DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS
SAM. L. ROGERS, DIRECTOR

CENSUS OF ELECTRICAL INDUSTRIES: 1917

TELEGRAPHS

AND

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS

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CENSUS OF ELECTRICAL INDUSTRIES: 1917.

TELEPHONES.

ELECTRIC LIGHT AND POWER STATIONS AND STREET AND ELECTRIC RAILWAYS.

TELEGRAPHS AND MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS.

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LETTER OF TRANSMITTAL.

DEPARTMENT OF COMMERCE,
BUREAU OF THE CENSUS,
Washington, D. C., May 1, 1919.

SIR:

I transmit herewith the report on the census of telegraphs and municipal electric fire-alarm and police-patrol signaling systems for 1917. This report is a part of that on Electrical Industries which in its entirety covers telephones, electric light and power stations and street and electric railways, and the report presented herewith.

This is the third report on these industries that has been taken in conformity with the requirements of the act of Congress of June 7, 1906. The work of obtaining the data for the report was done by clerks detailed from the permanent force of the bureau and by correspondence, and the statistics were secured during the year 1918 and relate in general to the year ending December 31, 1917.

The statistics were collected and the report prepared under the supervision of Eugene F. Hartley, chief statistician for manufactures. Acknowledgment is also made of the services of Mr. William A. Countryman and Mr. George F. Fuller, who assisted in the preparation of the text and analytical tables.

Respectfully,

SAM. L. ROGERS,
Director of the Census.

Hon. WILLIAM C. REDFIELD,
Secretary of Commerce.

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TELEGRAPHS

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TELEGRAPHS.

LAND AND OCEAN CABLE TELEGRAPHS.

Scope of the report.—The statistics of the fifth census of telegraphs are presented in this report, and relate to the calendar year 1917. They cover the operations of the land and wireless commercial companies in continental United States, and of the cable companies or systems incorporated in the United States.

The incidental commercial telephone operations of all commercial telegraph companies are included in the statistics, but no figures are given for the traffic of newspaper or press associations conducted over private or leased wires.

The figures for railway telegraphs are solely for Class I roads (those having annual operating revenues of $1,000,000 or more) and relate only to ownership, and operations by pole and wire mileage, with special statements concerning train dispatching by telephone. These railway statistics are not given in any of the commercial tables nor in the commercial summaries.

All the commercial systems in the country are owned by incorporated companies. The statistics of governmental lines shown in separate tables include land, cable, and wireless systems wherever located, whether in Alaska or in other noncontiguous United States territory. These statistics are fragmentary, however, although an attempt has been made to show complete commercial receipts.

The accounting system introduced by the Interstate Commerce Commission for telegraph companies, and adopted in considerable measure by the Bureau of the Census in its schedule for the census of 1917, can not be used to the best advantage in comparison with the statistics of telegraphs of previous censuses, although in some instances the difference of nomenclature is not marked. The statistics collated under the new forms at the census of 1917 can be used, therefore, only as showing, in greater detail than would otherwise have been possible, the interesting figures for the latest census year. This is not practicable, however, for the few wireless companies reporting, so that land and ocean systems only are treated. In only two tables (Tables 1 and 5) are the data for all ocean systems shown, the Western Union Telegraph Co. for both land and ocean being included with land in all other tables, as the details relating to income and expense accounts and balance sheet statements have not been segregated. In these two tables certain features of equipment, number of employees, and salaries and wages are shown, these data being all for which complete segregation were made between land and ocean systems.

The schedule used in securing data for this report is reproduced on page 59. Owing to the small number of telegraph companies, it was not found necessary to issue special instructions to the agents engaged in securing statistics of telegraphs. General instructions to special agents covering the canvass of all electrical industries in 1917, are reprinted in the appendix to this report, page 60.

Equipment and traffic: 1917.—Table 1 shows data for land and ocean systems, both combined and separately, for 1917, giving the number of systems, miles of pole line, wire mileage, number of offices, and number of messages by kind.

Table 1 — LAND AND OCEAN CABLE TELEGRAPHS.

	Total.	Land	Ocean.
Number of companies or systems	[1] 28	21	7
Miles of pole line, aggregate	241,128	241,012	116
Owned, total	192,413	192,413	.....
On reporting company's right of way	484	484	.....
On highway	24,384	24,384	.....
On railway right of way	167,545	167,545	.....
Leased, total	48,715	48,599	116
On lessor's right of way	3,457	3,457	.....
On highway	2,252	2,136	116
On railway right of way	43,006	43,006	.....
Miles of single wire, aggregate	1,890,245	1,888,793	1,452
Aerial, total	1,809,482	1,808,325	1,157
Owned, total	1,396,595	1,396,595	.....
On reporting company's right of way	4,450	4,450	.....
On highway	260,897	260,897	.....
On railway right of way	1,131,248	1,131,248	.....
Leased, total	412,887	411,730	1,157
On lessor's right of way	1,949	1,949	.....
On highway	18,876	17,719	1,157
On railway right of way	392,062	392,062	.....
Underground	77,187	76,892	295
Submarine	3,576	3,576	.....
Nautical miles of ocean cable	71,251	.....	71,251
Number of offices or stations, total	28,940	28,826	114
Operated solely by the company, exclusive of railway offices	5,557	5,443	114
Operated with other telegraph and cable companies	6	6	.....
Operated with telephone companies	43	43	.....
Railway offices	23,334	23,334	.....
Operated solely by telegraph company	62	62	.....
Operated jointly by telegraph and railway companies	[2] 23,272	[2] 23,272	.....
Estimated number of messages sent, aggregate	158,176,456	151,725,228	6,451,228
Telegrams, total	127,073,879	120,622,651	6,451,228
Governmental	4,597,301	4,309,319	287,982
Full commercial rate	110,618,406	106,159,282	4,459,124
Reduced rate and free	11,858,172	10,154,050	1,704,122
Lettergrams, total	[3] 31,102,577	31,102,577	.....

[1] The Western Union Telegraph Co., which operates both land and ocean systems, is counted in this table as two companies
[2] Includes 23 operated jointly with an industrial company.
[3] Includes 20 governmental lettergrams.

In this table, Western Union returns having been reported separately, the segregation between land and cable systems is shown; this accounts for the differ-

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ence between the figures in this table and those in the comparative summary for land and ocean telegraphs. The system is accounted here as one land system and one ocean system.

The miles of pole line and the aerial wire mileage reported by ocean systems, and shown in this table as all leased, are included in the mileage given for land systems in other tables in which the statistics are compared with those obtained by the old method of accounting at earlier censuses. It must be remembered that in all comparative tables Western Union cable statistics are included with those of its land lines, no sufficient segregation of these having been made at any census.

Of the 241,012 miles of pole line reported by the land systems, 192,413, or about four-fifths, were owned by them. Of this owned mileage, 167,545 miles, or 87.1 per cent, were on railway right of way, and only 24,384, or 12.7 per cent, on the highway, while that on the company's own right of way was reported as 484 miles, or three-tenths of 1 per cent. Of the 48,599 miles of pole line leased, 43,006 miles, or about nine-tenths, were on railway right of way, and only 2,136, or 4.4 per cent, on the highway, the remainder being on other lessors' right of way. Only 116 miles of pole line were reported by ocean systems and these were leased.

Of the 1,888,793 miles of wire reported by land lines, all but 80,468, or 4.3 per cent, were aerial. Of the nonaerial mileage, 76,892 miles, or 95.6 per cent, represent length of underground wires, that is, such wires as are in subways or conduits; the remainder are submarine wires, such as are in cables used for crossing rivers, harbors, bays, and channels, or other waters connecting mainlands or islands. Of the land aerial wire mileage, 1,396,595 miles, or 77.2 per cent, were owned, and of this owned portion, 1,131,248 miles, or a little more than four-fifths, were on railway right of way. Railway right of way also provided the route for 392,062 miles, or 95.2 per cent, of the leased wire. Of the aerial wire mileage, owned and leased, 1,523,310 miles, or 84.2 per cent, were on railway right of way.

The pole line and aerial wire shown for cable companies were used wholly in the transmission of cable messages. The Western Union cable system reported no pole line or aerial wire in the United States used for cable dispatches.

Of the total land telegraph offices, 23,249, or 80.7 per cent, were operated in conjunction with railway companies and in addition, 23 were operated in conjunction with an industrial company by one reporting corporation, as shown in a footnote to the table. All cable offices were operated solely by the reporting company.

In no other table is the number of messages shown by kind, or by character of line over which transmitted. No lettergrams were reported by ocean systems; the total lettergrams, therefore, are shown for land lines only, and number 31,102,577, or 19.7 per cent, of the total of 158,176,456 dispatches of all kinds sent in 1917 by both land and ocean systems. Of the 127,073,879 telegrams sent over both systems, 110,618,406, or 87.1 per cent, were sent at full commercial rates, and 4,597,301, or 3.6 per cent, at Government rates, the remainder, forming 9.3 per cent, being sent free or at reduced rates. Of the total messages of all kinds sent, 95.9 per cent represent messages sent by land and 4.1 per cent messages by ocean.

Income account.—For the reason previously stated—the nonsegregation of Western Union cable figures—no complete separation of the financial statistics for land and ocean telegraph systems is possible under the new form of accounting even for 1917. However, the figures for each, so far as segregated, and the combined statistics also, are considered in Table 2 for 1917 only.

Table 2 — LAND AND OCEAN CABLE TELEGRAPHS[1]—REVENUE AND INCOME ACCOUNTS: 1917.

ACCOUNT.	Total.	Land.	Ocean.
I. OPERATING INCOME.			
Telegraph operating revenues	$106,989,743	$91,312,567	$15,677,176
Telegraph operating expenses	78,860,799	70,514,697	8,346,102
Net telegraph and cable revenue	28,128,944	20,797,870	7,331,074
Taxes assignable to operation, total	5,397,351	4,091,687	1,305,664
State and local	1,658,607	1,648,611	9,996
Federal	3,738,744	2,443,076	1,295,668
Operating income	22,731,593	16,706,183	6,025,410
II. NONOPERATING INCOME.			
Lease of plant	$134,501	$134,501	.....
Dividends	876,235	500,012	$376,223
Interest	1,644,701	974,559	670,142
Miscellaneous	58,248	32,731	25,517
Nonoperating income	2,713,685	1,641,803	1,071,882
Gross income	25,445,278	18,347,986	7,097,292
III. DEDUCTIONS FROM GROSS INCOME.			
Lease of plant	$3,575,252	$3,575,252	.....
Interest accrued	2,584,435	1,420,060	$1,164,375
Miscellaneous rentals	362,111	268,393	93,718
Miscellaneous deductions	1,091,211	958,881	132,330
Total deductions from gross income	7,613,009	6,222,586	1,390,423
Net income	17,832,269	12,125,400	5,706,869
IV. DISPOSITION OF NET INCOME.			
Dividends declared on common stock	$9,817,211	$7,165,514	[2] $2,651,697
Charges for sinking fund	104,992	19,502	85,490
Appropriations for construction	149,611	.....	149,611
Total appropriations	10,071,814	7,185,016	2,886,798
Profit and loss surplus	7,760,455	4,940,384	2,820,071

[1] Western Union cable system statistics, not having been reported separately, are included with land systems.
[2] In addition, dividends amounting to $1,050,239 were declared payable from accumulated surplus.

The income from leased wires is included with the telegraph operating revenues, but the nonoperating income, made up of various entries, is shown as a separate total, and the large allowances for depreciation are made a part of the telegraph operating ex-

penses in accordance with the regulations governing the new accounting. No "other operating revenues" or "other operating expenses" were reported.

The nonoperating income amounted to $2,713,685, or 10.7 per cent of the entire gross income of $25,445,278. Interest on investments was the predominating item of the nonoperating income and amounted to $1,644,701, or 60.6 per cent of the total.

The operating income amounted to $22,731,593, or 89.3 per cent of the gross income. To obtain the operating income, the taxes are deducted from the net telegraph and cable revenue. These taxes, assignable to operation, amounted to $5,397,351, or 19.2 per cent of the net telegraph and cable revenue and 6.8 per cent of the total telegraph operating expenses.

The principal items making up the $7,613,009 of total deductions from gross income were amounts paid for lease of plant and for accrued interest, the former being $3,575,252, or 47 per cent of the total deductions, and the latter, $2,584,435, or 33.9 per cent.

Of the net income of $17,832,269 shown by the required accounting, $9,817,211 were declared in dividends and $7,760,455 were charged to profit and loss surplus. It will be noticed that a large amount was declared payable in dividends from accumulated surplus, emphasizing the gains of the war year, 1917.

Comparison of returns for the land and ocean systems is invalidated by the necessary inclusion of the Western Union ocean figures with those for land companies. As the figures stand in the table, however, the operating income for ocean systems in 1917 was 26.5 per cent of the combined revenue from telegraph operations.

Expense account.—The expense account for land and ocean systems separately and combined is shown in Table 3.

Table 3

ACCOUNT.	LAND AND OCEAN CABLE TELEGRAPHS[1]—EXPENSE ACCOUNT: 1917.		
	Total.	Land.	Ocean.
Total	$91,871,159	$80,828,970	$11,042,189
General operation and maintenance, including legal expenses and total salaries and wages	62,844,967	58,965,308	3,879,659
Rentals of offices and other real estate	3,506,291	[2] 3,348,911	[3] 157,380
Rentals of conduits, underground privileges, and wires	320,443	[2] 306,730	[3] 13,713
Payments for telegraph traffic to other companies	327,847	[1] 128,296	[3] 199,551
Miscellaneous	1,224,787	[1] 998,739	[3] 226,048
Taxes, due and accrued	5,397,351	4,091,687	1,305,664
Interest on funded and floating debt and mortgages	2,584,435	1,420,060	1,164,375
Payments for use of leased lines	3,575,252	3,575,252	.....
Charges for depreciation	12,089,786	7,993,987	4,095,799

[1] Western Union cable system statistics, not having been reported separately, are included with land systems.
[2] Included in "all other expenses" in Table 7, and in "operating expenses" in Table 8.
[3] Included in "all other expenses" in Table 15, and in "operating expenses" in Table 16.

The total expenses of the land systems, $80,828,970, were 88 per cent of the combined total. The charges for depreciation, as reported by the six ocean systems, were greater than the amount reported for their operation and maintenance, including legal expenses and total salaries and wages. This illustrates the great necessary expense for repairing and renewing the cables. For the land lines, the depreciation charges were only 13.6 per cent of the expenses reported for general operation and maintenance.

The taxes imposed on the ocean lines were much greater in proportion to the total expenses than those imposed on the land systems. Of the total expenses of the ocean systems, taxes represent 11.8 per cent, while of the land lines they form but 5.1 per cent. Based on the capital stock, as shown in the balance sheet, this tax for ocean systems was 2.1 per cent; for land systems 3.8 per cent. Based on cost of plant and equipment, the amount reported in taxes represents 1.6 per cent for the ocean systems, and 2.5 per cent for the land.

A more accurate illustration of the extent to which taxes were assessed and paid is the fact that the combined payments by land and ocean systems in 1917 amounted to 3.2 per cent of combined capital stock and 2.2 per cent of the cost of combined plant and equipment.

The absence of leased-line payments in the separate showing for ocean telegraphs is due to the nonsegregation of financial statistics for Western Union cables.

Balance sheet.—The balance sheet as given for land and ocean cable telegraph systems separately and combined for 1917 is shown in Table 4.

Table 4

ACCOUNT.	LAND AND OCEAN CABLE TELEGRAPHS[1]—BALANCE SHEET: 1917.		
	Total.	Land.	Ocean.
Balance sheet:			
Assets, total	$363,017,223	$226,406,952	$136,610,271
Plant and equipment	243,358,432	163,487,637	79,870,795
Stocks and bonds of other telegraph and cable companies	13,465,582	12,510,987	954,595
Stocks and bonds of companies other than telegraph companies	39,402,656	16,813,356	22,589,300
Treasury securities, stock	13,900	500	13,400
Other permanent investments	3,152,859	239,859	2,913,000
Materials and supplies	5,077,454	3,860,601	1,216,853
Cash and current assets	54,280,779	28,115,940	26,164,839
Sinking and other special funds	926,109	850,143	75,966
Sundries	3,339,452	527,929	2,811,523
Liabilities, total	363,017,223	226,406,952	136,610,271
Capital stock	167,260,237	[2] 106,360,237	60,900,000
Funded debt	61,827,549	33,827,549	28,000,000
Floating debt (bonds and notes payable)	1,040,580	471,485	569,095
Reserves (depreciation and other)	53,662,948	20,627,340	33,035,608
Accounts payable	20,751,149	16,357,652	4,393,497
Interest and taxes, due and accrued	5,942,984	4,459,753	1,483,231
Dividends due and payable, but unpaid	4,117,906	2,715,155	1,402,751
Sundries	13,631,735	13,019,821	611,914
Net surplus	34,782,135	28,567,960	6,214,175

[1] Western Union cable system statistics, not having been reported separately, are included with land systems.
[2] Includes assumed stock of subcompanies.

Of the combined total assets ($363,017,223), the cost of plant and equipment represents 67 per cent; investments in stocks and bonds of companies other than telegraph companies, 10.9 per cent; and cash and current assets, 15 per cent.

Considering the combined liabilities, capital stock (which includes the assumed stock of subcompanies) represents 46.1 per cent of the total; the funded debt, 17 per cent; reserves, principally for depreciation, 14.8 per cent; accounts payable, 5.7 per cent; and net surplus, 9.6 per cent.

Notwithstanding the fact that the Western Union ocean cable system is not included in the ocean statistics, the investments in stocks and bonds of companies other than telegraph companies by the six ocean systems reporting, are conspicuously large, being larger than the amount shown for all the land systems (which includes the Western Union cable lines). There is also a notable approximation by the ocean systems to the cash and current assets of the land systems as here represented.

Employees, salaries, and wages.—The telegraph employees and their salaries and wages for all land and all ocean telegraphs can be shown separately for 1917, as well as in combination, the Western Union having made a segregation between its land and cable lines for these items. These details not having been reported for previous censuses, no comparison is available.

Table 5 shows, for land and ocean cable telegraphs, the number of employees, by classes, and their salaries and wages for 1917.

Table 5 — LAND AND OCEAN CABLE TELEGRAPHS [1]—EMPLOYEES, SALARIES, AND WAGES: 1917.

	Total.	Land.	Ocean.
Aggregate:			
Number of employees [2]	51,574	47,227	4,347
Salaries and wages	$39,643,911	$36,392,140	$3,251,771
Salaried employees, total	20,277	19,003	1,274
Salaries, total	$15,635,564	$14,557,570	$1,077,994
Salaried officers of corporations—			
Number	64	38	26
Salaries	$377,284	$255,151	$122,133
Superintendents and managers—			
Number	1,999	1,934	65
Salaries	$2,982,650	$2,811,759	$170,891
Clerks, stenographers, and other salaried employees—			
Number	18,214	17,031	1,183
Salaries	$12,275,630	$11,490,660	$784,970
Wage earners, total	31,297	28,224	3,073
Wages, total	$24,008,347	$21,834,570	$2,173,777
Operators—			
Number	21,639	20,191	1,448
Wages	$18,377,474	$16,850,085	$1,527,389
Male—			
Number	16,975	15,695	1,280
Wages	$15,494,425	$14,048,780	$1,445,645
Female—			
Number	4,664	4,496	168
Wages	$2,883,049	$2,801,305	$81,744
All other employees—			
Number	9,658	8,033	1,625
Wages	$5,630,873	$4,984,485	$646,388

[1] Statistics for Western Union cable employees, salaries, and wages having been segregated by the company, are included with ocean systems.
[2] The number is, for the most part, the number employed June 30, 1917; included, in some instances, are employees outside the United States on cable systems.

