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Roy D. Chapin, Secretary
BUREAU OF THE CENSUS
W. M. Stuart, Director

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WHOLESALE DISTRIBUTION

TRADE SERIES

THE WHOLESALE HARDWARE TRADE



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THE WHOLESALE HARDWARE TRADE

By THEODORE N. BECKMAN
In Charge of Wholesale Distribution

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 compiled under the immediate supervision of John Albright, whose assistance is hereby acknowledged.

The data were secured by a field canvass covering every State, county, and city in 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.

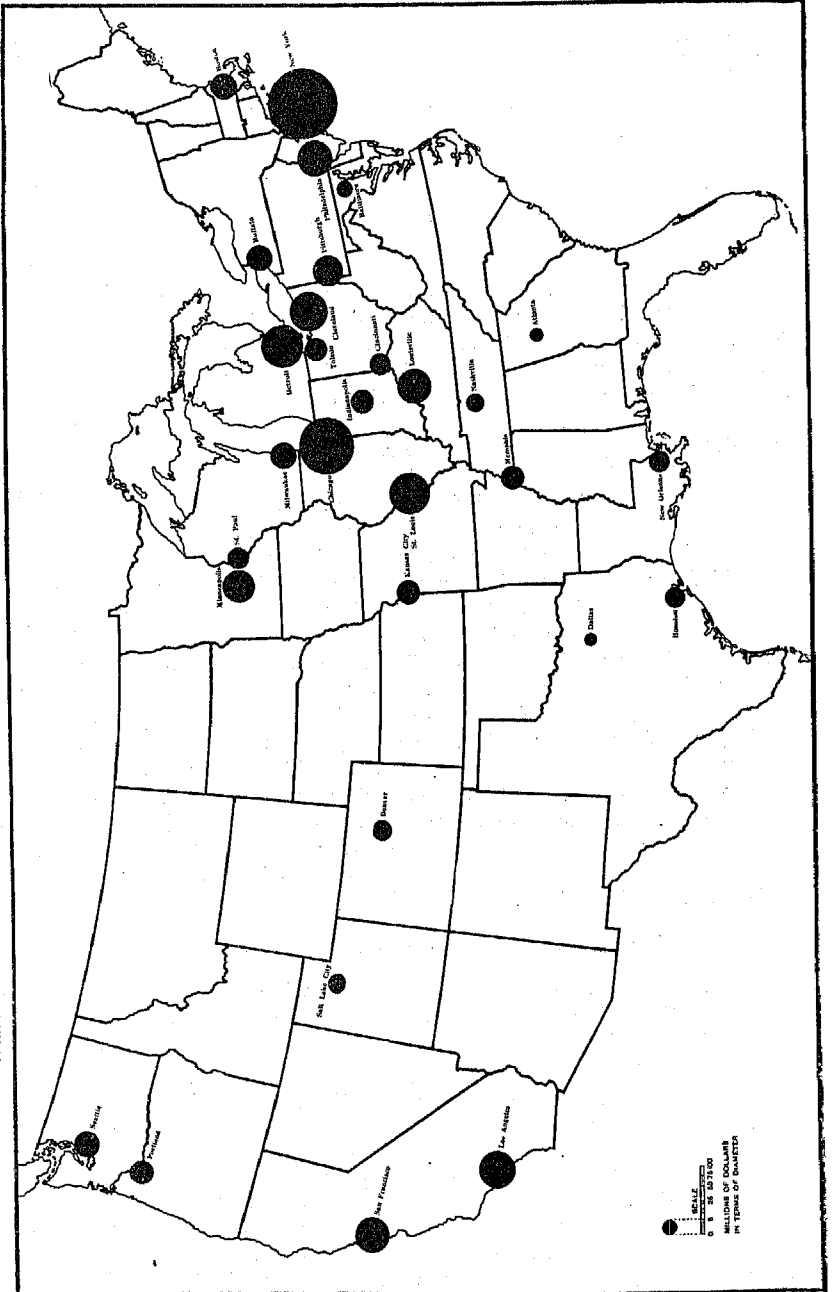
In preparing this report it was impossible to secure exact correspondence between the statistics presented herein and those appearing in the State series of reports on wholesale distribution. Differences are due for the most part to a certain amount of reclassification and regrouping of schedules for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

SCOPE OF THE HARDWARE INDUSTRY

What is hardware?—In an attempt to determine the amount of hardware produced in the United States for sale one is immediately confronted with the question, What is hardware? A certain amount of overlapping may be found in all lines of trade. In the same plant are frequently manufactured products belonging to entirely different categories. Items quite dissimilar in character are often sold through a given wholesale or retail establishment. A notable example of the latter is the sale of lubricating oil by certain chain grocery stores. Another example illustrating this point is found in the sale of tires and tubes by wholesale grocers. Within recent years, this tendency toward overlapping in the handling of various items of merchandise by the different wholesale and retail outlets appears to have been gaining momentum.

In the hardware trade the lines of merchandise that might rightfully be classified as hardware have never been clearly defined. It became necessary, therefore, for the purposes of this report, to draw some lines of demarcation, perhaps

WHOLESALE HARDWARE TRADE CENTERS IN THE UNITED STATES



arbitrarily at times, in order to delimit the field. In doing this, attention was given to what is generally recognized as hardware by the public and in the trade, to the extent to which the item involved is being distributed through hardware wholesalers and retailers, and to a number of other factors. In order to ascertain just what types of merchandise are handled by hardware concerns in substantial amounts an examination was made of the hardware wholesalers' sales by commodities as reported to the census. On the basis of this examination Table 1 has been prepared showing the industries or commodities that may be regarded as belonging strictly to the hardware classification. In some cases, whole industries as designated by the Census of Manufactures were included, as illustrated by the file and saw industries. In other instances, only the production of part of an industry was included, as exemplified by garden hose which is but a small part of the mechanical rubber goods industry.

Volume of hardware production.—On the basis just outlined, the aggregate value of hardware (as defined for the purposes of the Census of Manufactures) produced in 1929, at f. o. b. factory selling prices, amounted to \$839,438,875. (See Table 1.) This does not mean, however, that the entire amount shown in Table 1 was sold through hardware channels. As a matter of fact, large quantities of these goods were sold through different kinds of business or lines of trade, such as the electrical, the automotive, and the general merchandise trades. In this total of \$839,438,875 are also included large amounts of merchandise, as shown in Table 2, which were sold to industrial consumers direct from the factory and hence are not included in the statistics presented later because they did not go through wholesale organizations. This is true, for example, of "hardware, not elsewhere classified," in which case the 55 plants producing motor-vehicle hardware to the extent of \$60,812,953 and the 74 plants producing \$17,138,072 worth of furniture and cabinet hardware other than locks no doubt sold these goods direct from factory to the manufacturers of motor vehicles and furniture, respectively, instead of utilizing wholesale outlets for the distribution of their products. To the extent to which this is true, were the amounts excluded from the data later shown for the wholesale hardware trade.

The hardware trade, while closely allied to the iron and steel business, does not include the goods of strictly iron and steel plants producing ingots, steel castings, blooms, billets, slabs, rails, structural shapes, sheets (not coated), plates, and similar items. It includes, however, a certain amount of what is termed as heavy hardware, such as horseshoes, bolts, nuts, and rivets. (See Table 1.)

Among the items listed in Table 1, cutlery and tools constituted 30.79 per cent of all production. Cutlery (not including silver and plated cutlery) and edge tools made up 9.69 per cent; small machine tools, 9.25 per cent; and tools, not including edge tools, machine tools, files, or saws, made up another 11.85 per cent. Second in importance was hardware, not elsewhere classified, with 26.32 per cent. This was followed by bolts, nuts, rivets, washers, etc., with 15.07 per cent. These three lines together accounted for almost three-fourths (72.18 per cent) of the total production in the hardware lines listed.

TABLE 1.—PRODUCTION OF HARDWARE PRODUCTS IN THE UNITED STATES:¹ 1929

NAME OF INDUSTRY OR COMMODITY	Value of production (f. o. b. factory)	Per cent of total
Total.....	\$630,438,875	100.00
Aluminum ware (principally cooking utensils and household articles).....	35,100,001	4.18
Bolts, nuts, rivets, washers, etc.....	126,507,797	16.07
Brushes, other than rubber:		
Household brushes.....	7,394,686	0.88
Paint and varnish brushes (including artists' brushes).....	16,705,771	1.00
Cutlery (not including silver and plated cutlery) and edge tools.....	81,312,480	9.60
Files.....	13,609,392	1.62
Hardware, not elsewhere classified.....	220,917,832	26.32
Horse and mule shoe calks.....	638,063	0.05
Horse and mule shoes.....	2,683,713	0.32
Kitchen and other household enameled ware (vitreous).....	23,500,948	2.80
Lighting equipment:		
Kerosene and gasoline lamps and lanterns.....	5,676,269	0.68
Machine tool accessories and small metal-working tools:		
Small tools.....	77,641,824	9.26
Mechanical rubber goods:		
Garden hose.....	9,049,463	1.08
Washers, gaskets, valves, pump sleeves, liner strips.....	5,107,348	0.61
Nails, spikes, and tacks (cut and wrought).....	7,603,760	0.89
Nails, brads, spikes, and tacks (wire).....	45,674,962	5.43
Portable ovens.....	2,882,153	0.34
Saws.....	20,307,966	2.43
Tools, not including edge tools, machine tools, files, or saws.....	99,462,032	11.85
Whips.....	224,219	0.03
Wood turned and shaped and other wooden goods, not elsewhere classified:		
Handles.....	16,223,870	1.03
Ladders and parts.....	5,345,167	0.64
Toys, toy parts, and novelties.....	3,053,391	0.50
Woodenware—Bowls, dishes, pastry boards, etc.....	13,046,158	1.65

¹ Products of Manufacturing Industries, Census of Distribution, Distribution No. I. G. 201, U. S. Government Printing Office, 1932.

In addition to the lines of merchandise *narrowly* defined as hardware and shown in Table 1 there are a number of commodities or lines of goods which, while distributed principally through other kinds of business, are sold in certain amounts through hardware wholesale establishments or are commonly identified with the hardware trade. For the sake of completeness and in order to indicate the potential distribution through hardware and allied channels, the production of these commodities or industries is presented in the appendix. In this list are included such items as mechanical refrigerators which are sold chiefly through wholesale organizations specializing in the handling of such appliances or through electrical concerns and but to a very limited extent through hardware wholesalers.

CHANNELS OF DISTRIBUTION USED BY MANUFACTURERS

On the returns made by manufacturers to the Census of Manufactures, each plant reported the distribution of 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 the 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 that was sold to any of the above through the intervention of agents and brokers.

For the hardware lines listed in Table 1, such information is available for 1,765 manufacturing plants with a total selling value of products during the year of \$605,444,000, which is 72.1 per cent of the amount shown in the table. In order to determine what amount, in dollars, was sold through a given channel, it is therefore necessary to multiply the percentage indicated for that channel by

\$839,438,875, on the assumption that the remaining 27.9 per cent of the hardware lines listed was distributed through the channels indicated in the same proportion as the 72.1 per cent for which definite data on this point are given. In addition to presenting these data for all the 1,765 plants, they are shown for each of the industries involved separately, so that variations in methods of distribution may be discerned for the different industries.

For all the nine industries combined, as shown in Table 2, the distribution of sales was as follows:

	Per cent
To manufacturers' own sales branches.....	6.3
To wholesalers.....	44.3
To retailers.....	10.7
To industrial consumers.....	38.6
To ultimate consumers.....	0.1
<hr/>	
Total.....	100.0
Sales of above through agents and brokers.....	9.0

TABLE 2.—DISTRIBUTION OF SALES DURING THE YEAR 1929 THROUGH THE CHANNELS INDICATED, BY INDUSTRIES, FOR THE UNITED STATES

[Selling value expressed in thousands of dollars]

NAME OF INDUSTRY	Number of plants	Total selling value of products	SALES AS A PER CENT OF TOTAL—					Through agents
			Manufacturers' own sales branches	To wholesalers	To retailers	To industrial consumers	To ultimate consumers	
Total.....	1,765	605,444	6.3	44.3	10.7	38.6	0.1	9.0
Bolts, nuts, washers, and rivets (not made in plants operated in connection with rolling mills).....	117	104,866	4.9	25.7	0.6	68.8	-----	7.8
Cutlery (not including silver and plated cutlery) and edge tools.....	230	78,918	15.6	70.6	7.8	5.7	0.3	7.6
Files.....	33	14,114	-----	79.0	5.8	15.2	-----	2.7
Hardware (not elsewhere classified).....	485	229,477	4.3	33.0	13.2	49.5	-----	9.1
Nails, spikes, etc.....	55	12,855	13.1	31.1	5.0	50.8	-----	16.5
Saddlery and harness.....	204	21,675	9.1	24.7	53.7	12.5	-----	-----
Saws.....	79	21,971	6.8	52.5	14.9	25.8	-----	1.6
Tools (not including edge tools, machine tools, files and saws).....	532	100,233	6.0	60.4	7.2	26.4	-----	14.7

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). Regardless of the above, it has always 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 hardware producing plants, shown above, sold very little direct to ultimate or home consumers, the total being but 0.1 per cent and consisted of 0.3 per cent of the sales of cutlery and edge tools. Only one of the nine industries included in Table 2 reported sales direct to ultimate consumers. The direct sales to industrial consumers, however, were very substantial, amounting to 38.6 per cent of the total for all industries combined. Each of the nine industries reported such sales, the

percentage varying from a low of 5.7 per cent for cutlery and edge tools to a high of 68.8 per cent for bolts, nuts, washers, and rivets. Two other industries reported sales to industrial consumers direct from their plants to the extent of about half of their respective totals. This indicates that many hardware items are intended for two types of markets—the ultimate consumer market and the industrial consumer market.

Many of the goods sold to industrial consumers are semimanufactured products intended for further processing or take the form of equipment and supplies. In order to arrive at a truer picture of finished or consumer goods, it is therefore 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 manufacturers' own sales branches.....	10.3
To wholesalers.....	72.1
To retailers.....	17.4
To ultimate consumers.....	0.2
Total.....	100.0

Sales through manufacturer-owned outlets.—A total of 6.3 per cent of the sales reported by the nine industries shown in Table 2 was made through manufacturer-owned wholesale outlets. When calculated on the basis of total sales less sales direct from factory to industrial consumers, the percentage sold through manufacturers' own sales branches was 10.3 per cent. An indeterminate but small amount was sold by manufacturers through their own retail stores. Most hardware items are of a relatively low unit value and require wide distribution. Furthermore, few manufacturers in the hardware industries produce a sufficiently comprehensive line to enable them to operate their own retail stores as outlets for their goods.

The wholesale branches maintained by manufacturers of hardware, in turn, sold to industrial consumers (a little over half of their goods), to retailers, and to wholesalers. Just how much they sold to wholesalers or to retailers is difficult to state. At best, however, such branches may be regarded as an outlet of minor significance for all of the hardware industries combined, although for certain industries they have achieved a place of importance. Fully 15.6 per cent of cutlery and edge tools is so distributed and 13.1 per cent of nails and spikes. Only in one of the nine industries are such outlets nonexistent.

Sales to retailers.—Sales made from the factories to retailers of all kinds, including sales to chain stores and mail-order houses, were more extensive than the combined sales through all other channels except for sales to wholesalers and direct to industrial consumers. Of all goods intended primarily for the home consumer market (arrived at by deducting sales from factory to industrial consumers from the total as indicated above), manufacturers sold to retailers less than one-fifth (17.4 per cent) of their products. For some industries this outlet was more important than just indicated. Over half (53.7 per cent) of all saddlery and harness was sold to retailers. Two other industries sold over 10 per cent each in this manner, while six industries sold less than 10 per cent each to retailers. The smallest sales made in this way were reported by the manufacturers of bolts, nuts, washers, and rivets (0.6 per cent), largely because such goods are not intended for use by home consumers.

Sales to wholesalers.—Over 44 per cent (44.3 per cent) of all sales reported by the 1,765 manufacturing plants was made to wholesalers, and when sales

from factory direct to industrial consumers are deducted, the percentage (based on the remainder) sold to wholesalers rises to 72.1. In other words, about four times as much was sold through wholesalers as the amount sold by manufacturers to retailers. To this 72.1 per cent must be added an unknown amount which manufacturers' sales branches sold to wholesalers. In some lines of hardware, the wholesaler handled the great bulk of the merchandise—79 per cent of the total sales of files; 70.6 per cent of the cutlery and edge tools; and 60.4 per cent of the tools, not including edge tools, machine tools, files, and saws. In only one industry (saddlery and harness) did the wholesaler handle less than one-fourth of the production.

FLOW OF HARDWARE COMMODITIES THROUGH WHOLESALE OUTLETS¹

As pointed out in the introduction, the Census of Distribution secured reports by means of a field canvass covering every wholesale establishment that could be located. 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. For this reason, the Census of Distribution figures are not comparable with those of the Census of Manufactures. Were this the only factor, the volume of strictly hardware merchandise to be traced through wholesale organizations would then approximate \$425,000,000 (50.6 per cent of \$839,438,875), since only 50.6 per cent of the hardware goods shown in Table 1 was sold through wholesale establishments. But there are other factors which make this procedure impossible. The duplication of steps in both manufacturing and distribution processes, for example, proves a stumbling block. Manufacturers buy from and sell to other manufacturers for industrial use or for resale. Wholesale organizations sell to one another and also make sales to industrial consumers, usually manufacturers, which still further complicates matters and invalidates comparisons. Then, *there is a difference in the definition of the term "hardware" from the standpoint of production on the one hand and distribution on the other.* There is also a difference in the selling prices at which the goods were reported, since selling prices of wholesale establishments must be higher than the f. o. b. factory prices by the amount of the wholesale margin.

Sales of strictly hardware commodities, by kinds of business.²—Table 3 shows the wholesale channels through which strictly hardware commodities move. *For the purposes of this analysis, a limited number of hardware commodities have been included consisting of builders' hardware; heavy hardware; shelf or light hardware; tools and cutlery; and other hardware as identified by the trade.* The statistics in this table are shown by lines of trade for all of these commodities combined and without differentiation as to types of establishments or functional organizations handling them. Data for each commodity are shown separately in Table 4.

Naturally, the largest amount of these hardware commodities is handled by the hardware trade, this figure amounting to 79.4 per cent of the total. Next in importance is the machinery, equipment, and supplies (except electrical) trade, with 8.4 per cent of the business, followed by concerns in the general merchandise field, in the electrical trade, and in the automotive trade. The remaining 6.9 per cent of the sales in the hardware commodities was scattered among a number of different trades, as shown in the table.

¹ For a definition of the different types of wholesale organizations, see Bulletin: Distribution W-100, U. S. Government Printing Office, 1931.

² In this report the terms "kind of business," "trade," and "lines of trade" are used interchangeably, since they are so recognized in the hardware trade.

