year, but it gives this information separately for each of three classes of wholesale merchants. Furthermore, it indicates the *number* of

wholesalers in a given classification handling a certain commodity. Such information should prove valuable to manufacturers in the cultivation of their markets and in seeking wholesale outlets for their goods. To illustrate, only 34 of the 1,373 wholesale merchants handled copper ingots, bars, etc. The total sales of this commodity amounted to $3,393,000. Of the 34 wholesalers selling copper ingots, bars, etc., 27 handled a general line of electrical merchandise, 6 were in the electrical equipment business, and 1 in the electrical appliance business. Similarly, only $52,000 worth of sporting goods were sold during the year by electrical wholesalers. Only two such wholesalers handled this kind of merchandise, one being in the equipment business and the other in the appliance trade. These statistics show what the situation was in 1929. They also show how many wholesalers need to be cultivated for the sale of these products and in what classification they belong.

Only 37 of the 1,373 electrical wholesalers of the service type handled automotive equipment, parts, and accessories, selling $2,428,000 worth of such goods. Of the 37 firms handling automotive equipment, 13 were general line electrical wholesalers, 19 were in the electrical equipment business, and 5 specialized in appliances. It is important, however, to note that the 13 firms in the general electrical merchandise field sold about two and one-half times as much automotive equipment as did the 19 firms in the electrical equipment trade. In this manner the spotlight is thrown upon the exact number and types of organizations handling a given line of merchandise.

TABLE 16.—COMMODITY SALES OF WHOLESALE MERCHANTS ONLY—UNITED STATES: 1929

COMMODITY	TOTAL		KIND OF BUSINESS					
			Electrical merchandise (general line)		Electrical equipment and supplies		Electrical appliances	
	Number of establishments	Net sales	Number estimated	Net sales	Number estimated	Net sales	Number estimated	Net sales
Total	1,373	$486,427	626	$361,729	595	$95,108	152	$29,590
Automotive equipment, parts and accessories	37	2,428	13	1,567	19	665	5	196
Automobile accessories	16	503	5	351	8	147	3	5
Automotive equipment and supplies	19	1,112	10	928	6	160	3	24
Automotive parts	8	387	3	173	3	67	2	147
Tires and tubes	5	190	3	115	2	75		
Reported without breakdown	3	236			2	216	1	20
Brick, tile, and terra cotta	1	5			1	5		
Building metal work	2	120			2	120		
Cameras and photographic supplies	1	36			1	36		
Cement, lime, and plaster	2	9	1	5	1	4		
China, glassware, and crockery	4	48	1	3	2	42	1	3
Copper ingots, bars, etc	34	3,393	27	3,190	6	158	1	45
Electrical goods	1,327	418,347	626	311,408	553	86,952	148	19,988
Batteries, storage	199	11,971	120	7,996	70	3,588	9	387
Electric household appliances	551	35,051	420	23,676	39	757	92	10,618
Electric motors, generators, and control apparatus	490	41,363	343	30,074	140	10,628	7	661
Interior electric construction materials	779	152,262	496	110,750	274	40,574	9	938
All other electrical appliances and supplies	818	159,081	486	124,438	273	27,326	59	7,317
Reported without breakdown	104	18,619	66	14,474	35	4,079	3	67
Hardware	15	690	8	220	5	384	2	86
Tools and cutlery	2	26			1	1	1	25
Heavy hardware	3	30	1	25	2	5		
All other hardware, not listed elsewhere	8	503	4	64	2	378	2	61
Reported without breakdown	4	131	4	131				

TABLE 16.—COMMODITY SALES OF WHOLESALE MERCHANTS ONLY—UNITED STATES: 1929—Continued

COMMODITY	TOTAL		KIND OF BUSINESS					
			Electrical merchandise (general line)		Electrical equipment and supplies		Electrical appliances	
	Number of establishments	Net sales	Number estimated	Net sales	Number estimated	Net sales	Number estimated	Net sales
House furnishings	12	$146	2	$66	8	$29	2	$51
Iron and steel	31	1,435	21	704	10	731		
Scrap iron and steel	1	2			1	2		
Rough castings and forgings	1	5	1	5				
Structural iron and steel and reinforcing bars	1	5	1	5				
Iron and steel pipe and tubes	8	251	8	251				
Wire, wire rope, screening, and fencing	14	347	9	177	5	170		
All other rolled iron and steel	5	567	1	90	4	477		
Reported without breakdown	10	258	9	176	1	82		
Jewelry (clocks and watches)	3	55	1	3			2	52
Logs, poles, posts, hewn ties, pulpwood, and cordwood	12	267	6	89	6	178		
Machinery, equipment, and supplies (industrial)	29	2,220	8	219	21	2,001		
Machine tools (power-driven)	1	31			1	31		
Power plant machinery and equipment (except electrical machinery)	6	925	2	13	4	912		
Construction machinery	2	15	1	5	1	10		
Mining, quarrying, well digging, and pumping machinery not listed elsewhere	4	72	1	15	3	57		
Belting, hose, packing, and mechanical rubber goods	3	29	2	8	1	21		
Pipe fittings, valves, and specialties	10	276	6	107	4	169		
Rope, cordage, and twine	1	6	1	6				
Industrial machinery and equipment not listed elsewhere	18	866	3	65	15	801		
Paints, varnishes, and lacquers	1	781			1	781		
Petroleum and petroleum products	6	16			5	9	1	7
Planing mill products—woodwork	3	153	2	64	1	89		
Plumbing and heating equipment and supplies	13	249	5	136	3	40	5	74
Plumbing fixtures, equipment and supplies	5	51	2	6	1	25	2	21
Stoves, ranges, furnaces, heating apparatus, and parts	8	198	3	130	2	15	3	53
Radio sets, parts and accessories	379	48,064	330	40,220	19	1,368	30	6,476
Refrigerators, gas and electric	52	4,646	34	2,114			18	2,532
Secondhand merchandise	11	541	1	111	10	430		
Sporting goods, including arms and ammunition	2	52			1	48	1	4
Toys and games	2	36	1	11			1	25
Wood products not listed elsewhere	5	62	1	6	4	56		
Miscellaneous groups of commodities	38	2,626	18	1,593	17	982	3	51

Sales analysis—General summary.—In Table 17 is presented a bird's-eye view of the nature of sales in the wholesale electrical trade. It shows the number of establishments, the gross sales, returned goods and allowances, net sales, credit sales, sales made to industrial consumers, sales to home or ultimate consumers (at retail), and the sales of goods manufactured in the establishments covered in this report where the bulk of the business consisted of distribution rather than of manufacturing or production.

Statistics for each of the items discussed below are given in terms of totals as well as on the basis of those establishments which reported on the item under consideration. This does not mean, however, that those which did not report credit sales, for example, did not extend any credit. While such is probably the case with most establishments not reporting credit sales, it may be that some of

them merely had no information on the subject or failed to report accurately on the item and hence were not included in the number of establishments reporting credit sales.

TABLE 17.—ANALYSIS OF NET SALES—GENERAL SUMMARY—UNITED STATES: 1929

	Number or amount	Per cent of net sales
Number of establishments	2,845	
Gross sales	$1,870,617,033	101.2
Returns and allowances	$22,324,747	1.2
Net sales	$1,848,292,786	100.0
Credit sales	$1,516,122,275	82.0
Sales to industrial consumers	$1,067,066,439	57.7
Sales to home consumers	$11,752,060	0.6
Sales of goods of own manufacture	$5,262,632	0.3

Returned goods and allowances.—The gross sales of all electrical wholesale establishments, amounting to $1,870,617,033, consisted of $1,848,292,786 in net sales and $22,324,747 in returned goods and allowances. Thus, the returns and allowances constituted 1.2 per cent of all net sales. Numerous causes may have been responsible for these returns and allowances. Among the reasons most commonly given are: Defective merchandise, errors in filling orders, undesirable subsitutions made without the consent of the purchaser, delay in delivery, filling back orders too late, customers' errors in placing orders, overbuying on the part of customers, errors made by salesmen in recording the wants of their customers, etc. Whatever the causes, *the burden placed upon the distribution system as a result of returns and allowances is very substantial.*

Of the 692 wholesale electrical establishments handling a general line of electrical merchandise, only 382 reported returned goods and allowances. In the electrical equipment and supplies field only 532 of the 1,709 firms reported on this item, while but 160 of the 444 electric appliance concerns reported the amount of returns and allowances. (See Table 18.) The remaining establishments either had no returns and had made no allowances to customers during the year or had no information on the subject. In some cases the information was so obviously incorrect that it was not included in this particular analysis.

For the 382 establishments handling a general line of electrical merchandise reporting this item the returns and allowances were 3.8 per cent of their net sales. This percentage varied from 1.7 per cent for manufacturers' agents to 2.5 per cent for manufacturers' sales branches and 4.9 per cent for wholesale merchants, indicating that the problem of handling returns and allowances is much more serious in the case of service wholesalers and jobbers than it is for the other types of wholesale organizations. For the firms specializing in the handling of electrical equipment and supplies, the percentage of returns and allowances was somewhat smaller, being 3 per cent for all such establishments and varying from 2.9 per cent for manufacturers' sales branches to 3.2 per cent for manufacturers' agents and 3.6 per cent for wholesale merchants.

The problem of returned goods assumes greatest proportions in connection with wholesale establishments handling electrical household appliances exclusively. For the 160 such establishments reporting on this item the returns and allowances constituted 8.2 per cent of net sales. Even manufacturers' agents operating in this branch of the electrical trade had returns and allowances to the extent of 6.9 per cent of their net sales. This percentage was as high as 7.3 per cent for manufacturers' sales branches and 10.6 per cent for wholesale merchants. It follows, therefore, that any analysis that may lead toward a

reduction in the amount of returned goods in the electrical trade should result in substantial improvement in the wholesaling of these goods.

TABLE 18.—RETURNED GOODS AND ALLOWANCES, BY TYPE OF ESTABLISHMENT—UNITED STATES: 1929

TYPE OF ESTABLISHMENT	ALL ESTABLISHMENTS				ESTABLISHMENTS REPORTING RETURNS AND ALLOWANCES		
	Number	Net sales	Returns and allowances		Number	Net sales	Per cent of net sales
			Amount	Per cent of net sales			
1. ELECTRICAL MERCHANDISE (GENERAL LINE)							
Total	692	$528,702,332	$13,444,558	2.5	382	$354,051,609	3.8
Wholesale merchants	631	351,899,377	9,297,213	2.6	340	189,032,826	4.6
Manufacturers' sales branches	50	169,649,252	4,011,056	2.4	39	160,240,841	2.9
Manufacturers' agents	7	3,636,409	40,000	1.1	1	2,403,491	1.5
All other	4	3,517,294	96,289	2.7	2	2,074,451	4.7
2. ELECTRICAL EQUIPMENT AND SUPPLIES							
Total	1,709	1,123,082,861	5,320,346	0.5	532	177,675,321	3.0
Wholesale merchants	601	92,985,931	1,775,991	1.9	228	49,413,798	3.6
Manufacturers' sales branches	644	900,437,772	2,695,039	0.3	212	91,488,262	2.9
Manufacturers' agents	364	80,425,479	504,242	0.6	55	15,794,133	3.2
All other	100	49,833,679	353,474	0.7	37	20,933,128	1.7
3. ELECTRICAL APPLIANCES							
Total	444	195,907,503	3,550,843	1.8	160	43,533,351	8.2
Wholesale merchants	152	29,101,679	1,655,353	5.7	64	15,557,905	10.6
Manufacturers' sales branches	151	146,547,041	1,503,634	1.0	40	20,483,559	7.3
Manufacturers' agents	96	12,306,490	226,382	1.8	26	3,204,376	6.9
All other	45	7,952,374	165,474	2.1	30	4,227,511	3.9

Credit sales[10] **in the wholesale electrical trade.**—Table 19 shows that credit occupies an exceedingly important position in the wholesale distribution of electrical products. While only a little over 82 per cent of all the wholesale electrical trade was reported as conducted on a credit basis, the amount sold on credit at wholesale is much more substantial when the percentage is calculated on the basis of the net sales of those firms that reported credit sales. As indicated in a previous connection, it is possible that some establishments had no information on the amount sold on credit or merely failed to report the item, or reported such item inaccurately, and hence the figures were not included in the analysis, which shows credit sales as a percentage of net sales of establishments reporting such sales.