Nearly nine-tenths of the salaried employees were clerks, stenographers, and other salaried employees, and they received nearly four-fifths of the total paid in salaries. Operators constituted 21,639, or 69.1 per cent of the wage earners for all systems.

Of the 51,574 employees of all kinds, both salaried and wage earning of all systems, 47,227, or slightly more than nine-tenths, were reported by the land lines, and the salaries and wages—$36,392,140—paid these employees amounted also to more than nine-tenths of the aggregate salaries and wages for both land and ocean systems.

Distributed between land and ocean systems, the 20,277 salaried employees show 19,003, or 93.7 per cent, for the land, and 1,274, or 6.3 per cent, for the ocean, and their salaries have the relativity of 93.1 and 6.9 per cent, respectively.

Of the 31,297 wage earners, 28,224, or about nine-tenths, were reported by the land lines. Their wages amounted to $21,834,570, or 90.9 per cent, of all wages paid.

Of employees of land lines, 19,003, or 40.2 per cent, were salaried, and their salaries amounted to 40 per cent of the aggregate salaries and wages for land lines. Of employees of ocean systems, 1,274, or 29.3 per cent, were salaried, and their salaries amounted to $1,077,994, or 33.2 per cent of the aggregate for ocean lines.

Operators form 71.5 per cent of the total number of wage earners for land lines and 47.1 per cent of the wage earners shown for ocean cables. Female operators constituted 22.3 per cent of the operators employed on land lines and 11.6 per cent of the operators employed on ocean cables.

Comparative summary: 1902–1917.—A summary of the general statistics for the combined land and ocean cable telegraph systems for 1917, 1912, 1907, and 1902, with percentages of increase is presented in Table 6. The combined statistics for land and ocean telegraphs shown by the new forms used for 1917 can not be compared with the returns for earlier censuses, therefore, the old forms were used for this table.

There are several facts that are very marked in these combined statistics. The number of land and cable messages increased greatly both in actual numbers and relatively during the five years 1912–1917. The numerical increase was 48,798,758, or nearly one-half, as compared with the increase of 5,583,622, or about one-twentieth, for the preceding semidecade. During the ten years 1907–1917, the increase was 54,382,380, or more than one-half. The previous decade—1902–1912—shows an increase of 17,722,411, or about one-fifth. There is no way of measuring the length of dispatches during these periods. It is probable that during the later periods both land and ocean messages were longer, as many of them were lettergrams.

Table 6

LAND AND OCEAN CABLE TELEGRAPH SYSTEMS COMBINED—COMPARATIVE SUMMARY.

	1917	1912	1907	1902	Per cent of increase.[1] 1907–1917	1902–1912	1912–1917	1907–1912	1902–1907
Number of companies or systems	27	27	26	25	3.8	8.0	.....	3.8	4.0
Miles of pole line	[2] 241,128	[2] 247,528	[2] 239,646	237,990	0.6	4.0	−2.6	3.3	0.7
Miles of single wire owned and leased [3]	1,890,245	1,814,196	1,577,961	1,318,350	19.8	37.6	4.2	15.0	19.7
Nautical miles of ocean cable	71,251	67,676	46,301	16,677	53.9	305.8	5.3	46.2	177.6
Number of messages	158,176,456	109,377,698	103,794,076	91,655,287	52.4	19.3	44.6	5.4	13.2
Number of telegraph offices	28,940	30,864	29,110	27,377	−0.6	12.7	−6.2	6.0	6.3
Income, total	$109,703,428	$64,762,843	$51,583,868	$40,930,038	112.7	58.2	69.4	25.5	26.0
Telegraph traffic	$106,989,743	$60,403,009	$45,255,187	$35,300,569	136.4	71.1	77.1	33.5	28.2
All other sources	$2,713,685	$4,359,834	$6,328,681	$5,629,469	−57.1	−22.6	−37.8	−31.1	12.4
Net income	$17,832,269	$6,383,891	$9,704,255	$9,982,004	83.8	−36.0	179.3	−34.2	−2.8
Expenses, total	$91,871,159	$58,378,952	$41,879,613	$30,948,034	119.4	88.6	57.4	39.4	35.3
General operation and maintenance, including salaries and wages and legal expenses	[4] $74,934,753	[4] $46,780,041	$34,057,298	$24,455,511	120.0	91.3	60.2	37.4	39.3
Interest and taxes	$7,981,786	$3,955,381	$3,436,690	$2,539,008	132.3	55.8	101.8	15.1	35.4
All other expenses	$8,954,620	$7,643,530	$4,385,625	$3,953,515	104.2	93.3	17.2	74.3	10.9
Balance sheet:									
Assets, total	$363,017,223	$298,288,906	$261,807,899	$195,503,775	38.6	52.6	21.7	13.9	33.9
Plant and equipment	$243,358,432	$222,046,746	$210,045,959	$161,679,579	15.8	37.3	9.6	5.7	29.9
Stocks and bonds of other companies, treasury stock, and "other permanent investments"	$56,034,997	$33,933,679	$36,486,446	$25,939,944	53.6	30.8	65.1	−7.0	40.7
Cash and current assets, including supplies and sundries	[5] $63,623,794	[5] $42,308,481	$15,275,494	$7,884,252	316.5	436.6	50.4	177.0	93.7
Liabilities, total	$363,017,223	$298,288,906	$261,807,899	$195,503,775	38.6	52.6	21.7	13.9	33.9
Capital stock	[6] $167,260,237	[6] $163,645,810	$155,089,575	$117,053,525	7.8	39.8	2.2	5.5	32.5
Funded debt	$61,827,549	$62,741,000	$65,204,000	$45,893,000	−5.2	36.7	−1.5	−3.8	42.1
Reserves	$53,662,948	$20,803,780	$8,257,963	$7,859,648	549.8	164.7	157.9	151.9	5.1
Accounts payable [7]	$21,791,729	$19,755,480	$10,411,379	$6,244,585	109.3	216.4	10.3	89.7	66.7
Dividends, interest, and taxes due and accrued, and sundries	[8] $23,692,625	[8] $15,492,888	$2,519,043	$373,976	840.5	4,042.7	52.9	515.0	573.6
Net surplus	$34,782,135	$15,849,948	$20,325,939	$18,079,041	71.1	−12.3	119.4	−22.0	12.4
Capitalization—									
Capital stock outstanding, par value	$167,260,237	$163,645,810	$155,089,575	$117,053,525	7.8	39.8	2.2	5.5	32.5
Dividends on stock	$9,817,211	$6,180,061	$7,477,083	$6,256,693	31.3	−1.2	58.9	−17.3	19.5
Funded debt outstanding, par value	$61,827,549	$62,741,000	$65,204,000	$45,893,000	−5.2	36.7	−1.5	−3.8	42.1
Employees and salaries and wages—									
Average number	[9] 51,574	[10] 37,295	28,034	27,627	84.0	35.0	38.3	33.0	1.5
Salaries and wages	$39,643,911	$24,964,994	$17,808,249	$15,039,673	122.6	66.0	58.8	40.2	18.4

[1] A minus sign (−) denotes decrease.
[2] Exclusive of pole line wholly owned and wholly operated by railway companies.
[3] Exclusive of wire wholly owned and wholly operated by railway companies; this in 1917 was 344,110 miles, as reported by railway companies having annual operating revenues of $1,000,000 or more; in 1912, 314,329 miles reported by railway companies of all kinds. In 1902 includes mileage operated outside of the United States by Western Union Telegraph Co. Includes 116 miles of pole line and 1,452 miles of single wire reported by ocean cable telegraph companies.
[4] Includes charges for depreciation.
[5] Includes sinking funds and stock and bond discount.
[6] Includes assumed stock of subcompanies to the amount of $3,881,975 in 1917 and of $1,946,592 in 1912.
[7] Includes floating debt and cash investments (for unincorporated companies).
[8] Includes deferred noninterest-bearing obligations payable only on termination of leases, not reported at previous censuses, and real estate mortgages.
[9] Number, for the most part, employed June 30, 1917.
[10] Number, for the most part, employed Dec. 31, 1912.

The total combined income from land and ocean cable telegraph traffic shows a continuous increase; the actual increase was more than three times greater from 1912 to 1917 than from 1907 to 1912, and more than double during the later decade what it was during the earlier. The increase shown in expenses is in proportion to the gain in income. Salaries and wages, as may be seen by reference to the last entry in the table, increased by more than one-half during the five years ending in 1917, and also more than doubled during the later ten years. The increased showings in reserves and dividends follow the new accounting regulations, and the added business due to the world war.

LAND TELEGRAPHS.

Commercial systems.—The following 21 commercial telegraph companies reported statistics for 1917:

Canadian Pacific. (Lines in the United States.)
Central Idaho, of New Meadows, Idaho.
Chinese-Jamestown, of Chinese Camp, Calif.
Colorado & Wyoming, of Denver, Colo.
Continental, of Butte, Mont.
Federal Telegraph, of San Francisco, Calif.
Great Northwestern, of Toronto, Canada. (Lines in the United States.)
Louisburg, of Franklinton, N. C.
Marthas Vineyard, of Woods Hole, Mass.
Mountain, of Denver, Colo.
North American, of Minneapolis, Minn.
Northern, of Bangor, Me.
Philadelphia, Reading, and Pottsville, of Philadelphia, Pa.
Pittsboro, of Pittsboro, N. C.
Postal Telegraph Cable Co., of Dallas, Tex.
Postal Telegraph Cable system.
Put-in-Bay, of Put-in-Bay, Ohio.
Stock Quotation, of New York, N. Y.
Telepost, of Chicago, Ill.
Vermont International, of St. Johnsbury, Vt.
Western Union system.

Six of the companies that reported for 1912 were out of business in 1917, or had merged with other reporting companies or systems. One company, reporting wireless telegraph business at the census of 1912, reported a land telegraph only for 1917, and is here included; its wireless plant was operated by the Government.

Comparative summary.—The general statistics of land systems for 1917, 1912, and 1907, with percentages of increase, are given in Table 7.

Table 7

LAND TELEGRAPH SYSTEM[1]—COMPARATIVE SUMMARY.	1917	1912	1907	Per cent of increase.[2] 1907–1917	1912–1917	1907–1912
Number of companies or systems	21	21	20	5.0	.....	5.0
Miles of pole line [3]	241,012	247,528	239,646	0.6	−2.6	3.3
Miles of single wire owned and leased [4]	1,888,793	1,814,196	1,577,961	19.7	4.1	15.0
Number of messages [5]	155,263,206	106,532,530	101,424,759	53.1	45.7	5.0
Number of telegraph offices	[6] 28,865	30,781	29,056	−0.7	−6.2	5.9
Income, total	$92,954,370	$56,293,469	$43,912,168	111.7	65.1	28.2
Telegraph traffic	[7] $91,312,567	$52,337,211	$37,916,907	140.8	74.5	38.0
All other sources	$1,641,803	$3,956,258	$5,995,261	−72.6	−58.5	−34.0
Net income	[8] $12,125,400	[8] $3,431,044	$5,675,181	113.7	253.4	−39.5
Expenses, total	$80,828,970	$52,862,425	$38,236,987	111.4	52.9	38.2
General operation and maintenance including salaries and wages and legal expenses	[9] $66,959,295	[9] $42,771,823	$31,852,359	110.2	56.6	34.3
Interest and taxes	$5,511,747	$2,740,827	$2,246,382	145.6	101.1	22.0
All other expenses	[10] $8,357,928	$7,349,775	$4,138,246	102.4	14.0	77.6
Balance sheet:						
Assets, total	$226,406,952	$190,705,751	$166,183,007	36.2	18.7	14.8
Plant and equipment	$163,487,637	$143,910,631	$132,607,620	23.3	13.6	8.5
Stocks and bonds of other companies, treasury stock, and "other permanent investments"	$29,564,702	$17,122,592	$23,514,882	25.7	72.7	−27.2
Cash and current assets, including supplies and sundries	[11] $33,354,613	[11] $29,672,528	$10,060,505	231.5	12.4	194.9
Liabilities, total	$226,406,952	$190,705,751	$166,183,007	36.2	18.7	14.8
Capital stock	[12] $106,360,237	[12] $108,156,410	$102,289,575	4.0	−1.7	5.7
Funded debt	$33,827,549	$34,741,000	$37,204,000	−9.1	−2.6	−6.6
Reserves	$20,627,340	$5,254,329	$1,876,858	999.0	292.6	180.0
Accounts payable [13]	$16,829,137	$18,295,683	$7,916,138	112.6	−8.0	131.1
Dividends, interest, and taxes, due and accrued	$7,174,908	$1,460,733	.....	.....	391.2	.....
Sundries	[14] $13,019,821	[14] $13,444,926	$66,692	.....	−3.2	.....
Net surplus	$28,567,960	$9,352,670	$16,829,744	69.7	205.4	−44.4
Capitalization:						
Capital stock outstanding, par value	$106,360,237	$108,156,410	$102,289,575	4.0	−1.7	5.7
Dividends on stock	$7,165,514	$3,139,861	$4,944,042	44.9	128.2	−36.5
Funded debt	$33,827,549	$34,741,000	$37,204,000	−9.1	−2.6	−6.6
Employees and salaries and wages:						
Average number	[15] 49,608	[16] 35,639	26,827	84.9	39.2	32.8
Salaries and wages	$37,879,560	$23,797,980	$16,893,166	124.2	59.2	40.9

[1] Western Union figures for both land and cable business, except that nautical miles of ocean cable are not given, are included here, no adequate segregation of financial figures being obtainable.
[2] A minus sign (−) denotes decrease.
[3] Exclusive of pole line wholly owned and used by railway companies, and of that owned by cable companies reporting separately.
[4] Does not include 24,301 nautical miles of ocean cable operated by the Western Union Telegraph Co. in 1917, 22,816 nautical miles in 1912, and 5,729 nautical miles in 1907. Exclusive, also, of 344,110 miles of wire wholly owned and operated in 1917 by railway companies having annual operating revenues of $1,000,000 or more; and in 1912 of 314,329 miles of wire reported by railway companies of all classes; and in 1917 of land wires of cable companies reporting separately.
[5] Does not include land messages sent over its 207 miles of leased land wire by a wireless company in 1912, nor ocean cable messages, except those reported by the Western Union Telegraph Co., in 1917 and 1912.
[6] Does not include offices of the ocean cable telegraph companies.
[7] Includes receipts from leased wires, not required separately in 1917.
[8] Less all expenses, including charges for depreciation; in 1917 does not include charges for sinking fund, these being a deduction from net income in new accounting forms.
[9] Includes charges for depreciation which were not included in expenses in 1907, but not payments for use of leased lines.
[10] Includes payments for use of leased lines.
[11] Includes sinking fund and stock and bond discount.
[12] Includes assumed stock of subcompanies to the amount of $3,881,975 in 1917 and of $1,946,592 in 1912.
[13] Includes floating debt and cash investments (for unincorporated companies).
[14] Includes deferred noninterest-bearing obligations payable only on termination.
[15] Number, for the most part, employed June 30, 1917.
[16] Number, for the most part, employed Dec. 31, 1912.

There are 2 great telegraph systems—the Western Union Telegraph Co. and the Postal Telegraph Cable Co.—and the statistics of these 2 must predominate in any statistical presentations of telegraph activities. The Western Union system is made up of 2 active and 37 inactive telegraph corporations and of 4 active and 2 inactive nontelegraph corporations. Four land telegraph and three cable corporations are operated under lease. Up to December 31, 1917, this system had acquired and conducted by purchase, lease, or stock ownership, some 555 stock corporations and properties.

There were 43 companies in the Postal Telegraph-Cable land system in 1917, operating in 47 states and in the District of Columbia.

It must be remembered in considering the following discussion that the figures for land telegraph systems include those for the ocean cable business of the Western Union. These cable statistics, it was claimed by the company, could not be satisfactorily segregated in all particulars, and it was deemed best, as in presentations at previous censuses, to include them, except in the two tables previously mentioned, with those for the land systems.

The tables being those for commercial telegraph companies, do not show the activities of the various press associations that lease and operate wires for dispensing news to the various newspapers of the United States. These activities are continuous and employ a large number of operators. One of these associations, it is stated, in 1917 furnished news service to 1,088 newspapers, the smallest of which received a 500-word daily telegraph service, and the largest upwards of 50,000 words. During the year more than 2,000 additional miles of wire were leased, making the leased wire system of the organization over 53,000 miles in length. The number of operators employed in 1917 was 660, and they were the most expert operators that could be obtained anywhere. This was a larger force, it is claimed, than the combined operating contingents of all of the other press associations of the world.

Brokers' wires or activities are not included, except so far as the financial receipts and wires of lessor companies are given. It is interesting to note that one great commercial system withdrew from the leased wire business, especially with brokers, in order to continue and expand its rapid service to the Pacific coast.

During the last census period printing telegraph systems have come into extended use by telegraph companies, press associations, and railroads. The printing telegraph is an electric telegraph which automatically prints the message at the necessary station in ordinary characters. Keyboard transmitters connected in synchronous multiplex relation to page-printing receivers have increased the capacity circuit by 400 per cent, it is claimed, and decreased message transmission costs, especially where the volume of traffic is large. One of the two forms of nonsynchronized printing telegraphs has also demonstrated its practicability and will probably find further commercial applications.

Pole lines are said to have reached their maximum wire-carrying capacity, so that the printers have come at the right time; without them the increased business during the world war could hardly have been disposed of. Although the Western Union handles, it is claimed, fully eighty millions of messages per year by printers, and the Postal Telegraph-Cable Co. a large number also, the number of telegraph operators increased noticeably during the period from 1912 to 1917.

A printer is used by the Associated Press to distribute the news among the various newspaper offices in New York City and Pittsburgh, and between Chicago, Milwaukee, St. Paul, and Minneapolis. The Western Union multiplex system is used for press reports between New York and Boston, 240 miles, with drops at New Haven, Hartford, Springfield, Worcester, Providence, and Boston as the end of the circuit. There is no doubt that the installations are permanent. The utilization of the printing systems by railroads is noted under the section devoted to railway telegraphs and telephones.

Notwithstanding the great activity in telegraph traffic in 1917, it will be noticed that the miles of pole line owned and leased were slightly less at the close of 1917 than they were at the close of 1912. The difference is 6,516 miles, and is due principally to property sold to the Great Northern, Louisville & Nashville, and the Chicago & West Indiana railroad companies, and operated by them almost altogether for their own purposes, and not commercially. A considerable wire mileage was also sold to railroad companies, but this sale has not caused a net loss in wire mileage operated commercially.

A large part of the leased wire capacity of the commercial companies was governmentally employed during many months of 1917, having been changed from the private leased wire service.

The reduction in telegraph offices is due principally to the closing of railway offices operated by commercial companies, these having been under contract.

The increase in number of land messages is significant also of the great demand for telegraph traffic during the war period. They aggregated 48,730,676 more in 1917 than in 1912, this being an increase of about one-half, and nearly ten times the increase during the previous semidecade. For the ten years the increase was 53,838,447, or nearly double.