TABLE 3.—SALES OF STRICTLY HARDWARE COMMODITIES, BY TRADES—UNITED STATES: 1929

[Amounts expressed in thousands of dollars]

TRADE	Amount	Per cent of total
Total.....	\$679, 116	100.0
Amusement and sporting goods.....	607	0.1
Automotive.....	8, 037	1.4
Automobiles and other motor vehicles.....	2, 564	
Automotive equipment.....	5, 312	
Automobile parts (new and used).....	161	
Chemicals, drugs, and allied products.....	5, 146	0.9
Chemicals.....	407	
Drugs and drug sundries (general line).....	1, 554	
Paints, varnishes, lacquers, and enamels.....	3, 097	
Other chemicals, drugs, etc.....	88	
Dry goods and apparel.....	2, 242	0.4
Clothing and furnishings (other than millinery and footwear).....	28	
Dry goods (general line).....	456	
Notions.....	120	
Piece goods.....	1, 638	
Electrical.....	9, 072	1.7
Electrical goods (including appliances).....	7, 730	
Electrical equipment and supplies.....	1, 606	
Radios and radio equipment.....	277	
Refrigerators (electric).....	359	
Farm products (not elsewhere classified).....	28	(¹)
Farm supplies (except machinery and equipment).....	101	(¹)
Farm supplies (except feed and fertilizer).....	86	
Feed.....	15	
Forest products (except lumber).....	102	(¹)
Furniture and house furnishings.....	3, 920	0.7
House furnishings.....	3, 920	
General merchandise.....	12, 985	2.2
Hardware.....	459, 573	79.4
Iron and steel scrap and other waste materials.....	9	(¹)
Jewelry.....	1, 269	0.2
Leather and leather goods (except gloves and shoes).....	1, 173	0.2
Leather and leather goods (general line).....	207	
Leather and leather belting.....	61	
Luggage and leather goods.....	32	
Saddlery and harness.....	773	
Shoe findings and cut stock.....	100	
Lumber and building materials (other than metal).....	3, 524	0.6
Construction and building materials (other than metal and wood).....	2, 498	
Lumber and millwork.....	1, 026	
Machinery, equipment, and supplies (except electrical).....	48, 582	8.4
Commercial equipment and supplies.....	2, 209	
Construction equipment and supplies.....	1, 485	
Farm machinery and equipment.....	2, 880	
Manufacturing, mining, and drilling machinery, equipment, and supplies.....	25, 733	
Professional equipment and supplies.....	439	
Service equipment and supplies.....	8, 625	
Transportation equipment and supplies.....	7, 170	
Other machinery, equipment, and supplies.....	46	
Metals and minerals (except petroleum and scrap).....	6, 456	1.1
Paper and paper products.....	1, 535	0.3
Paper and paper products (general line).....	1, 053	
Wall paper.....	482	

TABLE 3.—SALES OF STRICTLY HARDWARE COMMODITIES, BY TRADES—UNITED STATES: 1929—Continued

TRADE	Amount	Per cent of total
Plumbing and heating equipment and supplies.....	\$5,320	0.9
Tobacco and tobacco products (except leaf).....	50	(¹)
All other.....	8,480	1.6
Textiles and textile materials (other than dry goods).....	807	
Miscellaneous kinds of business.....	7,682	

¹ Less than one-tenth of 1 per cent.

Specified hardware commodities, by kind of business and type of establishment.—For a proper understanding of the distribution of hardware commodities, it is necessary to show separately for each commodity or group of commodities not only the kinds of business by which it is handled but also the types of functional organizations in each trade dealing in it. Such information, which is of greatest significance in an analysis of the manufacturer's market and its potentials, is shown in Table 4, below.

This table shows total sales by *specified* hardware commodities to the extent of \$512,166,000, which is 88.43 per cent of all reported sales in strictly hardware commodities. In other words, while some firms found it impossible to break down their strictly hardware commodity sales in detail, a breakdown for as high as 88.43 per cent *in complete detail* was secured, which constitutes a very substantial coverage of the total.

The amounts shown for each of the specified commodities in Table 4 are subject, however, to certain limitations. In the first place 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 in wholesale transactions twice. The same is true to a certain extent of manufacturers' sales branches, who sold certain amounts of these commodities to wholesalers, who, in turn, sold the goods either to retailers or to industrial consumers. The amount of duplication does not appear to be substantial in the hardware trade, inasmuch as agents and brokers accounted for but 9.8 per cent of the total sales of hardware commodities and manufacturers' sales branches cared for 18.3 per cent, of which a considerable proportion consisted of sales to industrial consumers and to retailers, which must not be regarded as duplication. It is probable that the duplication involved in the handling of hardware commodities varied from 5 to 10 per cent of the total of such sales. To the extent to which duplication was involved, the amounts shown in Table 4 must be reduced. On the other hand, only about 90 per cent of the net sales of all trades was reported by commodities, which means that to that extent the amounts shown in the table are understated. It is probable that the duplication is more than offset by the fact that these figures as given are understated by approximately 10 per cent, provided, of course, that the 90 per cent commodity coverage for all trades applies exactly to the hardware commodities.

In the second place, wholesale establishments in the hardware trade, with net sales in the strictly hardware commodities of \$66,950,000, failed to report their commodities in *complete detail*. While they indicated just how much of their business consisted of hardware, they did not show what proportion of that business was in builders' hardware, in shelf hardware, or in any other of the specified hardware commodities. For this reason, the sum of the totals for the

specified commodities shown in Table 4 falls short of the sales of the strictly hardware commodities as presented in Table 3 by \$66,950,000.

In order to determine approximately what the total sales were in builders' hardware, for example (disregarding the 90 per cent coverage referred to above or the extent of duplication which may offset the incompleteness of the coverage as indicated above), it is necessary to project the figure given in Table 4 so as to include that portion of the \$66,950,000 which presumably consisted of builders' hardware. Assuming that the \$66,950,000 worth of hardware commodity sales were distributed among the specified hardware commodities in the same proportion as the \$512,166,000 actually reported in detail² the amount of builders' hardware sold during the year would then be 88.43 per cent of \$579,116,000, or \$73,200,000. The same procedure can be followed for each of the specified commodities, the reported and projected amounts of which are presented herewith:

Hardware commodities reported by wholesale establishments----- \$579, 116, 000
Amount reported as hardware, but not in detail..... 66, 950, 000

Amount of hardware reported by commodities *in detail*..... 512, 166, 000
Detailed commodity coverage----- (per cent)..... 88. 43

	Amount reported	Amount projected
Builders' hardware.....	\$64, 713, 000	\$73, 200, 000
Heavy hardware.....	83, 714, 000	94, 628, 000
Shelf or light hardware.....	83, 679, 000	94, 627, 000
Tools and cutlery.....	91, 537, 000	103, 488, 000
All other hardware.....	138, 523, 000	213, 173, 000
Total.....	512, 166, 000	579, 116, 000

An examination of the sales of builders' hardware indicates that 88.6 per cent of that commodity was handled in the hardware trade proper and that wholesale merchants or service wholesalers handled \$41,149,000 worth of this commodity out of a total of \$57,349,000. Next came manufacturers' sales branches with sales in builders' hardware of \$10,042,000, followed by agents and brokers with sales of \$5,050,000, and all other types with sales of \$1,108,000. For all kinds of business combined, the proportionate distribution of builders' hardware through the various types of establishments was as follows: 71.4 per cent through wholesale merchants, 17.3 per cent through manufacturers' sales branches, 8.6 per cent through agents and brokers, and 2.7 per cent through other types. With the exception of the automotive trade, wholesale merchants predominated in the distribution of builders' hardware in every line of trade. In the distribution of heavy hardware, wholesale merchants were even more prominent, handling 89.1 per cent of the total. Manufacturers' sales branches are more important as a channel of distribution for shelf or light hardware and for tools and cutlery, handling 16.9 per cent and 16.4 per cent of the goods, respectively. Agents and brokers handled a larger share of tools and cutlery than of any other hardware commodity, consisting of 14 per cent of the total. They also accounted for 13.1 per cent of the sales of shelf or light hardware, and 8.6 per cent of the sales in builders' hardware.

The statistics presented in Tables 3 and 4 should prove invaluable to the manufacturer desirous of planning the distribution of his products. They show all possible outlets in different lines of trade and the relative importance of each for

² In view of the fact that 88.43 per cent of the reported hardware commodities was shown *in detail* (512, 166,000 ÷ 579,116,000), the assumption that each of the specified commodities bears the same relationship to the total as it does to the 88.43 per cent of the total appears sound and logical.

a given hardware commodity, so that emphasis may be placed on the proper outlets. Not only that, but they indicate the prevailing logical types of distributors for the handling of a given commodity through a certain line of trade. This information is also a great significance to the wholesaler, since it shows the sources of competition which he must meet in the ordinary course of business activity.

TABLE 4.—SALES OF SPECIFIED COMMODITIES, BY TRADE AND TYPE OF ESTABLISHMENT—UNITED STATES: 1929

[Expressed in thousands of dollars]

TRADE	TOTAL		Wholesale merchants	Manufacturers' sales branches	Agents and brokers	All other types
	Amount	Per cent of total				

1. BUILDERS' HARDWARE

Total	\$64,713	100.0	\$40,215	\$11,177	\$5,596	\$1,725
Per cent of total	100.0		71.4	17.3	8.6	2.7
Amusement and sporting goods (sporting goods)	\$27	(¹)	\$27			
Automotive	818	1.3	13	\$804	\$1	
Chemicals, drugs, and allied products (paints and varnishes)	105	0.2	105			
Dry goods and apparel	142	0.2	136			\$6
Electrical	111	0.2	80		31	
General merchandise	1,253	1.9	999		17	237
Hardware	67,349	88.6	41,149	10,042	5,050	1,108
Lumber and building materials:						
Construction and building materials	1,045	1.6	568	9	338	130
Lumber and millwork	328	0.5	292			36
Machinery, equipment, and supplies (except electrical):						
Construction equipment and supplies	295	0.5	205			
Farm machinery and equipment	334	0.5	12	322		
Manufacturing, mining, and drilling machinery, equipment, and supplies	1,431	2.2	1,272		46	114
Transportation equipment and supplies	214	0.3	213		1	
Other machinery, equipment, and supplies	40	0.1	5		35	
Metals and minerals, except petroleum and scrap	521	0.8	443		78	
Plumbing and heating equipment and supplies	159	0.3	159			
All other	541	0.8	447			94

2. HEAVY HARDWARE

Total	\$53,714	100.0	\$74,623	\$1,123	\$5,878	\$2,090
Per cent of total	100.0		89.2	1.3	7.0	2.5
Automotive trade:						
Automobiles and other motor vehicles (new and used)	\$1,076	2.0	\$1,076			
Automotive equipment	72	0.1	31		\$41	
Automobile parts (new and used)	161	0.2				\$161
Dry goods and apparel (piece goods)	186	0.2	185			1
Electrical	348	0.4	265		83	
General merchandise	1,088	1.3	854			234
Hardware	70,722	84.5	64,179	\$234	5,209	1,100
Lumber and building materials	270	0.3	240		5	25
Machinery, equipment, and supplies (except electrical):						
Commercial equipment and supplies	295	0.4	88			207
Construction equipment and supplies	728	0.9	539	184	5	
Farm machinery and equipment	426	0.5	412			14
Manufacturing, mining, and drilling machinery, equipment, and supplies	4,035	4.8	3,703	10	202	120
Service equipment and supplies	189	0.2	149		40	
Transportation equipment and supplies	1,070	1.3	308	522	177	3
Metals and minerals (except petroleum and scrap):						
Iron and steel (except scrap)	741	0.9	687		54	
Metals and metal work (other than iron and steel)	112	0.1	112			
Plumbing and heating equipment and supplies:						
Plumbing equipment and supplies	211	0.3	211			
Heating equipment and supplies	173	0.1		173		
All other	1,211	1.5	924		62	225

TABLE 4.—SALES OF SPECIFIED COMMODITIES, BY TRADE AND TYPE OF ESTABLISHMENT—UNITED STATES: 1929—Continued

[Expressed in thousands of dollars]

TRADE	TOTAL		Wholesale merchants	Manufacturers' sales branches	Agents and brokers	All other types
	Amount	Per cent of total				
3. SHELF OR LIGHT HARDWARE						
Total.....	\$83,679	100.0	\$56,311	\$14,118	\$10,084	\$2,266
Per cent of total.....	100.0		67.3	16.0	13.1	2.7
Amusement and sporting goods (except cameras and motion-picture equipment and supplies).....	\$141	0.2	\$106		\$35	
Automotive:						
Automobiles and other motor vehicles.....	215	0.3	215			
Automotive equipment.....	380	0.4	1		379	
Chemicals, drugs, and allied products:						
Chemicals.....	137	0.2	53		84	
Paints, varnishes, lacquers, and enamels.....	482	0.5	382	\$6	3	\$91
Dry goods and apparel (piece goods).....	250	0.3	250			
Electrical.....	313	0.4	100	128		
Farm supplies (except machinery and equipment).....	15	(1)	15			
Furniture and house furnishings (house furnishings).....	2,080	2.5	1,268	697	115	
General merchandise.....	2,032	2.4	1,575		10	438
Hardware.....	66,220	79.1	44,543	11,065	8,126	1,592
Jewelry and optical goods (jewelry).....	55	0.1	55			
Lumber and building materials:						
Construction and building materials (other than metal and wood).....	95	0.1	72		5	18
Lumber and millwork.....	330	0.4	324			6
Machinery, equipment, and supplies (except electrical):						
Commercial machinery, equipment, and supplies.....	218	0.3	178		40	
Farm machinery, equipment, and supplies.....	80	0.1	60			
Manufacturing, mining, and drilling machinery.....	4,723	5.6	4,815	184	200	15
Service equipment and supplies.....	608	0.7	604		4	
Transportation equipment and supplies.....	165	0.2	82		83	
Other machinery, equipment, and supplies.....	6	(1)	6			
Metals and minerals (except petroleum and scrap):						
Iron and steel (except scrap).....	1,774	2.1	320		1,454	
Metals and metal work (other than iron and steel).....	480	0.6	185	345		
Paper and paper products:						
Wall paper.....	100	0.1	100			
Other paper and paper products.....	96	0.1	96			
Plumbing and heating equipment and supplies:						
Plumbing equipment and supplies.....	1,096	1.3	535	547	14	
Heating equipment and supplies.....	804	1.0	157	246	401	
All other.....	798	1.0	674	5	13	106

4. TOOLS AND CUTLERY

Total.....	\$91,537	100.0	\$59,875	\$15,048	\$12,823	\$3,791
Per cent of total.....	100.0		65.4	16.4	14.0	4.2
Amusement and sporting goods (except cameras and motion picture equipment and supplies).....	\$206	0.2	\$206			
Automotive:						
Automobiles and other motor vehicles.....	161	0.2	126			\$35
Automotive equipment.....	259	0.3	1		\$256	2
Chemicals, drugs, and allied products:						
Drugs and drug sundries (general line).....	442	0.5	442			
Paints, varnishes, lacquers, and enamels.....	155	0.2	148		5	2
Other chemicals, drugs, etc.....	88	0.1	22	\$45		21
Dry goods and apparel:						
Clothing and furnishings (other than millinery and footwear).....	27	(1)	27			
Dry goods (general line).....	56	0.1	50			6
Notions.....	120	0.1	64	56		
Piece goods.....	615	0.7	612			3
Electrical.....	495	0.5	397	57	4	37
Furniture and house furnishings (house furnishings).....	140	0.1	128		12	
General merchandise.....	2,307	2.5	1,265		43	999
Hardware.....	78,249	85.5	50,221	14,680	11,705	1,743
Jewelry.....	445	0.5	385		58	2
Leather and leather goods.....	16	(1)	16			
Lumber and building materials.....	53	(1)	51			2

TABLE 4.—SALES OF SPECIFIED COMMODITIES, BY TRADE AND TYPE OF ESTABLISHMENT—UNITED STATES: 1929—Continued

[Expressed in thousands of dollars]

TRADE	TOTAL		Wholesale merchants	Manufacturers' sales branches	Agents and brokers	All other types
	Amount	Per cent of total				
4. TOOLS AND CUTLERY—Continued						
Machinery, equipment, and supplies (except electrical):						
Commercial equipment and supplies.....	\$588	0.6	\$523	\$10	\$1	\$54
Construction equipment and supplies.....	30	(1)	20		10	
Farm machinery and equipment.....	1,655	1.8	1,655			
Manufacturing, mining, and drilling machinery, equipment and supplies.....	2,315	2.5	1,004	214	446	51
Professional equipment and supplies.....	263	0.3	11	78		174
Service equipment and supplies.....	337	0.4	326		4	7
Transportation equipment and supplies.....	139	0.2	38			2
Metals and minerals (except petroleum and scrap).....	519	0.6	503		11	
Paper and paper products.....	85	0.1	84		1	
Plumbing and heating equipment and supplies.....	342	0.4	237	8	79	18
All other.....	1,430	1.6	703		39	633

5. OTHER HARDWARE

Total.....	\$188,523	100.0	\$119,303	\$45,264	\$15,244	\$8,712
Per cent of total.....	100.0		63.3	24.0	8.1	4.6
Amusement and sporting goods (except cameras and motion-picture equipment and supplies).....	\$60	(1)	\$41			\$10
Automotive:						
Automobiles and other motor vehicles.....	499	0.3	499			
Automotive equipment.....	3,598	1.9		\$3,316	\$282	
Chemicals, drugs, and allied products:						
Drugs and drug sundries (general line).....	1,111	0.6				1,111
Paints, varnishes, lacquers, and enamels.....	1,993	1.1	1,417	163	296	117
Other chemicals and drugs.....	271	0.1	37	223	10	1
Dry goods and apparel:						
Dry goods (general line).....	221	0.1	151			70
Piece goods.....	460	0.2	460			
Electrical:						
Electrical goods (including appliances).....	6,261	3.3	672	5,429	160	
Electrical equipment and supplies.....	1,292	0.7	305	24	69	894
Radios and radio equipment.....	204	0.1	143	41	20	
Farm products (not elsewhere classified).....	24	(1)	21		3	
Farm supplies (except machinery and equipment).....	15	(1)	15			
Furniture and house furnishings (house furnishings).....	1,457	0.8	524	161	742	30
General merchandise.....	4,632	2.5	2,680			1,952
Hardware.....	126,308	67.0	85,493	27,703	10,995	2,117
Leather and leather goods (except gloves and shoes):						
Leather and leather goods (general line).....	206	0.1	206			
Leather and leather belting.....	55	(1)	55			
Luggage and leather goods.....	32	(1)	32			
Saddlery and harness.....	470	0.3	445			25
Shoe findings and cut stock.....	91	0.1	91			
Lumber and building materials:						
Construction and building materials (other than metal and wood).....	987	0.5	820	138	9	20
Lumber and millwork.....	253	0.1	66		9	178
Machinery, equipment, and supplies (except electrical):						
Commercial equipment and supplies.....	1,105	0.6	902	141	60	2
Construction equipment and supplies.....	432	0.2	172		260	
Farm machinery and equipment.....	405	0.2	358	35	32	
Manufacturing, mining, and drilling machinery.....	12,996	6.9	9,754	2,062	1,160	20
Professional equipment and supplies.....	173	0.1	167	1		5
Service equipment and supplies.....	7,492	4.0	2,278	5,050	164	
Transportation equipment and supplies.....	5,532	3.0	4,727		850	5
Metals and minerals (except petroleum and scrap):						
Iron and steel (except scrap).....	1,524	0.8	607	12	5	900
Metals and metal work (other than iron and steel).....	410	0.2	77	333		
Paper and paper products:						
Paper and paper products (general line).....	745	0.4	327	407	5	6
Stationery and stationery supplies.....	2	(1)		2		
Wall paper.....	314	0.2	314			
Plumbing and heating equipment and supplies:						
Plumbing equipment and supplies.....	2,479	1.3	2,416	8	5	50
Heating equipment and supplies.....	39	(1)	22	15	2	
All other.....	4,325	2.3	3,029		106	1,190

¹ Less than one-tenth of 1 per cent.