[10] By this term is meant all sales made on any other than a strictly cash basis. However, the question on the schedules relating to credit sales was apparently not always so interpreted with complete uniformity. Consequently, the data shown under this heading include only credit sales which were actually reported on the original schedules or which were subsequently adjusted wherever possible as a result of correspondence.

It is interesting to note that 628 of the 692 general line establishments reported credit sales and that fully 95.7 per cent of the sales of such firms were made on a credit basis. This percentage ranged from 93.7 per cent for wholesale merchants to 99.3 per cent of net sales for manufacturers' sales branches and 100 per cent for manufacturers' agents and other types of wholesale distributors. Among the establishments engaged in the electrical equipment and supply trade, 1,225 of the 1,709 reported credit sales to the extent of 97.5 per cent of their net sales. The percentage varied from 85.8 per cent for wholesale merchants handling electrical equipment and supplies to as high as 99.1 per cent for manufacturers sales branches. Similar high percentages of credit business were reported by establishments handling electrical appliances exclusively.

TABLE 19.—CREDIT SALES BY TYPE OF ESTABLISHMENT—UNITED STATES: 1929

TYPE OF ESTABLISHMENT	ALL ESTABLISHMENTS				ESTABLISHMENTS REPORTING CREDIT SALES		
	Number	Net sales	Credit sales		Number	Net sales	Per cent of net sales
			Amount	Per cent of net sales			
1. ELECTRICAL MERCHANDISE (GENERAL LINE)							
Total	692	$528,702,332	$466,230,286	88.2	628	$487,055,505	95.7
Wholesale merchants	631	351,899,377	293,317,381	83.4	577	312,994,023	93.7
Manufacturers' sales branches	50	169,649,252	168,240,956	99.2	46	169,389,533	99.3
Manufacturers' agents	7	3,636,409	3,229,106	88.8	3	3,229,106	100.0
All other	4	3,517,294	1,442,843	41.0	2	1,442,843	100.0
2. ELECTRICAL EQUIPMENT AND SUPPLIES							
Total	1,709	1,123,682,861	879,759,276	78.3	1,225	902,568,883	97.5
Wholesale merchants	601	92,985,931	61,364,934	66.0	501	71,559,611	85.8
Manufacturers' sales branches	644	900,437,772	751,052,993	84.2	431	758,032,528	99.1
Manufacturers' agents	364	80,425,479	55,096,155	68.5	245	59,854,040	92.1
All other	100	49,833,679	12,245,194	24.6	48	13,122,704	93.3
3. ELECTRICAL APPLIANCES							
Total	444	195,907,593	170,132,713	86.8	315	181,039,597	94.0
Wholesale merchants	152	29,101,679	18,714,579	64.3	100	22,745,800	82.3
Manufacturers' sales branches	151	146,547,041	137,498,475	93.8	130	144,021,267	95.5
Manufacturers' agents	96	12,306,499	9,001,587	73.5	64	9,045,494	99.5
All other	45	7,952,374	4,918,072	61.8	21	5,227,036	94.1

Sales to industrial consumers.—The popular conception of a wholesaler on the part of the layman is that of a merchant who sells to retailers for resale to home consumers. That this is far from a complete picture is revealed in Table 20. Fully 57.7 per cent of all sales made by electrical wholesale establishments of all types were to industrial consumers, such as electrical contractors, manufacturers, operators of mines and quarries, oil well concerns, railroads, public utilities, and to others who buy goods not for home consumption but for business use. This business did not enter the retail field at all and was not transacted through retail stores.

Of the 692 establishments handling a general line of electrical merchandise, 362 made sales to industrial consumers. The volume of such sales was 45.6 per cent of the net sales of all such establishments, but constituted 60.9 per cent of the sales of the establishments reporting on this item. None of the seven manufacturers' agents in this group reported sales of any goods to industrial consumers, while 42 of the 50 manufacturers' sales branches sold as high as 72.5 per cent of their goods to industrial consumers. Of the 631 wholesale merchants, 318 made such sales to the extent of 52 per cent of their total. In the electrical equipment and supplies group of wholesale organizations a much larger proportion was sold to industrial consumers with manufacturers' sales branches taking the lead to the extent of 89.2 per cent of the net sales of the 360 branches reporting on this item. Manufacturers' agents also sold largely to industrial consumers. The reverse situation may be observed in connection with the establishments specializing in electrical household appliances, as may naturally be expected. Only 68 of the 444 establishments in this field made sales to industrial consumers to the extent of 48.3 per cent of their net sales. Here, again, manufacturers' sales branches showed a high degree of specialization, not only in the number of items handled but in the type of customer cultivated.

TABLE 20.—SALES TO INDUSTRIAL CONSUMERS, BY TYPE OF ESTABLISHMENT—UNITED STATES: 1929

TYPE OF ESTABLISHMENT	ALL ESTABLISHMENTS				ESTABLISHMENTS REPORTING SALES TO INDIVIDUAL CONSUMERS		
	Number	Net sales	Industrial consumer sales		Number	Net sales	Per cent of net sales
			Amount	Per cent of net sales			
1. ELECTRICAL MERCHANDISE (GENERAL LINE)							
Total	692	$528,702,332	$241,238,660	45.6	362	$396,321,162	60.9
Wholesale merchants	631	351,890,377	118,858,605	33.8	318	228,490,678	52.0
Manufacturers' sales branches	50	169,649,252	120,180,349	70.8	42	165,630,778	72.6
Manufacturers' agents	7	3,636,409					
All other	4	3,517,294	2,199,706	62.5	2	2,199,706	100.0
2. ELECTRICAL EQUIPMENT AND SUPPLIES							
Total	1,709	1,123,682,861	783,475,774	69.7	716	895,646,876	87.5
Wholesale merchants	601	92,985,931	22,625,400	24.3	155	37,075,744	61.0
Manufacturers' sales branches	644	900,437,772	724,461,741	80.5	360	812,579,680	89.2
Manufacturers' agents	364	80,425,479	27,439,541	34.1	149	35,604,859	77.1
All other	100	49,833,679	8,949,092	18.3	52	10,386,593	86.2
3. ELECTRICAL APPLIANCES							
Total	444	195,907,593	42,352,005	21.6	68	87,627,421	48.3
Wholesale merchants	152	29,101,679	2,089,217	7.2	14	7,452,339	28.0
Manufacturers' sales branches	151	146,547,041	39,575,079	27.0	38	77,510,405	51.1
Manufacturers' agents	96	12,300,499	596,702	4.8	13	2,566,804	23.2
All other	45	7,952,374	91,007	1.1	3	97,873	93.0

Sales to home consumers.—It is true that wholesale establishments are not supposed to sell to consumers at retail. It is also true that retailers are not supposed to sell to other retailers at wholesale. These types of transactions take place nevertheless, and in some lines of trade they are given full sanction and are accepted as a part of normal business activity.

The amount sold to ultimate or home consumers at retail by wholesale electrical establishments was $11,752,060, or 0.6 per cent of total net sales.[11] This indicates that, generally speaking, very few electrical wholesalers engaged in semijobbing, although it is possible that a more substantial amount of semijobbing was done by concerns classified as retailers of electrical goods. Only 106 of the establishments handling a general line of electrical merchandise made any sales to home consumers at retail, and 105 of these were in the wholesale merchant classification. Such sales, however, constituted almost 11 per cent (10.9 per cent) of the total sales of the houses engaged in the practice of combining retailing with wholesaling. Strange to say, a larger number of establishments engaged in the electrical equipment and supply trade made sales to home consumers at retail. Wholesale merchants in this trade reporting on this item sold almost one-fourth of their goods (23.1 per cent) to consumers at retail. Even manufacturers' agents sold some goods to home consumers at retail. As may be expected, the largest percentage of sales to home consumers by wholesale organizations is to be found among establishments specializing in household electrical appliances, in which case 1.3 per cent of the total net sales of all establishments in that field was made on that basis. These sales were effected by 78 of the 444 establishments, and they constituted 8.7 per cent of the sales of those firms that engaged in the performance of the dual function.

TABLE 21.—SALES TO HOME CONSUMERS, BY TYPE OF ESTABLISHMENT—UNITED STATES: 1929

TYPE OF ESTABLISHMENT	ALL ESTABLISHMENTS				ESTABLISHMENTS REPORTING SALES TO HOME CONSUMERS		
	Number	Net sales	Sales to home consumers				
			Amount	Per cent of net sales	Number	Net sales	Per cent of net sales
1. ELECTRICAL MERCHANDISE (GENERAL LINE)							
Total	692	$528,702,332	$3,821,867	0.7	106	$34,863,101	10.9
Wholesale merchants	631	351,899,377	3,803,890	1.1	105	34,828,356	10.9
Manufacturers' sales branches	50	169,649,252					
Manufacturers' agents	7	3,636,409					
All other types	4	3,517,294	17,977	0.5	1	34,745	51.7
2. ELECTRICAL EQUIPMENT AND SUPPLIES							
Total	1,709	$1,123,682,861	$5,480,695	0.5	210	$33,509,117	16.3
Wholesale merchants	601	92,985,931	3,713,273	4.0	132	16,051,748	23.1
Manufacturers' sales branches	644	900,437,772	1,267,215	0.1	49	10,947,824	11.6
Manufacturers' agents	364	80,425,479	417,504	0.5	27	5,628,240	7.4
All other types	100	49,833,679	82,703	0.2	2	881,305	9.4
3. ELECTRICAL APPLIANCES							
Total	444	$195,907,593	$2,449,498	1.3	78	$28,057,684	8.7
Wholesale merchants	152	29,101,679	1,123,167	3.9	29	7,530,487	14.9
Manufacturers' sales branches	151	140,547,041	964,218	0.7	33	17,438,776	5.5
Manufacturers' agents	96	12,306,499	36,779	0.3	8	816,029	4.5
All other	45	7,952,374	325,334	4.1	8	2,272,392	14.3

[11] According to the Retail Census, household appliance stores and electrical shops (without radio) sold to other retailers (at wholesale) $5,795,187 worth of goods, or about one-half the amount which wholesalers sold to consumers at retail.