The balance sheet as shown in Table 7 for the companies and systems as a whole, shows a much greater increase in assets during the period from 1912 to 1917 than during the previous five-year period. In fact, one of the entries, "stocks and bonds of other companies, treasury stock, and other permanent investments," which showed a percentage of decrease at the close of 1912, showed a large increase in 1917, due probably to the conversion of certain notes hitherto included under "sundries."

Capital stock shows a slight decrease, due to a lower figure for assumed stock of subcompanies included in this entry, while the funded debt decreased also. The great increase in reserves from 1912 to 1917 ($15,373,011), is in accord with the new provisions of the Interstate Commerce Commission. Naturally the prosperity of companies and systems would increase the amount of dividends declared. The increase, for 1917, in dividends on stock as shown under "capitalization" is $4,025,653, the amount reported for 1917 having more than doubled the amount reported in 1912.

The various companies and systems were requested, if possible, to report the number of persons employed September 29, 1917, and if this data were not available to give that for the nearest representative or normal day. The result was that the number reported, 49,608, was that employed for the most part on June 30, 1917. This number shows an increase of 13,969, or 39.2 per cent, over the number employed December 31, 1912. The total salaries and wages paid are those for all such payments made during the year. They show an increase for the five years (1912–1917) of $14,081,580, or more than one-half of the amount reported for 1912. For the ten years ending in 1917, the increase in number of employees was 22,781, or more than four-fifths, and in total salaries and wages paid was $20,986,394, nearly 125 per cent. The number of employees does not include the very large number of railroad, broker, or press association telegraphers.

The land line employees, as reported in the above table, do not include operators employed by railway companies in railway offices and doing work for both telegraph and railway companies. A statement under "Railway telegraphs" (p. 17) gives this number as cited from a report by the Interstate Commerce Commission for the Director General of Railroads for Class I roads. As stated, there are certain features

that render these figures not wholly comparable for the two censuses. If, however, these railway operators be added to the total land line employees reported to the bureau at the last two censuses, the number and total wages paid would stand:

	1917	1912
Number	113,518	77,284
Wages	$101,597,894	$57,991,080

While the number of railway operators given above includes some persons working in a dual capacity, the number of employees reported at the census also includes other than operators—officers, superintendents, managers, clerks, and "all other employees."

Income account.—The details of the revenue and income account with per cent of increase, for 1917, 1912, and 1907, are presented in Table 8, no figures being available for 1902.

Table 8

LAND TELEGRAPH SYSTEMS—REVENUE AND INCOME ACCOUNTS.

ACCOUNT.	1917	1912	1907	Per cent of increase.[1]		
				1907–1917	1912–1917	1907–1912
Gross receipts from operation	$91,312,567	$52,337,211	$37,916,907	140.8	74.5	38.0
Operating expenses	71,741,971	45,527,564	34,205,745	109.7	57.6	33.1
Net earnings from operation	19,570,596	6,809,647	3,711,162	427.3	187.4	83.5
Income from other sources	1,641,803	3,956,258	5,995,261	−72.6	−58.5	−34.0
Interest on bonds and dividends on stock of other companies	1,474,571	375,903	1,081,619	36.3	292.3	−65.2
Leased telegraph lines, wires, and conduits	(2)	2,419,065	4,430,245	.....	.....	−45.4
Real-estate rentals	(3)	191,154	210,014	.....	.....	−9.0
Miscellaneous[4]	167,232	970,136	273,383	−38.8	−82.8	254.9
Gross income less operating expenses	21,212,399	10,765,905	9,706,423	118.5	97.0	10.9
Deductions from income (fixed charges)	9,086,999	7,334,861	4,031,242	125.4	23.9	82.0
Taxes	4,091,687	1,132,234	753,378	443.1	261.4	50.3
Interest	1,420,060	1,608,593	1,493,004	−4.9	−11.7	7.7
Payments for use of leased lines	3,575,252	4,594,034	1,784,860	100.3	−22.2	157.4
Net income	12,125,400	3,431,044	5,675,181	113.7	253.4	−39.5
Dividends on stock	7,165,514	3,139,861	4,944,042	44.9	128.2	−36.5
Surplus	[5] 4,959,886	291,183	731,139	578.4	1,603.4	−60.2

[1] A minus sign (−) denotes decrease.
[2] Not called for separately; included in gross receipts from operation.
[3] Not reported separately; included in miscellaneous.
[4] Including interest.
[5] Includes sinking-fund appropriations from net income.

The financial showing for 1917, compared with that for 1912, furnishes proof of the greatly increased net income due to the telegraph activities preceding and accompanying the war. This increase is reported as $8,694,356, or 253.4 per cent. For the ten years ending in 1917, the increase is also large, being $6,450,219, or 113.7 per cent, but relatively not nearly as great as for the five years from 1912 to 1917. This is due to the fact that a decrease was reported for the earlier five-year period 1907–1912.

The income from all sources, operating and non-operating, for the calendar year 1917, compared with the income for the calendar year 1912, shows an increase of $36,660,901, or 65.1 per cent. Compared with the returns for 1907, the total for 1917 shows an increase of $49,042,202, or 111.7 per cent.

The great advance in receipts was wholly in telegraph traffic; the decrease in income from "all other sources"—dividends, interest, rents, etc.—both actually and percentually was greater during the later five-year period than the earlier.

The remarkable but necessary increase in taxes of all kinds during the past five years is indicated by the figures for the two censuses. This increase was mostly in Government taxes, although a separation between Federal, state, and local taxes could not be obtained. The actual increase in all taxes, as shown for December 31, 1917, over the returns for December 31, 1912, was $2,959,453, or 261.4 per cent. Comparison of this increase with that for the preceding five-year period, $378,856, or but 50.3 per cent, illustrates the strenuous period through which the United States was passing in 1917. The taxes for 1917 were over five times the payments reported for 1907.

Operating expenses.—Table 9 gives statistics pertaining to the operating expenses of land telegraph systems for 1917, 1912, and 1907, with per cent of increase.

The expenses of operating and maintaining the plants and traffic increased during the ten years from 1907 to 1917, but not to the extent, relatively, of the increase in the total income, although these expenses include the wages of officers, operators, and all other employees, which were largely augmented, owing to the general increase in wages and the necessity for an increase in numbers of operators, clerks, and messengers.

Telephone operations.—Some of the telegraph companies not only use telephone systems, either owned or hired, for the sending of city messages to the homes of the persons addressed, but one, at least—the Postal Telegraph-Cable Co.—has its own telephone system of composited or other wires, some of these being operated commercially or leased for such operations. No separate complete statement of the activities of these, especially in a financial way, has been found practicable. The Western Union owns approximately 115 miles of poles and 150 miles of wire, which it operates jointly with the Chicago, Rock Island & Pacific Rail-

road Co., for railroad or commercial business. This wire is not operated as a composite telegraph wire, but as a grounded telephone circuit. The so-called commercial business, however, consists of the company's own commercial messages, transmitted by its employees, and the line is not available for the use of the public. The Western Union states that it "does not conduct a telephone business * * *. There may be a few of our leased lines used for the telephone purposes of other companies, but for these details the telephone companies themselves would be in a better position to furnish information."

Table 9

ACCOUNT.	LAND TELEGRAPH SYSTEMS—OPERATING EXPENSES.					
	1917	1912	1907	Per cent of increase.[1]		
				1907–1917	1912–1917	1907–1912
Total	$71,741,971	$45,527,564	$34,205,745	109.7	57.6	33.1
General operation and maintenance	66,959,295	42,771,823	31,852,359	110.2	56.6	34.3
Salaries and wages	37,879,560	23,797,980	16,893,166	124.2	59.2	40.9
Operation and maintenance, including legal expenses	21,085,748	15,269,031	14,959,193	41.0	38.1	2.1
Charges for depreciation	7,993,987	3,704,812	.....	.....	115.8	.....
Rentals of offices and other real estate	3,348,911	2,247,311	1,596,456	109.8	49.0	40.8
Rentals of conduits and underground privileges	306,730	101,035	5,920	5,081.2	203.6	1,606.7
Payments for telegraphic traffic made to other companies	128,296	228,907	667,501	−80.8	−44.0	−65.7
Miscellaneous	998,739	178,488	83,509	1,096.0	459.6	113.7

[1] A minus sign (−) denotes decrease.

Twenty of the companies of the Postal Telegraph-Cable system included telephone receipts in their annual reports to the parent company. These companies operate in 19 states. The telephone business is handled by the regular telegraph staff and the company writes that it is not possible to correctly apportion the wages and expense, but that this expense is nominal. The company reports that the pole mileage used for telephone traffic in 1917 was 9,552; and the composite wire mileage, 13,794.

The annual report for 1917 of the Mackay Companies, which is the title of the holding company of the Postal Telegraph-Cable system, states that its long-distance telephone business constantly increased, being extended to many points not previously reached by the company with that service. One reason given for entering the field was that the Bell Telephone Co. had utilized the telegraph side of its composite circuit to rent telegraph circuits to bankers, brokers, and manufacturers for telegraph service, and thereby deprived the Postal Telegraph-Cable Co. of these leases which had amounted to hundreds of thousands of dollars. The Postal Telegraph-Cable Co.'s development of the long-distance telephone service was particularly rapid in the South and Southwest.

Some independent telephone companies have composited their telephone circuits and conducted a small telegraph business, but no separate figures could be obtained.

Railway telegraphs and telephones.—No satisfactory comparison can be made with the 1912 statistics of telegraph lines along railways, which were compilations of returns to the Interstate Commerce Commission, now no longer required. The figures for 1917, obtained by the Bureau of the Census, are for Class I roads only.

Table 10 gives statistics for railway telegraphs as reported by the Class I railroads.

Table 10

	Railway telegraphs—line and wire along railway right of way: 1917.
Number of lines or systems reporting	174
Miles of single track	229,133
Miles of pole line, total	220,371
Owned—	
By railway companies	63,816
Jointly by railway and telegraph companies	33,020
By telegraph and other companies not railway	123,535
Operated—	
By railway companies	64,744
Jointly by railway and telegraph companies	36,233
By telegraph and other companies not railway	119,394
Miles of single wire, total	1,370,367
Owned—	
By railway companies	397,237
Jointly by railway and telegraph companies	93,570
By telegraph and other companies not railway	879,560
Operated—	
By railway companies	564,438
Jointly by railway and telegraph companies	55,811
By telegraph and other companies not railway	750,118
Wholly owned and wholly operated by railway companies	344,110

Of the 220,371 miles of pole line along their right of way, the railways reported the ownership of about three-tenths; and of the 1,370,367 miles of single wire, also about three-tenths. There was joint ownership of about one-seventh of the total pole line and of slightly more than one-fifteenth of the total single wire mileage. The railways operated a little more of the line than they owned, and considerably more of the wire, in fact two-fifths more. The miles of wire wholly owned and wholly operated by the various railway companies are shown to be 13.4 per cent less than the miles of wire owned by the railway companies, and 39 per cent less than the miles of wire, under all kinds of ownership, operated by them.

No accurate comparison is possible for the calendar year 1917, as to the relative number of railway telegraphers and train dispatchers reported by the

Interstate Commerce Commission for June 30, 1912, and shown in the census report for 1912. Only numbers for Class I roads are now given by the Commission, and the classification of employees is different, embracing in some instances nontelegraphers. The Interstate Commerce Commission reports have, however, hithero contained separate statements concerning telegraphers and dispatchers for roads of each class. Therefore the figures for Class I roads covering the fiscal year ended June 30, 1912, can be compared with those for the calendar year 1917 for Class I roads, subject, however, to the qualification already mentioned concerning differences of classifications. This comparison is:

	1917	1912
Telegraph operators and dispatchers	63,910	41,645
Wages	$63,718,334	$34,193,100

In 1912 the classification of certain of these employees was, "telegraph operators and dispatchers"; in 1917 it was made up as follows:[1]

	Number.	Wages.
Total	63,910	$63,718,334
Train dispatchers and directors	5,143	9,242,391
Telegraphers, telephoners, and block operators	20,602	18,860,599
Telegraphers and telephoners operating interlockers	7,677	7,333,306
Telegrapher-clerks	11,185	9,973,792
Agent-telegraphers	19,303	18,308,252

The classification given above includes employees exercising immediate supervision over train movements, handling block and interlocking signals and switches; of clerks engaged in both clerical and telegraph work, and of agents whose duties require them to perform telegraph service.

Table 11 presents, by companies, statistics for telegraphs reported by telegraph companies as on railway right of way, showing miles of pole line and of wire, both owned and leased.

Table 11 — TELEGRAPHS ON RAILWAY RIGHT OF WAY, EXCLUSIVE OF THOSE OWNED BY RAILWAY COMPANIES: 1917.

NAME OF COMPANY.	Miles of pole line.			Miles of wire.		
	Total.	Owned.	Leased or controlled.	Total.	Owned.	Leased or controlled.
Total	210,551	167,545	43,006	1,523,310	1,131,248	392,062
Western Union	189,535	154,097	35,438	1,412,548	1,030,341	382,207
Postal Telegraph-Cable	10,888	9,773	1,115	68,902	68,902	.....
North American	1,587	681	906	11,681	11,681	.....
Philadelphia, Reading & Pottsville	1,064	1,064	.....	4,884	4,884	.....
All other telegraph companies	7,477	1,930	5,547	25,295	15,440	9,855

[1] From statement in a report prepared for the Director General of Railroads by the Railroad Wage Commission as of April 30, 1918.

There is no way of accurately accounting for the difference between the total miles of line covered in this table and in Table 10. Table 10 covers only Class I roads, while Table 11 gives statistics of telegraph lines owned or leased by telegraph companies on all classes of railway right of way. In some instances the railway companies have no such accurate records of telegraph company mileage along their right of way as the telegraph company owners possess.

Of the total pole line on railway right of way, the Western Union reported 90 per cent and of the wire mileage 92.7 per cent. Eighty-one and three-tenths per cent of this pole line and 72.9 per cent of this wire mileage were owned by the Western Union.

Train dispatching by telephone.—In October, 1907, the first successful installation of telephone and selector equipment for train dispatching was completed on the lines of the New York Central, according to the Western Electric News, quoted in the Telegraph and Telephone Age, July 16, 1917. This was closely followed by a number of installations on the Chicago, Burlington & Quincy, where it was proved to the satisfaction of officials of other roads watching these first-service tests that the telephone and selector combination could be used equally well for single track as for double and multi track operation.

At the census of 1907 an effort was made to secure statistics of train dispatching. The report for that census is not explicit as to the extent of train dispatching by telephone, and no comparative statistics are available. At the census of 1912 returns were received from 42 lines or systems.

Table 12 shows the telephone pole line and wire mileage used for train dispatching in 1917 and 1912, segregated into owned and leased, with percentages of increase.

Table 12 — RAILWAY TELEPHONES—TRAIN DISPATCHING.

	1917	1912	Per cent of increase, 1912–1917.
Number of lines and systems reporting	105	42	150.0
Pole line, miles	95,268	56,850	67.6
Owned	67,385	50,581	33.2
Leased	27,883	6,269	344.8
Single wire, miles	201,662	129,856	55.7
Owned	187,815	119,079	57.3
Leased	13,847	10,777	28.5

The increase in miles of pole line used, which is practically miles of track operated, during the five years 1912–1917, was over three-fifths, and in miles of single wire more than one-half. The reliability of this method of transmitting train orders is beyond serious criticism.

The leased pole line constituted 29.3 per cent of the total in 1917, compared with 11 per cent in 1912; the wire mileage leased represented 6.9 per cent of

the total in 1917 and 8.3 per cent in 1912, showing the increased use of leased pole line and the decreased use of leased-wire mileage.

The Bureau of Safety of the Interstate Commerce Commission has for a few years compiled statistics pertaining to block signals, and to the telegraph and the telephone for transmission of train orders. The compilation covering 1917 shows that the total length of railroad in the United States operated under the block system January 1, 1918, was 99,531.7 miles. The length of all roads reporting the use of telephones for transmitting train orders covered 110,404 miles. These are of interest in connection with the census figures which relate to train dispatching by telephone over Class I roads only.

The telephone train-dispatching line consists of a metallic telephone circuit to which certain calling apparatus is connected at the dispatcher's office, and, to prevent interference, an individual selector at each of the way stations. Messages are repeated and checked to prevent error, so that much greater accuracy than by telegraph is claimed, with the assertion that not a single accident has resulted from the use of the telephone in train dispatching.

Portable telephones are supplied to crews of passenger, freight, and wreck trains, thus placing these crews in immediate touch with headquarters in case of a breakdown or other accident between stations. With telegraph transmission it was necessary to reach the nearest telegraph office. This use of portable and siding telephones has been a great factor in increasing operating speed.

Printing telegraphs were used in 1917 by 13 of the lines, systems, or parts of systems comprising the railways reporting train dispatching. They had 33 circuits, comprising 6,735 miles of wire.

The railway lines, systems, or parts of systems reporting these printing systems are:

Chicago, Burlington & Quincy.
Delaware, Lackawanna & Western.
Florida East Coast.
Grand Trunk—Chicago division.
Missouri, Kansas & Texas.
Missouri, Kansas & Texas, of Texas.
New York Central—Eastern lines.
New York Central—Western lines.
Pennsylvania lines, East.
Pittsburgh, Cincinnati, Chicago & St. Louis.
Pennsylvania Co.
Southern Pacific.
Union Pacific.

Governmental telegraphs and telephones.—This section of the report deals with the lines owned and operated by the Government in the United States and in noncontiguous territory. No complete or satisfactory figures can be given for the telegraphs and telephones owned and operated by the Government outside the United States, as these systems are operated for the most part for governmental purposes, the operators being in large part attached to the Army, and no complete segregation of costs, receipts, etc., being practicable. The figures found in the following comparative table were obtained principally after direct communication with the department or bureau handling the business, or from annual reports, and cover the years 1917, 1912, and 1907.

Table 13

	GOVERNMENT TELEGRAPH AND TELEPHONE SYSTEMS.											
	Panama Canal Zone.			Porto Rico.			Alaska.			Philippine Islands.		
	[1] 1917	[2] 1912	1907	[1] 1917	[2] 1912	1907	[3] 1917	[2] 1912	[4] 1907	[1] 1917	[5] 1912	[4] 1907
Miles of line construction	10	82	65	426	405	484	849	1,069	1,403	4,872	[6] 5,599	6,438
Miles of single wire	5,075	3,234	2,204	1,551	1,137	774	1,219	1,444	.....	5,629	.....	.....
Miles of submarine cable	.....	.....	.....	.....	.....	.....	2,676	2,646	2,524	986	.....	1,437
Employees and salaries and wages:												
Number	39	[7] 168	60	196	143	132	[8] 251	[9] 259	.....	.....	.....	.....
Salaries and wages	[10] $7,528	([11])	$43,800	$68,695	$53,620	$41,101	$266,480	$177,203	.....	$294,754	.....	.....
Expenses, total, including salaries and wages	$9,242	$67,070	$50,988	$91,995	$69,566	$51,945	$350,000	$350,000	$179,000	$418,769	.....	.....
Income	$2,810	$1,731	$7,818	$104,472	$71,628	$59,226	$200,958	$183,769	[12] $236,912	$372,162	$236,679	.....
Number of messages	30,310	([13])	91,401	277,140	247,860	216,489	222,343	140,343	310,000	913,650	657,404	472,418

[1] Year ending Dec. 31, 1917; and in case of Panama Canal Zone for telegraphs only, telephone figures not having been reported.
[2] Year ending June 30, 1913.
[3] Year ending June 30, 1917.
[4] From report of Chief Signal Officer, United States Army, for year ending June 30, 1907.
[5] From report of Secretary of Commerce and Police for year ending June 30, 1912.
[6] Includes cable, not segregated in report.
[7] From report of Panama Railroad Co., June 30, 1913.
[8] Includes 206 enlisted men, United States Army.
[9] Includes 124 enlisted men, United States Army.
[10] Not including salaries and wages paid these employees for telegraphic services relating directly to railroad transportation.
[11] Salaries and wages not reported separately.
[12] Exclusive of Government business to the value of $135,746.
[13] Figures not available.