SUMMARY OF WHOLESALE HARDWARE TRADE

The foregoing analysis deals solely with the distribution of strictly hardware commodities by all kinds of business or lines of trade. It does not show what other commodities are handled in the hardware trade, nor is any attempt made therein to discuss the *hardware 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 hardware to the extent of more than 50 per cent of their net sales. In other words, only those establishments are included in what is termed the *wholesale hardware trade*, the bulk of whose business (over 50 per cent of the total) consisted in hardware commodities.

United States Summary.—As indicated in Table 3, the total sales of strictly hardware commodities made by all wholesale organizations amounted to \$579,116,000. Of this amount, \$459,573,000 was sold by establishments classified in the hardware trade.

Inasmuch, however, as only 93.7 per cent of the sales made by wholesale hardware establishments was reported by commodities, the \$459,573,000 sales in hardware commodities reported may be projected into a total figure (by dividing this amount by 93.7 and then multiplying by 100), which is \$490,405,469. In addition to the \$490,405,469 of strictly hardware commodities sold by the wholesale establishments in the hardware trade, they also sold \$533,405,163 in allied commodities, making the total sales by the wholesale hardware trade (strictly hardware commodities as well as other commodities) \$1,023,810,632. This is the total volume of business which is analyzed in the following tables.

The 2,273 wholesale establishments employed 53,127 people, paying them \$99,746,104 in salaries and wages. They incurred total operating expenses (not including the cost of merchandise sold nor capital invested) of \$176,032,543, and carried stocks of merchandise at the end of the year valued on a cost or replacement basis at \$201,801,091.

TABLE 5.—SUMMARY OF WHOLESALE HARDWARE TRADE IN THE UNITED STATES: 1929

	TOTAL	GENERAL LINE HARDWARE		SPECIALTY LINE HARDWARE	
		Number or amount	Per cent of total	Number or amount	Per cent of total
Number of establishments.....	1 2, 273	838	36.9	1, 435	63.1
Net sales.....	\$1, 023, 810, 632	\$665, 747, 665	65.0	\$358, 062, 967	35.0
Total employees.....	53, 127	37, 185	70.0	15, 942	30.0
Total salaries and wages.....	\$99, 746, 104	\$67, 686, 372	67.9	\$32, 059, 732	32.1
Total expenses.....	\$176, 032, 543	\$119, 077, 274	68.0	\$56, 955, 269	32.0
Stocks on hand Dec. 31, 1929.....	\$201, 801, 091	\$152, 041, 552	75.3	\$49, 759, 539	24.7

Of the total number of wholesale hardware establishments, 838 handled a general line of hardware, while 1,435, or 63.1 per cent of the establishments, consisted of short-line distributors each handling a limited number of hardware items or confining himself to a single phase of hardware, such as cutlery or builders' hardware. The relatively small number (36.9 per cent of the establishments) of general line houses, however, accounted for 65 per cent of the hardware business, employed 70 per cent of all paid employees, and carried 75.3 per cent of all stock

¹ For a complete statement of the types of wholesale organizations comprising the wholesale hardware trade, see p. 23.

of merchandise. This means that the specialty houses operated on a much smaller scale than the general line houses and incurred relatively smaller costs, partly because they carried less than their proportionate share in stocks and partly because they employed fewer people. The probable reasons for these differences will be revealed in the following pages.

A better understanding of the difference between general line and specialty hardware houses may be had from the following examples. Examples 1-4 show the variety and proportions of the merchandise handled by typical hardware wholesalers in the *general line field*, while examples 5-8 indicate the nature of *specialty wholesaling* in the hardware trade.

EXAMPLE 1.—GENERAL LINE HARDWARE WHOLESALER COVERING A SINGLE STATE (ANNUAL SALES APPROXIMATELY \$3,000,000)

ITEM	Per cent of net sales
Hardware.....	83.1
Builders' hardware.....	10.1
Shelf or light hardware.....	10.0
Tools and cutlery.....	20.7
Heavy hardware.....	27.3
All other hardware.....	15.0
Automotive equipment.....	7.4
Automobile accessories.....	6.5
Tires and tubes.....	0.9
Electrical appliances and supplies.....	3.3
Radio sets, parts, and accessories.....	6.2
Total.....	100.0

EXAMPLE 2.—GENERAL LINE HARDWARE WHOLESALER COVERING FIVE STATES (ANNUAL SALES APPROXIMATELY \$5,000,000)

ITEM	Per cent of net sales
Hardware.....	32.0
Builders' hardware.....	6.4
Shelf or light hardware.....	6.0
Tools and cutlery.....	6.9
Heavy hardware.....	5.4
All other hardware.....	7.3
China, glassware, and crockery.....	0.3
China.....	0.1
Glassware.....	0.1
Crockery.....	0.1
Paints, varnishes, and lacquers.....	2.1
Industrial and heavy chemicals (alcohol).....	1.2
Iron and steel.....	6.8
Rough castings and forgings (except cast iron pipe).....	1.7
Structural iron and steel and reinforcing bars.....	1.7
Iron and steel pipe and tubes, cast, wrought, and riveted.....	2.1
Wire, wire rope, screening, and fencing.....	1.3
Automotive equipment, parts and accessories.....	0.1
Rope, cordage, and twine.....	0.4
Electrical goods.....	9.5
Plumbing fixtures, equipment, and supplies.....	8.2
House furnishings.....	14.4
Carpets and rugs.....	6.9
Linoleums, felt base and all other floor coverings.....	6.9
House furnishings, not listed elsewhere.....	0.6

EXAMPLE 2.—GENERAL LINE HARDWARE WHOLESALER COVERING FIVE STATES
(ANNUAL SALES APPROXIMATELY \$5,000,000)—Continued

ITEM	Per cent of net sales
Radio sets, parts, and accessories, including radio sets combined with talking machines.....	8.3
Sporting goods, including arms and ammunition.....	9.8
Total.....	100.0

EXAMPLE 3.—GENERAL LINE HARDWARE WHOLESALER COVERING A SECTION OF
THE UNITED STATES (ANNUAL SALES AROUND \$7,000,000)

ITEM	Per cent of net sales
Hardware.....	37.3
Builders' hardware.....	9.2
Shelf or light hardware.....	3.1
Tools and cutlery.....	8.5
Heavy hardware.....	5.5
All other hardware.....	11.0
Furniture (household).....	0.1
China, glassware, and crockery.....	2.2
China.....	0.7
Glassware.....	0.8
Crockery.....	0.7
Paints, varnishes, and lacquers.....	3.4
Fertilizer and fertilizer materials.....	(1)
Oils, animal and vegetable.....	0.5
Iron and steel.....	20.2
Structural iron and steel and reinforcing bars.....	0.4
Iron and steel pipe and tubes, cast, wrought, and riveted.....	4.5
Wire, wire rope, screening, and fencing.....	5.5
All other.....	9.8
Copper ingots, bars, shapes, sheets, bare wire, pipe, tubes, castings, and other rolled copper....	0.7
Lead (metallic), pig, bar, sheet, and pipe.....	(1)
Zinc bars, plates, shapes, and sheets.....	0.1
Automotive equipment and supplies.....	0.1
Farm and garden equipment and supplies.....	0.9
Industrial machinery, equipment, and supplies.....	4.5
Mining, quarrying, well drilling, and pumping machinery not listed elsewhere.....	1.4
Belting, hose, packing, and mechanical rubber goods.....	1.0
Pipe fittings, valves, and specialties.....	1.4
Rope, cordage, and twine.....	0.7
Electrical goods.....	1.0
Electric household appliances, including washing machines, ironers, vacuum cleaners, etc.....	1.8
Electric motors, generators, and control apparatus.....	(1)
Interior electric construction materials, including electric fixtures.....	0.1
Plumbing and heating equipment and supplies.....	4.3
Plumbing fixtures, equipment, and supplies (including sanitary ware).....	3.9
Stoves, ranges, furnaces, heating apparatus, and parts.....	0.4
Building materials not listed elsewhere (such as wallboard, roofing, etc.).....	0.8
House furnishings, not listed elsewhere.....	9.1
Clocks and watches.....	0.2
Sporting goods, including arms and ammunition.....	12.3
Toys and games.....	1.4
Total.....	100.0

¹ Less than one-tenth of 1 per cent.

EXAMPLE 4.—GENERAL LINE HARDWARE WHOLESALER DISTRIBUTING
NATIONALLY (ANNUAL SALES OVER \$15,000,000)

ITEM	Per cent of net sales
Hardware.....	58.1
Builders' hardware.....	} 5.8
Shelf or light hardware.....	
Tools and cutlery.....	
All other hardware.....	
Luggage, saddlery, and harness, and all other products made of leather, except boots, shoes, clothing, and leather belting.....	0.3
Furniture, wooden and metal.....	2.0
Household furniture.....	1.3
Office and store furniture and fixtures.....	0.7
Paper.....	(1) 5.1
Paints, varnishes, and lacquers.....	
Iron and steel.....	2.9
Wire, wire rope, screening, and fencing.....	2.7
All other.....	0.2
Automotive equipment, parts, and accessories.....	3.7
Automobile accessories.....	3.1
Tires and tubes.....	0.6
Farm and garden equipment and supplies.....	5.8
Rope, cordage, and twine.....	1.2
Electrical goods.....	3.6
Batteries, storage.....	(1) 1.3
Electric household appliances, including washing machines, ironers, vacuum cleaners, etc.	1.8
All other electrical appliances and supplies.....	1.8
Jewelry, silverware, clocks, watches, precious stones, and precious metals.....	1.3
Silverware and plated ware.....	0.3
Clocks and watches.....	0.5
Sporting goods, including arms and ammunition.....	13.0
Toys and games.....	3.0
Total.....	100.0

¹ Less than one-tenth of 1 per cent.

EXAMPLE 5.—SPECIALTY HARDWARE WHOLESALER COVERING A SINGLE CITY
(ANNUAL SALES \$45,000)

ITEM	Per cent of net sales
Cutlery (pocket knives, scissors, and shears).....	100.0

EXAMPLE 6.—SPECIALTY HARDWARE WHOLESALER COVERING PART OF A STATE
(ANNUAL SALES ABOUT \$50,000)

ITEM	Per cent of net sales
Heavy hardware (horse shoes, steel, bolts, nuts, rivets).....	100.0

EXAMPLE 7.—SPECIALTY HARDWARE WHOLESALER COVERING THE MIDDLE WEST (ANNUAL SALES AROUND \$300,000)

ITEM	Per cent of net sales
Hardware.....	88.3
Shelf or light hardware.....	86.8
Tools and cutlery.....	1.5
Iron and steel.....	11.7
Scrap iron and steel.....	5.2
Wire, wire rope, screening, and fencing.....	6.5
Total.....	100.0

EXAMPLE 8.—SPECIALTY HARDWARE WHOLESALER DISTRIBUTING NATIONALLY (ANNUAL SALES AROUND \$1,000,000)

ITEM	Per cent of net sales
Builders' hardware.....	100.0

United States summary, by type of establishment.—The 838 establishments handling a general line of hardware consisted of 734 wholesale merchants of the service type (commonly designated as wholesalers or jobbers),³ 80 agents and brokers, and 24 establishments listed under "all other" types of distributors. (See Table 6.) The wholesale merchants, with 87.6 per cent of the establishments and 93.5 per cent of the business in the general line hardware trade, occupied a dominant position. All of the miscellaneous types combined, including the newer types of wholesalers, shared but 2.2 per cent of the business. Next in importance to wholesale merchants were agents and brokers who accounted for 4.3 per cent of the business. However, since these agents and brokers normally sold to wholesalers rather than to retailers, it may be said that the service wholesalers in the general line hardware field have practically no competition from other types operating in the same field. Their chief competition, as will be shown below, obviously comes from specialty hardware houses and from wholesalers engaged in other trades but who sell hardware as side lines.

It is noteworthy that, while wholesale merchants in the general line hardware trade did 93.5 per cent of the business, they carried 98.7 per cent of the stocks and employed 96.7 per cent of the people. The greatest difference between the volume of business and the number of employees is to be noted for agents and brokers, as might be expected, since these organizations perform fewer functions

³ For a complete statement of what types of establishments have been classified as wholesale merchants, see Bulletin on Wholesale Distribution—Definitions and Classifications, Distribution No. W-100, U. S. Government Printing Office. Obviously, all establishments had to be covered in the census. No distinction could be drawn on the basis of size of the business. A well-known definition of a recognized hardware wholesaler or jobber is the following: "A recognized hardware jobber is one located in a hardware center, whose business is selling hardware at wholesale, whose sales to merchants exclusive of machinery and implements and mill supplies are not less than 75 per cent of gross sales, who has an invested capital of not less than \$75,000, doing a business of not less than \$250,000 per annum, and maintaining at least 3 salesmen on the road." For census purposes, every establishment had to be *recognized*, regardless of its size, invested capital, or the number of salesmen employed. Distinctions were drawn in classifying the establishments primarily on the basis of functions performed and kinds of merchandise handled. For this reason, the number of wholesale merchants here given may be at variance with any lists now published by private organizations.

and hence require fewer people. Besides, they are usually operated by the owners themselves, which means fewer hired employees.

In the specialty field, an entirely different situation obtains. Here, the wholesale merchants, while still the dominant type, numbered 741, or 51.6 per cent of all specialty houses and cared for 49.7 per cent of the total business reported by such firms. On the other hand, manufacturers' sales branches came to the front with 22.9 per cent of the establishments and 34 per cent of the business, which indicates for them a rather important position in the specialty field, and also that they operate on a much larger scale than do wholesale merchants. Agents and brokers were more prominent in the specialty field, numbering 328 (22.9 per cent of the establishments) with 14.2 per cent of the business. As in the general line trade, all other types were relatively insignificant.

TABLE 6.—SUMMARY OF WHOLESALE HARDWARE TRADE, BY TYPE OF ESTABLISHMENT

	Total	WHOLESALE MERCHANTS		MANUFACTURERS' SALES BRANCHES		AGENTS AND BROKERS		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. GENERAL LINE									
Number of establishments.....	838	734	87.6			80	0.5	124	2.9
Net sales.....	\$665,747,665	\$622,550,281	93.5			\$28,502,193	4.3	\$14,500,188	2.2
Total employees.....	37,135	36,128	97.2			450	1.2	007	1.6
Total salaries and wages.....	\$67,680,372	\$65,453,192	96.7			\$1,144,383	1.7	\$1,088,297	1.6
Total expenses.....	\$110,677,274	\$116,667,461	96.2			\$1,831,276	1.5	\$2,778,537	2.3
Stocks on hand Dec. 31, 1929.....	\$162,041,552	\$150,005,434	98.7			\$538,367	0.4	\$1,497,751	0.0
2. SPECIALTY									
Number of establishments.....	1,435	741	51.6	328	22.9	328	22.9	238	2.6
Net sales.....	\$358,062,007	\$177,940,424	49.7	\$121,844,317	34.0	\$50,823,653	14.2	\$7,464,673	2.1
Total employees.....	15,942	11,223	70.4	3,365	21.1	1,105	7.3	189	1.2
Total salaries and wages.....	\$32,050,732	\$20,113,220	62.8	\$8,805,421	27.7	\$2,650,804	8.3	\$400,227	1.2
Total expenses.....	\$56,355,260	\$34,601,027	61.0	\$16,110,318	28.6	\$4,677,228	8.3	\$376,600	1.5
Stocks on hand Dec. 31, 1929.....	\$40,760,539	\$34,007,120	80.5	\$12,014,765	29.0	\$1,684,243	3.4	\$553,411	1.1

¹ Includes 5 export merchants with \$673,972 net sales; 5 export agents with \$3,773,154; 5 importers with \$2,011,210; and 2 drop shippers, 2 auction companies, 1 mail-order wholesaler, 1 chain-store warehouse, 1 purchasing agent, and 2 distributing warehouses, with sales aggregating \$7,240,852.
² Includes 7 export merchants with \$1,760,210 net sales; 4 export agents with \$400,567; 12 importers with \$934,402; 7 drop shippers with \$3,501,003; 4 commission merchants with \$307,945; and 1 import agent, 1 cash-and-carry, and 2 wholesaling manufacturers, with sales totaling \$504,450.

Growth of General Line Hardware Wholesalers.—Significant facts on the approximate growth and stability of the service wholesalers in the hardware trade are revealed in the reports on this point made by the 734 wholesale merchants carrying a general line of hardware. 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 (1929) ownership. (See Table 7.)

It is impossible from census statistics to determine how many hardware wholesalers came into being and went out of business during the period covered by Tables 7 and 8. In other words, no mortality figures or data can be shown in this report. It was impossible to count 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 hardware wholesalers, but in a very imperfect manner.

It is significant that 50 of the general line houses were in business prior to 1850 and that another 112 came into being in the period 1850-1874. In fact, 337 houses, constituting approximately 46 per cent of the total, existed prior to the twentieth century.

The greatest development in the general line hardware business (based on the number in existence when the census was taken) occurred prior to the World War, at which time 527 of the 734 houses were in operation, about 72 per cent of the total.

While the general line hardware wholesale business, at least as far as the service wholesaler is concerned, is old and well established, it can not be said that the old firms are so strongly entrenched as to eliminate any opportunity for newcomers. Even during 1929, the very last year covered by these statistics, 13 such houses were formed, and the previous year recorded the establishment of 18. In other words, 73 houses, or about 10 per cent of all service wholesalers in the general line hardware trade in business at the end of 1929, came into being within the preceding five years.

TABLE 7.—DATE OF ESTABLISHMENT AND DATE OF PRESENT OWNERSHIP OF GENERAL LINE WHOLESALE MERCHANTS IN THE HARDWARE TRADE

YEAR BUSINESS WAS ESTABLISHED	Total	YEAR BUSINESS CAME UNDER PRESENT (1929) OWNERSHIP											
		1929	1928	1927	1926	1925	Prior to 1924 but unknown	1920-1924	1914-1919	1900-1913	1875-1899	1850-1874	Prior to 1850
Total.....	734	21	30	23	26	27	7	120	84	240	132	15	8
1929.....	13	13											
1928.....	18	1	17										
1927.....	9			9									
1926.....	12				12								
1925.....	21	1		2		18							
Prior to 1924 but unknown.....	9			1			7			1			
1920-1924.....	72	1	2	2	2	2		63					
1914-1919.....	53		1	1	1	1		5	44				
1900-1913.....	190	2	4	2	4	1		14	10	153			
1875-1899.....	175	1	3	4	4	4		22	14	41	82		
1850-1874.....	112	1	3		2	1		12	11	29	39	14	
Prior to 1850.....	50	1		2	1			4	5	22	11	1	3

Growth of specialty hardware wholesalers.—Prior to 1914, only 318 houses, or 42.9 per cent of all such firms, were in existence. Only 18.9 per cent of all specialty houses existed prior to the present century, as against 46 per cent for the general line houses. (See Table 8.) During the decade 1914-1924, no less than 33.7 per cent of the specialty firms were established, but the rate of growth reached the peak during the five years ending with 1929, which accounted for 22.8 per cent of the establishments.