Sale of goods of own manufacture.—Relatively few manufacturing wholesalers may be found in the electrical trade. (See Table 22.) Only 62 of the 2,845 establishments engaged in the wholesale electrical trade did any manufacturing on their premises. The amount so produced had a selling value of but $5,262,632, or 0.3 per cent of total net sales. This percentage, however, was as high as 1.9 per cent of the net sales of those establishments that reported the sale of goods of own manufacture. Most of the manufacturing was done on the premises of wholesale merchants. Attention is called to the fact that *no wholesale merchant establishment has been included in this report which is primarily engaged in manufacturing, i. e., producing 50 per cent or more of its goods in the same location from which distribution is effected.*

TABLE 22.—SALES OF GOODS OF OWN MANUFACTURE, BY TYPE OF ESTABLISHMENT—UNITED STATES: 1929

TYPE OF ESTABLISHMENT	ALL ESTABLISHMENTS				ESTABLISHMENTS REPORTING SALES OF GOODS OF OWN MANUFACTURE		
	Number	Net sales	Sales of goods of own manufacture				
			Amount	Per cent of net sales	Number	Net sales	Per cent of net sales
1. ELECTRICAL MERCHANDISE (GENERAL LINE)							
Total	692	$528,702,332	$259,868	0.1	5	$2,352,240	11.05
Wholesale merchants	631	351,899,377	259,868	0.1	5	2,352,240	11.05
Manufacturers' sales branches	50	169,649,252					
Manufacturers' agents	7	3,636,409					
All other types	4	3,517,294					
2. ELECTRICAL EQUIPMENT AND SUPPLIES							
Total	1,709	$1,123,682,861	$4,806,961	0.4	53	$268,663,044	1.79
Wholesale merchants	601	92,985,931	1,475,500	1.6	24	4,904,374	30.09
Manufactures' sales branches	644	900,437,772	2,788,092	0.3	24	262,857,745	1.06
Manufactures' agents	364	80,425,479	21,257		2	149,787	14.10
All other types	100	49,833,679	522,112	1.0	3	751,738	60.45
3. ELECTRICAL APPLIANCES							
Total	444	$195,907,593	$195,803	0.1	4	$253,115	77.36
Wholesale merchants	152	29,101,679					
Manufacturers' sales branches	151	146,547,041	46,550		2	75,071	62.01
Manufacturers' agents	96	12,306,499					
All other types	45	7,952,374	149,253	1.8	2	178,044	83.83

OPERATING EXPENSES [12]

The nature of the statistics.—The total expense figures used by the wholesale division of the Census of Distribution comprise five elements:

1. Salaries and wages paid.
2. Expenses of salesmen paid.
3. Rent paid.
4. Interest paid.
5. All other expenses paid during the year.

The first group is further subdivided into salaries and wages of salesmen, of executives, and of all other employees. In securing information for each of the five items, the enumerators were instructed to get only the actual money outlays for the items included, hence rent was not supposed to be reported for owned premises, nor interest on owned capital. *The "all other expense" item does not include net profits nor cost of the merchandise sold.* Such items as taxes; insurance; administrative, office, and overhead expense; maintenance; delivery; stationery and supplies; light, heat, and power were supposed to be included. The following quotation from the printed instructions to the field force is of interest:

"A practical method of determining the amount of 'All other expenses' is to take the total operating expenses, which most firms have at hand, and deduct from this the sum of all expense items specifically provided for in the schedule—wages, salaries, commissions, bonuses; expenses of salesmen; rent; and interest. Sometimes it may be necessary to estimate the total operating expense by a building-up process and then deduct from it the sum of all items of expense listed separately in order to obtain all other expenses."

Considerable confidence may be placed in the figures for total expenses. The value of an adequate accounting system has been so impressed upon the wholesaler by trade associations, bureaus of business research, and income-tax requirements that the census field force faced a much better group for the gathering of wholesale trade statistics than was possible in many other fields. While it is true of course that uniform accounting systems are not generally used, there is little fundamental difference in bookkeeping practice with respect to the few items required by the census. Moreover, since the entire field has been covered, minor discrepancies tend to offset each other through the operation of the law of averages. In the case of total salaries and wages and in the case of salesmen's salaries and wages and expenses of salesmen it is felt that the figures are particularly satisfactory. Wholesalers watch these items much more closely as a general rule than do most merchants and constantly use the ratios of expenses to sales as checks upon the efficiency of their employees.

General summary of operating expenses.—Table 23 shows the cost of distributing electrical goods at wholesale as reported by the establishments included in this study. For all types of organizations combined the average cost was 9.6 per cent of net sales, the percentage varying from 6.7 per cent for manufacturers' sales branches to 8.5 per cent for manufacturers' agents, 10.8 per cent for "All other types" of wholesale establishments, and 17.2 per cent for wholesale merchants. These figures are not, however, very significant, inasmuch as great variations in operating expenses may be noted for wholesale electrical firms, depending upon whether they handle a general line of electrical merchandise, a general line of equipment, a general line of household appliances, or whether they

[12] In the figures on operating expenses are included only those items which are normally regarded as such by most business men. They do not include what may be termed "economic costs" or "expense commitments," such as depreciation, obsolescence, or interest on invested capital. The figures presented in this section, however, approximate the expenses actually incurred and are particularly useful for comparison purposes as between different lines of trade and different types of wholesale organizations, inasmuch as they have all been treated in the same manner.

specialize in either the equipment or appliance field. Such variations and differences are clearly shown in the tables that follow. (See Tables 24, 25, and 26.)

Wholesale merchants showed operating expenses considerably above those incurred by manufacturers' sales branches. The difference in favor of the latter may be partially explained by the fact that manufacturers' sales branches sold a larger proportion of their goods to industrial consumers (72.6 per cent of their net sales as compared with 30.3 per cent of the net sales of wholesale merchants) who usually buy in larger quantities than do retailers. Such sales are usually made in larger amounts, the credit risks are superior, and fewer selling services need to be rendered in making the sales, as compared with sales to retailers. In other words, much of the difference in operating expenses between these two types of organizations (wholesale merchants and manufacturers' sales branches) may be due to differences in the types of customers to which they cater, to differences in their respective size of operations, as well as to differences in the kind and variety of merchandise handled.

TABLE 23.—TOTAL OPERATING EXPENSES, BY TYPE OF ESTABLISHMENT, GENERAL SUMMARY—UNITED STATES: 1929

[Exclusive of "Economic costs"—see p. 49]

TYPE	NET SALES	TOTAL EXPENSES	
		Amount	Per cent of net sales
Total	$1,848,292,786	$177,409,578	9.6
Wholesale merchants	473,986,087	81,475,068	17.2
Manufacturers' sales branches	1,216,634,065	81,090,578	6.7
Manufacturers' agents	96,368,387	8,214,216	8.5
All other types	61,303,347	6,629,726	10.8

Analysis of operating expenses of wholesale merchants in the electrical trade.—In order to make the analysis of operating expenses meaningful, the discussion immediately following is confined to a homogeneous group comprising only wholesale merchants or service wholesalers engaged in the electrical trade. A similar analysis is presented separately for manufacturers' sales branches.

As shown in Table 23, the cost of doing business for all wholesale merchants in the electrical trade (not including the cost of goods sold or net profit) was 17.2 per cent of net sales. These costs varied, however, with the kind of electrical merchandise handled and the extent of specialization in such goods. (See Tables 24 and 25.) Thus, independent wholesale merchants handling a general line of electrical merchandise incurred operating expenses of 17.8 per cent of net sales, as against 13 per cent for nationally operated wholesalers.[13] Wholesale merchants handling a general line of equipment and supplies (but no appliances) had costs of 18.6 per cent, while the wholesale merchants that handled a limited line of equipment and supplies (but no appliances) reported operating expenses as high as 24.4 per cent of net sales. A somewhat similar situation may be observed in connection with wholesale merchants operating in the household appliance field,

[13] As shown in Table 24, 158 of the 631 wholesale merchant establishments handling a general line of electrical merchandise are designated as "nationally operated wholesalers" and consist of houses belonging to three larger companies and operated on a national basis. Inasmuch as the establishments belonging to these three companies generally operated on a larger scale and on a chain basis, and incurred operating expenses widely different from those of so-called "independent" wholesale merchants handling a general line of electrical goods, statistics on operating expenses are shown separately for the two groups wherever possible.

exclusively; those handling a general line of appliances incurred expenses to the expenses to the extent of 21.8 per cent of net sales, while those that handled a limited variety of appliances showed operating costs of 25.9 per cent of net sales.

From the foregoing it appears that the *costs of wholesaling electrical goods are lowest for wholesalers carrying a general line of such merchandise and are highest for wholesalers specializing in the handling of a very limited line of electrical merchandise.* Furthermore, the costs seem to increase with the degree of specialization, the most highly specialized concerns showing the highest costs. It also appears that *it costs more to distribute domestic appliances at wholesale than to distribute equipment and supplies,* probably because of the larger amount of advertising and cooperation with retailers required by the former type of merchandise, as well as on account of the larger proportion of sales made by wholesale merchants in the appliance business to consumers at retail. (See Table 21.)

Attention is called to the fact that the operating expense figures used in this report are for the year 1929. Two sets of factors have been at work during the depression years immediately following seriously affecting operating expenses of wholesale organizations. Many such organizations have attempted to pare expenses to an absolute minimum with a considerable degree of success. The effect of this effort has been to reduce the costs of doing business. However, the reduced costs resulting from the adoption of more economical methods of management has been more than offset by falling prices. As a result of lower prices, more effort must be expended to do $1,000,000 worth of business than under conditions of prevailing high prices. More merchandise must be handled, the number of transactions is greater, and all overhead expenses are correspondingly increased. Moreover, the decline in prices has also been accompanied by lower sales volume, not only in dollars and cents but in actual physical volume, which means that many wholesalers in the electrical trade, as in other trades, were forced to operate on a smaller scale, thereby tending to increase the costs of doing business. It is probable that the net result of these forces has been to increase operating expenses of electrical wholesalers during the depression period.

TABLE 24.—OPERATING EXPENSE ANALYSIS OF WHOLESALE MERCHANTS HANDLING A GENERAL LINE OF ELECTRICAL MERCHANDISE—UNITED STATES: 1929

[Exclusive of "Economic costs"—see p. 49]

ITEM	TOTAL			"INDEPENDENT"			NATIONALLY OPERATED WHOLESALERS		
	Number	Amount	Per cent of net sales	Number	Amount	Per cent of net sales	Number	Amount	Per cent of net sales
Number of establishments	631			473			158		
Net sales		$351,890,377	100.0		$182,029,096	100.0		$169,870,281	100.0
Total expenses		54,522,745	15.5		32,385,560	17.8		22,137,185	13.0
Salaries and wages	13,646	28,531,127	8.1	8,705	18,245,252	10.0	4,941	10,285,875	6.1
Executives	826	4,859,895	1.4	582	3,405,504	1.9	244	1,454,391	0.9
Salesmen	2,969	8,247,264	2.3	1,974	5,307,479	2.9	995	2,939,785	1.7
All other employees	9,851	15,423,968	4.4	6,149	9,501,319	5.2	3,702	5,922,649	3.5
Expenses of salesmen		3,372,042	1.0		1,786,942	1.0		1,585,100	0.9
Rent		3,083,284	[1] 1.0		1,715,402	0.9		1,367,882	0.8
All other expenses		19,536,292	5.6		10,536,786	5.8		8,999,506	5.3

[1] Based upon net sales of 563 establishments reporting rent.