Panama Canal Zone.—The report of the Engineer of Maintenance—included in the Annual Report of the Governor of the Panama Canal Zone for the fiscal year ended June 30, 1917—shows that the total number of telephones in service June 30, 1917, was 2,154. The average number of calls per day was 21,042 and there were in service 536,783 feet of cable of all sizes.

The Panama Railroad Co., in its annual report submitted by Chester Harding, its president, December 1, 1917, for the fiscal year ended June 30, 1917,[1] states under "Telephone and Telegraph System" that the operation of the telephone system entailed a cost of

[1] Annual report of the Board of Directors of the Panama Railroad Co., 1917.

$100,245, the revenue totaling $107,853, leaving a net revenue of $7,608. "This system is operated primarily," continues the report, "for the convenience of the Canal and Railroad operations, and the service is charged out at cost, the commercial revenue being comparatively small." The statements for 1917 in the census table pertain to telegraphs only, and are not wholly comparable with those for 1912, which refer to telephones.

To care for the increase in telephone business, plans are developing for a new exchange at Cristobal, and the installation of additional cable for transisthmian service. Some of the telegraph lines across the isthmus have been leased to the Republic of Panama.

Porto Rico.—Of the total miles of wire shown for Porto Rico, all of which was overhead, 802 miles were used for telephone purposes, as shown by a report to the Bureau of the Census. The wire on exchange circuits totaled 281 miles, and the wire on toll circuits, 521 miles. The pole telephone line was 116 miles. There were 9 central offices and the number of telephones of all kinds in use was 357. Of a total of 405,340 connections or calls, 315,000 were exchange and 90,340 long-distance and toll.

Of the 426 miles of pole line, or "line construction" shown in the table, 326 miles were on the highway and 100 miles on the Porto Rico Telephone Co.'s right of way. Of the income, $67,741 was from telegraphing and $36,731 from telephoning. Of the expenses, $84,837 was for general operation and maintenance, including salaries and wages; $3,159 for rentals of offices and other real estate; $794 for telegraph traffic by other companies; and $3,205 for miscellaneous purposes.

The cost of plant and equipment to date covered by this report—December 31, 1917—was $135,855. Few improvements were made during the year, owing to the high price of materials, but the system is one of growing importance, "not to be looked upon as a source of insular revenue," states the Governor of Porto Rico, "but as a useful Government service to be furnished the largest number possible." [1]

Washington-Alaska Military Cable and Telegraph system.—This system includes a land and ocean telegraph business, as well as a wireless business. There were 52 offices, 12 of which were devoted to wireless business. It is to be noted that this cable system in 1917 comprised 2,676 miles of submarine cable, which is a slight increase over the mileage reported for 1912. The number of messages—222,343—includes 44,467 land, 166,758 ocean cable, and 11,118 wireless. Of these, 65,668 were sent as Government messages; 149,805 at full commercial rates; and 6,870, at reduced rate or free. Government messages were made up of 13,133 land, 49,251 ocean cable, and 3,284 wireless; full commercial comprised 29,961 land, 112,354 ocean cable, and 7,490 wireless; while of reduced rate and free, 1,373 were land, 5,153 ocean cable, and 344 wireless. The system paid $28,790 to other companies for telegraphic traffic and $8,363 for rentals of offices. The estimated cost of the system is fixed at $2,300,000. The Governor of Alaska in his report for 1917, states that a further reduction of cable and telegraph tolls was made during the year, and that a night-letter service was established.

Philippine Islands.—The Bureau of Posts reports that of the 4,872 miles of pole line in 1917, 4,481 miles were owned on the highway and 391 miles on railway right of way. Of the wire mileage owned, 5,546 miles were on the highway and 1,069 miles on the railway right of way. The submarine cable totaled 986 miles. There were 315 offices throughout the islands, 10 of which were wireless stations. The cable messages could not be separated from the land and the 35 messages reported as wireless included only the business transacted with ships or foreign stations. Of these wireless messages, 8 were Government, 24 were sent at full commercial rate, and 3 at reduced rate or free. The Philippine Islands Government wireless stations are operated as an integral part of the land-line system. An effort to secure a segregation of dispatches was not successful. Of the 913,615 messages reported, 127,857 were Government messages, 716,912 were sent at full commercial rates, and 68,846 at reduced rate or free. Of the total expenses, $4,532 were for rentals of offices and $16,991 were for telegraph traffic over the lines of other companies. The cost of plant and equipment was $923,156. The number of salaried employees and wage earners was not reported, but salaries, including those of clerks, stenographers, etc., amounted to $186,272, and wages to $108,482.

Weather Bureau.—The Chief of the Weather Bureau in his report for the year ended June 30, 1917,[2] makes certain statements concerning various sections of telegraph and telephone cable and land lines, owned or leased, and used by the bureau for its weather reporting service, and in some instances commercially, also. These may be outlined thus by sections:

Block Island, R. I.–Narragansett, R. I.—The cable has three conductors 10.75 miles in length connecting Block Island and Narragansett Pier. For the use of two of these conductors the Providence Telephone & Telegraph Co. paid the bureau $600 for annual rental, besides furnishing 15 miles of land lines connecting the ends of the cable. Telegraph receipts during the year for commercial business were $958.29. Repairs cost $1,754, there having been a leak in the cable.

Norfolk, Va.–Hatteras, N. C.—This line is 162.5 miles in length, including three cables, one across Pamlico Sound 3 miles in length, one three-fourths of a mile across Oregon Inlet, and one three-fourths of a mile across New Inlet. The line connects with the Western Union Telegraph Co. at Norfolk, Va. During the year

[1] War Department Annual Reports, 1917, vol. 3, p. 428.

[2] Annual Report of the Department of Agriculture, 1917, pp. 54–57.

this was almost completely rebuilt by employees of the Coast Guard Service. The number of messages handled numbered 30,232, the telegraph receipts were $2,195.34, and the cost of ordinary repairs $98.23.

Mount Weather–Bluemont, Va.—Consists of both telephone and telegraph, with a length of 5.9 miles. Was not in use in 1917.

Key West–Sand Key, Fla.—This line is a telephone cable, with a length of 8.5 miles. Cost of repairs was $443.17; no receipts; new cable needed, at a probable cost of $25,000.

Glen Haven–North and South Manitou, Mich.—This is a telephone line connecting with the Citizens' Telephone Exchange at Glen Haven, Mich.; length not given; receipts $96.98; cost of repairs, $650.

Alpena–Middle Island–Thunder Bay, Mich.—This is a telephone line, 22 miles on land and 5.5 miles of cable. Repairs cost $122.70; there were no receipts.

Grand Marais–Whitefish Point, Minn.—This is a telephone line 10 miles in length; no expense; no receipts.

Beaver Island, Mich.—This is a telephone line from Charlevoix to St. James, Beaver Island, Mich. It consists of 33.5 miles of cable and 1.5 miles of land lines. Cable was fouled by a steamer and repairs cost $1,500; receipts were $495.80.

Tatoosh–Port Angeles, Wash.—This is a telegraph line 95 miles in length. Not only is the work of the bureau done over these wires, but commercial messages are handled between the stations and the interior and to and from ships at sea through the United States naval wireless station at Tatoosh. Receipts were $1,564; repairs cost $718.50.

North Head, Wash.—This is a telegraph line, extending from North Head to Fort Canby, Wash.—2.5 miles of land lines; from Fort Canby to Fort Stevens, 6 miles of cable. Through the Western Union direct communication is afforded with Portland, Oreg. This line also connects with the United States naval radio wireless station at North Head, which is the only relay point for Alaskan reports. Repairs cost $2,348.74; no receipts.

San Francisco–Point Reyes, Calif.—This is a telephone line 70 miles long, 20 of which are leased from the Pacific Telephone & Telegraph Co. Of the 50 miles of wire owned by the bureau, 22 miles are attached to the Western Union poles, no charge being made for this. Cost of repairs, $2,142.37; no receipts.

OCEAN CABLE TELEGRAPHS.

Statistics of ocean cable telegraph systems shown in this report are those of companies incorporated in the United States. The statistics for ocean cable companies incorporated elsewhere are not given, although dispatches were sent out from the United States over their cables during a portion of 1917. The two foreign companies not reporting either in 1917 or 1912 are the French Telegraph Cable Co., of Paris, and the German Atlantic Telegraph Co., of Cologne. No operations under the control of the German Atlantic Telegraph Co. were permitted, however, after the declaration of war by the United States.

The French company was unable to complete a report, even concerning messages or employees in this country, states the New York manager, E. C. Sweeney, writing under date of November 15, 1918:

"I regret that it is a physical impossibility for us, under the present circumstances, to make up the report you ask for, owing to shortness of staff on account of draft, also inexperienced clerks and illness."

The French Telegraph Co. has a total of 24 cables, with 11,657 nautical miles, according to a report issued by the *Bureau International de l'Union Telegraphique.* One of these extends from Brest, France, to Cape Cod, Mass. A cable also extends from Cape Cod to New York, but is used only for emergency purposes, a land line of 310 miles of pole and 1,170 miles of wire, reaching from Boston to New York, being operated by the company. The *Campagnie Allemande des Cables Transatlantiques*, which is the present designation of the German-Atlantic Telegraph Co., as given by the International Bureau, has a cable from Azores to Coney Island, N. Y. The total for all its cables, some of which extend from the Azores to Borkum Island and to Vigo, Spain, is given as 5, with 9,556 for total length in nautical miles.

The companies making up the ocean telegraph totals for 1917 are the same as in 1912 and are as follows:

Central & South American Telegraph Co.
Commercial Cable Co. of Cuba.
Commercial Cable Co. of New York.
Commercial Pacific Cable Co.
Mexican Telegraph Co.
United States & Haiti Telegraph & Cable Co.

The cable companies reporting include the Western Union Telegraph Co., the returns for which, except for nautical miles of ocean cable, are placed with the land telegraph systems in all comparative tables, no adequate segregation of the ocean cable business having been given. However, the numbers of nautical miles of ocean cable reported by this company as owned and leased were 24,301 in 1917; 22,816 in 1912; and 5,729 in 1907; and the number of ocean messages were 3,537,978 in 1917; 2,996,112 in 1912; and 3,500,000 (estimated) in 1907.

The following statements concerning the cable routes of the companies reporting are for the most part from the report of the *Bureau International de l' Union Telegraphique:*

Central and South American Telegraph Co. and Mexican Telegraph Co. (joint ownership).—New York to Santiago, Cuba, to Colon, Panama; Gulf of Mexico system; Salina Cruz, Mexico, to San Juan del Sur, Central America, to Panama, to points in Colombia, Ecuador, Peru, and Chile.

Commercial Cable Co.—Trans-Atlantic system: Waterville, Ireland, to St. John's, Newfoundland; Waterville to Canso, Nova Scotia; Waterville to Azores Islands, to Canso. Communication in Europe: Waterville to Havre, France; Waterville to Weston-Super-Mare, England. Communication on the American coast: St. John's, Newfoundland, to New York; Canso, Nova Scotia to New York; Canso to Rockport, Mass.

Commercial Cable Co. of Cuba.—New York to Havana, Cuba.

Commercial Pacific Cable Co.—San Francisco to Honolulu, to Midway Island, to Guam, to Manila, to Shanghai; and Guam to Bonin Island, Japan.

United States and Haiti Telegraph and Cable Co.—New York to Cape Hatien, Haiti, with connection thence to Santiago, Cuba, and a southern line to Windward Islands and South America.

Western Union Telegraph Co.—Trans-Atlantic system as follows: Western Union—Penzance, England, to Bay Roberts, Newfoundland, and Canso, Nova Scotia, thence to Coney Island, N. Y. Anglo-American Telegraph Co.—Valentia, Ireland, to Heart's Content, Newfoundland. Direct United States Cable Co.—Ballinskellings Bay, Ireland, to Halifax, Nova Scotia, thence to Rye Beach, N. H.; and Gulf of Mexico system.

Cables of various ocean telegraph companies operated under lease by the Western Union are included in the list of the Western Union system cables, as given in Moody's Manual, 1918. These companies are: American Telegraph & Cable Co., two cables; Anglo-American Telegraph Co. (Ltd.), one cable; and the Direct United States Cable Co. (Ltd.), number of cables not stated. The International Ocean Telegraph Co., incorporated in New York in December, 1865, is leased to the Western Union until January, 1981, number of cables not stated.

The "nautical miles of ocean cable" is the number of such miles owned or leased by operating companies, and is the entire length of such cables wherever located. The financial statistics, therefore, concern to some extent operations in foreign countries. Statistics of merely holding companies and of Federal Government cables are excluded from this report.

The declaration of the existence of war between the United States and the German Government made it necessary to apply a new censorship to all submarine cables, although the cable companies were not taken over at this time. Cablegrams to Honolulu, or any part of the Hawaiian Territory, and to Manila and the Philippine Islands had to be written in plain English, no code being allowed. English was used in telegrams to and from Hawaii, and English and Spanish in those to and from the Philippines. All cablegrams were to be fully addressed and signed with the proper names, and were accepted only at the sender's risk.

The statistics for the six ocean cable companies reporting, with per cent of increase, from census to census, are shown in Table 14 for 1917, 1912, and 1907.

Table 14 — OCEAN CABLE TELEGRAPH SYSTEMS[1]—COMPARATIVE SUMMARY.

	1917	1912	1907	Per cent of increase.[2] 1907–1917	1912–1917	1907–1912
Number of companies or systems	6	6	6			
Nautical miles of ocean cable[3]	46,950	44,860	40,572	15.7	4.7	10.6
Number of messages	2,913,250	2,845,168	2,369,317	23.0	2.4	20.1
Number of cable offices	75	83	54	38.9	−9.6	53.7
Income, total	$16,749,058	$8,469,374	$7,671,700	118.3	97.8	10.4
Telegraph traffic	$15,677,176	$8,065,798	$7,338,280	113.6	94.4	9.9
All other sources	$1,071,882	$403,576	$333,420	221.5	165.6	21.0
Net income	$5,706,869	$2,952,847	$4,029,074	41.6	93.3	−26.7
Expenses, total	$11,042,189	$5,516,527	$3,642,626	203.1	100.2	51.4
General operation and maintenance, including salaries and wages and legal expenses	$7,975,458	$4,008,218	$2,204,939	261.7	99.0	81.8
Interest and taxes	$2,470,039	$1,214,554	$1,190,308	107.5	103.4	2.0
All other expenses	$596,692	[4] $293,755	[4] $247,379	141.2	103.1	18.7
Balance sheet:						
Assets, total	$136,610,271	$107,583,155	$95,624,892	42.9	27.0	12.5
Plant and equipment	$79,870,795	$78,136,115	$77,438,339	3.1	2.2	0.9
Stocks and bonds of other companies, treasury stock, and "other permanent investments"	$26,470,295	$16,811,087	$12,971,564	104.1	57.5	29.6
Cash and current assets, including supplies and sundries[5]	$30,269,181	$12,635,953	$5,214,989	480.4	139.5	142.3
Liabilities, total	$136,610,271	$107,583,155	$95,624,892	42.9	27.0	12.5
Capital stock	$60,900,000	$55,489,400	$52,800,000	15.3	9.8	5.1
Funded debt	$28,000,000	$28,000,000	$28,000,000			
Reserves	$33,035,608	$15,549,451	$6,381,105	417.7	112.5	143.7
Accounts payable	[6] $4,962,592	$1,459,797	[6] $2,495,241	98.9	240.0	−41.5
Dividends due and sundries	[7] $3,497,896	$587,229	[7] $2,452,351	42.6	495.7	−76.1
Surplus	$6,214,175	$6,497,278	$3,496,195	77.7	−4.4	85.8
Capitalization:						
Capital stock outstanding, par value	$60,900,000	$55,489,400	$52,800,000	15.3	9.8	5.1
Dividends on stock	$2,651,697	$3,040,200	$2,533,041	4.7	−12.8	20.0
Funded debt	$28,000,000	$28,000,000	$28,000,000			
Employees and salaries and wages:						
Average number	[8] 1,966	[9] 1,656	1,207	62.9	18.7	37.2
Salaries and wages	$1,764,351	$1,167,014	$915,083	92.8	51.2	27.5

[1] Does not include statistics for the ocean cable systems operated by the Western Union Telegraph Co., as no segregation could be obtained of the financial statistics for the cable business of this company. The number of nautical miles of ocean cable owned and leased by it was, in 1917, 24,301; in 1912, 22,816 miles; and in 1907, 5,729 miles. The number of ocean messages reported by this company for 1917 was 3,537,978; in 1912, 2,996,112; and, as estimated by it for 1907, 3,500,000.
[2] A minus sign (−) denotes decrease.
[3] In addition there were 116 miles of pole line and 1,452 miles of single wire on land and underground.
[4] Includes payment for leased lines.
[5] Includes sinking and other special funds and sundries for 1917 and 1912 and sundries only for 1907.
[6] Includes floating debt.
[7] Includes in 1917 interest and taxes, due and accrued, and also in 1907, interest.
[8] Number, for the most part, employed June 30, 1917.
[9] Number, for the most part, employed Dec. 31, 1912.

The figures for the five-year period 1907–1912, as well as for the ten-year period 1907–1917, show substantial increases. During the five-year period 1912–1917 the ocean cables increased 2,090 miles, or 4.7 per cent; during the ten-year period the increase was 6,378 miles, or 15.7 per cent. If the Western Union cable mileage were added, the increase for the semi-decade 1912–1917 would be 3,575 miles, or 5.3 per cent, and for the ten-year period, 24,950 miles, or 53.9 per cent.

In addition to the miles of cable, a total of 1,157 miles of leased aerial wire and 295 miles of underground wire were reported for 1917 by these 6 companies. Comparable figures for previous years are not available. The increase in number of cable messages was 68,082, or 2.4 per cent, for the five-year period 1912–1917, and 543,933, or 23 per cent, for the ten-year period 1907–1917. If the Western Union cable messages reported for 1917, 1912, and 1907 (shown in Table 14, footnote 1), were added to the number of

messages given in the table, the increases for the five-year period 1912–1917 would be 609,948, or 10.4 per cent, and 581,911, or 9.9 per cent, for the ten-year period.

For the five-year period 1912–1917 the increase in income from ocean cable telegraph traffic was $7,611,378, or 94.4 per cent; and in net income $2,754,022, or 93.3 per cent. The increases during the ten-year period for the same items were $8,338,896, or 113.6 per cent, and $1,677,795, or 41.6 per cent, respectively.

The amount of capital stock outstanding in 1917 was $5,410,600, or 9.8 per cent greater than in 1912, and $8,100,000, or 15.3 per cent greater than in 1907.

There was a slight decrease in profit and loss surplus during the five-year period 1912–1917, but for the ten-year period an increase of $2,717,980, or 77.7 per cent, is shown.