TABLE 8—DATE OF ESTABLISHMENT AND DATE OF PRESENT OWNERSHIP OF SPECIALTY WHOLESALE MERCHANTS IN THE HARDWARE TRADE

YEAR BUSINESS WAS ESTABLISHED	YEAR BUSINESS CAME UNDER PRESENT (1929) OWNERSHIP											Prior to 1850	
	Total	1920	1923	1927	1926	1925	Prior to 1924 but unknown	1920-1924	1914-1919	1900-1913	1875-1899		1850-1874
Total.....	741	49	58	49	28	51	4	166	118	158	50	3	1
1929.....	37	37											
1928.....	41	1	40										
1927.....	33		3	30									
1926.....	20		1	2	17								
1925.....	38	1		3		34							
Prior to 1924 but unknown.....	4						4						
1920-1924.....	143	6	4	5	1	6		121					
1914-1919.....	107		1	1	3	4		10	88				
1900-1913.....	178		5	2	4	4		12	15	136			
1875-1899.....	90	4	2	3	2	1		11	8	14	45		
1850-1874.....	33		2	2				8	5	5	8	3	
Prior to 1850.....	17			1	1	2		4	2	3	3		1

Continuity and age of present ownership.—Of the 734 general line hardware wholesalers, 435, or 59.3 per cent, were under the same ownership since their organization. This statement, as well as the entire treatment of the subject relating to the continuity of ownership, is 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 (as of the end of 1929) in 1923, it would not be included in the establishments changing ownership. What the data really indicate is that of the 72 general line hardware wholesale merchants, for example, that came into being during the period 1920-1924, 63 houses have not changed hands since 1925, although some of them may have changed hands prior to 1925 but after 1920 and they may have changed hands during the period more than once. 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 during the period covered by the tables. Nevertheless, they represent a rough approximation of the continuity of ownership, which is particularly valuable for comparison with other lines of business, similar data for which are subject to the same qualifications.

Of the 13 wholesale houses established in 1929, none apparently changed hands during the year. Of the 18 established in 1928, 17 remained under the same ownership and 1 changed hands in 1929. The 9 and 12 firms established in 1927 and 1926, respectively, remained under the same ownership. Even of the 190 houses established in the period of 1900-1913, 153 remained under the original ownership through 1929. The greatest changes in ownership took place among the establishments that were organized prior to the present century, a little over 70 per cent of such establishments having changed hands. Even these establishments continued under the original ownership, with but few exceptions, until after 1920. *These statistics show a remarkable continuity in ownership of general line hardware houses.* The same general situation obtains in the case of specialty hardware wholesalers.

THE LOCATION OF WHOLESALE HARDWARE ESTABLISHMENTS

Hardware distribution, by States and geographic divisions.—The statistics presented in Table 9 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.

The wholesale hardware trade, is not very highly concentrated. Wholesale hardware establishments are found in all but two States. Both of these States are small in population and are dominated by relatively large near-by wholesale centers. On the other hand, the five States of New York, Ohio, Illinois, California, and Pennsylvania (ranked in the order of their importance as hardware centers) distributed 44 per cent of the hardware, the next 5 States added another 22 per cent, so that the 10 leading States in the hardware trade accounted for approximately two-thirds of the business (66 per cent).

There is little correlation of wholesale hardware sales with population, as shown by the great variations in per capita sales, even when reckoned by large geographic areas. For the entire United States the per capita sales made by all hardware establishments and by wholesale merchants alone were \$8.34 and \$6.52, respectively. These per capita figures for the various sections of the country were as follows:

DIVISION	All types	Wholesale merchants
New England.....	\$5.52	\$4.45
Middle Atlantic.....	8.18	4.81
East North Central.....	10.30	7.06
West North Central.....	10.21	9.79
South Atlantic.....	4.26	3.91
East South Central.....	9.09	8.68
West South Central.....	5.61	5.16
Mountain.....	8.95	8.54
Pacific.....	13.30	10.65

From the above it appears that the Middle West is the biggest hardware consuming center, and that the Far West is next in importance.

TABLE 9.—WHOLESALE HARDWARE DISTRIBUTION, 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, 273	\$1, 023, 810, 632	100. 0	-----	-----	1, 475	\$800, 496, 708	100. 0	-----	-----
NEW ENGLAND.....	151	45, 064, 008	-----	-----	-----	111	30, 305, 488	-----	-----	-----
Maine.....	14	5, 338, 119	0. 5	34	35	12	5, 185, 440	0. 7	35	35
New Hampshire.....	4	2, 537, 042	0. 4	98	42	3	3, 527, 234	0. 4	38	42
Vermont.....	7	2, 490, 102	0. 2	42	46	6	2, 440, 067	0. 3	42	46
Massachusetts.....	91	23, 958, 790	2. 3	14	37	61	16, 753, 860	2. 1	16	37
Rhode Island.....	11	3, 176, 841	0. 3	40	37	11	3, 176, 841	0. 4	40	8
Connecticut.....	24	6, 532, 544	0. 6	33	29	18	5, 221, 147	0. 7	34	29
MIDDLE ATLANTIC.....	697	214, 873, 283	-----	-----	-----	441	126, 231, 157	-----	-----	-----
New York.....	465	138, 864, 046	13. 6	1	1	287	68, 468, 158	8. 6	1	1
New Jersey.....	50	11, 226, 871	1. 1	23	9	46	9, 581, 882	1. 2	24	9
Pennsylvania.....	182	64, 782, 366	6. 3	5	2	128	48, 181, 117	6. 0	5	2
EAST NORTH CENTRAL.....	531	260, 604, 514	-----	-----	-----	293	178, 038, 850	-----	-----	-----
Ohio.....	142	78, 552, 225	7. 7	2	4	82	60, 612, 901	7. 6	2	4
Indiana.....	41	23, 106, 888	2. 3	15	11	28	20, 301, 606	2. 5	15	11
Illinois.....	181	78, 039, 596	7. 6	3	3	87	44, 512, 346	5. 6	6	3
Michigan.....	130	57, 768, 139	5. 6	6	7	68	32, 136, 740	4. 0	9	7
Wisconsin.....	37	29, 038, 166	2. 8	16	13	28	21, 076, 248	2. 6	14	13

TABLE 9—WHOLESALE HARDWARE DISTRIBUTION, BY STATES AND GEOGRAPHIC DIVISIONS: 1929—Continued

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
WEST NORTH CENTRAL.....	148	\$135,704,401				109	\$130,176,146			
Minnesota.....	32	43,389,114	4.2	8	18	20	41,799,884	5.2	7	18
Iowa.....	24	14,484,433	1.4	18	19	21	14,067,733	1.8	18	19
Missouri.....	67	56,616,086	5.5	7	10	43	53,104,261	6.0	3	10
North Dakota.....										38
South Dakota.....	4	1,918,932	0.2	43	36	4	1,918,932	0.2	43	36
Nebraska.....	10	8,807,684	0.9	29	32	10	8,807,684	1.1	27	32
Kansas.....	11	10,488,152	1.0	24	24	11	10,488,152	1.3	23	24
SOUTH ATLANTIC.....	177	67,330,669				151	61,704,669			
Delaware.....	3	858,936	0.1	44	47	3	858,936	0.1	44	47
Maryland.....	27	8,811,026	0.9	28	28	19	8,868,632	0.7	32	25
District of Columbia.....	4	331,881	(1)	46	41	4	331,881	(1)	46	41
Virginia.....	30	12,120,225	1.2	20	20	28	11,615,925	1.4	21	20
West Virginia.....	19	11,743,243	1.2	21	27	19	11,743,243	1.5	20	27
North Carolina.....	25	9,038,867	0.9	27	12	21	8,273,665	1.0	28	12
South Carolina.....	20	8,630,888	0.8	30	26	19	8,529,429	1.1	28	26
Georgia.....	32	10,460,698	1.0	25	14	22	9,292,940	1.2	26	14
Florida.....	17	5,314,915	0.5	35	31	16	5,286,618	0.7	33	31
EAST SOUTH CENTRAL.....	108	89,902,147				94	85,778,475			
Kentucky.....	29	31,666,271	3.1	10	17	28	31,361,659	3.6	10	17
Tennessee.....	36	30,402,395	3.0	11	16	28	27,134,214	3.4	11	16
Alabama.....	29	24,462,273	2.4	13	15	24	23,810,494	3.0	12	15
Mississippi.....	14	3,472,208	0.3	39	23	14	3,472,208	0.4	39	23
WEST SOUTH CENTRAL.....	117	68,260,244				90	62,804,390			
Arkansas.....	12	7,034,492	0.7	31	25	12	7,034,492	0.9	30	25
Louisiana.....	33	17,433,813	1.7	17	22	24	14,804,772	1.9	17	22
Oklahoma.....	16	6,904,907	0.7	32	21	11	5,914,914	0.7	31	21
Texas.....	66	36,887,032	3.6	9	5	43	35,050,212	4.4	8	5
MOUNTAIN.....	52	33,143,997				30	31,611,445			
Montana.....	8	3,752,019	0.4	37	39	8	3,752,019	0.5	37	39
Idaho.....	6	4,319,901	0.4	36	43	6	4,319,901	0.5	36	43
Wyoming.....										48
Colorado.....	22	11,611,556	1.1	22	33	13	10,933,618	1.4	22	33
New Mexico.....	2	944,920	(1)	45	46	2	344,520	(1)	45	46
Arizona.....	5	2,335,494	0.3	41	44	4	2,476,594	0.3	41	44
Utah.....	8	10,253,048	1.0	26	40	5	9,453,428	1.2	25	40
Nevada.....	1	327,465	(1)	47	49	1	327,465	(1)	47	49
PACIFIC.....	292	109,007,369				147	87,246,088			
Washington.....	63	25,565,152	2.5	12	30	39	22,631,194	2.8	13	30
Oregon.....	34	14,167,347	1.4	19	34	17	12,095,731	1.5	19	34
California.....	195	69,244,870	6.8	4	6	91	52,510,163	6.6	4	6

¹ Less than one-tenth of 1 per cent.

Wholesale hardware trade, by principal trade centers.—For the purposes of the trade series of reports of the Census of Wholesale Distribution 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 more than 500,000 or are so located as to be representative of their respective sections of the country.

Table 10 shows for each of these cities the total number of establishments engaged in the wholesale hardware business, their net sales, the rank of each city according to the volume of hardware business as compared with its rank in population, and the number of establishments by types of organization. In addition, such information is shown for other cities with annual wholesale hardware sales of not less than \$5,000,000. This indicates the relative importance of a community as a hardware center and the types of wholesale outlets available to a manufacturer, as well as the nature of competition in the wholesale hardware trade among the different types of establishments. (See Table 10 and the map showing wholesale hardware trade centers in the United States.)

As indicated in Table 10, the five leading wholesale centers in the hardware trade are New York, Chicago, Detroit, St. Louis, and Cleveland. These five cities accounted for 27.7 per cent of the total hardware business for the United States. The next five cities, also ranked in their order of importance, are Los Angeles, San Francisco, Philadelphia, Louisville, and Minneapolis. They contributed another 13.2 per cent, the 10 leading hardware centers reporting sales of 40.9 per cent of the total, which indicates some degree of concentration but not of a pronounced character. All of the 30 cities included in Table 10 handled 62 per cent of the hardware business. The remaining 38 per cent, however, was spread throughout the United States over a large number of communities. Many of the hardware commodities are necessities of a convenience character, i. e., they have a widespread demand and are purchased by consumers in the nearest stores handling them. This situation requires wide distribution through many stores in order to make the goods accessible to the public. To serve such a large number of stores with the standard hardware merchandise, a number of local wholesalers have come into being. Many of the stores handling such goods are too small to justify cultivation on the part of national distributors or directly by manufacturers. *The information shown in this table furnishes a basis for charting sales quotas by territories and for the ascertainment of changes in trend when future censuses of distribution are taken.*

TABLE 10.—WHOLESALE HARDWARE TRADE CENTERS IN THE UNITED STATES: 1929

CITY	Number of establishments	NET SALES		RANK IN—		NUMBER OF ESTABLISHMENTS BY TYPE			
		Amount	Per cent of total	Net sales	Population	Wholesale merchants	Manufacturers' sales branches	Agents and brokers	All other types
United States total.....	2, 273	\$1, 023, 810, 632	100.0						
Total for 30 cities.....	1, 371	634, 938, 818	62.0			705	240	363	54
New York, N. Y.....	382	106, 542, 744	10.4	1	1	205	47	93	37
Chicago, Ill.....	152	68, 530, 424	6.7	2	2	65	45	35	7
Philadelphia, Pa.....	78	27, 492, 257	2.7	8	3	47	10	12	27
Detroit, Mich.....	91	38, 784, 108	3.8	3	4	35	30	25	1
Los Angeles, Calif.....	60	29, 000, 304	2.9	6	5	31	7	30	1
Cleveland, Ohio.....	51	33, 105, 844	3.2	5	6	19	13	19	.....
St. Louis, Mo.....	37	36, 912, 119	3.6	4	7	25	5	7	.....
Baltimore, Md.....	20	6, 457, 883	0.6	28	8	13	3	4	.....
Boston, Mass.....	51	14, 123, 705	1.4	14	9	29	11	11	.....
Pittsburgh, Pa.....	37	20, 385, 973	2.0	11	10	20	7	8	2
San Francisco, Calif.....	93	28, 114, 745	2.8	7	11	35	17	38	3
Milwaukee, Wis.....	19	15, 009, 934	1.5	12	12	14	3	2	.....
Buffalo, N. Y.....	24	14, 080, 779	1.4	15	13	13	5	6	.....
New Orleans, La.....	18	9, 654, 165	0.9	23	15	10	4	4	.....
Seattle, Wash.....	40	14, 278, 918	1.4	13	18	18	5	14	3
Denver, Colo.....	15	9, 605, 428	0.9	24	24	6	1	8	.....
Atlanta, Ga.....	15	4, 084, 342	0.4	29	26	6	7	2	.....
Dallas, Tex.....	11	3, 497, 171	0.3	30	27	4	4	3	.....
Minneapolis, Minn.....	19	22, 123, 270	2.2	10	14	14	4	1	.....
Cincinnati, Ohio.....	31	10, 125, 927	1.0	21	10	21	1	9	.....
Kansas City, Mo.....	17	12, 418, 252	1.2	16	17	12	2	3	.....
Indianapolis, Ind.....	15	12, 350, 455	1.2	17	19	6	3	6	.....
Louisville, Ky.....	13	26, 444, 889	2.6	9	20	12	.....	1	.....
Portland, Oreg.....	27	11, 974, 176	1.2	18	21	13	3	11	.....
Houston, Tex.....	4	9, 470, 659	0.9	25	22	3	.....	1	.....
Toledo, Ohio.....	13	11, 340, 143	1.1	20	23	10	2	1	.....
St. Paul, Minn.....	5	10, 071, 917	1.0	22	25	2	.....	3	.....
Memphis, Tenn.....	9	11, 746, 123	1.2	19	28	7	1	1	.....
Nashville, Tenn.....	8	7, 415, 391	0.7	27	29	6	.....	2	.....
Salt Lake City, Utah.....	7	8, 884, 673	0.8	26	30	4	.....	3	.....

Extent of the sales territory radius.—Additional light is thrown on the whole-sale hardware market by the statistics showing the extent of the sales territory covered regularly by wholesale establishments. (Table 11.) For the United States as a whole the data are presented in Table 25.

TABLE 11.—THE MARKET RADIUS¹ FOR 18 STRATEGIC CITIES, WHOLESALE HARDWARE TRADE: 1929

CITY (Arranged according to population)	TOTAL NET SALES		PER CENT OF TOTAL NET SALES							All other ²	
	Amount	Per cent of total	Made by concerns whose sales territory extends from their respective locations to a radius of—						Over 500 miles		
			Not over 75 miles	76 to 150 miles	151 to 250 miles	251 to 500 miles	But not nation-wide	Nation-wide			
United States total	\$1,023,810,632	100.0									
Total for 18 cities	430,560,933	46.9	17.9	7.9	16.3	12.4	26.3	7.0		11.7	
New York, N. Y.	100,542,744	10.4	33.9	4.3	10.1	6.5	8.7	18.3		18.2	
Chicago, Ill.	68,530,424	6.7	12.0	4.5	6.6	16.1	21.3	10.5		29.0	
Philadelphia, Pa.	27,492,267	2.7	18.7	13.7	11.4	14.9	30.8	7.2		3.3	
Detroit, Mich.	38,784,108	3.8	33.2	20.2	38.2	6.8		0.9		0.7	
Los Angeles, Calif.	29,000,394	2.9	5.3	14.6	21.8	23.4	29.9	0.0			
Cleveland, Ohio	33,105,844	3.2	4.6	8.1	31.4	2.9	39.0	3.6		10.4	
St. Louis, Mo.	36,912,119	3.6	11.3		9.7		77.6	0.5		0.9	
Baltimore, Md.	6,457,883	0.6	43.8	0.8	21.8	13.4	20.2				
Boston, Mass.	14,123,705	1.4	14.0	4.3	31.3	21.2	26.0	1.9		1.3	
Pittsburgh, Pa.	20,385,973	2.0	16.5	44.6	4.8		27.1	7.0			
San Francisco, Calif.	28,114,745	2.8	9.5	0.9	0.1	21.8	67.2				
Milwaukee, Wis.	15,009,984	1.5	1.3		53.0		45.6			0.5	
Buffalo, N. Y.	14,080,779	1.4	20.5	4.0	40.6	34.9					
New Orleans, La.	9,654,165	0.9	19.1	3.4	6.8	33.1	13.2			24.5	
Seattle, Wash.	14,278,918	1.4	3.7	5.1	9.2	1.6	6.7	8.2		64.5	
Denver, Colo.	9,605,428	0.9			4.4	20.9	74.7				
Atlanta, Ga.	4,034,342	0.4	4.6		48.5	46.9					
Dallas, Tex.	3,497,171	0.3	2.3			91.5	4.3	1.9			

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 75 to 150 miles, for example, it does not mean that such territory was not covered but merely that no establishments in the city reported that particular radius for their sales territory. 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 sales territory covered.

None of the 18 cities, shown in Table 11, may properly be called national centers for hardware distribution. Even New York City, which claims 10.4 per cent of all hardware business of the United States, reports only 18.3 per cent of its hardware trade as being handled by houses with national coverage. Chicago is next in importance with 10.5 per cent of the city's hardware business handled by houses operating nation-wide. Seattle was third in importance and Philadelphia took fourth position. Of the 18 cities, 8 had no national distribution whatever and 5 cities reported less than 4 per cent each being handled by firms with national distribution. *This tends to show that hardware is not being distributed nationally to any great extent from a single location.*

At the other extreme from national distribution lies what is commonly known as local distribution, which for census purposes means distribution within a sales

territory radius under 75 miles. The table shows that those houses whose sales territory did not extend beyond a radius of 75 miles did over one-third of the total business in the cities of New York, Detroit, and Baltimore; and that houses of this class did around one-fifth of the business in the cities of Philadelphia, Buffalo, and New Orleans. Denver had no wholesale establishments that confined their operations to a local territory of 75 miles, while 7 other cities of the 18 showed less than 10 per cent of the business handled by houses that operated on a purely local scale. *This, together with the fact that few cities can be regarded as seats of national distributors to any extent, means that hardware wholesaling is largely sectional in character.* That such is the case is revealed by the remaining figures in Table 11. Twelve of the 18 cities reported over one-fifth of their respective hardware sales made by wholesale establishments that operated over a radius of more than 500 miles but not nation-wide. Of these 12 cities, St. Louis led with 77.7 per cent, Denver with 74.7 per cent, and San Francisco with 67.2 per cent. Dallas reported 91.5 per cent of its hardware business transacted by firms operating within a radius of 251 to 500 miles, and Atlanta reported 46.9 per cent of its business in the same size sales territory radius.