As shown in Table 24, in the case of "independent" wholesale merchants handling a general line of electrical merchandise (of both equipment and supplies and of domestic appliances), the largest single item of expense consisted of salaries and wages. The 473 establishments in this group employed 8,705 people for whose services they paid 10 cents out of every dollar of net sales. These employees were divided into 582 executives who received 1.9 per cent of net sales as compensation for their services, averaging $5,851 per executive; 1,974 sales who were paid 2.9 per cent of net sales or an average of $2,689 per salesman; and 6,149 warehouse, delivery and office employees whose salaries and wages absorbed 5.2 per cent of net sales, averaging $1,545 per employee per annum. Selling expenses proper constituted 3.9 per cent of net sales, of which 2.9 per cent was for salesmen's salaries and 1 per cent covered the traveling and other expenses of salesmen.

The three so-called "nationally-operated wholesalers" handling a general line of electrical merchandise operated 158 establishments, with operating expenses of 13 per cent of sales. The salaries and wages paid by these establishments were 6.1 per cent of net sales, as compared with 10 per cent for the "independent" wholesale merchants handling a similar line of merchandise. This item of expense accounts largely for the difference in operating expenses as between the two types of general wholesale merchants.

Very few of the general line electrical wholesalers owned the premises from which their business was conducted. Of the 631 establishments in this group, 563 paid rent for the premises which they occupied, while only 68 presumably owned their places of business. The amount paid in the form of rent, *based on the net sales of those reported as having paid rent to outsiders during the year*, was 1 per cent of net sales. All other expenses not analyzed in detail amounted to 5.6 per cent of net sales. Data similar to those just outlined are shown separately in Table 25 also for wholesale merchants carrying a general line of equipment, for specialty equipment wholesalers, for wholesale merchants carrying a general line of domestic appliances, and for specialty appliance wholesalers.

Except for the wholesale merchants in the general appliance group, salaries and wages constituted over 50 per cent of all operating expenses, ranging from 52.3 per cent for general line wholesalers to 56.7 per cent for general line equipment concerns. The average salaries and wages paid per annum in the various groups are shown below:

	Executives	Salesmen	All other employees
General line electrical wholesalers	$5,883	$2,778	$1,568
General line equipment wholesalers	5,984	2,660	1,667
Specialty equipment wholesalers	3,587	2,567	1,759
General line appliance wholesalers	2,549	2,209	1,288
Specialty appliance wholesalers	3,993	953	1,589

Despite the lower salaries per salesman paid by appliance concerns, as indicated in the above tabular arrangement, the direct selling costs of such establishments were the highest—4.9 per cent and 8.3 per cent for general line appliance and specialty appliance wholesalers, respectively, as compared with direct selling costs of 3.3 per cent for general line electrical merchandise wholesalers, 3.4 per cent for general line equipment wholesalers, and 4 per cent for specialty equipment houses.

With the exception of equipment wholesalers, rent paid hovered around the 1 per cent of net sales figure. For specialty equipment houses it was as high as 1.8 per cent. It is notable that very few wholesalers in any one group owned

their premises, and only 153 of the 1,384 wholesale merchants in the entire electrical trade apparently owned their places of business.

TABLE 25.—OPERATING EXPENSE ANALYSIS OF WHOLESALE MERCHANTS, HANDLING ELECTRICAL EQUIPMENT OR APPLIANCES, UNITED STATES: 1929

ITEM	Number	Amount	Per cent of net sales
1. ELECTRICAL EQUIPMENT AND SUPPLIES (GENERAL LINE)			
Number of establishments	211		
Net sales		$43,565,785	100.0
Total expenses		8,096,439	18.6
Salaries and wages	2,069	4,587,070	10.5
Executives	157	939,494	2.2
Salesmen	464	1,234,431	2.8
All other employees	1,448	2,413,145	5.5
Expenses of salesmen		247,019	0.6
Rent		563,766	[1] 1.6
All other expenses		2,698,584	6.2
2. ELECTRICAL EQUIPMENT AND SUPPLIES (SPECIALTY)			
Number of establishments	390		
Net sales		$49,420,146	100.0
Total expenses		12,065,997	24.4
Salaries and wages	3,348	6,807,737	13.8
Executives	236	846,486	1.7
Salesmen	603	1,548,153	3.1
All other employees	2,509	4,413,098	9.0
Expenses of salesmen		432,918	0.9
Rent		800,761	[2] 1.8
All other expenses		4,024,581	8.1
3. ELECTRICAL APPLIANCES (GENERAL LINE)			
Number of establishments	69		
Net sales		$18,471,207	100.0
Total expenses		4,033,967	21.8
Salaries and wages	1,140	1,967,457	10.7
Executives	108	275,300	1.5
Salesmen	304	870,534	4.7
All other employees	638	821,623	4.5
Expenses of salesmen		55,435	0.2
Rent		188,367	[3] 1.1
All other expenses		1,822,708	9.9
4. ELECTRICAL APPLIANCES (SPECIALTY)			
Number of establishments	83		
Net sales		$10,630,472	100.0
Total expenses		2,755,910	25.9
Salaries and wages	1,253	1,539,864	14.5
Executives	37	147,733	1.4
Salesmen	850	810,541	7.6
All other employees	366	581,590	5.5
Expenses of salesmen		73,723	0.7
Rent		116,877	[4] 1.1
All other expenses		1,025,446	9.6

[1] Based upon net sales of 181 establishments reporting rent.
[2] Based upon net sales of 348 establishments reporting rent.
[3] Based upon net sales of 63 establishments reporting rent.
[4] Based upon net sales of 76 establishments reporting rent.

Analysis of operating expenses of manufacturers' sales branches in the electrical trade.—Table 26 shows the same kind of information concerning the manufacturers' sales branches as is shown in Tables 24 and 25 for wholesale merchants. While the operating expenses for all manufacturers' sales branches in the electrical trade were 6.7 per cent of net sales, they varied from 4.6 per cent for those handling a general line of electrical merchandise to 4.5 per cent for general line equipment branches, 6.1 per cent for specialty equipment branches, 14.1 per cent for those handling a general line of domestic appliances, and 12.5 per cent for the branches handling but one or a limited variety of domestic appliances.

Here, too, salaries and wages constituted over 50 per cent of all operating expenses. In the case of branches handling a general line of appliances salaries and wages absorbed practically 76 per cent of all expenses. The average salaries and wages paid per annum in the various groups by manufacturers' sales branches are shown below:

	Executives	Salesmen	All other employees
Electrical merchandise (general line)	$5,389	$3,456	$1,523
Electrical equipment (general line)	4,800	3,385	1,965
Electrical equipment (specialty)	6,361	3,688	1,574
Electrical appliances (general line)	5,061	2,860	2,305
Electrical appliances (specialty)	5,710	1,529	1,516

On the whole, manufacturers' sales branches seem to have paid higher salaries to their salesmen than did wholesale merchants, and with two important exceptions they also paid higher salaries to their executives. Nevertheless, their costs of doing business were relatively low. It is probable, of course, that the higher paid salesmen and executives were relatively more productive.

Of the 845 manufacturers' sales branches in the electrical trade, 773 paid rent to outsiders, while 72 presumably owned the premises which they occupied. Based on the net sales of the branches which paid rent, the rent figure constituted 0.6 per cent of net sales for general line establishments, as compared with 1 per cent for similar establishments in the wholesale merchant class; 0.2 per cent for branches carrying a general line of equipment as compared with 1.6 per cent for similar firms in the wholesale merchant group; 0.5 per cent for specialty equipment branches (as compared with 1.8 per cent for wholesale merchants); 0.6 per cent for general line appliance branches (as compared with 1.1 per cent for wholesale merchants); and 0.5 per cent for specialty appliance branches (as compared with 1.1 per cent for wholesale merchants). This difference in outlays for rent is explained by the fact (as shown in Table 8) that manufacturers' sales branches in all cases carried smaller stocks than did wholesale merchants, and hence required less space to transact a given volume of business. In a number of cases manufacturers' sales branches operate purely as sales offices and carry no stocks save for a small line of samples or a few items for emergency shipment. In such cases orders secured by the branches are forwarded to the factory whence shipment is made direct to the customers.

TABLE 26.—OPERATING EXPENSE ANALYSIS OF MANUFACTURERS' SALES BRANCHES IN THE ELECTRICAL TRADE—UNITED STATES: 1929

ITEM	Number	Amount	Per cent of net sales
1. ELECTRICAL MERCHANDISE (GENERAL LINE)			
Number of establishments	50		
Net sales		$169,649,252	100.0
Total expenses		7,864,730	4.6
Salaries and wages	1,993	4,910,487	2.9
Executives	11	59,282	
Salesmen	948	3,276,516	1.9
All other employees	1,034	1,574,689	0.9
Expenses of salesmen		1,697,178	1.0
Rent		868,987	[1] 0.6
All other expenses		388,078	0.2
2. ELECTRICAL EQUIPMENT AND SUPPLIES (GENERAL LINE)			
Number of establishments	4		
Net sales		$5,967,579	100.0
Total expenses		266,197	4.5
Salaries and wages	57	164,553	2.8
Executives	1	4,800	0.1
Salesmen	35	118,484	2.0
All other employees	21	41,269	0.7
Expenses of salesmen		65,858	1.1
Rent		11,493	[2] 0.2
All other expenses		24,293	0.4
3. ELECTRICAL EQUIPMENT AND SUPPLIES (SPECIALTY)			
Number of establishments	640		
Net sales		$894,470,193	100.0
Total expenses		54,188,823	6.1
Salaries and wages	15,848	33,196,170	3.7
Executives	202	1,666,708	0.2
Salesmen	3,306	12,194,702	1.4
All other employees	12,280	19,334,760	2.1
Expenses of salesmen		5,078,763	0.6
Rent		3,393,165	[3] 0.5
All other expenses		12,520,725	1.4
4. ELECTRICAL APPLIANCES (GENERAL LINE)			
Number of establishments	54		
Net sales		$23,257,250	100.0
Total expenses		3,276,585	14.1
Salaries and wages	918	2,477,555	10.7
Executives	38	192,337	0.8
Salesmen	463	1,324,207	5.7
All other employees	417	961,011	4.2
Expenses of salesmen		574,131	2.5
Rent		118,950	[4] 0.6
All other expenses		105,949	0.5
5. ELECTRICAL APPLIANCES (SPECIALTY)			
Number of establishments	97		
Net sales		$123,289,791	100.0
Total expenses		15,394,243	12.5
Salaries and wages	4,913	7,628,349	6.2
Executives	31	177,013	0.1
Salesmen	3,852	5,889,758	4.8
All other employees	1,030	1,561,578	1.3
Expenses of salesmen		707,302	0.6
Rent		583,965	[5] 0.5
All other expenses		6,414,627	5.2

[1] Based upon net sales of 47 establishments reporting rent paid.
[2] Based upon net sales of 3 establishments reporting rent paid.
[3] Based upon net sales of 583 establishments reporting rent paid.
[4] Based upon net sales of 49 establishments reporting rent paid.
[5] Based upon net sales of 91 establishments reporting rent paid.