From 1912 to 1917 the number of employees increased by 310, or 18.7 per cent, and their total salaries and wages $597,337, or 51.2 per cent; for the ten-year period ending in 1917 the increase in number was 759, or 62.9 per cent, and in salaries and wages $849,268, or 92.8 per cent. The details of the revenue and income account, with per cent of increase, for 1917, 1912, and 1907 are shown in Table 15.

Table 15

OCEAN CABLE TELEGRAPH SYSTEMS—REVENUE AND INCOME ACCOUNTS.

ACCOUNT.	1917	1912	1907	Per cent of increase.[1] 1907–1917	1912–1917	1907–1912
Gross receipts from operation	$15,677,176	$8,065,798	$7,338,280	113.6	94.4	9.9
Operating expenses	8,572,150	4,214,264	2,373,339	261.2	103.4	77.6
Net earnings from operation	7,105,026	3,851,534	4,964,941	43.1	84.5	−22.4
Income from other sources	1,071,882	403,576	333,420	221.5	165.6	21.0
Gross income less operating expenses	8,176,908	4,255,110	5,298,361	54.3	92.2	−19.7
Deductions from income (fixed charges)	2,470,039	1,302,263	1,269,287	94.6	89.7	2.6
Taxes	1,305,664	54,554	30,308	.....	.....	80.0
Interest	1,164,375	1,160,000	1,160,000	0.4	0.4	.....
Payments for use of leased lines	.....	87,709	78,979	.....	.....	11.1
Net income	5,706,869	2,952,847	4,029,074	41.6	93.3	−26.7
Dividends on stock	[2] 2,651,697	3,040,200	2,533,041	4.7	−12.8	20.0
Surplus	[3] 3,055,172	([4])	1,496,033	104.2	.....	.....

[1] A minus sign (−) denotes decrease.
[2] In addition, stock dividends of $5,793,930 were declared and dividends of $110,845 from accumulated surplus.
[3] Includes $235,101 which in new accounting tables are appropriations of net income.
[4] Deficit of $87,353 in 1912.

During the five-year period 1912–1917 the operating expenses more than doubled, or increased 103.4 per cent, slightly exceeding the rate of increase in gross receipts, which was 94.4 per cent; for the ten-year period, however, 261.1 per cent and 113.6 per cent, respectively, represent the increases in these items.

The increase of $2,754,022, or 93.3 per cent, in net income for the later five years, as contrasted with a decrease of $1,076,227, or 26.7 per cent, for the earlier semidecade, shows the effect of activities coincident with the war. Pertinent to this is a letter from Mr. E. C. Platt, Treasurer of the Commercial Pacific Cable Co., in which he says that:

"The increase in the telegraph and cable operating revenues of this company, 1917 over 1912, is accounted for by the fact that owing to the war in Europe and the consequent interruption of some of the European cable routes to the Far East, a great deal of cable traffic which formerly went by those European routes has been diverted to the cable of the Commercial Pacific Cable Co. When the war is over and the European routes are restored, cable traffic of the Commercial Pacific Cable Co. will, of course, drop back to normal."

Footnote 2 of the table calls attention to the fact that a much larger amount of dividends was declared in 1917 in stock than in cash, and the surplus earnings, after the deduction of cash dividends, show a total of over $3,000,000.

Table 16 gives statistics pertaining to the operating expenses of ocean cable telegraph systems, with per cent of increase, for 1917, 1912, and 1907.

Table 16

OCEAN CABLE TELEGRAPH SYSTEMS—OPERATING EXPENSES.

ACCOUNT.	1917	1912	1907	Per cent of increase.[1] 1907–1917	1912–1917	1907–1912
Total	$8,572,150	$4,214,264	$2,373,339	261.2	103.4	77.6
General operation and maintenance	7,975,458	4,008,218	2,204,939	261.7	99.0	81.8
Salaries and wages	1,764,351	1,167,014	915,083	92.8	51.2	27.5
Operation and maintenance, including legal expenses	2,115,308	2,841,204	1,289,856	64.0	−25.5	120.3
Charges for depreciation	4,095,799	([2])	([2])	.....	.....	.....
Rentals of offices and other real estate	157,380	104,748	87,896	79.1	50.2	19.2
Miscellaneous [3]	439,312	101,298	80,504	445.7	333.7	25.8

[1] A minus sign (−) denotes decrease.
[2] Not reported.
[3] Including rentals of conduits and underground privileges and payments for telegraph traffic, made to other companies.

While salaries and wages increased by $597,337, or 51.2 per cent, during the five-year period 1912–1917, the great increase in general operation and maintenance (98.9 per cent) is due largely to the increased reserves for depreciation required by the new rules of accounting.

WIRELESS TELEGRAPHS.

Commercial systems.—There is some difficulty in presenting a complete census of wireless telegraphic systems for 1917, because of the world war. All of the systems were taken over by the Federal Government under an executive order issued April 6, 1917, and thereafter all operations of coast stations by companies ceased. Operation of certain steamship stations was continued by one reporting company during the entire year.

At the census of 1912 the companies reporting were as follows:

Atlantic Communication Co., New York City.
Federal Telegraph Co., San Francisco, Calif.
Marconi Wireless Telegraph Co. of America, Jersey City, N. J.
United Fruit Co. (wireless department), Boston, Mass.

At the census of 1917 the returns for the Federal Telegraph Co. are included with the land telegraph lines, as the company stated that no wireless telegraph operations were conducted by it during 1917. This statement in part is as follows:

"The company up to the commencement of 1917 operated 10 wireless stations. These wireless stations were taken over by the Government, some of which they have closed down and others they are now operating for governmental purposes alone."

The companies reporting for 1917 are:

Atlantic Communication Co., New York City.
Marconi Wireless Telegraph Co. of America, Jersey City, N. J.
Tropical Radio Telegraph Co., Boston, Mass.

The Atlantic Communication Co. used the Telefunken system, and prior to the declaration of war furnished service to and from Germany, being in communication between Sayville, N. Y., and Nauen, Prussia (3,262 miles), and between Tuckerton, N. J., and Eilvese, Prussia (3,383 miles).

The Marconi Wireless Telegraph Co. of America made a report of its entire telegraphic operations on land and sea for the complete year, but the report of its operation of coast stations covers only the three months ending in April.

The Tropical Radio Telegraph Co. (formerly the wireless department of the United Fruit Co.) operated radio stations at New Orleans and Burrwood, La., for a period from January 1, 1917, to April 7, 1917, after which time the New Orleans station was closed by order of the United States Government, and the Burrwood station was taken over to be operated by the Government for the period of the war.

There are other companies that did a coast and ship station commerical business in 1917, but their operations were so combined with the manufacture of wireless apparatus and the rentals thereof, or other commercial business, that no segregation of wireless statistics was made.

These companies are:

American-Hawaiian Steamship Co., New York City.
Kilbourne & Clark Manufacturing Co., Seattle Wash. (Ship Owners' Radio Service.)
National Electric Signaling Co., Pittsburgh, Pa. (Principal office, Bush Terminal, Brooklyn, N. Y.)
Panama Railroad Steamship Co., New York City.

The National Electric Signaling Co. remained in the hands of a receiver until December 1, 1917, when it was reorganized under the name of International Signal Co., but owing to confusion of the name with that of another company, this name was changed shortly afterwards to the International Radio Telegraph Co. The National Electric Signaling Co. undertook certain construction work for the United States Navy Department. While in the hands of receivers it did no commercial wireless business except the operation of three shore stations on Long Island Sound from January to April, and 10 ship stations on steamers passing through the sound.

The principal business of the other companies was rental of wireless apparatus and the operation of such apparatus for their own purposes, or for other corporations.

Table 17 is a comparative statement showing the principal statistics relating to commercial wireless telegraph systems for such periods as they were in operation during 1917 and for the years 1912 and 1907. The figures, although not strictly comparable, give an idea of the financial growth of commercial wireless telegraphy.

In 1917 there were but three companies or systems reporting wireless telegraphs, the number having decreased by one at each census since 1907. The number of tower stations also decreased during each of the five-year periods. The number of tower stations is but partially indicative of the number of wireless shore stations under license from the United States Bureau of Navigation and furnishes no idea whatever of the number of stations on shipboard. The records of the Bureau of Navigation show that on June 30, 1918, there were 134 commercial shore stations and 838 commercial ship stations. Ninety-seven of the shore stations were in continental United States; and of the 37 in noncontiguous territory, 28 were in Alaska, 1 in Porto Rico, and 8 in Hawaii. The operation of all the shore stations and of many of the ship stations was taken over by the Government as a war measure on April 6, 1917.

In addition to the commercial shore stations the general and restricted amateur stations numbered 6,089; the special amateur, 88; experimental, 75; and training schools, 47—making a total of 6,299. Under the Executive order dated April 6, 1917, the Navy Department ordered the closing of all the licensed amateur transmitting stations, all amateur receiving stations, and such commercial stations as were not required for naval communication.

Table 17

	WIRELESS TELEGRAPH SYSTEMS.					
	[1] 1917	1912	1907	Per cent of increase.[2]		
				1907–1917	1912–1917	1907–1912
Number of companies or systems	3	4	5	−40.0	−25.0	−20.0
Number of messages	122,244	[3] 285,091	154,617	−20.9	−57.1	84.4
Number of tower stations	63	74	117	−46.2	−14.9	−36.8
Income, total	$1,385,060	$669,158	$106,791	1,197.0	107.0	526.6
Expenses, total	$775,534	$664,420	$160,329	383.7	16.7	314.4
General operation and maintenance, including salaries and wages and legal expenses	$540,891	$538,712	$117,480	360.4	−8.1	401.1
Interest and taxes	$47,806	$7,826	$5,562	759.5	510.9	40.7
All other expenses	$186,837	$67,882	$37,287	401.1	175.2	82.1
Net income [4]	$609,526	$4,738			12,764.6	
Net deficit			$53,538			
Balance sheet:						
Assets, total	$14,483,638	$10,377,197	$32,958,897	−56.1	39.6	−68.5
Plant and equipment	$9,275,261	$1,205,770	$317,614	2,820.3	669.2	279.6
Cash and current assets, including supplies [5]	$5,208,377	$9,171,427	$32,196,456	−83.8	−43.2	−71.5
Net deficit			$444,827			
Liabilities, total	$14,483,638	$10,377,197	$32,958,897	−56.1	39.6	−68.5
Capital stock	$10,399,500	$9,602,570	$32,676,242	−68.2	8.3	−70.6
Floating debt and mortgages	$989,173	$18,483	$37,145	2,563.0	5,251.8	−50.2
Accounts payable	[6] $1,671,641	[6] $583,160	$245,510	580.9	186.7	137.5
Net surplus	$1,423,324	$172,984			722.8	
Capitalization:						
Capital stock outstanding, par value	$10,399,500	$9,602,570	$32,676,242	−68.2	8.3	−70.6
Employees and salaries and wages:						
Average number	[7] 586	[8] 958	176	233.0	−38.8	444.3
Salaries and wages	$461,402	$393,606	$81,771	464.3	17.2	381.4

[1] The statistics are those of part of the operations of one company for the entire year and for the coast stations of this and the entire operations of the other companies until taken over by the Government.
[2] A minus sign (—) denotes decrease.
[3] Includes 5,013 land messages sent over a leased wire by a wireless company doing land telegraphy also.
[4] Less all expenses, including charges for depreciation.
[5] Includes stocks, bonds, and sundries.
[6] Includes reserves, cash investments, interest and taxes, due and accrued, and sundries.
[7] Includes, in two instances, number employed when stations were taken over by the United States Government, April 6, 1917. One report gives number employed Dec. 31, 1917.
[8] Number employed Sept. 16, 1912. Includes, in some cases, number of operators on shipboard, who, in addition to wages, receive board and quarters.

No record is available of the number of commercial messages transmitted through the general Government during the months that the stations were under Government operation. The report of the Secretary of the Navy for the fiscal year, however, contains the statement that the traffic for the period from April 6 to June 30, 1917, through the stations formerly operated by the commercial companies, aggregated 103,737 messages, of which 14,797 were official and 88,940 were commercial. Adding this number to those shown in Table 17, the total number transmitted for the six months in 1917 amounts to 225,981. If this rate were maintained for the final six months of the year, the annual total would reach 451,962, an increase of 58.5 per cent over the number in 1912.

It is interesting to know that the earnings of the commercial radio service conducted by the Government from its own stations for the first three months of the year, as stated in the report of the Secretary of the Navy, amounted to $7,557.25. At that time the commercial companies were operating their own lines. During April, May, and June, after the commercial stations were taken over, the earnings of the Government for the commercial service were $74,852.59. This amount, if added to the total income shown in the table, would give an additional increase in the receipts for the wireless traffic of commerce.

The total income of the three companies in 1917, as reported for the time they were in operation, was very much greater than the income shown for all companies reported at any of the previous censuses. This total more than doubled during the semidecade 1912–1917, and was nearly thirteen times as great in 1917 as in 1907, a large part of the increase being the receipts for rentals of apparatus. Although the expenses show increases for each period the revenues increased in greater proportion. It is noticeable that in 1907 the expenses were much greater than the total income for that year; in 1912 they were practically the same, while in 1917 they were about one-half of the total income. Of these expenses, the amount for general operation and maintenance was not so large, either actually or relatively, in 1917 as in 1912. Interest and taxes were much greater in 1917 than in 1912, owing to war conditions, and all other expenses were considerably more. In 1907 there was a net deficit of $53,538. This condition changed in 1912 to a net income of $4,738, and in 1917, notwithstanding the taking over of the plants by the Federal Government, the net income is shown as $609,526, a very large increase due chiefly to rental of wireless installations, to the continued operation of ship stations by a commercial company, and to the profits on sales of wireless installations.

Concerning the balance sheet totals for the three systems, it is noticeable that these have decreased more than one-half during the ten-year period 1907–1917, and that there was an increase of more than one-third during the five-year period 1912–1917. The capital stock was placed at a very large figure at the beginning of the enterprise. This condition changed greatly during the five years from 1907 to 1912, having decreased from $32,676,242 to $9,602,570, or 70.6 per cent; but from these lower figures there was a slight advance during the later semidecade. The plant and equipment account increased greatly, until in 1917 it was nearly thirty times as great as in 1907.

Two of the wireless systems reported the number of employees at the time the coast stations were turned over to the Government; one continued the operation of stations on shipboard for the entire year and gave the total of these operators December 31, 1917. A notable increase of 233 per cent for the ten-year period 1907–1917 is shown in the number of employees, notwithstanding a marked decrease of 38.8 per cent for the five-year period 1912–1917. The salaries and wages, however, increased continuously, by 17.2 per cent from 1912 to 1917, and by 464.3 per cent for the decade. The statement of the acting vice president of the company reporting the ship operators is in part:

"I have to advise that the * * * operators shown for 1917 cover the number of ship operators only, the coast stations having been taken over by the Navy Department in April, 1917, and since then operated by them. The decrease in the number of operators from the figures * * * shown in 1912, is also partly accounted for by our operators being replaced in 1917 by Navy operators on ships operated by the United States Shipping Board.

"As to * * * wages paid, this amount includes wages paid wireless operators on ships for the entire year of 1917, and also such amount as we paid to coast station operators up to the time the stations were taken over by the Navy Department in April, 1917; but it does not include * * * cost of board. The increase * * * is accounted for by various increases in wages."

All commercial coast and ship stations, all experiment and instruction stations, and all transmitting amateur stations are obliged by law to be licensed, the licenses being issued by the Bureau of Navigation, Department of Commerce. The operators also must be licensed by the Bureau of Navigation after an examination as to their qualifications.

The Marconi company rents wireless apparatus to steamship companies, thus retaining control, and furnishes the operators, who are also in the Marconi company's control and pay. In this way the efficiency of the equipment is maintained, and satisfactory communication assured with other ships and with shore stations.

Supt. Pillsbury of the Marconi Wireless Telegraph Co. states that "The company has established a chain of shore stations covering the Atlantic, Pacific, and Gulf coasts and the Great Lakes, making it possible for ships to keep in touch with land practically continuously. The semihigh-power station at South Wellfleet, on the end of Cape Cod, communicates with liners until they are half way across the Atlantic, when they are able to pick up the corresponding station at Poldhu. It is from the South Wellfleet station that news matter is sent out broadcast every night, enabling ships to print daily newspapers at sea. Marconi stations located at Alaska maintain continuous communication with Seattle, while a high-power station near San Francisco exchanges a large volume of commercial traffic with Honolulu. This latter station is now preparing to inaugurate direct service with Japan, which will span the Pacific, a stretch of 5,434 miles, it being 2,079 miles from San Francisco to Honolulu and 3,355 miles from Honolulu to Japan. It is not improbable that Honolulu will be in wireless touch with Australia in the near future."[1]

After the census of wireless telegraph systems was completed, a new wireless station was established on the island of Lobos, off the coast of Tampico, Mexico, largely for the purpose of affording the various petroleum companies facilities for communicating with their vessels while at great distances at sea. According to the Telegraph and Telephone Age of June 16, 1918, "This station is provided with some of the most powerful apparatus and will be able to communicate with the wireless stations at Mexico City, Tuxpam, Tampico, Vera Cruz, Progreso, Frontera, Mazatlan, Santa Rosalia, La Paz Queretaro, Monterey, Saltillo, Torreon, and by way of Habana with various stations in the United States. It is expected to prove of great value in advancing the commercial interests of the Republic."

Progress in the use and efficiency of wireless since the census report for 1912 has been extraordinary. During 1917 its use for signaling from military airplanes was of great use in communicating the location of enemy batteries. Although improvement of receiving sets has been made, nevertheless the problem of overcoming the noise of the machine and similar difficulties led to the adoption of visual means of transmitting directions to airmen. White strips of cloths 6 feet long by 1 foot wide are laid on the ground to form letters and symbols, these being easily visible from a height of 3,000 feet.

The tendency in the use of radiotelegraphy on ships has been toward standardization in the form of the sets, particularly the spark type. The use of sustained waves has also been increased, the power required for this method being generated either directly or through frequency transformers by arcs or by high-frequency alternators.

[1] Telegraph and Telephone Age, Mar. 1, 1917, p. 107.

Railway systems.—On account of the war no railway wireless was operated during 1917. Supt. L. B. Foley of the Delaware, Lackawanna & Western Railroad Co.'s wireless department writes:

"On account of restrictions issued by the Navy Department, we have not used our wireless stations for two years. We still have the equipment installed, ready for operation when the restrictions are removed. I do not think any railroad has attempted to use radio service since 1916."

GOVERNMENT WIRELESS.

Naval stations.—Much effective work was done in 1917 with wireless telegraphy by the Navy Department. This had for its principal object communication from Washington with American war vessels in the Atlantic and Pacific Oceans. The Government has erected wireless plants at various points along the Atlantic and Pacific coasts (at Pearl Harbor, Hawaii, and Cavite, in the Philippines). The Government shore stations, according to the records of the Bureau of Navigation, June 30, 1918, numbered 135, of which 88 were in continental United States, 20 in Alaska, 1 each in Porto Rico, Guam, and Samoa, 3 in the Canal Zone, 2 in Hawaii, and 19 in the Philippine Islands. The Government ship stations totaled 470.

The Arlington station.—The station at Arlington, Va., has been in regular communication with the station at Chollas Heights, near San Diego, Calif., since May 1, 1917 Direct communication between the Arlington station and an Italian Government station in Rome was also successfully established. Direct communication was established September 29, 1917, between Arlington, via Sayville, N. Y., and Pearl Harbor, Hawaii. This covers a distance of approximately 5,000 miles. Messages can be exchanged between Arlington and the Philippines by one relay through Pearl Harbor.