ANALYSIS OF SALES IN THE HARDWARE TRADE

Sales analysis by commodities.—Tables 3 and 4 show how certain hardware commodities move through wholesale channels. From them it is possible to ascertain the relative importance of various *types of wholesale establishments* operating in *different kinds of business* as wholesale outlets for such hardware commodities. This is of tremendous significance to the manufacturer of hardware, inasmuch as it shows the movement of certain hardware items outside of the hardware trade proper, as well as through hardware establishments. They do not show, however, what percentage of the business of the actual hardware trade consists in these hardware-commodities, the relative proportion of various kinds of hardware handled by them, nor what other commodities are normally handled in the hardware trade. Such information is presented in Table 12, below.

It is interesting to note that 93.7 per cent of the sales by hardware firms was reported by commodities, which is an unusually high coverage. It may therefore be assumed that the remaining 6.3 per cent is distributed by lines of trade and by types of establishments in the same proportion as the 93.7 per cent. In this manner, total amounts can be projected from the percentages given. For example, the amount of actual hardware commodities handled by hardware establishments of all types is shown to be \$459,573,000, which is 47.9 per cent of the amount of all their sales broken down by commodities. But the total amount of all sales broken down by commodities is 93.7 per cent; hence 47.9 per cent of \$1,023,811,000 (total net sales), or \$490,405,469 may be assumed to be the actual amount of hardware commodities (as classified by the reporting firms themselves) sold by hardware establishments.

For all types of wholesale hardware establishments combined, hardware commodities proper made up 47.9 per cent of the volume. Industrial machinery, equipment, and supplies contributed 14.1 per cent of the business, followed by iron and steel products (except scrap) with 7.5 per cent; sporting goods, 4.1 per cent; automotive equipment, 3.9 per cent; electrical goods, 3.8 per cent; plumbing and heating equipment and supplies, 2.9 per cent; house furnishings, 2.8 per cent; and farm and garden machinery and equipment, 2.1 per cent. Many other commodities were handled by wholesale hardware firms in the amounts indicated in the table. This shows the extent to which wholesalers in this trade have

attempted to supplement their *normal* lines of merchandise and how far afield they have sometimes gone in their *scramble* for enhanced profits or decreased losses, as the case may be.

This information in Table 12 affords an opportunity to a manufacturer to determine to what extent, if any, hardware firms can be used as wholesale outlets for his type of products. It also enables a hardware wholesale firm 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 carried by other hardware firms. To facilitate such comparisons, the data are presented separately for each type of wholesale organization so that service wholesalers may compare their figures with totals for that group as well as with the totals for all types combined. This kind of presentation is also valuable to manufacturers. To illustrate, wholesale merchants reported 45.1 per cent of their sales to consist in hardware commodities proper, while manufacturers' sales branches sold 54.6 per cent of their volume in such commodities. This means that, relatively, wholesale hardware merchants offer a better opportunity as outlets for goods other than strictly hardware than do manufacturers' sales branches operating in the same field.⁴ Just in what specific commodities these relative opportunities lie can be further discovered through an examination of the data. Very little automotive equipment, for example, was handled by manufacturers' sales branches in the hardware trade (only \$223,000), while wholesale hardware merchants sold \$35,749,000 worth of this commodity. On the other hand, much larger amounts in proportion to their total sales were handled by manufacturers' sales branches in machinery, equipment, and supplies than by wholesale merchants.

TABLE 12.—WHOLESALE HARDWARE TRADE, BY COMMODITIES*—
UNITED STATES: 1929

[Sales expressed in thousands of dollars]

COMMODITIES	TOTAL		Whole- sale mer- chants	Manu- facturers' sales branches	Agents and brokers	All other types
	Amount	Per cent of total				
Total net sales.....	\$1,023,811	-----	\$800,497	\$121,844	\$79,416	\$22,054
Reported commodity sales, per cent of net sales.....	93.7	-----	93.1	97.8	97.0	81.2
Reported commodity sales, total.....	959,548	100.0	745,445	119,188	77,008	17,907
Per cent of total commodity sales.....	100.0	-----	77.7	12.4	8.0	1.9
Aluminum ingots, bars, sheets, shapes, etc.....	361	-----	327	-----	-----	34
Automobiles, trucks, and tractors, new and used.....	406	0.1	402	-----	-----	4
Automotive equipment, parts and accessories.....	37,786	3.9	35,749	223	1,229	535
Automobile accessories.....	10,746	-----	10,166	164	206	210
Automotive equipment and supplies.....	10,229	-----	9,366	39	580	235
Automotive parts.....	3,272	-----	2,813	10	434	15
Tires and tubes.....	5,826	-----	5,763	10	-----	63
Amount not reported in detail.....	7,693	-----	7,651	-----	-----	12
Barbers' equipment and supplies.....	400	-----	320	-----	80	-----
Brick, tile, and terra cotta.....	145	-----	145	-----	-----	-----
Building materials not classified elsewhere.....	6,469	0.7	6,118	-----	208	143
Building materials (ornamental metal).....	420	0.1	279	43	95	3
Cameras and photographic supplies.....	21	-----	11	-----	-----	10

* As reported. The amount given in this table for any one commodity may be projected to a total figure by multiplying the percentage by the total net sales (\$1,023,811,000). Where the percentage is not given in the table, it may be obtained by dividing the amount of the commodity by \$959,548,000 and then multiply the percentage by \$1,023,811,000.

⁴ Contrary to popular conceptions, a large number of manufacturers' sales branches handle goods produced by others than the parent manufacturing company. To that extent, they should be regarded as outlets for producers' goods.

TABLE 12.—WHOLESALE HARDWARE TRADE, BY COMMODITIES—
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				
Cement, lime and plaster.....	\$1, 103	0.1	\$1, 096		\$7	
Chemicals, industrial and heavy.....	697	0.1	697			
Chemicals, refined and/or related products.....	879	0.1	641	28	10	
China, glassware, and crockery.....	1, 886	0.2	1, 403		60	27
China.....	340		314		18	8
Glassware.....	425		360		48	8
Crockery.....	367		356			11
Amount not reported in detail.....	454		454			
Clothing and furnishings, men's and boys'.....	160		140		11	9
Men's and boys' suits.....	10		10			
Work clothes.....	15		15			
Men's and boys' furnishings.....	109		98		10	1
Other men's and boys' clothing and furnishings.....	4		4			
Amount not reported in detail.....	22		13		1	8
Clothing, women's and children's.....	24		4		19	1
Coal and coke.....	121		121			
Confectionery and soft drinks.....	51		50			1
Copper ingots, bars, sheets, shapes, etc.....	3, 488	0.4	3, 204		284	
Drugs and drug sundries.....	140		138		2	
Electrical appliances, equipment, and supplies.....	30, 888	3.8	23, 084	11, 738	1, 080	486
Batteries, storage.....	1, 051		1, 051	10		10
Electric household appliances.....	6, 327		6, 197		123	7
Electric motors, generators, and control apparatus.....	1, 285		1, 215		69	1
Interior electric construction materials including electric fixtures.....	3, 330		3, 014		314	2
All other electric appliances and supplies.....	18, 230		5, 928	11, 728	574	400
Amount not reported in detail.....	6, 165		5, 699			103
Farm products not classified elsewhere.....	205		12			
Fertilizer and fertilizer materials.....	213		213			
Furniture and house furnishings.....	4, 976	0.5	4, 517		410	42
Household furniture.....	3, 937		3, 872		53	12
Office and store furniture and fixtures.....	668		245		323	
Amount not reported in detail.....	470		400		40	30
Glass.....	2, 698	0.3	2, 566		1	1
Hardware.....	459, 673	47.9	336, 243	66, 555	47, 774	9, 091
Builders' hardware.....	57, 349		41, 149	10, 042	5, 050	1, 108
Shelf or light hardware.....	60, 226		44, 543	11, 905	8, 128	1, 592
Tools and cutlery.....	78, 249		50, 221	14, 580	11, 705	1, 743
Heavy hardware.....	70, 722		64, 179	234	5, 209	1, 100
Other hardware.....	126, 308		85, 493	27, 703	10, 995	2, 117
Amount not reported in detail.....	60, 719		50, 658	2, 031	6, 689	1, 541
Hides, skins, and raw furs.....	311		309		2	
House furnishings.....	26, 328	2.8	22, 085	1, 682	1, 617	942
Carpets and rugs.....	1, 168		1, 145		15	8
Linoleums, felt base and other.....	2, 328		2, 292		29	7
House furnishings, not listed elsewhere.....	19, 439		15, 478	1, 682	1, 401	878
Amount not reported in detail.....	3, 391		3, 170		172	49
Iron and steel products except as classified.....	71, 494	7.5	61, 512	4, 184	2, 603	3, 205
Scrap iron and steel.....	345		345			
Rough castings and forgings.....	507		333		126	48
Structural iron and steel.....	4, 374		4, 369		1	4
Iron and steel pipe and tubes.....	11, 205		11, 096		107	2
Wire, wire rope, screening, and fencing.....	27, 556		20, 447	3, 990	783	2, 336
All other rolled iron and steel.....	21, 185		19, 590	194	921	450
Amount not reported in detail.....	6, 322		5, 332		655	335
Jewelry, silverware, clocks, watches, precious stones, and precious metals.....	6, 140	0.6	5, 465	457	130	88
Jewelry.....	436		414		22	
Silverware and plated ware.....	1, 135		1, 135			
Clocks and watches.....	3, 934		3, 902		32	8
Precious stones and precious metals.....	555		14	457	76	
Amount not reported in detail.....	80					80
Lead pigs, bars, sheets, and pipes.....	515	0.1	484			31
Leather and cut stock.....	1, 088	0.1	732		355	
Luggage, saddlery, harness, and gloves.....	5, 273	0.6	5, 243		30	
Lumber, rough and dressed.....	1, 608	0.2	1, 238		20	350

TABLE 12.—WHOLESALE HARDWARE TRADE, BY COMMODITIES—
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				
Machinery, equipment, and supplies (industrial).....	\$135,427	14.1	\$88,024	\$31,646	\$15,081	\$676
Machine tools (power driven).....	23,506		8,205	8,740	5,225	246
Power-plant machinery and equipment.....	6,391		5,770	169	354	98
Construction machinery.....	1,443		1,338		105	
Textile machinery.....	810		285		5	20
Mining, quarrying, well drilling, and pumping machinery not listed elsewhere.....	1,591		1,196	239	135	21
Belting, hose, packing, and mechanical rubber goods.....	8,747		8,428	31	281	7
Pipe fittings, valves, and specialties.....	10,122		9,703		389	30
Rope, cordage, and twine.....	4,068		4,281	38	345	4
Industrial machinery and equipment.....	61,767		41,745	13,167	6,763	102
Amount not reported in detail.....	16,882		6,983	9,202	489	148
Machinery, equipment, and supplies (farm and garden).....	20,256	2.1	18,096		1,841	319
Farm machinery (except tractors).....	3,727		3,705		15	7
All other farm and garden equipment and supplies.....	14,395		12,450		1,820	119
Amount not reported in detail.....	2,134		1,941			193
Musical instruments and parts (except radios).....	2,132		110			22
Nonferrous metals not classified elsewhere.....	2,217	0.2	1,446	32	639	100
Notions and dry goods, small wares.....	239		35	134		70
Office and store machines and equipment.....	73		10		63	
Oils, animal and vegetable.....	1,025	0.1	910		116	
Optical goods.....	374		371		3	
Paints, varnishes, and lacquers.....	18,341	1.9	18,036	14	54	177
Paper (wrapping, book, wall paper, etc.).....	764	0.1	468	41	225	30
Paper products.....	646	0.1	492		153	1
Petroleum and petroleum products.....	805	0.1	848		40	7
Gasolines and naphthas.....	24		24			
Lubricating oils and greases.....	465		401		4	
All other petroleum products.....	36		29			7
Amount not reported in detail.....	370		334		36	
Piece goods, all kinds.....	364		161		106	37
Cotton piece goods.....	71		61		10	
Rayons.....	10				10	
Silks and velvets.....	56				20	36
Woolens and worsteds.....	15		15			
Jute fabrics.....	124		26		98	
All other piece goods and yard fabrics.....	83		50		28	1
Plumbing and heating equipment and supplies.....	28,070	2.9	27,000	202	550	228
Plumbing fixtures, equipment, and supplies.....	9,314		8,908	38	364	4
Stoves, ranges, furnaces, heating apparatus, and parts.....	15,514		15,147	164	186	17
Amount not reported in detail.....	3,242		3,035			207
Radio sets, parts, and accessories.....	17,293	1.8	10,920	115	30	228
Refrigerators, gas and electric (household and commercial).....	1,632	0.2	1,501		52	79
Sand, gravel, and crushed stone.....	33		38			
Secondhand merchandise (all kinds).....	139		139			
Seed (field and garden) and bulbs.....	86		86			
Field seeds.....	43		43			
Garden seeds, flower seeds, and bulbs.....	32		32			
Amount not reported in detail.....	11		11			
Sheet-metal work.....	3,102	0.3	2,418	397	285	2
Shoes and other footwear (including rubber).....	81		75			6
Footwear, wholly or chiefly of leather.....	13		13			
Rubber and all other footwear.....	48		42			6
Amount not reported in detail.....	20		20			
Soaps and toilet preparations.....	109		84		21	4
Soaps, toilet and other.....	60		53		3	4
Toilet preparations and cosmetics.....	19		1		18	
Amount not reported in detail.....	30		30			
Sporting goods.....	38,028	4.1	33,215	241	369	113
Stationery and stationery supplies.....	267		202		39	26
Surgical, dental, and hospital equipment and supplies.....	202			182	10	10
Textile products not classified elsewhere.....	1,350	0.2	1,169		173	8
Tin, block.....	305		366			29
Toilet articles.....	478	0.1	161		287	30
Toys and games.....	2,971	0.3	2,369	156	276	180
Wood products.....	2,093	0.3	1,995	724	69	205
Zinc bars, plates, shapes, and sheets.....	170		133			37
All other commodities.....	9,807	1.0	8,789	394	447	177

Sales analysis—General summary.—Table 13 presents a bird's-eye view of the nature of the sales made by wholesale hardware establishments. 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.

TABLE 13.—ANALYSIS OF NET SALES—GENERAL SUMMARY—UNITED STATES: 1929

	Number or amount	Per cent of net sales
Number of establishments.....	2,273	-----
Gross sales.....	\$1,049,395,266	102.49
Returns and allowances.....	25,584,634	2.49
Net sales.....	1,023,810,632	100.00
Credit sales.....	887,752,773	84.76
Sales to industrial consumers.....	280,298,480	27.38
Sales to home consumers.....	23,269,056	2.27
Sales of goods of own manufacture.....	5,459,911	.53

Returned goods and allowances.—The gross sales of all hardware establishments, amounting to \$1,049,395,266, consisted of \$1,023,810,632 in net sales and \$25,584,634 in returned goods and allowances. Thus, the returns and allowances constituted 2.49 per cent of all net sales. Numerous causes may have been responsible for these returns and allowances. Among the reasons most commonly given by retailers and others who buy from wholesale firms are: Defective merchandise, errors on the part of the wholesaler in filling orders, undesirable substitutions made without the consent of the purchaser, delay in delivery, filling back-orders too late, and on-approval sales. Various surveys have shown that overbuying on the part of retailers may be an important cause for returns, as are also errors made by salesmen in recording the items on the sales orders and customers' errors in placing orders. Whatever the causes, *the burden placed upon the distribution system as a result of returns and allowances is very substantial.*

Of the 838 general line hardware establishments, only 463 reported returned goods and allowances. In the specialty field only 535 of the 1,435 firms reported on this item. (See Table 14.) The remaining establishments either had no returns and had made no allowances to customers during the year or had no information on the item. In some cases the information was so obviously incorrect that it was not included in this particular analysis. For the 463 general-line establishments reporting this item the returns and allowances were 6.9 per cent of their net sales. This percentage varied from 2.6 for agents and brokers to 7.3 per cent for wholesale merchants of the service type. For the specialty firms, the percentage of returns and allowances was much smaller, being 3.5 per cent for all such establishments and varying from 3.3 per cent for agents and brokers to 3.9 per cent for manufacturers' sales branches and 3.2 per cent for wholesale merchants.

TABLE 14.—RETURNS 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. GENERAL LINE

Total.....	838	\$665,747,665	\$18,366,646	2.8	463	\$265,647,691	6.9
Wholesale merchants.....	734	622,556,284	17,917,907	2.9	440	246,588,435	7.3
Agents and brokers.....	80	28,592,193	261,056	.9	16	9,967,585	2.6
All other.....	24	14,599,188	187,683	1.3	7	9,091,671	2.1

2. SPECIALTY

Total.....	1,435	\$358,062,967	\$7,217,988	2.0	535	\$205,345,773	3.5
Wholesale merchants.....	741	177,940,424	3,522,756	2.0	314	108,611,914	3.2
Manufacturers' sales branches.....	323	121,844,317	3,185,066	2.6	149	80,900,866	3.9
Agents and brokers.....	328	50,823,653	390,342	.8	59	11,660,228	3.3
All other.....	85	7,454,673	119,824	1.6	13	4,172,765	2.9

Credit sales in the hardware trade.—Table 15 shows that credit occupies a prominent position in the wholesale distribution of hardware. Approximately 85 per cent (84.75) of all the hardware business was conducted on a credit basis. When the percentage is calculated on the basis of the net sales of those firms that reported credit sales it becomes much higher, 93 per cent for the general line houses and 95.4 for the specialty firms. On the same basis, manufacturers' sales branches reported the highest ratio of credit to net sales (93.6 per cent). Oddly enough, agents and brokers were next in rank, with 96.1 per cent and 95.8 per cent in the two respective fields. It is also interesting to note that almost 60 per cent of all agents and brokers operated on a credit basis, which is quite contrary to current conceptions, at least on the part of laymen. About 90 per cent of all wholesale merchants in the general line group and 78 per cent of those in the specialty classification, extended credit to their customers. Wholesale merchants operating on a credit basis and handling a general line of hardware gave credit accommodations to the extent of 92.9 per cent of their net sales, and in the specialty field to the extent of 93.1 per cent of net sales. Thus, manufacturers' sales branches extended more credit in proportion to their sales than did wholesale merchants. This indicates, at least as far as credit is concerned, that when a manufacturer chooses to sell through his own sales branches instead of going through wholesalers he does not eliminate the wholesaler's functions. He merely undertakes to perform them himself. It is true, of course, that manufacturers' sales branches sell to wholesalers large quantities of goods instead of going direct to retailers or to industrial consumers. In such cases they operate on a different wholesale plane from that of the wholesale merchant, but even here credit also plays an important part.