Frequency distribution of operating expense percentages.—To throw further light on operating costs in electrical wholesaling and to discover the range of such expenses, a distribution of expense ratios was prepared so that the modal average costs or the most frequent cost ratios for each of the groups shown in Table 27 may be compared with the arithmetic averages used in all other places in this report.[14]

At first glance such a wide range of expense ratios as appear in Table 27 seem absurd, if not impossible. A careful examination of the schedules themselves from which these data were compiled leaves no doubt as to the correctness of the situation as depicted. The figures do represent actual conditions, but certain qualifications and comments must be made with regard to the expense percentages at both extremes.

TABLE 27.—FREQUENCY DISTRIBUTION OF OPERATING EXPENSE PERCENTAGES, BY TYPE OF DISTRIBUTION—UNITED STATES: 1929

OPERATING EXPENSE PERCENTAGES	NUMBER OF ESTABLISHMENTS						
	Electrical merchandise (general line)	Wholesale merchants				Manufacturers' sales branches	
		Electrical equipment		Electrical appliances			
		General	Specialty	General	Specialty	General	Specialty
Under 4	1	1	6	1	--------	22	91
4 to 7.99	19	11	11	4	3	25	148
8 to 11.99	116	38	33	18	2	18	120
12 to 15.99	204	48	39	8	7	13	81
16 to 19.99	130	38	39	5	12	4	62
20 to 23.99	76	24	35	8	9	4	40
24 to 27.99	39	16	45	4	4	1	30
28 to 31.99	15	11	33	5	4	5	30
32 to 35.99	13	5	31	3	3	3	22
36 to 39.99	4	5	28	2	4	3	19
40 and over	14	14	84	11	35	10	94
Total	[1] 631	[2] 211	[3] 384	[4] 69	[5] 83	[6] 108	[7] 737

[1] Includes 24 establishments which started business in 1929.
[2] Includes 9 establishments which started business in 1929.
[3] Includes 42 establishments which started business in 1929.
[4] Includes 1 establishment which started business in 1929.
[5] Includes 14 establishments which started business in 1929.
[6] Includes 2 establishments which started business in 1929.
[7] Includes 31 establishments which started business in 1929.

The high expense ratios need little explanation. It is a well-known fact that not all engaged in business make profits. On the contrary, many business firms show losses, even in prosperous times. Furthermore, some of the establishments

[14] To arrive at the modal average cost for a given type of wholesale organization, the following formula is suggested:

$$M=1(_{c.}\ _{i.})+\frac{f_a}{f_a+f_b}\ C.\ I.$$

Wherein M is the modal average—

$1(_{c.}\ _{i.})$ is the lower per cent in the class interval of the largest frequency.
f_a is the frequency above or the next higher than the largest frequency.
f_b is the frequency below or the next lower than the largest frequency.
$C.\ I.$ is the class interval which in this table is 4.

For wholesale merchants handling a general line of electrical merchandise (including the 3 so-called "nationally operated" units) the formula works as follows:

$$M=12+\frac{130}{130+116}\ 4 \text{ or } 14.13$$

with high costs operated on a very small scale, while a number of them were just getting started in business, hence the initial expenses were responsible for the high costs. Thus, the 24 establishments among the wholesale merchants handling a general line of electrical merchandise that were established in 1929 were largely among those that showed high costs of doing business for that year. On the other extreme, a few establishments in each of the groups shown in Table 27 showed operating expenses to be very low. Such establishments also operated, for the most part, on a very small scale and did a large proportion of their business on a drop-shipment basis which reduced warehousing and handling costs.

Operating expenses in relation to the location of the establishments.—The statistics shown in Table 28 have been compiled for the purpose of discovering differences, if any, in operating expenses caused primarily by differences in the geographic location of the electrical establishments. For the purpose of this analysis only wholesale merchants are included that carried a general line of electrical merchandise or those who handled a general line of equipment or appliances.

Operating expenses ranged from a low of 14.4 per cent for the West South Central division (as compared with an average for the United States of 16.1 per cent) to a high of 17.2 per cent for the South Atlantic division—a difference only of 2.8 points. The variation in stocks carried, with the single exception of the Mountain division, was also 2.8 points, but the variation in salaries and wages was 3.1 points. Many of these relatively small differences may be explained by differences in the respective sizes of the business establishments or by differences in the types of merchandise handled.

TABLE 28.—OPERATING EXPENSES OF GENERAL LINE WHOLESALE MERCHANTS, BY GEOGRAPHIC DIVISION: 1929

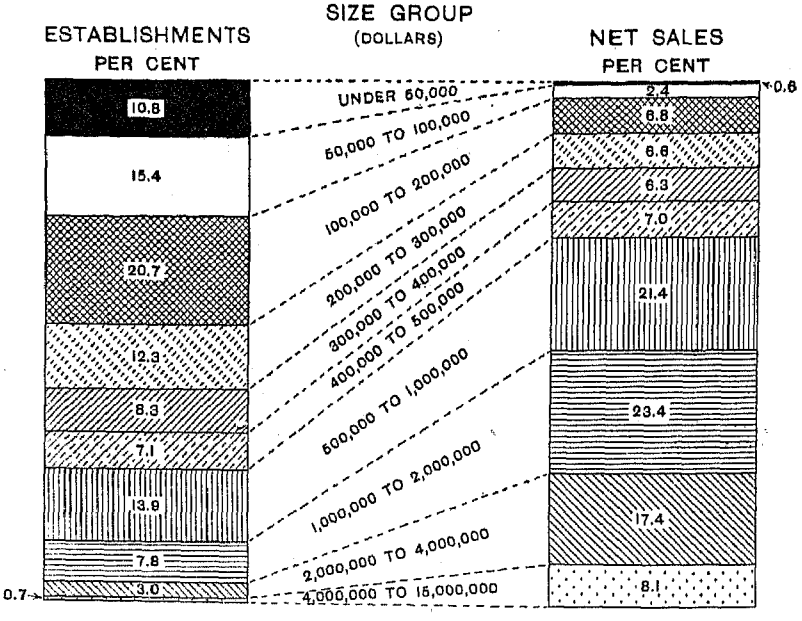
GEOGRAPHIC DIVISION	Number of establishments	Net sales—per cent of total	Total expenses—per cent of net sales	Salaries and wages—per cent of net sales	Stocks on hand—per cent of net sales
United States, total	911	[1] 100.0	16.1	8.5	10.5
New England	88	9.1	16.2	8.2	11.2
Middle Atlantic	313	30.3	16.9	9.5	10.5
East North Central	171	22.3	14.5	7.7	9.0
West North Central	83	9.2	16.2	8.0	9.9
South Atlantic	78	7.7	17.2	9.1	11.8
East South Central	15	1.9	14.5	6.4	10.0
West South Central	38	5.0	14.4	6.5	11.2
Mountain	30	2.3	16.7	7.9	15.5
Pacific	95	12.2	16.7	8.6	11.6

[1] Total net sales, $413,936,369.

The figures below show how operating expenses varied in 1929 by geographic divisions, separately for general line "independent" wholesale merchants and for the three nationally operated wholesale distributing groups.

GEOGRAPHIC DIVISION	GENERAL LINE (INDEPENDENT) WHOLESALE MERCHANTS			(NATIONALLY OPERATED) WHOLESALE MERCHANTS		
	Number of establishments	Net sales	Total expenses—per cent of net sales	Number of establishments	Net sales	Total expenses—per cent of net sales
United States, total	753	$244,066,088	18.2	158	$169,870,281	13.00
New England	76	21,892,084	17.5	12	15,593,908	14.33
Middle Atlantic	289	84,431,005	19.0	24	43,651,700	12.48
East North Central	145	56,898,091	15.8	26	36,652,777	12.52
West North Central	63	24,626,898	17.9	20	14,106,059	14.46
South Atlantic	54	17,932,350	19.3	24	13,579,318	12.91
East South Central	6	3,527,393	14.6	9	4,472,315	14.60
West South Central	21	6,830,208	19.4	17	13,670,252	11.99
Mountain	22	3,588,001	21.0	8	5,365,324	15.41
Pacific	77	24,331,058	20.6	18	22,778,628	12.90

CHART I.—NUMBER OF ESTABLISHMENTS AND NET SALES BY SIZE OF BUSINESS—WHOLESALE MERCHANTS IN THE ELECTRICAL TRADE (GENERAL LINE)—UNITED STATES: 1929

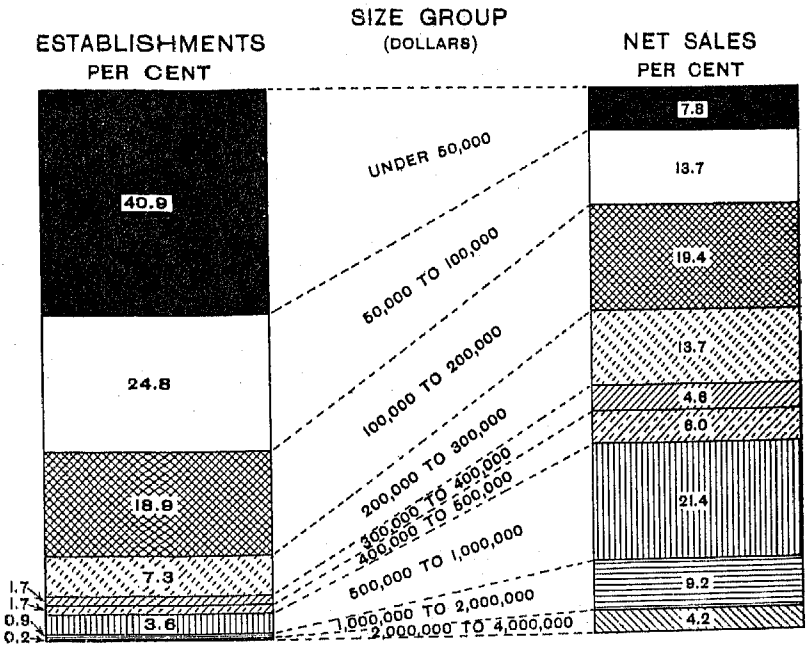


SIZE OF ESTABLISHMENT

Distribution of net sales by size of establishment.—Table 29 and Charts I and II show what size of establishments predominated in the wholesale merchant group and how the business was distributed by size of the enterprise. Of the 911 wholesale merchant establishments handling a general line of electrical merchandise or a general line of equipment or appliances, 98 had less than $50,000 annual business each and accounted for but 0.6 per cent of the total for the group, although these establishments made up 10.8 per cent of all 911 establishments. Another 140 firms with annual business each of $50,000 to $100,000 added 2.4

per cent of the business. Thus, 26.2 per cent of all general line wholesale merchants accounted for but 3 per cent of the business reported by the entire group, which indicates that wholesale trade is not necessarily conducted on a large scale. At the other extreme we find almost half of the business (48.9 per cent) reported for the entire group in the hands of 104 wholesale establishments, or 11.5 per cent of the establishments, with a million dollars and over per annum. This unmistakably shows that while many establishments in the general line electrical trade operate on a small scale, the bulk of the business is concentrated in the hands of a few firms.