A station is being built in Porto Rico. The completion of the Government station at Annapolis will increase the possible use of the wireless stations in the United States from 30,000 to 50,000 words daily.

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS

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MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS.

Scope of the inquiry.—To cover the entire field for the commercial use of electricity it is necessary to present the statistics for the municipal electric fire-alarm and police-patrol signaling systems. The importance of electricity as a time saver in announcing the existence and location of a fire can scarcely be overestimated, since it is self-evident that the more promptly a fire can be attacked by the firemen the more easily it can be extinguished and with a minimum of loss.

Though, comparatively speaking, the history of fire-alarm telegraphy is short, it shows progress toward certainty of operation and an increasing use of alarm apparatus to meet modern requirements. Prior to 1850, even in the largest cities, there were no means for directing the fire-fighting force to the scene of a fire except by the primitive method of shouting alarms and striking bells manually. The use of the telegraph as a means for transmitting alarms was first suggested by Dr. W. F. Channing, of Boston, Mass., his idea being based upon the successful telegraph experiments of Prof. Morse. In the year 1845, Dr. Channing published an article in the Boston Advertiser outlining a method whereby the telegraph might be utilized for fire-alarm purposes, and in 1852 the first fire-alarm telegraph system was installed in the city of Boston. At the present time there are only a few cities of any importance in this country that are not equipped with a fire-alarm telegraph system.

The simplest form of fire-alarm system, frequently found in small towns, consists of but one single circuit with a few signaling boxes on the line; in fire headquarters the only equipment may be an annunciator with a bell striker attached, and, there may be a further connection with a town bell for alarming the voluntary firemen who are not at headquarters and the people generally.

A fire-alarm signaling box consists of a clockwork mechanism which when operated revolves a character wheel and causes the normally closed circuit to be successively opened and closed at regular intervals. This character wheel is either toothed or notched according to the sort of signal it is desired to transmit. Thus, the character wheel for signal 123 would have 1 tooth (or notch), a space, 2 teeth, a space, 3 teeth, and a longer space. A circuit opening device is so arranged that as the wheel revolves the circuit is successively opened and closed as described, causing the proper signal to be transmitted. These boxes are often provided with a telephone jack, which enables communication to be carried on between the boxes and the office by using a hand microphone equipped with a suitable plug.

A manual transmitter is a device used in the larger central fire-alarm stations for sending out alarms to engine and truck companies. These transmitters are of two general types, the dial type and the button type. Both machines operate the alarm gong circuits which reach the various engine and truck houses. With the dial transmitter it is necessary to set various dials until the signal number desired to be sent is displayed. The machine is then started and that particular signal is transmitted. This machine, by a manipulation of its dials, will send any combination of three or four numbers, depending upon the number of controlling plates in its construction. The button transmitter is a machine in which the signal transmitted is determined by a wheel termed a "button" which is placed upon it. In this machine it is necessary to have a separate wheel, or button, for each signal box in the system. These wheels are kept in a cabinet readily accessible to the machine. When it is desired to transmit a signal, 250 for example, to the fire-fighting force, wheel 250 is placed on the machine, which is then set in motion. Some cities, which do not have central offices at which operators are stationed at all times, have in the central station of their fire-alarm departments a machine called an automatic transmitter, the functions of which are to repeat automatically over all circuits any signal received from any one circuit.

This report does not include electric fire-alarm systems operated under private or corporate ownership, of which there are many, very elaborately equipped, installed in large industrial establishments.

A great many schedules were received for systems which were considered as not coming within the scope of the census, the reports which were excluded representing in the main an adaption of the local telephone service for fire-alarm or police-patrol uses. The census includes only those systems in which the boxes and wire mileage are used exclusively for sending signals or messages to a central office. These systems vary in completeness from the elaborately equipped systems of the large cities to the simpler types in small towns. The fact that a system might be wholly or partly leased from a telephone or telegraph company by the municipality would not exclude it from the census. All

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variations or adaptions of the local telephone system are excluded, however, as well as all mechanical devices used for giving a general alarm which is not received or registered at a central office.

The schedule used in securing data for this report is reproduced on page 60; and the instructions to special agents covering the canvass of electric fire-alarm and police-patrol signaling systems are reprinted in the Appendix to this report, pages 57 to 61.

Combined fire-alarm and police-patrol signaling systems.—Table 1 summarizes the principal statistics of the electric fire-alarm and police-patrol signaling systems for the years 1917, 1912, and 1907 and gives the percentages of increase from census to census.

Table 1

	ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS.					
	1917	1912	1907	Per cent of increase.		
				1907–1917	1912–1917	1907–1912
Number of systems	1,712	1,397	1,157	48.0	22.5	20.7
Miles of single wire	107,658	90,284	70,812	52.0	19.2	27.5
Overhead	55,937	48,290	42,796	30.7	15.8	12.8
In underground subways or conduits	51,721	41,994	28,016	84.6	23.2	49.9
Number of boxes or signaling stations	94,853	81,282	62,504	51.8	16.7	30.0
Signaling	86,759	73,393	58,121	49.3	18.2	26.3
Telephoning	8,094	7,889	4,383	84.7	2.6	80.0
Number of fire alarms received	224,753	175,539	120,719	86.2	28.0	45.4
Central office equipment:						
Number of transmitters	900	789	679	32.5	14.1	16.2
Manual	459	369	287	59.9	24.4	28.6
Automatic	441	420	392	12.5	5.0	7.1
Number of receiving registers of all kinds	5,369	4,953	2,427	121.2	8.4	104.1

The statistics in this table show that the number of signaling systems installed in cities and towns for the purpose of conveying information concerning fire and police service has increased constantly during the past three census periods. The miles of wire used for the service were 70,812 in 1907 and 107,658 in 1917, an increase of 36,846 miles, or 52 per cent, during the ten-year period. During the same period the number of boxes or signaling stations increased from 62,504 to 94,853, or 51.8 per cent. The number of fire alarms reported for the calendar year 1917 was 224,753, showing an increase during the ten-year period of 86.2 per cent.

Methods of administration.—The fire-alarm and police-patrol systems are controlled by various administrative offices and departments of city governments. Table 2 shows the numbers of systems reported at the last three censuses as under the control of the various boards or departments of administration.

The figures in Table 2 possess little significance on account of the difference in the titles applied in different localities and states to officials or boards exercising similar functions. The term "administrative bodies, not specified," under which a large number of these systems are controlled, includes boards of aldermen, boards of selectmen, city councils, etc. There was apparently a large decrease from 1907 to 1917 in the number of systems governed by such bodies. Systems administered under exactly similar conditions have been reported as directed by officials bearing different titles, but performing the same duties. Among the municipal officials themselves considerable doubt and confusion exist as to the real source of authority. The statistics indicate, however, a general tendency toward placing the control and management of these systems under the heads of the fire or police departments, boards of public safety, or departments of electricity.

Table 2

BOARD AND DEPARTMENT OF ADMINISTRATION.	ELECTRIC FIRE-ALARM AND POLICE-PATROL SYSTEMS—NUMBER GROUPED ACCORDING TO BOARDS OR DEPARTMENTS OF ADMINISTRATION.					
	Fire-alarm systems.			Police-patrol systems.		
	1917	1912	1907	1917	1912	1907
Total number	1,329	1,149	979	428	319	226
Administrative bodies not specified	111	126	215	10	22	31
Boards consisting of:						
Aldermen and police and fire commissioners	6	14	14	.....	1	.....
Commissioners of public utilities	3	6	12	1	.....	2
Fire commissioners (or commissioner)	111	76	65	2	2	.....
Fire engineers	41	58	62	.....	1	.....
Police commissioners (or commissioner)	6	5	2	44	42	27
Police and fire commissioners	22	19	10	16	14	11
Public safety (or director or commissioner of)	171	125	65	103	52	24
Public works (or commissioner of)	15	20	23	5	.....	5
Selectmen and board of engineers	13	13	12	4	2	.....
Trustees	62	55	.....	9	8	.....
Trustees elected by voluntary firemen	1	2	3	.....	.....	.....
Chief of fire department and city electrician	3	2	16	.....	.....	.....
City council and chief of fire department	25	18	11	.....	.....	.....
City council and fire marshal	.....	.....	3	.....	.....	.....
City council and superintendents of fire and police departments	4	6	5	2	3	.....
Departments of:						
Electricity (or city electrician)	77	58	44	56	36	26
Fire and police-patrol telegraph	.....	5	4	.....	1	11
Wire inspection	11	9	7	12	10	6
Fire and police board	.....	4	8	.....	2	2
Fire and water committee of the sanitary improvement commission	8	19	15	1	1	.....
Fire commissioner and city council	38	38	17	.....	.....	3
Fire department (chief, director, or committee of)	499	358	251	12	15	4
Fire marshal	2	.....	2	.....	.....	.....
Joint board of fire wardens and selectmen	2	.....	5	.....	.....	.....
Mayor	1	3	2	2	3	1
Mayor and board of police commissioners	.....	.....	3	1	3	6
Mayor and chief of police	.....	.....	1	4	.....	1
Mayor and city council	15	24	9	14	6	4
Mayor, city council, and fire department	9	10	8	.....	.....	.....
Park commission	.....	.....	.....	1	2	2
Police and fire commissions	4	5	12	.....	2	.....
Police and fire departments	3	5	8	1	1	5
Police department (or police)	.....	12	2	112	61	40
Superintendent of fire-alarm and police-patrol telegraph	39	20	12	8	9	3
Superintendent of police and board of public safety	.....	2	6	.....	.....	3
Water department	7	2	3	.....	.....	.....
Water and light department	15	23	8	8	7	2
Not specified	5	7	34	.....	13	7

Fire-alarm and police-patrol systems in municipalities: 1917.—Table 3 shows, by geographic divisions, states, and municipalities, the number of systems, miles of wire, number of signaling boxes or stations, number of transmitters, and number of receiving registers of all kinds reported for the operation of fire-alarm and police-patrol signaling systems during 1917.

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917.

Table 3.

Division, State, and Municipality.	Number of systems.			Total number of miles of single wire.	Number of boxes or signaling stations.			Number of transmitters.		Number of receiving registers of all kinds.
	Combined fire alarm and police patrol.	Fire alarm.	Police patrol.		Total.	Signaling.	Telephoning.	Manual.	Automatic.	
United States	45	1,285	383	107,658	94,853	86,759	8,094	459	441	5,369
Geographic divisions:										
New England		309	91	15,483	17,788	16,628	1,160	101	117	960
Middle Atlantic	20	336	109	29,077	27,131	24,473	2,658	118	122	1,426
East North Central	14	248	84	38,141	22,889	21,246	1,643	92	67	1,453
West North Central	3	58	24	7,133	5,742	4,709	1,033	18	22	233
South Atlantic	2	98	24	5,961	7,355	6,710	645	45	37	351
East South Central	1	39	11	1,811	2,278	2,107	171	15	15	144
West South Central	2	37	8	1,757	2,663	2,443	220	21	14	172
Mountain		56	8	1,428	2,019	1,950	69	12	7	131
Pacific	3	104	24	6,867	6,988	6,493	495	37	40	499
Alabama		7	3	235	425	425		5	4	30
Anniston		1		12	15	15		1		1
Birmingham		1		38	113	113		1		12
Decatur		1		5	15	15				1
Mobile		1	1	89	130	130		1		2
Montgomery		1	1	57	99	99		1	1	10
Selma		1	1	24	41	41		1	2	3
Sheffield		1		10	12	12			1	1
Arizona		7		99	222	222		4	1	18
Bisbee		1		7	20	20		1		2
Douglas		1		8	22	22		1		2
Globe		1		5	22	22				1
Phoenix		1		37	104	104		1	1	8
Prescott		1		15	20	20				1
Tucson		1		19	22	22				3
Yuma		1		8	12	12		1		1
Arkansas	1	2		66	73	61	12	1	1	10
Fort Smith	1			24	12		12			1
Little Rock		1		27	41	41			1	8
Texarkana		1		15	20	20		1		1
California	2	76	17	5,183	4,943	4,481	462	24	31	372
Alameda		1	1	80	93	86	7			5
Albany		1		6	16	16		1		1
Alhambra		1		11	18	18		1		5
Antioch		1		2	9	9				1
Arcata		1		4	7	7				1
Auburn		1		2	3	3				1
Bakersfield		1	1	15	52	49	3			7
Berkeley		1	1	111	123	123			1	12
Chico		1		12	28	25	3		1	4
Coalingo		1		12	17	17			1	1
Colusa		1		1	2	2				1
Corning		1		1	1	1		1		1
Corona		1		1	3		3			1
Coronado		1		8	21	21		1	1	3
Crockett		1		6	71	71			1	2
Emeryville		1		8	15	15			1	2
Eureka		1		25	38	38				7
Fresno		1		25	25	25			1	3
Gilroy		1		6	16	16				1
Grass Valley		1		5	16	16				4
Hanford		1		18	19	19				2
Hayward		1		8	20	20			1	1
Hollister		1		6	12	12			1	1
Larkspur		1		4	13	13				1
Long Beach		1	1	52	63	37	26			6
Los Angeles		1	1	1,558	631	631			2	60
Los Gatos		1		5	10	10			1	1
Madera		1		12	20	20			1	1
Martinez		1		10	18	18				1
Marysville		1		8	23	23			1	1
Merced		1		15	20	20		1	1	2
Modesto		1		10	26	26		1		1
Monrovia			1	1	3	3				1
Monterey		1		8	20	17	3	1		2
Napa		1	1	30	39	35	4	1		2
National City	1			3	3	3			1	1
Nevada City		1		4	15	15				2
Oakland		1	1	1,173	804	561	243	1		51
Ocean Park		1	1	20	34	34				4
Ontario		1		1	5	3	2		1	1
Orange		1		7	10	10			1	1
Oroville		1		7	31	31				1
Palo Alto		1		11	27	27		1		2
Pasadena		1	1	56	93	51	42			7
Petaluma		1		10	45	30	15			4

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued. DIVISION, STATE, AND MUNICIPALITY.	Number of systems: Combined fire alarm and police patrol.	Number of systems: Fire alarm.	Number of systems: Police patrol.	Total number of miles of single wire.	Number of boxes or signaling stations: Total.	Number of boxes or signaling stations: Signaling.	Number of boxes or signaling stations: Telephoning.	Number of transmitters: Manual.	Number of transmitters: Automatic.	Number of receiving registers of all kinds.
CALIFORNIA—Continued.										
Piedmont		1	1	52	52	52		1		3
Pomona		1		1	3	3				1
Porterville		1		4	13	13				1
Red Bluff		1		8	20	20				1
Redding		1		4	18	18				1
Redwood City		1	1	17	30	25	5			4
Richmond		1	1	110	78	78			2	6
Riverside		1		12	29	29				2
Ross		1		5	20	20				1
Sacramento		1	1	137	202	202		1	2	22
Salinas		1		8	15	15				2
San Anselmo		1		10	10	10			1	1
San Bernardino		1		50	53	53				2
San Diego		1	1	269	314	235	79		3	25
San Francisco		1	1	912	1,011	1,011		2		28
San Jose		1	1	45	119	99	20		1	10
San Luis Obispo		1		5	15	15				1
San Rafael		1		9	27	27				1
Santa Ana		1		13	26	26		1		3
Santa Barbara		1		8	7	7		1		1
Santa Clara		1		7	18	18		1		2
Santa Cruz		1		15	38	38			1	5
Santa Monica	1			13	30	23	7	1	1	3
Santa Rosa		1		11	39	39		1		1
Sebastapol		1		2	7	7				1
Selma		1		5	12	12		1		1
Stockton		1		15	43	43		1		9
Tracy		1		4	8	8			1	1
Tulare		1		8	9	9				1
Visalia		1		8	17	17			1	1
Vallejo		1		14	27	27		1		7
Watsonville		1		8	20	20		1		1
Willows		1		6	25	25		1		1
Woodland		1		10	10	10				1
COLORADO		18	4	713	781	750	31		3	52
Boulder		1		9	27	21	6			1
Canon City		1		7	14	14				2
Colorado City		1		7	21	21				1
Colorado Springs		1	1	86	102	102				3
Cripple Creek		1		15	27	27				1
Denver		1	1	352	312	312			1	19
Durango		1		4	12	12				1
Englewood		1		16	17		1	7		1
Fort Collins		1		14	22	22				1
Glenwood Springs		1		4	19	19				8
Greeley		1		11	18	18			1	2
Idaho Springs		1	1	10	19	13	6		1	2
Littleton		1		4	11	11				1
Pueblo		1	1	156	110	110				3
Saguache		1		1	3	1	2			1
Salida		1		5	10	10				2
Trinidad		1		5	25	25				2
Victor		1		7	12	12				1
CONNECTICUT		41	15	1,838	2,682	2,352	330	19	15	177
Ansonia		1	1	46	72	58	14			2
Bridgeport		1	1	212	365	365		2		21
Danbury		1		24	51	51			1	4
Danielson		1		16	23	23				2
Deep River		1		1	1	1				1
Derby			1	32	50	43	7			4
East Hartford		1		3	34	34		1		2
Enfield		1		25	25	25				1
Fairfield		1	1	12	4	4				1
Greenwich		1	1	33	65	16	49	1		3
Hartford		1	1	203	448	319	129	1	1	23
Madison		1		1	1	1				1
Meriden		1	1	42	87	87		1	1	5
Middletown		1		13	29	29				3
Milford		1		7	16	10	6		1	1
Naugatuck		1		30	36	36				4
New Britain		1	1	70	102	102			1	6
New Haven		1	1	424	343	317	26	1	1	20
New London		1	1	42	59	47	12	1	1	2
Norwalk		1	1	27	86	73	13	3		9

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued.