TABLE 15.—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. GENERAL LINE							
Total.....	838	\$665, 747, 065	\$578, 966, 018	87.0	716	\$622, 293, 632	93.0
Wholesale merchants.....	734	622, 556, 284	548, 085, 150	88.0	651	599, 898, 306	92.9
Agents and brokers.....	80	28, 592, 193	21, 095, 184	73.8	49	21, 940, 710	96.1
All other.....	24	14, 599, 188	9, 775, 684	67.0	16	10, 454, 616	93.5
2. SPECIALTY							
Total.....	1, 435	\$358, 002, 967	\$288, 796, 755	80.7	1, 047	\$302, 598, 506	95.4
Wholesale merchants.....	741	177, 940, 424	144, 059, 104	81.0	571	154, 817, 756	93.1
Manufacturers' sales branches.....	328	121, 844, 317	104, 699, 728	85.9	259	106, 162, 440	98.6
Agents and brokers.....	328	50, 823, 658	34, 396, 172	67.7	193	35, 898, 054	95.8
All other.....	38	7, 454, 673	5, 041, 691	66.7	24	5, 720, 250	98.6

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 the complete picture is revealed in Table 16, below. Fully 27.38 per cent of all sales made by hardware wholesale establishments were to industrial consumers such as manufacturers, operators of mines and quarries, oil well concerns, railroads, public utilities, and to others who buy goods not for personal consumption but for business use. This business did not enter the retail field at all and was not transacted through retail stores, which again emphasizes the fact that wholesaling may be performed on several different planes and the term "wholesale price" may have different meanings.

Of the 734 general line wholesale merchants, 244 sold goods to industrial consumers. The volume of such sales was 14.5 per cent of the net sales of all wholesale merchant establishments and 29.3 per cent of the net sales of the 244 establishments reporting such sales. The sales made to industrial consumers by agents and brokers were fairly substantial, but considerably smaller than anticipated. Only 21 of the 80 agents and brokers made such sales and even for these 21 firms they amounted to but 36.6 per cent of their net sales.

In the specialty field, a somewhat different picture is portrayed. Here, both the number of establishments selling to industrial consumers is larger as well as the volume of such sales in proportion to the total. Of the 741 wholesale merchants, 314 made sales to industrial consumers. These sales amounted to 51.7 per cent of total net sales and to 76.4 per cent of the net sales of the firms reporting such sales. Manufacturers' sales branches were even more prominent in this regard, 167 of the 328 establishments reporting sales to industrial consumers to the extent of 56 per cent of total sales made by the whole group and 88.9 per cent of the net sales of the 167 firms. This indicates a high degree of specialization in industrial selling on the part of manufacturers' sales branches. A situation paralleling that of manufacturers' sales branches may be noted in the case of agents and brokers. Even in the specialty field, wholesale merchants accounted for

about 50 per cent of all sales to industrial consumers reported by all types of establishments combined.

TABLE 16.—SALES TO INDUSTRIAL CONSUMERS, BY TYPE OF ESTABLISHMENT, UNITED STATES: 1929

TYPE OF ESTABLISHMENT	ALL ESTABLISHMENTS				ESTABLISHMENTS REPORTING SALES TO INDUSTRIAL CONSUMERS		
	Number	Net sales	Sales to industrial consumers		Number	Net sales	Per cent of net sales
			Amount	Per cent of net sales			
1. GENERAL LINE							
Total.....	838	\$665,747,665	\$96,341,674	14.5	271	\$322,106,426	29.9
Wholesale merchants.....	734	622,556,284	90,218,305	14.5	244	307,426,828	29.3
Agents and brokers.....	80	28,592,193	4,301,794	15.0	21	11,751,259	36.0
All other.....	24	14,599,188	1,821,575	12.5	6	2,928,339	62.2
2. SPECIALTY							
Total.....	1,435	\$358,062,967	\$183,956,806	51.4	602	\$223,667,861	82.2
Wholesale merchants.....	741	177,940,424	91,911,690	51.7	314	120,265,353	76.4
Manufacturers' sales branches.....	323	121,844,317	68,173,880	56.0	167	76,722,984	88.9
Agents and brokers.....	328	50,823,653	20,337,316	40.0	110	22,360,022	91.2
All other.....	38	7,454,573	3,533,920	47.4	11	4,319,502	81.8

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. Such a combination of wholesale and retail business is frequently referred to as "semijobbing."

The amount sold to ultimate consumers at retail by wholesale establishments was \$23,269,056, or 2.27 per cent of total net sales.⁵ Naturally, not all wholesale establishments made such sales. As shown in Table 17, only 252 of the 734 general line wholesale merchants followed this practice to the extent of 14.1 per cent of their net sales. Wholesale merchants operating in the specialty field restricted their activity to wholesale operations to a larger extent, only 104 of the 741 firms making sales to consumers at retail. Of the manufacturers' sales branches, 14 per cent of the firms made sales to home consumers at retail as against 24 per cent of all wholesale merchants making such sales. Relatively few of the agents and brokers made sales to home consumers, but even they proved not to be immune to the practice.

⁵ Retail hardware and farm implement stores sold to other retailers (at wholesale) goods valued at \$15,598,000, according to the retail census, which largely offsets the retail sales made by hardware wholesalers.

TABLE 17.—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		Number	Net sales	Per cent of net sales
			Amount	Per cent of net sales			
1. GENERAL LINE							
Total.....	838	\$605,747,665	\$10,528,493	2.9	250	\$136,688,835	14.3
Wholesale merchants.....	734	622,556,284	18,900,272	3.0	252	133,955,247	14.1
Agents and brokers.....	80	28,592,193	37,675	0.1	2	167,842	23.0
All other.....	24	14,590,188	590,546	4.0	2	2,575,746	22.0
2. SPECIALTY							
Total.....	1,435	\$368,062,967	\$3,740,563	1.0	180	\$41,166,255	9.1
Wholesale merchants.....	741	177,940,424	2,898,785	1.6	104	26,684,075	11.8
Manufacturers' sales branches.....	328	121,844,317	732,601	0.6	46	12,857,976	5.7
Agents and brokers.....	328	50,823,653	99,710	0.2	36	2,371,731	4.2
All other.....	38	7,464,573	9,467	0.1	3	252,473	3.7

Sale of goods of own manufacture.—Relatively few manufacturing wholesalers may be found in the hardware trade. (See Table 18.) Only 20 of the 734 general line wholesale merchants did any manufacturing on their premises. The amount so produced had a selling value of \$2,353,012, or 4.6 per cent of their net sales. In the specialty field, this practice was indulged in to a greater extent. Not only did 31 of the 741 wholesale merchants engage in some manufacturing, but 13 of the 328 manufacturers' sales branches followed a similar practice, as well as 5 of the 328 agents and brokers. The amount so produced constituted 30.2 per cent of the net sales of the 31 wholesale merchants and 5.5 per cent of the sales of the 13 manufacturers' sales branches. *It must be repeated at this point that no establishment has been included in this report that is primarily engaged in manufacturing, i. e., producing 50 per cent or more of its goods in the same location.* On the whole, the amount of manufacturing carried on in the hardware wholesale field is negligible, the total being but 0.53 per cent of net sales.

TABLE 18.—SALE 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		Number	Net sales	Per cent of net sales
			Amount	Per cent of net sales			
1. GENERAL LINE							
Total.....	838	\$665,747,605	\$2,358,012	0.4	20	\$50,824,896	4.6
Wholesale merchants.....	784	622,550,284	2,358,012	0.4	20	50,824,896	4.6
Agents and brokers.....	30	28,592,198					
All other.....	24	14,599,188					
2. SPECIALTY							
Total.....	1,435	\$358,062,967	\$3,101,949	0.9	62	\$14,013,202	22.1
Wholesale merchants.....	741	177,940,424	2,486,844	1.4	31	8,394,815	30.2
Manufacturers' sales branches.....	328	121,844,317	503,101	0.4	13	4,896,777	5.5
Agents and brokers.....	328	50,823,653	55,278	0.1	5	207,821	26.6
All other.....	38	7,454,673	56,726	0.8	3	523,789	10.8

OPERATING EXPENSES

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 require-

ments that the census field force faced a much better group for the gathering of wholesale trade statistics than was possible in many other trades. 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.

Summary of operating expenses.—Table 19 shows the cost of distributing hardware at wholesale as reported by the establishments included in this report. For all types of organizations handling a general line of hardware the average cost was 18 per cent of net sales, the percentage varying from 6.4 per cent for agents and brokers to 18.5 per cent for wholesale merchants. Other types of wholesalers than wholesale merchants had an average cost of 19 per cent. The cost of wholesaling in the specialty field was considerably less, being 15.7 per cent for all types combined and ranging from 9.2 per cent for agents and brokers to 13.2 per cent for manufacturers' sales branches, 19.5 per cent for wholesale merchants, and 11.8 per cent for wholesalers other than wholesale merchants.

TABLE 19.—TOTAL OPERATING EXPENSES, BY TYPE OF ESTABLISHMENT—
UNITED STATES: 1929

Type	Net sales	TOTAL EXPENSES	
		Amount	Per cent of net sales
General line.....	\$665,747,665	\$119,677,274	18.0
Wholesale merchants.....	622,556,284	115,067,461	18.5
Agents and brokers.....	28,592,193	1,831,276	6.4
All other.....	14,599,188	2,778,537	19.0
Specialty.....	358,062,907	56,355,269	15.7
Wholesale merchants.....	177,940,424	34,091,027	19.5
Manufacturers' sales branches.....	121,844,317	16,110,318	13.2
Agents and brokers.....	50,823,653	4,077,228	9.2
All other.....	7,454,573	876,862	11.8

An examination of Table 16 may throw some light on the differences in cost of operation in the specialty group. Here we find that manufacturers' sales branches operated on a larger scale than did wholesale merchants, average sales per establishment being \$371,476 for the former as against \$240,136 for the latter. They also handled more limited stocks on account of their specialization in fewer items. Furthermore, a larger proportion of the sales made by manufacturers' sales branches was to industrial consumers who usually buy in larger quantities than do retailers. Fully 56 per cent of all their sales were made to such consumers as against 51.7 per cent made by wholesale merchants. Then, again, manufacturers' sales branches no doubt sold quantities of their goods, as already pointed out in another connection in this report, to wholesale middlemen and not to retailers. Such sales are usually made in larger amounts, the risks are superior from a credit standpoint, and fewer selling services need to be rendered in making the

sales. In other words, *much of the difference in costs as between these two types of organizations may be due to differences in the types of customers to which they cater as well as to differences in their respective size of operations.*

These conclusions with regard to probable effect of size of the business upon operating costs seem to be corroborated by an examination of the data for agents and brokers. In the general line field, the 80 agents and brokers showed a cost of 6.4 per cent as compared with 9.2 per cent for the 328 agents and brokers in the specialty classification. The average sales per establishment in the first group were \$357,402 as compared with \$154,950 for the second group.

Analysis of operating expenses of wholesale merchants.—In order to make the analysis of operating expenses into its component parts meaningful, this discussion is confined to a homogeneous group comprising only wholesale merchants. Even for this group the data are shown separately for those handling a general line of hardware and those operating as specialty hardware houses.

As shown in the section immediately preceding, general line hardware wholesale merchants had a cost of doing business of 18.5 per cent of net sales. The largest single item of expense consisted of salaries and wages. A total of 36,128 people were employed, receiving 10.5 per cent of net sales in compensation. These employees were divided into 1,579 executives who received 1.4 per cent; 8,707 salesmen who were paid 3.3 per cent; and 25,842 warehouse, delivery, and office employees whose salaries and wages absorbed another 5.8 per cent. The average salaries or wages per employee in this group were \$5,543 for executives, \$2,392 for salesmen, and \$1,388 for all other employees. Selling expenses proper constituted 4.6 per cent of net sales, of which 3.3 was for salesmen's salaries and 1.3 per cent covered the traveling and other expenses of salesmen. (See Table 20.)

Rent was paid only by 437 of the 734 establishments, the remaining 297 firms presumably owning the premises which they occupied. The rent item was computed on the basis of the net sales *only of those firms which reported as having paid it during the year.* One per cent of net sales was absorbed in rent, while all other expenses not analyzed in detail made up the remaining 6 per cent of the expenses.

Relatively small variations from the above may be noted for specialty wholesale merchants. *It is significant, of course, that specialty wholesaling in hardware is more expensive than general line wholesaling by fully 1 per cent.* The proportionate distribution of the expense, however, is not much different except for executives who received a much larger share of the sales dollar (2.6 per cent as compared with 1.4 per cent). The average salary of executives was \$6,417 as compared with \$5,543 for general line wholesale merchants. Salesmen's salaries were slightly higher (\$2,436 as against \$2,392) but the percentage of net sales paid in the form of salesmen's salaries was the same (3.3 per cent). It is possible that specialization on the part of salesmen made them more productive of large orders. The traveling and other expenses of salesmen were somewhat less, but the rent was higher by 0.2 per cent. Fewer firms in the specialty field owned their places of business, since 617 of the 741 concerns paid rent for their premises. *Here, too, the percentage of rent was calculated only on the basis of the net sales of the firms that paid rent and did not own the premises, so as to make the rent percentage a true index of the amount actually paid in the form of rent.* All other expenses in the specialty lines amounted to 6.2 per cent.

TABLE 20.—OPERATING EXPENSE ANALYSIS OF WHOLESALE MERCHANTS—
UNITED STATES: 1929

ITEM	Number	Amount	Average salaries	Per cent of net sales
1. GENERAL LINE				
Number of establishments.....	734			
Net sales.....		\$622,556,284		100.0
Total expenses.....		116,037,461		18.5
Salaries and wages.....	39,128	66,453,192		10.5
Executives.....	1,579	8,753,032	\$5,543	1.4
Salesmen.....	8,707	20,825,497	2,592	3.3
All other employees.....	26,842	35,874,613	1,388	5.8
Expenses of salesmen.....		7,899,700		1.3
Rent ¹	437	4,364,581		1.0
All other expenses.....		37,349,988		6.0
2. SPECIALTY				
Number of establishments.....	741			
Net sales.....		\$177,040,424		100.0
Total expenses.....		34,091,027		19.5
Salaries and wages.....	11,223	20,113,220		11.3
Executives.....	723	4,639,416	\$6,417	2.6
Salesmen.....	2,390	5,823,210	2,436	3.3
All other employees.....	8,110	9,650,594	1,190	5.4
Expenses of salesmen.....		1,726,312		1.0
Rent ¹	617	1,780,910		1.2
All other expenses.....		11,070,585		6.2

¹ Rent per cent of net sales computed only for those showing rent.

Frequency distribution of expense ratios for wholesale merchants.—To throw further light on operating costs in hardware wholesaling and to discover the range of such expense ratios, a distribution of expense ratios was prepared for the wholesale merchants handling a general line of hardware, the figures given above being arithmetic averages for the entire groups. (See Table 21 and Chart I.) At first glance such a wide range of expense ratios as appear in Table 21 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 represent actual conditions, but certain qualifications must be made with regard to the expense percentages at both extremes. The high expense ratios need little explanation. It is a well-known fact that not all in business make profits. On the contrary, many businesses show losses even in prosperous times. After all, but 9 of the 734 establishments had costs over 50 per cent of net sales and they probably could not stay in business on such a basis for any length of time even though they existed at the time of the canvass. Another 9 establishments had costs ranging between 40 and 50 per cent. Many of the establishments with costs of 40 per cent and over operated on a very small scale. Some of them were just getting started in business, hence the initial expenses were responsible for high costs. On the other extreme, 8 establishments showed operating expenses under 5 per cent. They, too, operated on a relatively small scale and did a large proportion of their business on a drop shipment basis which reduced warehousing and handling costs.

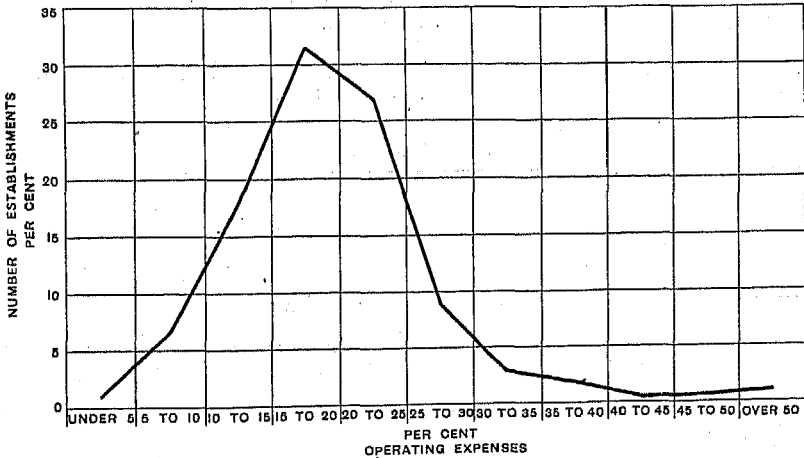
Approximately 93.5 per cent of the establishments had costs between 5 per cent and 32.5 per cent. Establishments with costs under 5 per cent constituted slightly more than 1 per cent of the total, while concerns whose costs exceeded 32.5 per cent made up 5.5 per cent of the total. *The modal average cost for the group, i. e., the most characteristic or most frequent cost ratio found in the distribution,*

amounting to 18.1 per cent, was but 0.5 per cent lower than the simple arithmetic average used in the other tables. This indicates that the extreme items did not seriously affect the arithmetic average.

TABLE 21.—FREQUENCY DISTRIBUTION OF OPERATING EXPENSE PERCENTAGES, GENERAL LINE WHOLESALE MERCHANTS—UNITED STATES: 1929

OPERATING EXPENSES PERCENTAGES	Number of establishments	Cumulative frequency of establishments	Average sales per establishment
Under 5 per cent.....	8	8	\$185, 097
5 to 9.99 per cent.....	49	57	337, 510
10 to 14.99 per cent.....	131	188	909, 475
15 to 19.99 per cent.....	231	419	1, 151, 919
20 to 24.99 per cent.....	198	617	754, 200
25 to 29.99 per cent.....	65	682	633, 112
30 to 34.99 per cent.....	21	703	321, 237
35 to 39.99 per cent.....	13	716	353, 337
40 to 44.99 per cent.....	4	720	52, 885
45 to 49.99 per cent.....	5	725	235, 506
Over 50 per cent.....	9	734	120, 998

CHART I.—FREQUENCY DISTRIBUTION OF OPERATING EXPENSE PERCENTAGES, GENERAL LINE WHOLESALE HARDWARE MERCHANTS—UNITED STATES: 1929



The foregoing analysis is particularly significant as illustrating the very great differences in operating efficiency which obtain even within a fairly homogeneous group of business establishments. It is true that these concerns are scattered throughout the Nation and that sectional differences probably accounted for some variations. There are, in all probability, numerous factors explaining the wide range of costs found in the wholesale merchant group that are not revealed by the statistics. The average figure of 18.5 per cent, for all wholesale merchants in the general line hardware group, just like similar averages for other types of organizations in both the general line and specialty fields, should be valuable as a guide to efficiency in carrying on a wholesale hardware business. Furthermore, the fact that 188 of the 734 merchants operated on an expense ratio of less than 15 per cent would seem to indicate considerable room for improvement among the remaining establishments.

Operating expenses in relation to location of establishments.—According to Table 22, sectional differences seem to account for certain variations in costs of doing business. Since the figures for specialty wholesale merchants are very much like those shown for the general line wholesalers in so far as sectional variations are concerned, the comments herein will be confined to the latter.