CHART II.—NUMBER OF ESTABLISHMENTS AND NET SALES BY SIZE OF BUSINESS—WHOLESALE MERCHANTS IN THE ELECTRICAL TRADE (SPECIALTY)—UNITED STATES: 1929



Among the specialty wholesalers only five had an annual volume of a million dollars a year and over, while almost two-thirds (65.7 per cent) of the specialty concerns had annual sales under $100,000 each. About one-half (50.6 per cent) of all the business transacted by specialty wholesale merchants was in the hands of establishments with annual business each under $300,000. This tends to show that *specialty wholesaling in the electrical trade is carried on on a small scale as far as wholesale merchants are concerned.*

The great bulk of the business transacted by manufacturers' sales branches in the electrical trade is concentrated in the hands of establishments doing an annual business each of a million dollars or more. (See Table 30.) Almost 90 per cent (89.8 per cent) of the business reported for all of the 108 general line branches was accounted for by 41 establishments doing not less than a million dollars worth of business a year each. The same situation obtained in the case of the specialty sales branches. Fully 87.5 per cent of the business reported for the 737 specialty manufacturers' sales branches was in the hands of 148 such branches with annual business each of a million dollars a year and over. While manufacturers' sales

branches show a much higher concentration in business than is true of wholesale merchants, it is notable that here, too, the number of branches operating on a small scale is very large.

Operating expenses of wholesale electrical merchants in relation to size of the business.—*Table 29 shows a decided tendency for operating expenses to decrease as the size of the business increases.*—Particularly is this true of general line wholesale merchants. The lowest costs of doing business are shown for the six establishments with annual sales over $4,000,000. Their costs were 12.5 per cent of net sales as compared with average costs for all general line wholesale merchants of 16.1 per cent and 21.6 per cent for the establishments with sales under $50,000 annually. As the size of the business increases, operating expenses seem to decline rapidly at the rate of 1 per cent or more for each succeeding size group until the size group of $200,000 to $300,000 is reached. Here we find that wholesalers can operate almost as economically with an annual business of $300,000 as with an annual business of $500,000 and to a million dollars. For concerns in the size groups of $1,000,000 and over operating costs again decrease sharply as compared with the establishments in each of the preceding size groups.[15]

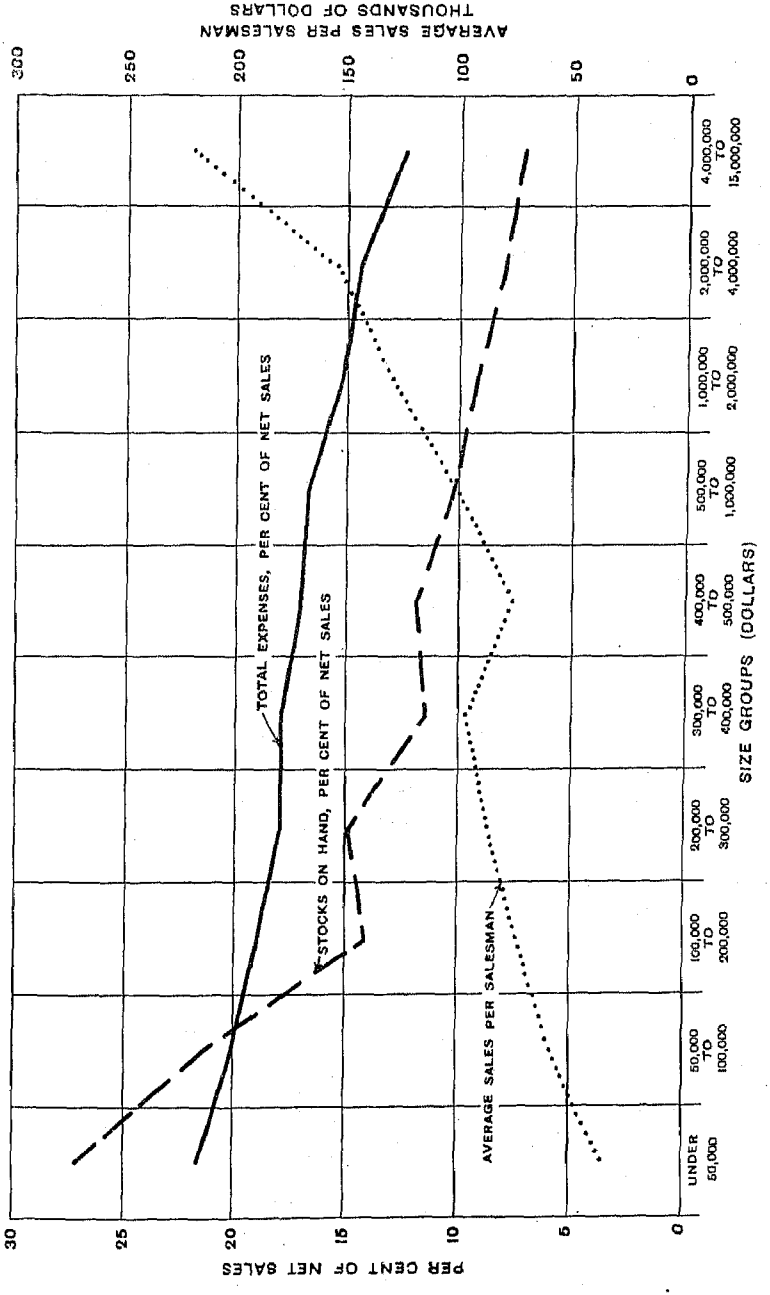
Some light is thrown on the variations in operating expenses with the size of the business through an examination of the data presented in Table 29 and portrayed graphically on Chart III. A distinct correlation is discernible between sales per salesman and operating expenses and between stocks on hand and operating expenses. With but one exception, *sales per salesman rise with each successive size group, and are highest for the firms with the lowest costs and are lowest for the establishments with the highest costs. In the case of stocks on hand there is a general decline in stocks as a per cent of net sales from 27.2 per cent for the smallest establishments with the highest costs (as compared with an average of stocks on hand amounting to 10.5 per cent of net sales) to a low as 7.3 per cent for the firms in the largest size group with the lowest costs of doing business.* Thus, savings in rent and other expenses arising from the maintenance of stocks, coupled with the effective utilization of the sales force may furnish a key to the solution of the problem incident to high costs of operation.

It would be erroneous to assume that the larger stocks normally carried by the smaller concerns are necessarily due to inefficient management and to lack of stock control. If stocks are carried at all, it is obvious that certain minima *must be maintained at all times* if the trade is to be served properly and adequate displays are provided. It may also be necessary to buy in certain minimum quantities which are out of proportion to the sales accomplishments of the small enterprises. For these reasons a wholesale merchant with annual sales of $50,000, for example, will have a high percentage of net sales in stocks on hand, but the total investment in stocks when measured in dollars and cents may be rather small and at an absolute minimum.

---

[15] A somewhat different picture is seen when the so-called nationally operated wholesale merchants are taken out of the 911 establishments. Following are the data only for the 752 "independent" general line wholesale merchants.

CHART III.—EXPENSES, AVERAGE SALES PER SALESMAN, AND STOCKS ON HAND, BY SIZE OF BUSINESS—WHOLESALE MERCHANTS IN THE ELECTRICAL TRADE (GENERAL LINE)—UNITED STATES: 1929



SIZE GROUP	Number of establishments	Net sales	Total expenses, per cent of net sales
Total	752	$244,066,088	18.2
Under $50,000	96	2,032,031	21.6
$50,000 to $100,000	135	9,697,680	20.3
$100,000 to $200,000	182	27,018,085	19.1
$200,000 to $300,000	101	24,378,313	18.5
$300,000 to $400,000	51	17,804,507	19.7
$400,000 to $500,000	49	21,589,861	18.4
$500,000 to $1,000,000	85	58,149,209	18.8
$1,000,000 to $2,000,000	43	56,405,090	15.9
$2,000,000 to $4,000,000	9	26,330,712	17.8
$4,000,000 to $15,000,000	1		

Here we find the costs to be increasing for establishments doing more than $2,000,000 of business annually over the costs of those doing between one and two millions a year. The figures also show but slight decreases in costs as a general trend from those operating on a small scale up to a million dollars a year.

TABLE 29.—OPERATING EXPENSES OF WHOLESALE MERCHANTS, BY SIZE OF ESTABLISHMENT—UNITED STATES: 1929

SIZE GROUP	Number of establishments	Net sales—per cent of total	Total expenses—per cent of net sales	Number of salesmen	Average sales per salesman	Salesmen's salaries—per cent of net sales	Stocks on hand—per cent of net sales
1. GENERAL LINE							
Total	911	[1] 100.0	16.1	3,827	$108,162	2.5	10.5
Under $50,000	98	0.6	21.6	74	36,080	3.8	27.2
$50,000 to $100,000	140	2.4	20.1	171	58,855	2.8	21.4
$100,000 to $200,000	189	6.8	18.9	381	73,771	2.8	14.1
$200,000 to $300,000	112	6.6	17.9	312	87,316	2.9	14.9
$300,000 to $400,000	76	6.3	17.9	271	96,530	2.6	11.5
$400,000 to $500,000	65	7.0	17.0	379	75,838	3.2	11.9
$500,000 to $1,000,000	127	21.4	16.7	878	100,947	2.8	10.2
$1,000,000 to $2,000,000	71	23.4	15.2	742	130,302	2.3	9.3
$2,000,000 to $4,000,000	27	17.4	14.5	466	154,464	2.3	8.1
$4,000,000 to $15,000,000	6	8.1	12.5	153	219,951	1.3	7.3
2. SPECIALTY							
Total	467	[2] 100.0	25.0	1,450	41,414	3.9	14.9
Under $50,000	191	7.8	34.3	202	23,053	4.0	22.0
$50,000 to $100,000	116	13.7	26.3	181	45,491	3.7	14.9
$100,000 to $200,000	88	19.4	33.0	387	30,135	5.2	15.3
$200,000 to $300,000	34	13.7	30.5	99	83,376	3.5	13.7
$300,000 to $400,000	8	4.6	17.4	60	46,313	3.8	9.5
$400,000 to $500,000	8	6.0	20.9	18	200,152	2.3	16.0
$500,000 to $1,000,000	17	21.4	20.9	451	28,387	4.6	9.8
$1,000,000 to $2,000,000	4	9.2	15.7	44	125,492	3.0	27.2
$2,000,000 to $4,000,000	1	4.2	3.5	8	317,131	1.1	6.3

[1] Total net sales amounted to $413,936,369.
[2] Total net sales amounted to $60,050,618.