Division, State, and Municipality.	Number of systems.			Total number of miles of single wire.	Number of boxes or signaling stations.			Number of transmitters.		Number of receiving registers of all kinds.
	Combined fire alarm and police patrol.	Fire alarm.	Police patrol.		Total.	Signaling.	Telephoning.	Manual.	Automatic.	
CONNECTICUT—Continued.										
Norwich		1	1	48	79	68	11		2	2
Pawcatuck		1		9	9	9				1
Plainville		1		1	2	2				1
Putnam		1	1	10	20	17	3			2
Rockville		1		20	25	25				1
Seymour		1		20	25	25				1
Shelton		1		15	21	21				2
South Beach		1		8	14	14		1		1
Southington		1		12	20	20				1
South Manchester		1		22	37	33	4	1		6
Southport		1		2	1	1				1
Stamford		1	1	45	82	57	25	1	1	4
Stonington		1		3	9	9				2
Thompsonville		1		15	25	25		1	1	1
Torrington		1		20	57	57			1	1
Wallingford		1		12	47	20	27	1		2
Waterbury		1	1	237	192	192		1	2	20
Watertown		1		2	1	1				1
West Haven		1		19	36	36		1		4
Willimantic		1		19	39	35	4	1	1	4
Windsor Locks		1		6	8	8				1
Winsted		1		30	36	36				3
DELAWARE	1			225	160	160			1	5
Wilmington	1			225	160	160			1	5
DISTRICT OF COLUMBIA		1	1	1,158	1,272	861	411	2	2	36
Washington		1	1	1,158	1,272	861	411	2	2	36
FLORIDA	1	14	4	410	615	501	114	7	3	40
Fernandino		1		7	12	12				1
Gainesville		1		12	28	28				1
Jacksonville		1	1	175	206	157	49		2	18
Key West		1		18	37	37			1	4
Lakeland		1		18	20	20				1
Madison		1		2	3	3				1
Melbourne		1		1	12		12			1
Miami		1		34	56	56		1		2
Orlando			1	1	4	4				1
Pensacola		1	1	42	70	70		1		2
Quincy		1		5	8	8		1		1
St. Augustine	1			9	23		23			1
St. Petersburg		1		9	20	20		1		2
Tallahassee		1		12	10	10		1		1
Tampa		1	1	63	100	70	30	2		2
Titusville		1		2	6	6				1
GEORGIA		19	4	878	1,196	1,181	15	13	7	62
Albany		1		15	34	34		1		1
Americus		1		11	25	25				1
Athens		1		23	41	41				2
Atlanta		1	1	251	271	256	15	2	2	27
Augusta		1	1	220	183	183		1	1	2
Bainbridge		1		3	20	20		1		1
Brunswick		1		14	25	25		1		1
Carrollton		1		12	20	20		1		1
Columbus		1		22	32	32				5
Dublin		1		15	29	29		1		1
Elberton		1		2	5	5				1
Griffin		1		12	16	16			1	1
Macon		1	1	78	154	154		1	2	7
Newnan		1		10	14	14				1
Quitman		1		10	15	15				1
Rome		1		28	47	47		1		4
Savannah		1	1	121	188	188		2	1	2
Valdosta		1		16	34	34		1		1
Waycross		1		15	43	43				2
IDAHO		8		148	232	232		1		21
Boise		1		71	60	60				6
Coeur d'Alene		1		12	26	26				1
Lewiston		1		8	27	27				1
Nampa		1		20	25	25				4
Pocatello		1		14	37	37				3
Potlach		1		4	12	12				1
Sand Point		1		11	25	25				1
Wallace		1		8	20	20		1		4

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued.

DIVISION, STATE, AND MUNICIPALITY.	NUMBER OF SYSTEMS.			Total number of miles of single wire.	NUMBER OF BOXES OR SIGNALING STATIONS.			NUMBER OF TRANSMITTERS.		Number of receiving registers of all kinds.
	Combined fire alarm and police patrol.	Fire alarm.	Police patrol.		Total.	Signaling.	Telephoning.	Manual.	Automatic.	
ILLINOIS	7	52	16	9,415	6,045	5,773	272	19	8	341
Algonquin		1		5	7	7				1
Alton		1		38	80	62	18	2		4
Aurora		1		95	79	79		2	1	4
Belleville	1			20	23		23			1
Berwyn		1		10	32	32				2
Bloomington		1		20	55	55			1	4
Blue Island	1			22	28		28			1
Canton			1	1	5		5			1
Carpentersville		1		6	11		11			1
Chicago		1	1	7,361	3,491	3,491		4		171
Chicago Heights		1	1	45	69	48	21			4
Cicero	1			75	91	91				3
Danville		1		35	66	66				1
Decatur		1	1	335	131	131				10
De Kalb		1	1	20	45	37	8			3
Dundee		1		6	10	10		1		1
East St. Louis		1		60	100	100			1	9
Elgin		1	1	44	98	98		1		6
Evanston		1	1	57	79	79			1	10
Forest Park	1			13	29	29				1
Freeport		1		9	27	27				3
Glencoe		1		4	15	15				1
Granite City		1		14	31	15	16			1
Harvey		1		25	26	26				5
Highland Park		1		7	3	3				1
Joliet		1	1	97	179	144	35		1	16
Kankakee	1			18	48	34	14	1		2
Lamont		1		2	6	6				1
La Salle	1			14	63	63				3
Macomb		1		13	30	30				1
Marengo		1		3	5	5				1
Mendota		1		9	25	25				2
Moline		1	1	95	108	108			1	10
Monmouth		1		5	15	15				1
Morris		1		8	18	18				1
Mount Pulaski		1		5	10	10				1
Mount Vernon		1		6	9	9				1
Oak Park		1	1	59	38	22	16			5
Ottawa		1	1	22	29	25	4			2
Pana		1		8	23	23				1
Park Ridge		1		3	6	6				1
Pekin		1		12	19	19		1		1
Peoria		1	1	274	181	181		1	1	2
Peru		1	1	22	60	60				2
Pontiac		1		10	26	26		1		1
Princeton		1		2	2		2			1
Rock Falls		1		7	16	16		1		1
Rockford		1	1	101	95	95		1	1	2
Rock Island		1	1	77	110	110				5
St. Charles		1		2	6	6		1		1
Springfield	1			118	76	20	56	1		4
Steger		1		6	12	12				2
Sterling		1		11	18	18				1
Streator		1	1	24	38	38				9
Sycamore		1		16	27	27		1		3
Thornton		1		2	6	6				1
Waukegan		1		20	59	59				3
Winnetka		1		5	15		15			1
Woodstock		1		6	20	20				2
Xenia		1		6	16	16				1
INDIANA		43	13	2,147	2,707	2,615	92	14	14	195
Albion		1		5	11	11				1
Alexandria		1		5	8	8		1		1
Anderson		1		59	99	95	4	1		1
Brazil		1		25	18	18				2
Columbus		1		20	34	34				3
Connersville		1		15	36	36			1	2
Crawfordsville		1		7	22	22		1		1
East Chicago		1		35	39	39			1	2
Elkhart		1		51	57	57			1	7
Elwood		1		8	19	19				3
Evansville		1		57	116	104	12			13
Fort Wayne		1	1	155	174	174			1	9
Gary		1	1	66	84	84				10
Goshen		1	1	24	40	40				4
Greencastle		1		12	16	16				1

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued.

DIVISION, STATE, AND MUNICIPALITY.	NUMBER OF SYSTEMS.			Total number of miles of single wire.	NUMBER OF BOXES OR SIGNALING STATIONS.			NUMBER OF TRANSMITTERS.		Number of receiving registers of all kinds.
	Combined fire alarm and police patrol.	Fire alarm.	Police patrol.		Total.	Signaling.	Telephoning.	Manual.	Automatic.	
INDIANA—Continued.										
Hammond		1	1	49	72	64	8			8
Huntington		1	1	24	32	22	10			3
Indianapolis		1	1	824	479	479		2	1	39
Kendallville		1		2	3	1	2			1
Kokomo		1		35	48	27	21	1		5
Lafayette		1		35	47	47			1	1
Laporte		1	1	28	46	31	15	1		2
Logansport		1		35	62	62			1	3
Madison		1		10	19	19				6
Marion		1		33	55	55		1		8
Michigan City		1	1	50	55	55			1	7
Miller		1		7	24	24				1
Mishawaka		1	1	23	42	42		1	1	4
Muncie		1		25	62	62		1		6
New Albany		1		21	40	40				2
New Castle		1		18	50	50				2
Peru		1		9	19	19				1
Plymouth		1		7	27	27				3
Princeton		1		6	17	17				1
Richmond		1	1	35	111	111			1	2
Rushville		1		15	26	26			1	3
Shelbyville		1		20	39	39			1	1
South Bend		1	1	130	203	203			1	13
Terre Haute		1		90	185	185		1		5
Vincennes		1		20	46	46				1
Wabash		1		12	22	22		1		1
Washington		1	1	13	32	27	5			3
Whiting		1	1	27	71	56	15	2	1	3
IOWA		15	8	646	793	722	71	6	13	62
Burlington		1	1	38	60	43	17		1	3
Cedar Rapids		1	1	76	75	53	22	1	1	7
Clinton		1		30	60	60			1	5
Council Bluffs		1	1	70	48	42	6	1	1	6
Davenport		1	1	90	143	143			1	9
Des Moines		1	1	117	102	102			2	5
Dubuque		1		35	60	60		1		3
Fort Dodge		1		8	13	13			1	3
Iowa City		1	1	24	31	31			2	7
Keokuk		1		8	4	4				1
Marshalltown		1		14	38	38		1	2	2
Missouri Valley		1		5	14	14				1
Sioux City		1	1	44	92	76	16	1	1	3
Waterloo		1	1	79	41	31	10	1		5
Webster City		1		8	12	12				2
KANSAS		5	1	122	137	112	25			12
Arkansas City		1		50	21		21			1
Fort Scott		1		9	15	15				1
Parsons		1		10	23	23				2
Pittsburg		1		10	7	7				1
Topeka		1		40	67	67				6
Wellington			1	3	4		4			1
KENTUCKY	1	16	6	921	1,045	889	156	4	5	79
Bellevue	1			5	15		15			1
Covington		1	1	137	160	125	35		1	12
Danville		1		1	2	2				1
Dayton		1		16	13	13				2
Frankfort		1		12	23	23				1
Georgetown		1		4	10	10				1
Henderson		1	1	30	35	19	16	1		3
Lexington		1	1	125	108	68	40		2	9
Louisville		1	1	420	419	419		1		28
Ludlow		1		4	17	17				1
Maysville		1		11	23	23				1
Newport		1	1	86	62	62			1	5
Owensboro		1		10	33	33		1	1	4
Paducah		1	1	42	88	38	50			7
Paris		1		9	20	20		1		1
Shelbyville		1		4	8	8				1
Winchester		1		5	9	9				1
LOUISIANA		11	1	473	662	592	70	5	6	2
Alexandria		1		21	28	28			1	4
Baton Rouge		1		15	27	27		1	1	7
Donaldsonville		1		5	12	12				1
Hammond		1		5	15	15		1		2
Lake Charles		1		10	30	30		1	1	2
Monroe		1		12	21	21			1	3

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued. DIVISION, STATE, AND MUNICIPALITY.	Number of systems: Combined fire alarm and police patrol.	Number of systems: Fire alarm.	Number of systems: Police patrol.	Total number of miles of single wire.	Number of boxes or signaling stations: Total.	Number of boxes or signaling stations: Signaling.	Number of boxes or signaling stations: Telephoning.	Number of transmitters: Manual.	Number of transmitters: Automatic.	Number of receiving registers of all kinds.
LOUISIANA—Continued.										
Morgan City		1		7	11	11				1
New Orleans		1		326	401	331	70	1	1	2
Opelousas		1		8	20	20			1	1
Shreveport		1	1	54	81	81		1		2
Thibodaux		1		10	16	16				1
MAINE		50	8	870	1,248	1,181	67	7	7	88
Auburn		1		29	35	35				3
Augusta		1		20	39	39				2
Bangor		1	1	78	104	104			1	9
Bar Harbor		1		8	14	14		1		1
Bath		1		14	31	26	5	1		3
Belfast		1	1	20	22	22				2
Biddeford		1	1	32	47	30	17			2
Boothbay Harbor		1		10	19	10	9	1		1
Brewer		1		7	18	18				1
Bridgton		1		3	4	4				1
Brunswick		1		10	27	27				1
Calais		1		7	19	16	3			2
Camden		1	1	14	18	18				2
Caribou		1		5	10	10			1	1
Dexter		1		6	12	12				1
Dover and Foxcroft		1		4	15	15				1
East Livermore		1		5	9	9				1
Eastport		1		5	12	12				1
Fairfield		1		13	12	12				1
Farmington		1		5	13	13				1
Fort Fairfield		1		3	12	12				1
Houlton		1		10	22	22				1
Kennebunk		1		9	14	14				1
Kingfield		1		2	6	6				1
Lewiston		1	1	57	84	84			1	2
Livermore Falls		1		6	8	8				1
Lubec		1		1	1	1				1
Mechanic Falls		1		1	3	3			1	1
Mexico		1		7	11	11				1
Millinocket		1		10	17	17				1
Milo		1		10	14	14				2
Norway		1		2	8	8				1
Oakland		1		11	14	14				1
Old Orchard		1		6	13	13				1
Old Town		1		10	27	27				1
Pittsfield		1		12	14	14				1
Portland		1	1	258	212	212		1	1	14
Presque Isle		1		6	10	10			1	1
Rockland		1		16	18	18				1
Rumford		1		12	23	23				1
Saco		1		10	22	22				1
Sanford		1		15	47	47			1	2
Skowhegan		1		10	15	15				1
South Portland		1		28	47	14	33	1		1
Springvale		1		8	11	11				1
Waterville		1	1	21	49	49		1		5
Westbrook		1	1	18	22	22		1		2
Winslow		1		4	9	9				1
Winthrop		1		2	4	4				1
Yarmouth		1		10	11	11				1
MARYLAND		4	2	1,330	1,317	1,300	17	4		33
Baltimore		1	1	1,035	1,072	1,072		4		17
Cumberland		1		8	22	22				3
Govanstown		1		260	183	183				11
Hagerstown		1	1	27	40	23	17			2
MASSACHUSETTS		140	54	10,363	10,783	10,266	517	62	75	530
Adams		1	1	30	39	33	6		2	2
Allerton		1		16	29	29		1		1
Amesbury		1	1	22	40	32	8			4
Amherst		1		18	19	19		1		1
Andover		1		46	41	41		1		2
Arlington		1	1	44	67	67		1	1	5
Athol		1		19	38	38			1	2
Attleboro		1		80	93	83	10		1	4
Avon		1		7	10	6	4			1
Ayer		1		12	23	23				1
Bedford		1		3	24	3	21	1		1
Belmont			1	38	19	19				1
Beverly		1	1	127	101	101				9
Billerica		1		7	18	18		1		
Boston [1]		1	1	2,911	1,954	1,816	138	2	8	15

[1] Includes figures for Blue Hills, Charles River, and Middlesex Fells Division of the Metropolitan Park Commission.

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued.

Division, State, and municipality.	Number of systems.			Total number of miles of single wire.	Number of boxes or signaling stations.			Number of transmitters.		Number of receiving registers of all kinds.
	Combined fire alarm and police patrol.	Fire alarm.	Police patrol.		Total.	Signaling.	Telephoning.	Manual.	Automatic.	
MASSACHUSETTS—Continued.										
Braintree		1		34	40	40			1	1
Bridgewater		1		13	26	26				1
Brockton		1	1	138	183	183		1	1	13
Brookline		1	1	93	128	128			1	2
Cambridge		1	1	260	298	298		1		13
Canton		1		60	32	32				1
Chelsea		1	1	53	106	82	24	1	1	8
Chicopee		1	1	97	109	109				5
Clinton		1	1	56	40	26	14		1	3
Cohasset		1		10	24	24		1		1
Concord		1	1	40	33	25	8	1	1	3
Danvers		1		42	32	32			1	4
Dedham		1		32	45	45			1	6
Dracut		1		6	12	12				1
Easthampton		1	1	18	39	39				2
Everett		1	1	69	99	99			1	6
Fairhaven		1		25	25	25				9
Fall River		1	1	285	387	342	45	1	2	20
Falmouth		1		2	3	3				1
Fitchburg		1	1	78	109	109			1	8
Foxborough		1		26	25	25				1
Framingham		1		30	52	52		1		1
Franklin		1		20	17	17		1		1
Gardner		1		41	56	56		1		3
Gloucester		1	1	82	78	78			2	8
Great Barrington		1		10	18	18				1
Greenfield		1		23	47	47				1
Haverhill		1	1	85	105	105			1	9
Hingham		1		60	49	43	6			3
Holbrook		1		16	23	23				1
Holliston		1		1	1	1		1		1
Holyoke		1	1	106	201	201		1	1	7
Hudson		1		18	24	24		1		1
Hull		1	1	28	39	39		1		2
Ipswich		1		20	19	19				1
Lawrence		1	1	133	171	171		1	2	4
Lenox		1		1	1	1		1		1
Leominster		1		48	61	61		1	1	3
Lexington		1		45	86	86		1		2
Lowell		1	1	224	257	236	21		2	12
Ludlow		1		8	25	25			1	1
Lynn		1	1	178	239	180	59	1	1	7
Malden		1	1	127	144	144			1	8
Manchester		1	1	29	21	21				3
Mansfield		1	1	32	38	38		1		2
Marblehead		1	1	42	62	62		1	2	3
Marion		1		23	14	14				1
Marlborough		1		26	52	45	7	1	2	6
Maynard		1	1	8	22	16	6			2
Medford		1	1	66	100	100			1	7
Melrose		1	1	98	84	84			1	5
Merrimac		1		11	20	20				1
Methuen		1		65	55	55			1	2
Middleborough		1	1	24	38	33	5		1	3
Milford		1		23	28	28			1	4
Millbury		1		24	21	21				1
Milton		1	1	99	90	90		1		2
Monson		1		8	18	18				1
Nahant		1		18	19	19				1
Nantucket		1		17	25	25		1		1
Natick		1		40	47	40	7	1	1	1
Needham		1		45	42	42		1		2
New Bedford		1	1	230	254	254		2	1	18
Newburyport		1		35	43	43		1	1	6
Newton		1	1	210	261	241	20	2	1	5
North Abington		1		45	26	26				1
North Adams		1	1	32	61	61				5
Northampton		1		50	59	59		1		4
North Andover		1		50	32	32				2
North Attleborough		1		55	45	45			1	3
Northborough		1		1	2	2				1
Northbridge		1		11	25	25				1
North Brookfield		1		1	2	2				1
North Easton		1		7	22	22				1
Norwood		1		36	42	42		1		2
Oak Bluff		1		5	20	20				1
Orange		1		16	29	29		1		1
Palmer		1		22	27	27				1
Peabody		1	1	70	77	72	5	1	1	11
Pepperell		1		10	12	12		1		1

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued. DIVISION, STATE, AND MUNICIPALITY.	Number of systems: Combined fire alarm and police patrol.	Number of systems: Fire alarm.	Number of systems: Police patrol.	Total number of miles of single wire.	Number of boxes or signaling stations: Total.	Number of boxes or signaling stations: Signaling.	Number of boxes or signaling stations: Telephoning.	Number of transmitters: Manual.	Number of transmitters: Automatic.	Number of receiving registers of all kinds.
MASSACHUSETTS—Continued.										
Pittsfield		1	1	59	91	91				5
Plymouth		1		24	37	37			1	4
Quincy		1	1	140	170	170			2	3
Randolph		1		30	21	21				1
Reading		1		40	51	51		1		1
Revere		1	1	145	86	86		1	1	9
Rockland		1		46	35	35				1
Rockport		1		5	16	16				1
Salem		1	1	145	137	127	10	1	2	13
Saugus		1		45	36	36				3
Sharon		1		14	17	17		1		1
Shelburne Falls		1		7	14	14				1
Shirley		1		4	6	6				5
Somerville		1	1	167	187	187		1	1	12
Southbridge		1	1	27	47	31	16		1	3
South Hamilton		1		1	2	2		1		1
Spencer		1		1	2	2				1
Springfield		1	1	336	330	330		1	2	8
Stoneham		1		40	31	31		1		1
Stoughton		1		28	29	29				1
Swampscott		1	1	18	39	32	7	1		6
Taunton		1		94	138	138			1	1
Three Rivers		1		12	7	7			1	1
Turners Falls		1		14	20	20			1	3
Vineyard Haven		1		2	3	3				1
Wakefield		1		39	54	54		1	1	3
Walpole		1		37	59	59		1		2
Waltham		1	1	132	143	137	6	2	1	2
Ware		1		8	21	21				1
Warren		1		7	13	13				1
Watertown		1	1	95	80	60	20		1	3
Waverly		1	1	56	74	74		2		5
Webster		1		11	33	33				1
Wellesley		1	1	44	70	57	13	1	1	2
Westboro		1		10	13	13			1	1
Westfield		1	1	32	57	48	9		1	3
Weston		1		29	23	23			1	1
West Springfield		1		32	37	37				2
Weymouth		1		72	53	53			1	2
Whitman		1		27	35	35				2
Williamstown		1		9	18	18				1
Winchendon		1		22	22	22				1
Winchester		1	1	36	56	46	10	1	1	4
Winthrop		1	1	64	60	48	12	1		3
Woburn		1	1	73	73	73			1	6
Worcester		1	1	379	379	379		1		5
MICHIGAN	2	63	14	14,458	4,771	4,530	241	19	17	273
Adrain		1	1	22	48	48		1		1
Battle Creek		1	1	58	122	122		1	1	4
Bay City		1		112	140	140		2		4
Bessemer		1		6	5	5				1
Big Rapids		1		14	19	19				2
Cadillac		1	1	22	37	37			1	2
Calumet		1		41	36	36			1	1
Caro		1		8	14	14		1		1
Crystal Falls		1		8	8	8				1
Detroit		1	1	12,707	2,078	1,896	182	2		84
Dowagiac		1		7	27	27				2
Escanaba		1		18	30	30				1
Essexville		1		4	7	7				2
Evart		1		2	9	9				1
Flint		1	1	80	136	110	26	1		15
Flushing		1		9	7	7				1
Ford		1		4	10	10				1
Gaylord		1		4	10		10			1
Gladstone		1		7	19	19				2
Grand Haven		1		12	22	22				3
Grand Rapids		1	1	365	304	304		1		21
Hamtramck		1	1	35	46	46		1		2
Hancock		1		10	28	28				3
Harbor Beach		1		4	11	11		1		2
Harbor Springs		1		7	15	15				1
Harrison		1		4	10	10				1
Highland Park		1		56	103	103				3
Holland		1		13	43	43		1		3
Houghton		1		16	24	24		1		1
Ionia		1		10	26	26				2

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued.