Apparently stocks of goods are not carried by hardware wholesalers in the same proportion in different parts of the United States. The largest stocks in relation to sales are shown for the South Atlantic, West South Central, Mountain, and the Pacific geographic divisions, all remote from producing centers, while smallest stocks are carried in the West North Central, East North Central, and East South Central divisions, the variation in stocks from the lowest to the highest being as great as 9.5 per cent of net sales. Large stocks in relation to sales should normally be accompanied by high operating expenses, and vice versa. But there is another factor in the picture, namely, salaries and wages. The highest operating costs should normally be accompanied by high labor costs, and low labor costs should result in low costs of doing business. Such an effect of both these factors on operating costs can definitely be traced with but two exceptions. In the West North Central States, inventories are almost 4 per cent lower than for the United States and salaries and wages are 0.5 per cent lower, yet operating expenses are 1.5 per cent higher. The opposite is true of the South Atlantic division, where expenses are low as compared with very high stocks on hand and a little under average salaries and wages. In all other cases a good correlation seems to exist between expenses on the one hand, and salaries and wages as well as stocks on the other, expenses varying in direct ratio with both.

TABLE 22.—OPERATING EXPENSES OF WHOLESALE HARDWARE MERCHANTS BY GEOGRAPHIC DIVISIONS: 1929

1. GENERAL LINE					
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.....	734	¹ 100.00	18.5	10.5	24.1
New England.....	42	3.5	21.9	12.3	24.8
Middle Atlantic.....	197	13.6	20.8	12.4	23.0
East North Central.....	104	19.5	18.1	10.9	22.3
West North Central.....	64	10.2	20.0	10.0	20.2
South Atlantic.....	110	8.1	18.1	10.3	20.7
East South Central.....	60	11.9	16.1	10.6	22.5
West South Central.....	66	9.2	15.8	8.4	27.3
Mountain.....	34	3.8	17.3	8.6	29.0
Pacific.....	57	11.2	18.0	10.3	28.3
2. SPECIALTY					
UNITED STATES, total.....	741	² 100.00	19.5	11.3	10.4
New England.....	69	8.1	21.5	11.7	17.5
Middle Atlantic.....	244	23.3	21.0	12.3	18.8
East North Central.....	189	32.2	18.6	11.2	16.4
West North Central.....	45	0.1	23.4	13.4	21.0
South Atlantic.....	41	0.4	18.8	10.3	20.6
East South Central.....	34	0.5	17.0	8.9	21.0
West South Central.....	24	3.1	18.9	10.0	24.5
Mountain.....	5	4.4	14.6	9.5	20.4
Pacific.....	90	9.9	19.3	11.0	27.7

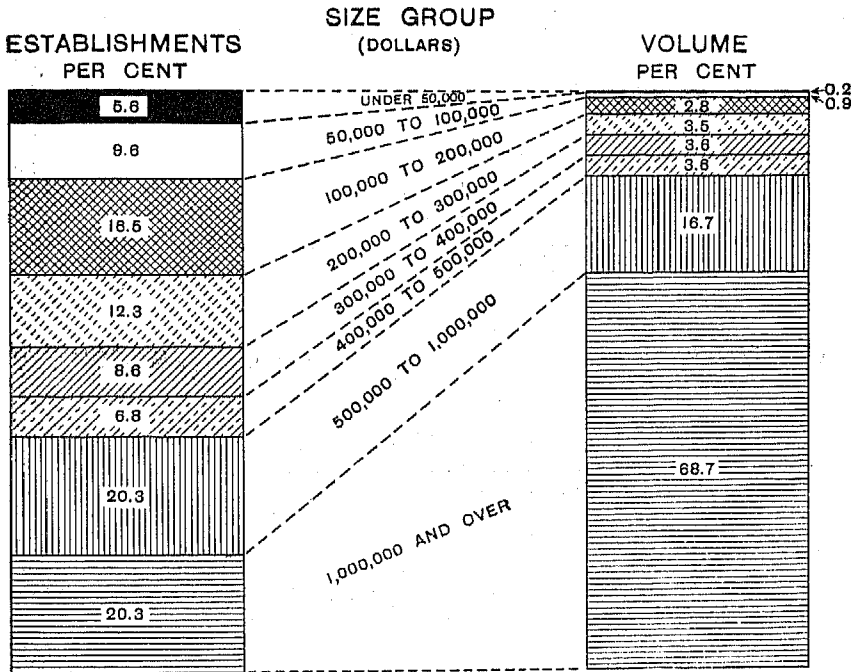
¹ Total net sales amount to \$622,556,284.

² Total net sales amount to \$177,940,424.

SIZE OF ESTABLISHMENT

Operating expenses of wholesale merchants in relation to size of the business.—As shown in Table 23 and Chart II, the 41 general line wholesale merchants doing business each under \$50,000 a year contributed but 0.2 per cent of the total business reported for the group. Another 71 firms doing an annual business of \$50,000 to \$100,000 added another 0.9 per cent. Thus, 15.2 per cent of the general

CHART II.—NUMBER OF ESTABLISHMENTS AND NET SALES, BY SIZE OF BUSINESS—WHOLESALE MERCHANTS IN GENERAL LINE HARDWARE—UNITED STATES: 1929



line wholesale merchants accounted for but 1.1 per cent of the business reported by the entire group, which indicates that wholesale trade is not necessarily conducted on a large scale. On the other extreme, 149 of the establishments, or 20.3 per cent of the firms, with business of a million dollars and over per annum, transacted 68.7 per cent of the total net sales. This unmistakably shows a very high concentration of business in the hands of relatively few firms.

TABLE 23.—WHOLESALE HARDWARE 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.....	734	¹ 100.0	18.5	8,707	\$71,501	3.3	24.1
Under \$50,000.....	41	0.2	24.3	30	35,963	4.0	40.2
\$50,000 to \$99,999.....	71	0.9	21.5	95	56,898	3.3	33.9
\$100,000 to \$199,999.....	121	2.8	20.4	244	145,523	3.4	30.5
\$200,000 to \$299,999.....	90	3.5	19.0	378	58,421	3.2	31.5
\$300,000 to \$399,999.....	63	3.6	20.1	407	54,776	3.8	31.6
\$400,000 to \$499,999.....	50	3.6	20.4	485	46,748	4.5	31.0
\$500,000 to \$999,999.....	149	10.7	18.7	1,601	65,006	3.6	28.1
\$1,000,000 to \$1,999,999.....	85	19.5	18.1	1,549	78,338	3.3	24.1
\$2,000,000 to \$3,999,999.....	39	16.9	17.9	1,400	75,163	3.7	23.2
\$4,000,000 to \$7,999,999.....	17	15.9	17.3	1,051	93,768	2.7	21.4
\$8,000,000 to \$14,999,999.....	5	7.5	16.7	610	76,072	3.3	18.0
\$15,000,000 to \$24,999,999.....	3	8.9	20.8	751	73,837	2.8	16.0
2. SPECIALTY							
Total.....	741	² 100.0	19.5	2,360	\$74,452	3.3	19.4
Under \$50,000.....	226	3.0	27.3	142	37,598	3.8	23.8
\$50,000 to \$99,999.....	143	5.0	21.9	217	48,419	4.1	20.7
\$100,000 to \$199,999.....	150	12.0	22.9	360	50,520	3.6	21.1
\$200,000 to \$299,999.....	76	10.7	20.2	295	64,376	3.4	18.9
\$300,000 to \$399,999.....	34	6.7	19.7	159	74,989	4.0	16.4
\$400,000 to \$499,999.....	29	7.8	19.4	171	80,894	3.7	16.9
\$500,000 to \$999,999.....	52	19.9	21.6	447	79,130	3.7	21.8
\$1,000,000 to \$1,999,999.....	25	19.0	18.1	342	98,655	2.9	19.0
\$2,000,000 to \$3,999,999.....	3	5.3	13.6	95	100,009	1.8	12.5
\$4,000,000 to \$7,999,999.....	3	9.7	12.3	162	106,641	2.3	20.0

¹ Total net sales amount to \$622,556,284.² Total net sales amount to \$177,940,424.

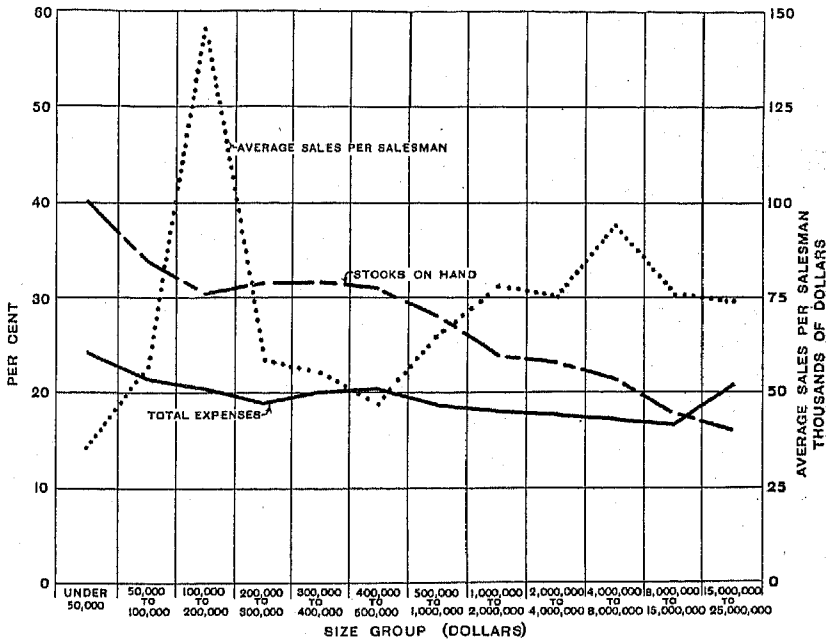
The situation just described is further accentuated in the case of specialty wholesale merchants. Here, 4.2 per cent of the establishments cared for 34 per cent of the business of the entire group of 741 merchants, while 9.2 per cent of the establishments with annual business each of \$500,000 and over accounted for practically 54 per cent of the business. This high degree of concentration is not due, however, to the large size of the businesses in the specialty field. In fact, only 6 establishments in this group had sales over \$2,000,000 each and none are to be found with sales over \$8,000,000, as against 64 concerns in the general field with annual sales over \$2,000,000, 3 of which reported sales of more than \$15,000,000 each. *The reason for the high concentration of business in the hands of a few in the specialty field is explained by the prevalence of small-scale firms, as shown in Table 23 and Chart III.* Fully 30.5 per cent of the establishments had sales under \$50,000, with combined sales of 3 per cent of all specialty houses. Establishments with net sales per annum of \$50,000 to \$100,000 made up 19.3 per cent of the number and 5.9 per cent of the business, so that practically half (49.8 per cent) of all the establishments contributed but 8.9 per cent of the business reported for the entire group. Approximately 80 per cent of all the establishments in the specialty field had annual sales each under \$300,000, *which indicates that hardware wholesaling by specialty organizations is a relatively small-scale operation.*

General line wholesale merchants.—With the exception of the three houses with sales over \$15,000,000 each, operating expenses decrease as the size of the business increases. The lowest costs of 16.7 per cent are reported for concerns with annual sales of \$8,000,000 to \$15,000,000, as against average costs for all whole-

salers of 18.5 per cent. The highest costs, amounting to 24.3 per cent, are shown for the smallest firms. Little variation in expenses is to be noted for establishments with sales from \$100,000 to \$500,000, but decided decreases take place from that point on with increases in volume.

Some light is thrown on this point through an examination of the sales per salesman data as well as stocks on hand, as shown in the table and in Chart III. A rough correlation seems to exist between sales per salesman and operating expenses. As the sales per salesman rise, expenses tend to decline, and vice versa. The correlation is better in the case of stocks on hand. The ratio of stocks to net sales declines with the increased size of the business. While the smallest firms carried stocks on hand (as of December 31) to the extent of 40.2 per cent

CHART III.—EXPENSES, SALES PER SALESMAN, AND STOCKS ON HAND, BY SIZE OF BUSINESS—WHOLESALE MERCHANTS IN GENERAL LINE HARDWARE—UNITED STATES: 1929



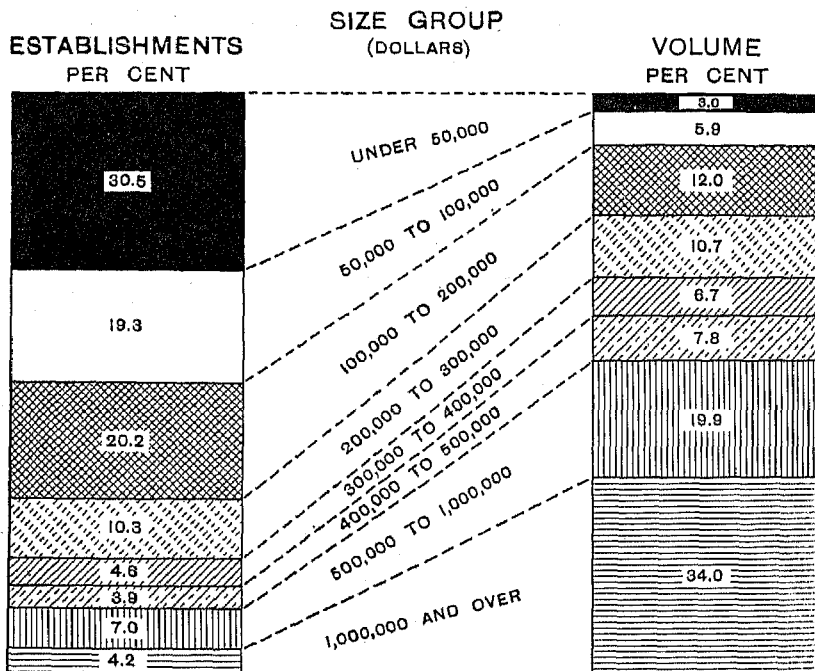
of their net sales, the largest concerns had stocks of but 16 per cent of sales. Thus, savings in rent and other expenses arising from the maintenance of smaller stocks, coupled with the effective utilization of the sale force, may furnish a key to the solution of the problem incident to the high costs of operation.

It would be erroneous to assume that the larger stocks normally carried by the smaller concerns are due entirely 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. This suggests that the modern stock control ideas may have decided limitations when it comes to applying them to the small size businesses.

Specialty wholesale merchants.—Unlike the general line merchants, specialty wholesalers showed lowest costs of doing business for the largest establishments even though their stocks were slightly above the average. These concerns had, however, the largest sales per salesman. In all other size groups, the same observations apply as those made in connection with general line firms. *These statistics seem to point to the wisdom of watching closely the sales per salesman and stocks on hand as the keys to a reduction in operating costs.*

CHART IV.—NUMBER OF ESTABLISHMENTS AND NET SALES, BY SIZE OF BUSINESS—
SPECIALTY WHOLESALE MERCHANTS IN HARDWARE TRADE—UNITED STATES:
1929



Manufacturers' sales branches by size of business.—The 328 manufacturers' sales branches classified as specialty hardware establishments show a remarkable decline in operating costs with increases in the size of the business, the costs decreasing from 27.9 per cent for the establishments with sales under \$50,000 (as compared with average costs of 13.2 per cent) to as low as 6.9 per cent for the four establishments with sales of \$2,000,000 to \$4,000,000 each. Higher costs are shown for the three largest establishments with sales over \$4,000,000. Here, again, the explanation seems to lie in the sales per salesman and stocks on hand, as shown in Table 24.

TABLE 24.—OPERATING EXPENSES OF MANUFACTURERS' SALES BRANCHES, BY SIZE OF BUSINESS—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
UNITED STATES, total.....	328	100.0	13.2	1,354	\$89,988	3.8	10.6
Under \$50,000.....	59	1.3	27.9	80	20,363	10.8	15.1
\$50,000 to \$99,999.....	69	4.2	18.0	111	46,409	6.9	13.6
\$100,000 to \$199,999.....	52	6.1	18.5	161	49,513	6.6	10.8
\$200,000 to \$299,999.....	40	8.1	16.0	142	69,872	5.0	6.9
\$300,000 to \$399,999.....	25	7.0	16.3	101	83,850	4.4	11.5
\$400,000 to \$499,999.....	16	5.9	17.8	128	56,121	5.1	9.9
\$500,000 to \$999,999.....	40	22.6	12.1	267	103,222	3.4	7.3
\$1,000,000 to \$1,999,999.....	20	21.7	12.9	214	123,581	3.2	11.0
\$2,000,000 to \$3,999,999.....	4	7.9	6.9	93	103,351	2.6	6.3
Over \$4,000,000.....	3	15.2	9.2	67	274,551	1.5	17.7

¹ Total net sales amount to \$121,844,317.

SIZE OF SALES TERRITORY

Wholesale merchants, by size of sales territory.—Of the 734 wholesale merchants handling a general line of hardware, all but 75 indicated the sales territory which they cover regularly. Most of the concerns which did not report on this point were located in towns under 10,000 population, schedules for which had no provision for such information. Out of the 659 establishments reporting their sales territory, 305, or 46.3 per cent, operated locally within a radius of 75 miles; 130, or 20 per cent, of the firms, reported a sales territory radius of between 75 and 150 miles; 87, or 13.2 per cent, reported a radius between 150 and 250 miles; 66 covered a radius of 250 to 500 miles; 51 covered a territory over 500 miles in radius, but did not operate nation-wide; and 20 firms operated nation-wide and also sold abroad.

Of the specialty wholesale merchants, only 27 of the 741 establishments failed to report their sales territory. As high as 56.5 per cent of the establishments reporting (404) operated within a local territory of a 75-mile radius. On the other hand, 74 firms operated nationally and abroad, which indicates that few specialty wholesale merchants operated on a sectional basis. Most of them operated locally but a substantial percentage covered the United States and even sold abroad. (See TABLE 25.)

Operating expenses by size of sales territory.—The statistics presented in Table 25 throw some light on the effect of the size of sales territory upon operating expenses. Both the traveling and other expenses of salesmen, expressed in percentages of net sales, and total selling costs tend to go up as the territory increases in extent. Expenses of salesmen of the general line wholesale merchants operating within a radius of 75 miles were 0.8 per cent as compared with an average for all general line wholesale merchants of 1.3 per cent. These expenses increased to 1 per cent for establishments operating over a territory up to 150 miles in radius and to 1.9 per cent for the 51 general line wholesalers covering a radius of 500 miles but not operating nation-wide. Total direct selling costs, which consist of salesmen's salaries and expenses of salesmen, were also generally higher as the size of the territory increased ranging from 4.6 per cent for the local concerns operating within a radius of 75 miles to 5.9 per cent for the 10 establishments distributing goods nationally.