The same observations that have been made in connection with the general line wholesale merchants hold good as far as specialty wholesale merchants are concerned, although in the latter instance the trend for operating expenses to decrease

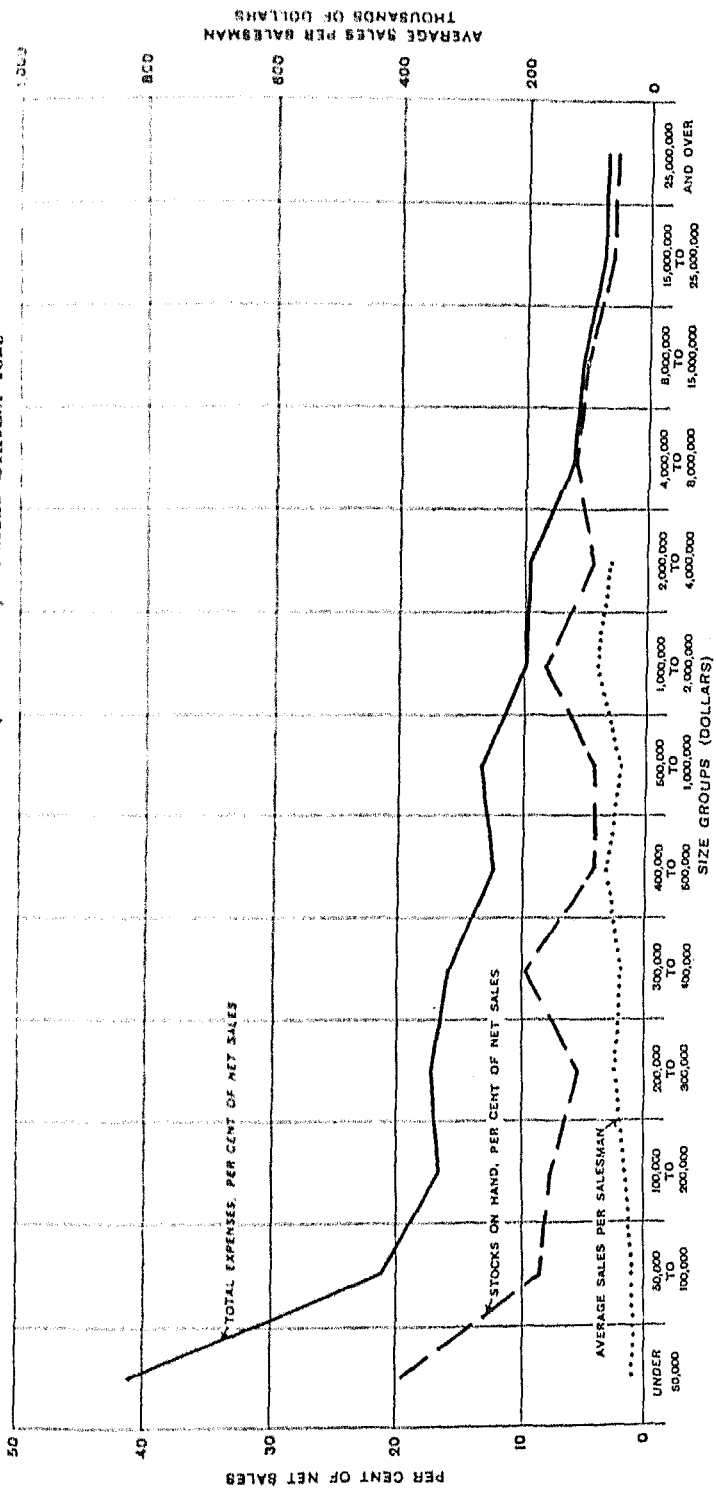


CHART IV.—EXPENSES, AVERAGE SALES PER SALESMAN, AND STOCKS ON HAND, BY SIZE OF BUSINESS—MANUFACTURERS' SALES BRANCHES IN THE ELECTRICAL TRADE (SPECIALTY)—UNITED STATES: 1929

with increases in the size of the business is not an unbroken one. Wherever a large enough number of establishments is involved in a given group (so as to permit of some exception without seriously affecting the whole group) large stocks are accompanied by high operating expenses and low stocks by low costs.

Operating expenses of manufacturers' sales branches in the electrical trade in relation to size of the business.—As already pointed out in another connection in this report, while wholesale merchants predominate in the general line electrical trade, manufacturers' sales branches are most important in connection with the specialty electrical business. For this reason special attention is given in this particular analysis to those branches that operated in the specialty field.

The highest operating expenses for specialty manufacturers' sales branches are shown for the group with annual sales under $50,000 each. These establishments had costs of 41.1 per cent of net sales, as compared with average costs of 6.8 per cent for all specialty sales branches, and 3.6 per cent for the specialty branches with annual sales of more than $25,000,000 each. *It is interesting to note that the largest establishments, with the lowest ratio of operating expenses, had the highest sales per salesman, the lowest ratio of expenditures in salemen's salaries, and the lowest stocks on hand in relation to sales.* Similarly, the smallest establishments, with the highest ratio of operating expenses, had the lowest average sales per salesman, the highest ratio of expenditures in salesmen's salaries, and the highest stocks on hand in relation to sales. In other words, the smallest manufacturers' sales branches had about six times the average operating expenses as compared with the entire group, 5.8 times the expenditures in salesmen's salaries, 4.5 times the stocks on hand, and but one-seventh the average sales per salesman.

Several interesting and exceedingly significant correlations may be observed from the statistics presented in Table 30 and Chart IV. In the first place, salesmen's salaries as a per cent of net sales decrease in proportion as the effectiveness of the sales force increases as measured by the average sales per salesman. Second, with the exception of the largest size groups of specialty manufacturers' sale branches and the very smallest establishments, stocks on hand do not necessarily decline with increases in the size of the business. Third, stocks on hand bear, however, a direct relationship to operating expenses. Thus, the establishments in the size group of 8 to 15 million dollars per year showed an increase in costs over the size group immediately following by 1.8 points. Sales per salesman were about the same in both groups and salesmen's salaries were but one-tenth of 1 per cent higher for the smaller size group. Stocks were, however, 2.1 points higher for the size group that showed expenses of 1.8 points above the succeeding size group. Similarly, the size group with annual sales of 15 to 25 million dollars showed the same stocks as the size group with 25 millions and over, but the operating expenses of the former were one-tenth of 1 per cent higher (3.7 per cent as compared with 3.6 per cent), probably because the sales per salesmen for the group were lower and the expenditures in salesmen's salaries were 0.1 per cent higher.

In the fourth place, high average sales per salesman are not inherent in the large size of business. Branches with sales of $400,000 to $500,000, for example, had larger average sales per salesman than the branches with annual sales of $2,000,000 to $4,000,000. Finally, there are a number of factors that affect operating costs, some of which are not even analyzed in this report (as for example, the size of the sales territory covered in relation to operating expenses), to trace the exact effect of which would require a multiple or partial correlation analysis that is beyond the scope of this report.

TABLE 33.—OPERATING EXPENSES OF MANUFACTURERS' SALES BRANCHES BY SIZE OF ESTABLISHMENT—UNITED STATES: 1929

SIZE GROUP	Number of establishments	Net sales—per cent of total	Total expenses—per cent of net sales	Number of salesmen	Average sales per salesman	Salesmen's salaries—per cent of net sales	Stocks on hand—per cent of net sales
1. GENERAL LINE							
Total	108	[1] 100.0	6.4	1,446	$137,533	2.4	2.9
Under $50,000	16	0.2	32.8	19	20,049	12.8	27.4
$50,000 to $100,000	12	0.5	29.5	46	21,977	14.6	9.6
$100,000 to $200,000	9	0.6	18.8	32	38,758	9.0	8.5
$200,000 to $300,000	5	0.6	40.7	36	31,606	13.2	1.7
$300,000 to $400,000	3	0.5	30.9	117	8,165	13.6	11.4
$400,000 to $500,000	5	1.0	16.9	20	103,875	3.2	6.4
$500,000 to $1,000,000	17	6.8	8.0	120	113,231	3.3	1.8
$1,000,000 to $2,000,000	18	12.3	5.9	183	133,463	2.4	3.3
$2,000,000 to $4,000,000	10	13.6	8.0	246	109,700	2.8	3.6
$4,000,000 to $8,000,000	8	23.5	4.4	244	191,316	1.6	2.6
$8,000,000 to $15,000,000	3	17.6	4.0	198	177,274	1.8	2.5
$15,000,000 and over	2	22.8	2.7	185	574,845	0.7	2.5
2. SPECIALTY							
Total	737	[2] 100.0	6.8	7,158	142,184	1.8	4.6
Under $50,000	134	0.3	41.1	161	20,393	10.4	19.6
$50,000 to $100,000	116	0.8	21.2	384	21,588	8.8	8.6
$100,000 to $200,000	124	1.7	16.7	551	31,840	6.3	7.7
$200,000 to $300,000	63	1.5	17.2	310	49,703	5.4	5.5
$300,000 to $400,000	48	1.6	15.8	440	38,122	5.7	9.8
$400,000 to $500,000	23	1.0	12.3	161	64,611	4.1	4.1
$500,000 to $1,000,000	81	5.6	13.3	1,280	44,282	4.7	4.3
$1,000,000 to $2,000,000	60	8.1	9.9	999	82,303	3.0	8.3
$2,000,000 to 4,000,000	35	9.7	9.6	1,697	57,919	3.6	4.3
$4,000,000 to $8,000,000	23	12.8	6.1	394	331,490	1.3	6.0
$8,000,000 to $15,000,000	14	14.7	5.5	239	627,811	0.7	5.0
$15,000,000 to $25,000,000	9	16.8	3.7	268	634,334	0.6	2.9
$25,000,000 and over	7	25.4	3.6	274	942,268	0.5	2.9

[1] Total net sales amounted to $198,874,081. [2] Total net sales amounted to $1,017,759,484.

OTHER CENSUS OF DISTRIBUTION DATA ON THE WHOLESALE ELECTRICAL TRADE

In presenting the data in this report for the wholesale electrical trade an attempt has been made to analyze the information for the United States as a whole. Only the most meager statistics have been shown by States and other geographic areas. Neither has any attempt been made to show the relative position of the wholesale electrical trade in relation to other trades, either for the United States or by smaller geographic areas.

The main reason for these omissions lies in the fact that such statistics are already presented in the State series of reports, in the United States Summary, and in Volume II—Wholesale Distribution.

A separate report has been issued for each State and the District of Columbia, showing among others the following statistics *for the electrical trade:*

Table 1.—Number of establishments; number of employees, total, male and female; salaries and wages; total expenses; stocks on hand, end of year (at cost); and net sales.

Table 2.—The same data as in Table 1, in addition to credit sales, sales to ultimate consumers (at retail); and sales to industrial consumers. This information is shown in this table for *wholesalers only*, for the State, and for cities of 100,000 population and over. The information is shown separately for general line electrical establishments and for specialty houses.

Table 3.—The same data as in Table 2, for all types of wholesale establishments for the State and for each city of 5,000 population and over. This information is shown wherever possible, separately for general line electrical establishments and for specialty houses.