TABLE 25.—OPERATING EXPENSES, BY SIZE OF SALES TERRITORY COVERED REGULARLY—UNITED STATES: 1929

SALES TERRITORY (Mile radius)	Number of establishments	Net sales	Average sales per establishment	Total expenses—per cent of net sales	SALESMEN			
					Number	Average sales per salesman	Salaries—per cent of net sales	Expenses—per cent of net sales
1. GENERAL LINE—WHOLESALE MERCHANTS								
Total.....	734	\$622, 556, 824	\$848, 170	18. 5	8, 707	\$71, 501	3. 3	1. 3
Up to 75 miles.....	305	106, 354, 123	348, 702	19. 4	1, 950	54, 541	3. 8	0. 8
Up to 150 miles.....	130	101, 734, 474	782, 573	18. 8	1, 563	65, 089	4. 1	1. 0
Up to 250 miles.....	87	82, 339, 593	946, 432	17. 9	1, 168	70, 496	3. 7	0. 9
Up to 500 miles.....	66	101, 867, 345	1, 543, 445	18. 2	1, 313	77, 584	3. 1	1. 3
Over 500 miles, but not national.....	51	167, 756, 115	3, 289, 336	18. 5	2, 092	80, 139	3. 0	1. 0
National.....	10	10, 670, 098	1, 067, 010	18. 3	191	55, 804	5. 0	0. 0
United States and foreign countries.....	10	33, 373, 743	3, 337, 374	18. 9	430	77, 613	2. 6	1. 0
Unknown.....	75	18, 461, 328	246, 151	14. 9	-----	-----	-----	-----
2. SPECIALTY—WHOLESALE MERCHANTS								
Total.....	741	\$177, 940, 424	\$240, 136	19. 5	2, 390	\$74, 452	3. 3	1. 0
Up to 75 miles.....	404	66, 948, 623	165, 714	19. 0	844	79, 323	3. 0	0. 7
Up to 150 miles.....	69	21, 278, 171	308, 379	17. 2	301	70, 692	3. 6	1. 3
Up to 250 miles.....	80	30, 361, 270	379, 616	19. 5	413	73, 514	3. 6	0. 0
Up to 500 miles.....	53	17, 748, 200	334, 372	20. 6	294	60, 368	3. 8	1. 7
Over 500 miles, but not national.....	34	16, 974, 278	499, 243	17. 7	221	76, 807	3. 2	1. 2
National.....	60	15, 491, 511	258, 192	25. 1	254	60, 990	4. 1	1. 2
United States and foreign countries.....	14	4, 701, 442	335, 817	18. 9	63	74, 626	2. 5	1. 2
Unknown.....	27	4, 436, 929	164, 331	21. 3	-----	-----	-----	-----
3. SPECIALTY—MANUFACTURERS' SALES BRANCHES								
Total.....	328	\$121, 844, 317	\$371, 476	13. 2	1, 354	\$89, 088	3. 8	2. 1
Up to 75 miles.....	70	11, 867, 219	162, 888	15. 5	194	58, 593	5. 5	1. 8
Up to 150 miles.....	46	14, 623, 933	313, 020	12. 1	177	32, 049	3. 7	1. 6
Up to 250 miles.....	72	22, 497, 113	312, 459	13. 4	257	87, 537	4. 1	2. 1
Up to 500 miles.....	53	17, 034, 185	321, 899	11. 0	188	60, 907	4. 1	2. 3
Over 500 miles, but not national.....	60	33, 014, 553	565, 242	12. 7	310	109, 401	3. 1	2. 0
National.....	15	6, 030, 533	402, 437	21. 1	101	59, 768	4. 0	2. 8
United States and foreign countries.....	9	16, 184, 626	1, 798, 291	10. 9	127	127, 438	2. 7	2. 3
Unknown.....	3	181, 125	60, 375	17. 2	-----	-----	-----	-----

The tendency toward increased direct selling costs with the increase in the size of the sales territory is accompanied to a considerable extent by differences in the average sales per establishment. For example, the average sales per establishment for the concerns operating within a 75-mile radius were \$348,702, while the direct selling costs of these firms were as indicated above 4.6 per cent of net sales. The 130 establishments in the next group which operated within a radius of 150 miles had practically double the average sales of the first-mentioned group (\$782,573) with direct selling costs of 5.1 per cent or 0.5 per cent higher, but the total operating expenses for this group were but 18.8 per cent as against 19.4 per cent for the first group. This seems to indicate that while the tendency for direct selling costs is to increase with the size of the sales territory as well as with the size of the establishment as figured in terms of net sales total operating expenses tend to go down as the size of the business increases, probably because certain fixed charges are distributed over a larger volume of business.

This conclusion seems to be corroborated by the data for the next group of 87 establishments operating within a radius of 250 miles. These establishments had direct selling costs of 4.6 per cent and total expenses of 17.9 per cent since the average sales per establishment was considerably higher (\$946,432). The establishments that operated over a radius of more than 250 miles were much larger in size, hence had relatively smaller operating expenses, despite increased direct selling costs which ranged for these groups from 4.4 per cent to 5.9 per cent of net sales.

The total expenses for the houses covering the smallest territory were above the average for the entire group. One must not conclude, however, that it is more economical to operate over a larger area. Such a conclusion would be immediately controverted by the amounts paid for salesmen's expenses. *A closer examination of the figures reveals that the concerns with high costs operated on a small scale and had on the average lower sales per salesman, while those that had the lowest costs operated on a large scale and had high average sales per salesman. These large concerns, as already shown in Table 23, also had the smallest stock ratios of the group. This would indicate that efficiency in management and operation coupled with increased volume tends more than to offset whatever additional expenses may be incurred through wide territorial coverage.* Of course, it must be remembered that many hardware commodities are nonperishable, small in bulk as compared with their market value, are usually well finished and painted, so that they can readily be transported long distances without being affected by time, temperature, dust, light, or wear.

The conclusions just drawn are strikingly supported by the figures on the specialty wholesale merchants. Here we find, for example, that the highest costs were incurred by those establishments that operated nationally. Their costs of 25.1 per cent were 5.6 points higher than the average costs, while the costs of the firms operating in a territory over 500 miles but not nation-wide were 1.8 points lower than the average. This discrepancy would seem entirely too great, since these two groups of merchants operated almost as extensively. The real explanation of the difference in their costs seems to lie in their respective scale of operations. The group covering a nation-wide territory showed average sales per establishment of only \$258,192 as against \$499,243 for those covering a radius of over 500 miles but not nation-wide.

In the wholesale hardware trade size of the business and operating efficiency as revealed by sales per salesman, stocks on hand, and direct selling costs, are apparently significant factors in the control of operating expenses; moreover, the extent of the territory covered seems to bear a close relationship to the size of the business. This may mean that in order to increase the volume of sales, hardware wholesalers may have to cultivate a larger area. At least that seems to have been the case in the past, according to the statistics in Table 25. Thus, while wide territorial cultivation tends to result in higher direct selling costs, it may also bring with it larger sales volume which, within certain limits, tends to offset these costs through greater economies in the operation of the plant and equipment and in a reduction of overhead.

OTHER CENSUS OF DISTRIBUTION DATA ON THE WHOLESALE HARDWARE TRADE

In presenting the data in this report for the wholesale hardware 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 hardware 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 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 hardware 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 hardware 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 separately for general line hardware establishments and for specialty houses.

Tables 5, 6, and 7 show the number of hardware establishments, their net sales, and total expenses, by types of establishments, thus giving a cross section of both types of organizations and kinds of hardware 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 hardware 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 hardware 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 Table 3 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. When these statistics are used in conjunction with the data presented in this more or less analytical report, it is felt that the most reliable data bearing on the wholesale hardware trade have been used and that satisfactory results may be expected therefrom.⁶

THE RETAIL MARKET FOR HARDWARE

In order to indicate roughly where the retail market lies for wholesale hardware establishments, Table 26 is presented below. This table shows, by States, the number of hardware stores and their net sales and the number of stores and net sales of other retail store classifications handling substantial proportions of hardware.

⁶ Attention is called again to the fact that the figures presented in this report may not correspond to those shown in the other report, merely because many of the schedules have been reclassified and regrouped for the purpose of this analysis.

TABLE 26.—RETAIL STORES HANDLING SUBSTANTIAL PROPORTIONS OF HARDWARE—UNITED STATES: 1929¹

	HARDWARE		HARDWARE AND FARM IMPLEMENTS		FARM IMPLEMENTS AND MACHINERY	
	Stores	Sales	Stores	Sales	Stores	Sales
UNITED STATES, total.....	25,330	706,052,831	6,589	296,714,129	673	46,818,230
Alabama.....	180	6,272,958	79	3,970,327	8	576,431
Arizona.....	28	1,339,816	15	2,481,333	.....	.....
Arkansas.....	69	2,832,386	88	4,365,028	5	225,395
California.....	1,210	33,711,018	163	14,856,346	16	1,168,175
Colorado.....	156	4,148,785	101	4,490,563	8	485,039
Connecticut.....	286	10,534,716	19	1,668,805	3	243,241
Delaware.....	44	980,534	23	795,727	1	177,226
District of Columbia.....	113	6,643,036	2	42,519	.....	.....
Florida.....	239	8,126,005	50	3,829,442	4	555,500
Georgia.....	205	7,419,026	126	5,222,244	3	32,865
Idaho.....	67	2,280,518	84	4,268,610	3	124,790
Illinois.....	2,272	52,332,434	334	12,180,656	39	2,060,664
Indiana.....	722	18,508,429	290	9,128,141	31	1,841,507
Iowa.....	893	21,071,715	334	11,621,694	33	3,078,420
Kansas.....	448	10,281,024	602	21,422,419	9	516,593
Kentucky.....	274	7,449,883	142	6,514,162	23	1,428,961
Louisiana.....	158	4,530,805	50	2,132,491	2	307,654
Maine.....	185	6,415,340	26	1,584,005	5	238,615
Maryland.....	395	7,521,114	51	2,613,990	14	1,169,029
Massachusetts.....	870	28,279,929	40	1,677,171	5	566,782
Michigan.....	1,333	41,060,140	283	8,919,475	26	1,672,841
Minnesota.....	810	20,415,382	353	13,625,410	21	1,170,931
Mississippi.....	93	3,108,568	75	4,566,622	2	106,002
Missouri.....	877	17,322,544	367	9,975,010	23	1,118,635
Montana.....	77	2,466,887	66	4,597,903	2	325,531
Nebraska.....	454	10,334,537	177	7,317,282	20	1,215,506
Nevada.....	10	421,866	7	890,698	.....	.....
New Hampshire.....	75	3,972,341	0	350,444	3	201,923
New Jersey.....	1,266	30,232,840	47	3,391,367	12	1,204,103
New Mexico.....	22	1,086,582	19	1,661,930	4	392,337
New York.....	3,662	95,748,858	188	7,257,257	82	7,896,803
North Carolina.....	217	9,803,897	169	10,932,034	0	411,363
North Dakota.....	261	5,361,414	160	6,121,815	4	348,121
Ohio.....	1,785	50,446,597	280	10,134,901	43	2,430,871
Oklahoma.....	209	5,680,095	323	15,337,838	6	243,243
Oregon.....	195	5,532,826	77	3,639,261	11	1,491,000
Pennsylvania.....	2,207	58,203,729	124	6,125,180	59	3,113,142
Rhode Island.....	135	5,163,260	5	234,293	.....	.....
South Carolina.....	94	3,115,066	79	3,143,043	3	352,252
South Dakota.....	312	7,087,575	140	5,153,270	9	774,282
Tennessee.....	166	7,585,070	123	6,728,495	9	661,881
Texas.....	409	15,525,945	441	28,551,690	13	966,229
Utah.....	40	1,367,733	31	1,253,347	4	114,578
Vermont.....	107	4,071,224	13	439,324	11	781,570
Virginia.....	258	9,014,207	94	4,318,872	18	1,326,086
Washington.....	292	11,130,833	73	3,478,102	6	306,861
West Virginia.....	167	5,390,220	43	1,407,863	9	401,067
Wisconsin.....	951	27,614,953	279	10,838,767	48	2,652,592
Wyoming.....	32	859,056	25	1,039,273	7	341,688

¹ From the retail reports of the Census of Distribution.

CENSUS OF DISTRIBUTION

TABLE 26.—RETAIL STORES HANDLING SUBSTANTIAL PROPORTIONS OF HARDWARE—UNITED STATES: 1929¹—Continued

	FARM IMPLEMENT DEALERS		FURNITURE AND HARDWARE		LUMBER AND HARDWARE	
	Stores	Sales	Stores	Sales	Stores	Sales
UNITED STATES, total.....	4, 980	174, 975, 432	3, 672	134, 258, 767	6, 139	467, 659, 775
Alabama.....	15	582, 336	101	4, 204, 301	30	2, 901, 357
Arizona.....	6	1, 092, 476	27	890, 129	50	7, 389, 510
Arkansas.....	42	1, 769, 282	171	6, 830, 539	117	7, 094, 379
California.....	131	13, 157, 632	150	6, 831, 301	415	54, 722, 354
Colorado.....	66	3, 152, 162	74	1, 625, 602	171	12, 184, 696
Connecticut.....	9	376, 013	21	1, 606, 790	41	7, 657, 469
Delaware.....	7	101, 364	3	104, 484	9	934, 284
District of Columbia.....	1	50, 220	1	134, 700	1	59, 800
Florida.....	9	814, 343	74	2, 270, 503	84	5, 601, 304
Georgia.....	29	2, 667, 308	80	2, 149, 965	31	2, 092, 555
Idaho.....	28	1, 309, 658	32	889, 437	87	4, 410, 873
Illinois.....	313	9, 587, 287	127	3, 819, 395	303	20, 934, 614
Indiana.....	116	3, 304, 116	78	2, 231, 885	174	10, 302, 376
Iowa.....	535	15, 371, 633	140	3, 590, 853	141	6, 755, 705
Kansas.....	295	12, 616, 256	112	2, 909, 055	479	20, 996, 820
Kentucky.....	25	609, 888	75	2, 983, 657	79	5, 621, 630
Louisiana.....	15	774, 453	57	2, 888, 746	62	5, 982, 923
Maine.....	44	1, 470, 979	16	529, 592	37	2, 895, 088
Maryland.....	30	1, 548, 093	8	431, 093	40	5, 624, 959
Massachusetts.....	11	427, 255	18	531, 640	00	8, 653, 131
Michigan.....	163	3, 668, 574	99	4, 267, 313	78	7, 992, 572
Minnesota.....	415	11, 966, 723	144	4, 622, 346	168	7, 612, 266
Mississippi.....	18	303, 778	89	4, 271, 720	32	2, 714, 072
Missouri.....	127	3, 160, 777	135	3, 196, 837	297	13, 346, 057
Montana.....	88	4, 768, 618	31	1, 533, 029	159	6, 623, 435
Nebraska.....	362	11, 620, 469	180	5, 517, 357	211	10, 470, 400
Nevada.....	2	236, 268	6	128, 536	0	710, 282
New Hampshire.....	4	52, 856	4	206, 688	11	1, 041, 692
New Jersey.....	34	1, 538, 637	15	1, 181, 141	97	17, 500, 125
New Mexico.....	8	374, 093	24	942, 057	47	3, 186, 797
New York.....	224	5, 138, 361	58	3, 250, 593	178	26, 764, 968
North Carolina.....	32	1, 894, 891	47	2, 063, 882	34	2, 122, 832
North Dakota.....	318	9, 692, 347	84	2, 273, 499	135	5, 132, 345
Ohio.....	170	5, 403, 248	65	2, 146, 965	170	16, 039, 876
Oklahoma.....	79	2, 590, 267	268	9, 778, 836	408	23, 709, 823
Oregon.....	37	3, 186, 074	65	1, 074, 776	62	3, 270, 457
Pennsylvania.....	190	4, 334, 635	119	6, 362, 617	162	12, 619, 154
Rhode Island.....	2	19, 000	4	194, 434	14	4, 107, 791
South Carolina.....	18	474, 266	21	986, 422	17	1, 365, 209
South Dakota.....	303	9, 838, 955	40	1, 192, 201	122	4, 991, 790
Tennessee.....	18	605, 273	65	4, 174, 388	20	3, 416, 411
Texas.....	147	8, 263, 286	350	14, 212, 889	883	62, 998, 701
Utah.....	10	392, 586	22	1, 036, 801	94	6, 543, 433
Vermont.....	26	340, 073	11	456, 692	6	680, 128
Virginia.....	36	1, 430, 033	52	1, 673, 659	43	3, 637, 052
Washington.....	38	3, 526, 731	95	2, 859, 853	114	3, 954, 360
West Virginia.....	7	170, 103	84	3, 217, 669	36	6, 078, 469
Wisconsin.....	330	8, 574, 070	63	2, 100, 797	52	2, 799, 696
Wyoming.....	17	581, 836	25	972, 008	60	4, 068, 722

¹ From the retail reports of the Census of Distribution.

APPENDIX.—PRODUCTION OF ALLIED HARDWARE PRODUCTS IN THE UNITED STATES: 1929

NAME OF INDUSTRY OR COMMODITY	Value of production (f. o. b. factory)
Total.....	\$3, 865, 023, 561
Ammunition.....	31, 685, 894
Baskets and hampers.....	22, 653, 970
Bicycles and parts.....	10, 662, 738
Brooms.....	20, 834, 443
Belting for machinery (cotton).....	3, 665, 679
Belting, leather.....	25, 623, 993
Carriages and sleds, children's; and toys, games, and playground equipment.....	112, 621, 129
Cast-iron pipe.....	85, 890, 036
Cooperage:	
Tubs and pails.....	7, 596, 002
Hogsheads.....	1, 561, 698
Kegs.....	8, 595, 410
Cordage and twine:	
Binder twine.....	18, 394, 946
Fish line.....	2, 892, 531
Rope, cable, and cordage.....	42, 671, 262
Electrical machinery, apparatus, and supplies:	
Domestic household apparatus and supplies.....	84, 485, 468
Electrotherapeutic and electromedical (including dental) apparatus.....	23, 555, 082
Flash-light cases.....	7, 050, 437
Fuses and fuse blocks.....	14, 036, 325
Spark plugs.....	20, 244, 418
Radio apparatus and tubes.....	411, 637, 312
Wiring devices and interior conduits.....	94, 665, 686
Emery wheels and other abrasive and polishing appliances.....	35, 523, 276
Farm equipment, miscellaneous.....	110, 640, 605
Firearms.....	17, 701, 448
Fire extinguishers, chemical.....	3, 566, 089
Furniture:	
Household furniture, camp.....	3, 842, 955
Household furniture, porch.....	9, 361, 797
Hand stamps and stencils and brands.....	15, 036, 023
Hones, whetstones, and similar products.....	863, 811
Machine tool accessories.....	105, 969, 739
Mechanical rubber goods:	
Rubber belting.....	25, 776, 445
Rubber hose and tubing, except garden hose.....	31, 882, 542
Other mechanical rubber goods, except washers, gaskets, etc.....	47, 032, 464
Plumbers' supplies, not including pipe or vitreous or semivitreous china or porcelain (all clay) sanitary ware.....	137, 463, 414
Plated ware.....	52, 502, 861
Pottery:	
Garden pottery.....	368, 634
Insulators.....	13, 899, 795
Knobs, tubes, and cleats.....	1, 775, 285
Other electrical supplies.....	6, 060, 394
Porcelain electrical supplies (exclusive of fittings).....	22, 135, 474
Semivitreous or porcelain (all clay) plumbing fixtures (exclusive of fittings).....	3, 965, 429
Vitreous china plumbing fixtures (exclusive of fittings).....	24, 992, 047
Refrigerators and refrigerator cabinets, exclusive of mechanical refrigerating equipment:	
Domestic.....	30, 192, 838
Refrigerators, mechanical.....	150, 339, 411
Rubber tires and inner tubes.....	676, 909, 812
Sandpaper, emery paper, and other abrasive paper and cloth.....	17, 218, 590
Sporting and athletic goods, not including firearms and ammunition.....	56, 235, 702
Steam fittings, valves, and specialties.....	140, 730, 375
Steel works and rolling mills:	
Wrought pipes and tubes.....	455, 276, 528
Stoves, ranges, water heaters, and parts.....	181, 437, 004
Trunks, suitcases, and bags.....	63, 968, 929
Turpentine and rosin (made from crude gum).....	35, 790, 829
Washing machines, wringers, driers, and ironing machines, for household use.....	81, 012, 884
Window and door screens and weather strip.....	28, 183, 570
Window shades and fixtures.....	36, 964, 694
Wire and wire products:	
Iron and steel wire products, except nails, brads, spikes, tacks, wire springs, and rope and cable.....	148, 096, 888
Nonferrous wire products.....	35, 882, 691