Tables 5, 6, and 7 show the number of electrical establishments, their net sales and total expenses, by types of establishments, thus giving a cross section of both types of organizations and kinds of electrical business (general line and specialty). This information is given only for the State.

Table 9.—Number of establishments, net sales, and total expenses, by the number of marketing units operated by a single organization, the data in this table being shown only for the State.

Table 10.—Number of establishments; number of proprietors and firm members; total paid employees, male and female; salaries and wages; the number of salesmen and their salaries; the number of executives and their salaries; and the number of all other employees and their salaries. All of these are shown for the State and for a limited number of cities separately for general line electrical establishments and for specialty houses. This table also gives the number of employees on specified dates in order to ascertain fluctuations in employment with the seasons.

Table 11.—Number of establishments; net sales; and total expenses for electrical wholesale merchants by size of the business. This information is given for the State and for a limited number of cities.

Table 13.—Commodity sales for the State, showing for a number of commodities the same information by States as presented in Tables 4 and 5 of this report.

All the information just outlined is presented not only for each State, and for cities as indicated under the respective tables, but is also given in the United States Summary of Wholesale Distribution for the entire country.[16]

APPENDIX

Reported sales of specified electrical commodities, by States and geographic divisions.—One of the provisions on the wholesale nonfood schedule was for the breakdown by sales of electrical appliances, equipment and supplies into volume of sales in storage batteries; household appliances (not including radios and refrigerators); electric motors, generators, and control apparatus; interior electric construction materials, including electric fixtures, and a further provision for all other electrical appliances and supplies not herein enumerated and exclusive of radios and refrigerators for which a special inquiry was provided. The data covering the distribution of these respective commodities is given in Table 5 of this report by kind of business and type of distributor. This data is given for the United States as a whole. In the following table, however, the same information is presented by States and geographic divisions. Reference is made to page 14 of this report so that the total figure of $1,663,353,000 as distributed by this table might be reconciled and the statistics thoroughly understood.

It will be noted that the sales of electrical commodities (other than radios and refrigerators), as reported, aggregated $1,706,076,000. Of this total electrical goods (other than radios and refrigerators), that were not reported in detail, amounted to $68,055,000. This sum is for all types and kinds of business. The net commodity which was, therefore, reported in detail but which still excludes radios and refrigerators is $1,638,021,000. Columns 2, 3, 4, 5, and 6 of the appendix table aggregate this amount. Of the amount not detailed ($68,055,000), the sum credited to electrical wholesale houses is $25,332,000. This could be distributed by States without much difficulty inasmuch as it involved a tabulation of only a few hundred schedules. This sum plus the amounts given in Table 5 by commodities aggregate the total amount of the first column or $1,663,353,000. The difference between this amount and that reported on page 14 as a total of $1,706,076,000 represents the value not reported in detail of electrical commodities handled by all other types and kinds

[16] Attention is called again to the fact that the figures presented in this report may not correspond to those shown in the other reports, merely because many of the schedules have been reclassified and regrouped for the purpose of this analysis.

of business exclusive of the electrical trade. To have allocated this sum ($42,723,000) by States would have required a detailed examination and tabulation of approximately 100,000 schedules which examination it was impossible to undertake.

It is important to bear in mind that the statistics for a given State represent the sales made by wholesale establishments located in that State and not the consumption of the specified electrical commodities within that State. Some or most of the sales reported by establishments located in a given State may have been effected within that State or they may have been consummated outside of the State.

The value of this table should be apparent to distributors and manufacturers of electrical goods even though as above stated it does not represent an accurate picture as to the consumption of electrical goods by States or geographic divisions.

An examination of the following table reveals facts of vital significance. The wholesale establishments located in the Middle Atlantic division, for example, accounted for 32.13 per cent of the sales of all electrical commodities reported by wholesale organizations. These sales were composed of storage batteries, 3.94 per cent; household appliances, 6.77 per cent; electric motors, generators, and control apparatus, 17.66 per cent; interior electric construction materials including electrical fixtures, 13.84 per cent; 56.81 per cent in all other electrical appliances and supplies, and 0.98 per cent not specified as to kind. However, the wholesale establishments located in the Middle Atlantic division sold over one-fourth (26.19 per cent) of all the storage batteries, even though storage batteries made up less than 4 per cent of the sales of electrical goods reported by the Middle Atlantic division. On the other hand, storage batteries constituted 5.31 per cent of the sales of electrical goods made by wholesale establishments located in the Mountain division, but such establishments disposed of only 1.79 per cent of all the storage batteries handled by wholesale organs in the United States.

The Middle Atlantic and the East North Central divisions accounted for 65 per cent of all the sales reported by wholesale establishments in the United States in electric motors, generators, and control apparatus. Proportionally, however, this commodity was widely distributed. For the entire country this commodity constituted 17.4 per cent of the sales in all specified electrical commodities. The wholesale establishments located in the Pacific division showed the lowest proportion of such sales (11.33 per cent), followed by the Mountain division with 12.73 per cent. In all other divisions the proportion of sales of electric motors, generators, and control apparatus to the total sales of electrical commodities made by wholesale organizations varied from 15.41 per cent to a high of 20.19 per cent. The proportion of sales in interior electric construction materials, including electric fixtures, showed a range of from 10.41 per cent of total sales in electrical goods in the West South Central States (as compared with an average for the United States of 15.12) to 27.80 per cent for the New England States.

Reported Sale of Specified Electrical Commodities, by States—United States: 1929

[Expressed in thousands of dollars]

STATES AND GEOGRAPHIC DIVISIONS	Electrical, appliances, equipment, and supplies	Batteries, storage	Household appliances, not including refrigerators and radios	Electric motors, generators, and control apparatus	Interior electric construction materials including electric fixtures	All other electrical appliances and supplies	Electrical commodities not specified
United States	$1,663,353	[1] $80,470	[2] $120,413	[3] $289,464	[4] $251,446	[5] $896,228	[6] $25,332
NEW ENGLAND	126,133	4,593	7,133	22,307	35,065	53,889	3,140
Maine	2,042	128	381	27	711	689	106
New Hampshire	442	23	117	2	123	130	47
Vermont	292	3	14	65	144	60	6
Massachusetts	79,169	3,768	4,473	18,765	12,366	38,776	1,021
Rhode Island	3,416	55	634	227	1,274	1,037	189
Connecticut	40,772	616	1,514	3,221	20,447	13,197	1,777
MIDDLE ATLANTIC	534,393	21,074	36,179	94,390	73,938	303,588	5,224
New York	336,443	16,971	22,718	48,742	46,117	197,932	3,963
New Jersey	34,645	306	1,820	9,116	4,943	18,236	224
Pennsylvania	163,305	3,797	11,641	36,532	22,878	87,420	1,037
EAST NORTH CENTRAL	489,818	29,551	29,000	93,972	64,159	267,728	5,408
Ohio	143,586	7,232	9,786	25,475	13,815	85,447	1,831
Indiana	19,107	535	727	3,129	3,412	10,593	711
Illinois	217,060	12,183	12,688	44,338	29,510	116,303	2,038
Michigan	82,311	9,005	4,084	16,038	13,772	38,749	663
Wisconsin	27,754	596	1,715	4,992	3,650	16,636	105
WEST NORTH CENTRAL	121,192	6,778	12,142	21,989	16,373	60,947	2,903
Minnesota	23,942	986	2,970	3,781	2,235	12,250	1,720
Iowa	16,332	468	1,056	5,614	2,912	5,986	296
Missouri	63,127	4,498	5,620	10,176	8,750	33,437	646
North Dakota	1,551	186	194	373	356	426	16
South Dakota	593	109	16	9	293	20	146
Nebraska	12,530	326	1,154	1,813	1,144	8,016	77
Kansas	3,117	205	1,132	223	683	812	62
SOUTH ATLANTIC	96,643	5,477	7,650	14,890	13,104	52,459	3,063
Delaware	860	31	43	17	566	175	28
Maryland	21,898	180	1,986	5,042	3,079	11,423	188
District of Columbia	12,645	2,478	432	393	1,091	7,406	845
Virginia	4,153	147	200	1,000	1,159	1,402	245
West Virginia	7,314	139	300	1,737	381	4,187	570
North Carolina	9,944	242	1,268	3,340	1,484	2,796	814
South Carolina	1,083	89	314	213	744	289	34
Georgia	32,759	2,058	2,472	2,727	3,774	21,531	197
Florida	5,387	113	635	421	826	3,250	142
EAST SOUTH CENTRAL	26,772	1,812	3,565	4,920	4,063	9,747	2,665
Kentucky	6,739	734	492	809	1,338	2,756	610
Tennessee	9,421	460	1,648	1,935	1,202	3,856	320
Alabama	9,933	589	1,374	2,134	1,219	2,899	1,718
Mississippi	679	29	51	42	304	236	17
WEST SOUTH CENTRAL	69,971	3,432	7,314	14,130	7,287	37,478	330
Arkansas	722	19	144	377	95	83	4
Louisiana	12,981	681	800	4,455	1,639	5,332	74
Oklahoma	12,652	627	772	1,898	940	8,372	43
Texas	43,616	2,105	5,598	7,400	4,613	23,691	209
MOUNTAIN	27,170	1,443	2,395	3,458	3,983	14,874	1,017
Montana	3,636	25	758	720	486	1,625	22
Idaho	87	5	----------	9	5	23	45
Wyoming	108	11	----------	21	18	57	1
Colorado	11,927	1,022	327	1,340	2,754	6,359	125
New Mexico	31	3	----------	6	6	16	----------
Arizona	2,341	73	114	489	226	1,407	32
Utah	8,995	299	1,196	864	488	5,359	789
Nevada	45	5	----------	9	----------	28	3
PACIFIC	171,261	6,310	15,035	19,408	33,474	95,518	1,516
Washington	27,295	986	3,165	3,642	3,884	15,442	176
Oregon	10,669	344	1,761	1,684	1,432	5,383	65
California	133,297	4,980	10,109	14,082	28,158	74,693	1,275

[1] 26.8 per cent of this amount was reported by wholesale merchants, 68.3 per cent by manufacturers' sales branches, 2.2 per cent by agents, and 2.7 per cent by all other types. (See Table 5, pt. 1.)

[2] 40 per cent of this amount was reported by wholesale merchants, 42.5 per cent by manufacturers' sales branches, 7.4 per cent by agents, and 10.1 per cent by all other types. (See Table 5, pt. 2.)

[3] 17.7 per cent of this amount was reported by wholesale merchants, 74.6 per cent by manufacturers' sales branches, 4.2 per cent by agents, and 3.5 per cent by all other types. (See Table 5, pt. 3.)

[4] 64.3 per cent of this amount was reported by wholesale merchants, 13.9 per cent by manufacturers' sales branches, 12.8 per cent by agents, and 9 per cent by all other types. (See Table 5, pt. 4.)

[5] 19.2 per cent of this amount was reported by wholesale merchants, 74.7 per cent by manufacturers' sales branches, 4 per cent by agents, and 2.1 per cent by all other types. (See Table 5, pt. 5.)

[6] This represents the amount of electrical goods reported by wholesale organizations in the electrical trade without complete detail.