Division, state, and municipality.	Number of systems.			Total number of miles of single wire.	Number of boxes or signaling stations.			Number of transmitters.		Number of receiving registers of all kinds.
	Combined fire alarm and police patrol.	Fire alarm.	Police patrol.		Total.	Signaling.	Telephoning.	Manual.	Automatic.	
MICHIGAN—Continued.										
Iron Mountain	1			29	50	40	10		1	2
Iron River		1		6	16	16		1		4
Ironwood		1		18	44	44				1
Ishpeming		1		23	36	36				1
Jackson		1	1	59	147	147			1	6
Kalamazoo		1	1	53	56	56		1	1	7
Lansing		1	1	100	143	143			1	15
Laurium		1		10	9	9				1
Ludington		1	1	22	21	21				4
Manistee		1		20	50	50			1	1
Marine City		1		10	25	25				1
Marquette		1		16	23	23		1	1	2
Marshall		1		4	9	9				1
Menominee		1		15	74	74				4
Mount Clemens		1		17	39	39			1	1
Mount Pleasant		1		7	13	13			1	1
Munising		1		7	30	30				2
Muskegon		1		38	63	50	13		1	8
Negaunee		1		8	16	16			1	1
Norway		1		7	25	25		1		1
Otsego		1		4	15	15				4
Owosso		1		10	35	35		1		1
Petoskey		1		12	20	20		1		2
Pontiac		1		51	97	97			1	4
Port Huron	1			30	14	14			1	2
Red Jacket		1		10	8	8				1
Reed City		1		5	9	9			1	1
River Rouge		1	1	30	27	27				4
Rochester		1		1	3	3				1
Saginaw		1	1	89	125	125			1	6
St. Clair		1		8	14	14				2
Sault Ste. Marie		1		39	41	41				1
Traverse City		1		18	44	44				5
Wakefield		1		2	5	5				1
Wyandotte		1	1	15	31	31				5
MINNESOTA	1	26	8	2,461	1,889	1,650	239	9	4	100
Anoka		1		12	23	23		1		1
Austin		1		12	21	21				3
Biwabik		1		2	12	12				2
Chisholm		1		14	40	40		1		2
Cloquet		1	1	12	32	23	9			2
Coleraine		1		4	14	14				1
Crookston		1		10	8	5	3			1
Duluth		1	1	166	194	194				2
Ely		1		7	25	25		1		1
Eveleth		1	1	12	35	32	3			2
Hibbing		1		40	63	63				9
Lanesboro		1		2	3	3				1
Mankato		1		12	20	20			1	2
Minneapolis		1	1	884	624	579	45	2		31
Moorehead		1		6	16	16				1
New Ulm		1		15	25	25				1
Owatonna		1		14	16	16				2
Red Wing		1		32	29	29		1		1
Rochester		1		19	19	19			1	1
St. Cloud		1	1	18	23	18	5			2
St. Paul		1	1	1,033	428	272	156	1	1	16
Sauk Center		1		1	1	1				1
South St. Paul	1			19	42	42		1		2
Spring Valley		1		6	10	10				1
Stillwater		1		15	33	33				1
Virginia		1	1	50	62	44	18	1		5
Winona		1	1	44	71	71			1	6
MISSISSIPPI		9		142	240	240		5	2	32
Biloxi		1		12	5	5		1		1
Greenville		1		11	54	54		1		10
Greenwood		1		13	21	21				1
Gulfport		1		8	15	15		1		2
Hattiesburg		1		10	19	19				3
Jackson		1		53	43	43		1		6
Meridian		1		12	32	32			1	1
Vicksburg		1		12	31	31		1		4
Yazoo City		1		11	20	20			1	4

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued.

DIVISION, STATE, AND MUNICIPALITY.	NUMBER OF SYSTEMS.			Total number of miles of single wire.	NUMBER OF BOXES OR SIGNALING STATIONS.			NUMBER OF TRANSMITTERS.		Number of receiving registers of all kinds.
	Combined fire alarm and police patrol.	Fire alarm.	Police patrol.		Total.	Signaling.	Telephoning.	Manual.	Automatic.	
MISSOURI	2	3	2	2,763	2,480	1,883	597	1	3	23
Joplin		1	1	79	72	47	25		1	4
Kansas City			1	225	175	175				6
St. Charles		1		6	16	16				6
St. Joseph	1			107	63	63				2
St. Louis	1			2,316	2,087	1,515	572	1	1	1
Springfield		1		30	67	67			1	4
MONTANA		9	2	173	302	298	4	5	1	21
Anaconda		1		11	41	41				2
Billings		1	1	8	22	18	4			2
Bozeman		1		10	20	20		1		1
Butte		1	1	53	106	106		1	1	4
Great Falls		1		23	21	21				4
Helena		1		28	36	36				3
Lewiston		1		8	10	10		1		1
Miles City		1		11	25	25		1		1
Missoula		1		21	21	21		1		3
NEBRASKA		3	2	1,049	284	192	92	1	2	18
Gothenburg		1		1	2	1	1			1
Lincoln		1	1	105	68	68			1	13
Omaha		1	1	943	214	123	91	1	1	4
NEVADA		3	1	71	100	87	13	1		7
Elko		1		4	10	10		1		1
Goldfield		1		8	27	27				1
Reno		1	1	59	63	50	13			5
NEW HAMPSHIRE		36	5	710	985	936	49	4	8	72
Allenstown		1		4	5	5				1
Alton		1		3	5	5				1
Ashland		1		6	14	14				1
Berlin		1	1	23	48	38	10			4
Bristol		1		8	8	8				1
Claremont		1		25	40	40				2
Concord		1	1	69	89	70	19		1	9
Derry		1		8	17	17				1
Dover		1		25	47	40	7		1	2
Exeter		1		25	24	24				1
Farmington		1		5	11	11				1
Franklin		1		14	23	23				2
Goffstown		1		10	7	7				1
Greenville		1		2	5	5				1
Groveton		1		2	8	8				1
Hanover		1		4	10	10				2
Hillsboro		1		3	10	10			1	1
Keene		1		27	40	40		1	1	3
Laconia		1		38	53	47	6		1	2
Lancaster		1		7	17	17				1
Lebanon		1		9	14	14				1
Littleton		1		4	20	20				2
Manchester		1	1	218	153	153		1	1	6
Milford		1		15	22	22				1
Nashua		1	1	50	87	87			1	5
Newmarket		1		10	13	13		1		1
Newport		1		5	15	15				1
Peterboro		1		14	28	28				1
Plymouth		1		6	14	14				1
Portsmouth		1		25	40	40		1		3
Rochester		1	1	17	27	20	7			5
Somersworth		1		10	25	25			1	3
Sunapee		1		5	8	8				1
Suncook		1		2	5	5				1
Tilton		1		7	18	18				1
Wolfboro		1		5	15	15				1
NEW JERSEY	2	87	37	4,535	5,175	4,772	403	29	34	349
Asbury Park		1	1	44	52	52			2	2
Atlantic City		1	1	219	168	168		1	1	4
Bayonne		1	1	96	118	111	7		1	2
Belleville		1		15	20	20		1		2
Belmar		1		14	13	13			1	1
Belvidere		1		2	9	9			1	3
Bloomfield		1		81	55	55		1	1	1
Boundbrook		1		8	15	15				3
Bradley Beach		1		20	16	16				1
Bridgeton		1	1	28	34	34			1	2

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued.

Division, State, and municipality.	Number of systems.			Total number of miles of single wire.	Number of boxes or signaling stations.			Number of transmitters.		Number of receiving registers of all kinds.
	Combined fire alarm and police patrol.	Fire alarm.	Police patrol.		Total.	Signaling.	Telephoning.	Manual.	Automatic.	
New Jersey—Continued.										
Burlington		1		14	23	23				4
Caldwell		1		3	17	17			1	1
Camden		1	1	250	314	256	58	2	1	14
Cape May		1		16	19	19				2
Collingswood	1			50	28		28			1
Cranford		1	1	12	27	18	9	1	1	2
Dover		1		10	22	22		1		3
East Newark		1		2	4	4				1
East Orange		1	1	84	128	128		1	1	3
East Rutherford		1		7	18	18			1	4
Edgewater		1	1	27	27	27		1		5
Egg Harbor		1		8	6	6				1
Elizabeth		1	1	130	164	164			1	11
Englewood		1	1	45	29	29			1	4
Fair Haven		1		5	5	5				1
Flemington		1		4	21	21				1
Fort Lee			1	18	19		19			1
Garwood		1		2	6	6				1
Glen Ridge		1		5	26	17	9		1	2
Gloucester		1		8	16	16				1
Hackensack		1	1	34	55	49	6		1	9
Haddonfield	1			15	17		17			1
Haledon		1		8	15	15				2
Harrison		1	1	20	51	51		1		5
Hasbrouck Heights		1		5	12	12		1		1
High Bridge		1		4	15	15				1
Highland Park		1		5	13	13				1
Hoboken		1	1	40	96	89	7		1	8
Hopewell		1		2	2	2				1
Irvington		1		30	47	47				3
Jamesburg		1		2	6	6				1
Jersey City		1	1	301	473	473			1	19
Kearny		1	1	56	60	36	24	1	1	7
Lakewood		1		10	21	21		1		2
Linden		1		12	13	13		1		1
Long Branch		1		18	48	48		1		1
Lyndhurst		1	1	53	28	19	9			2
Millburn		1		10	28	28		1		1
Millville		1		8	15	15				1
Montclair		1	1	140	130	114	16	1	1	22
Moorestown		1	1	27	27	19	8			3
Morristown		1	1	26	55	23	32	1		6
Newark		1	1	829	822	822		2		21
New Brunswick		1	1	30	74	60	14		1	12
Newton		1		12	22	22				4
North Plainfield		1		18	18	18				1
Nutley		1		26	32	32		1		3
Ocean City		1	1	27	38	26	12			5
Ocean Grove		1		8	16	16				3
Orange		1		21	41	41				3
Passaic		1	1	119	124	124			2	10
Paterson		1	1	259	278	278			1	10
Perth Amboy		1	1	43	58	58		1		9
Phillipsburg		1		14	26	26				5
Plainfield		1	1	56	77	77			1	6
Pompton Lakes		1		6	13	13				1
Princeton		1		50	21	21		1		1
Rahway		1		10	11	11				1
Raritan		1		3	6	6				2
Red Bank		1		14	22	22		1		5
Ridgefield Park		1		8	20	20				6
Ridgewood		1	1	41	44	33	11			4
Riverside		1		3	7	7				1
Roselle Park		1		8	6	6				1
Rutherford		1	1	34	38	25	13	1	1	6
Somerville		1		8	19	19				4
South Amboy		1		10	11	11			1	1
South Orange		1	1	28	21	5	16			3
South River		1		7	15	15			1	1
Summit		1		20	25	25				4
Trenton		1	1	552	278	278		1	1	12
Ventnor		1	1	32	28	22	6	1	1	2
Vineland		1		23	30	30			1	5
Weehawken		1	1	31	40	21	19			2
Westfield		1	1	14	42	20	22			1
West Hoboken		1	1	17	52	32	20			1
West New York		1	1	32	58	47	11		2	5
West Orange		1		33	41	41		1		2
Wildwood		1	1	25	25	15	10	1		2
Woodbury		1		11	30	30				2

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued.

Division, State, and Municipality.	Number of systems.			Total number of miles of single wire.	Number of boxes or signaling stations.			Number of transmitters.		Number of receiving registers of all kinds.
	Combined fire alarm and police patrol.	Fire alarm.	Police patrol.		Total.	Signaling.	Telephoning.	Manual.	Automatic.	
New Mexico		2		13	65	65				7
Albuquerque		1		11	43	43				6
Deming		1		2	22	22				1
New York	7	121	38	16,134	12,202	10,453	1,749	50	52	533
Albany		1	1	207	330	330		1		4
Amsterdam		1		23	63	63			1	6
Auburn		1	1	82	89	62	27			2
Batavia		1		18	36	36		1		4
Binghamton	1			135	148	148		1	1	10
Blasdell		1		10	14	14				2
Brocton		1		18	9	9				1
Buffalo		1	1	1,530	1,262	1,001	261	1	4	109
Canajoharie		1		9	14	14				1
Canandaigua		1		11	29	29				1
Carthage		1		7	18	18				
Catskill		1		10	28	28				4
Cazenovia		1		3	4	4				1
Cohoes		1	1	38	63	63			1	2
Corning		1		20	35	35			1	1
Courtland		1		17	49	49			1	2
Coxsackie		1		10	11	11			1	1
Croghan		1		1	1	1				1
Depew		1		14	16	16				1
Dobbs Ferry		1	1	28	18	12	6		1	2
Dolgeville		1		11	18	18				2
Dunkirk			1	26	24	24			1	1
Elmira		1	1	104	107	107				10
Endicott		1		11	18	18		1		3
Fonda		1		2	7	7				1
Fort Plain		1		6	13	13			1	1
Frankfort		1		5	14	14				1
Fredonia		1		5	6	6		1		1
Freeport			1	14	20		20			1
Fulton		1	1	41	35	25	10			2
Geneva		1		14	36	36				4
Glens Falls		1		20	45	45			1	3
Gloversville		1		17	51	51			1	4
Goshen		1		5	11	11		1		1
Gouverneur		1		4	15	15				2
Greenport		1		8	15	15				1
Hamburg		1		7	23	23				1
Hancock		1		3	8	8				1
Harrison	1			8	5		5			1
Haverstraw		1		10	12	12			1	1
Hempstead		1		7	16	16				3
Herkimer		1		7	15	15				2
Hicksville		1		1	1	1				1
Hillburn		1		2	7	7				1
Hornell		1		25	30	30		1		1
Hudson		1	1	21	42	42			1	3
Ilion		1		10	31	31				2
Irvington		1		2	14	14			1	1
Ithaca		1	1	24	48	42	6	1		3
Jamestown		1	1	115	127	63	64		1	9
Johnson City		1		11	16	16				1
Johnstown		1		25	35	35				2
Kenmore		1		4	10	10				1
Kingston		1	1	50	90	90			1	7
Lackawanna		1	1	49	50	36	14	1		3
Lancaster		1	1	41	28	15	13	1		2
Larchmont		1	1	26	25	13	12	1		1
Le Roy		1	1	14	16	16				2
Little Falls		1		9	29	29			1	3
Liverpool		1		2	5	5				1
Lockport		1	1	40	89	75	14	1		2
Lynbrook		1		1	1	1				1
Malone		1		16	31	31				1
Mamaroneck		1	1	12	41	13	28			2
Massena		1		6	12	5	7			1
Mechanicville		1		12	21	21			1	2
Medina		1		10	20	20				1
Middletown		1		40	58	58			1	9
Mineola	1			3	6	2	4			1
Mohawk		1		6	9	9				1
Montgomery		1		1	3	3				1
Mount Kisco		1	1	3	24	24				2
Mount Vernon		1	1	122	73	51	22	1	1	9
Newark		1		12	19	19			1	3
Newburgh		1		33	44	44				2

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued.

DIVISION, STATE, AND MUNICIPALITY.	NUMBER OF SYSTEMS.			Total number of miles of single wire.	NUMBER OF BOXES OR SIGNALING STATIONS.			NUMBER OF TRANSMITTERS.		Number of receiving registers of all kinds.
	Combined fire alarm and police patrol.	Fire alarm.	Police patrol.		Total.	Signaling.	Telephoning.	Manual.	Automatic.	
NEW YORK—Continued.										
New Rochelle		1	1	150	105	79	26		1	8
New York		1	1	8,515	5,149	4,181	968	10	1	45
Niagara Falls		1	1	123	142	142		1	1	9
North Pelham			1	9	13	13		1		1
North Tarrytown	1			34	23		23			1
North Tonawanda		1	1	39	50	50		1		3
Norwich		1		10	22	22				2
Nyack		1		7	24	24			1	4
Ogdensburg		1		20	39	39				4
Olean		1	1	40	56	51	5			7
Oneida		1		12	19	19			1	2
Oneonta		1		22	34	34		1		2
Oswego		1		31	53	53			1	1
Patchogue		1		6	11	11				1
Peekskill		1		6	28	28		1		2
Pelham		1		14	14	14			1	2
Pelham Manor	1			17	21		21	1		1
Plattsburg		1		10	18	18				1
Pleasantville		1		6	16	16				1
Port Chester		1	1	27	39	29	10			7
Port Jervis		1		8	13	13		1		1
Potsdam		1		6	13	13				1
Poughkeepsie	1			71	62	62			1	2
Red Hook		1		5	7	7				1
Rensselaer		1		18	19	19			1	1
Rhinebeck		1		8	10	10		1	1	1
Richfield Springs		1		8	13	13				1
Rochester		1	1	869	557	487	70	2	1	5
Rome		1	1	44	72	53	19		1	1
Rye	1			24	18		18			3
St. Johnsville		1		3	13	13			1	1
Salamanca		1		15	23	23			1	1
Saranac Lake		1		9	20	20		1		1
Saratoga Springs		1		27	45	45		1	1	1
Schenectady		1	1	142	159	159		2	1	14
Seneca Falls		1		11	28	20	8		1	2
Sidney		1		3	16	6	10	1		1
Silver Creek		1		1	1	1				1
Solvay		1	1	12	29	29				2
Spring Valley		1		5	18	18				3
Suffern		1		5	12	12				1
Syracuse		1	1	1,767	328	328		1	2	22
Tarrytown		1	1	20	29	25	4	1		7
Tonawanda		1		10	30	30			1	2
Troy		1		110	129	129			2	2
Tuckahoe		1		12	33	13	20	1		1
Utica		1	1	112	209	209			1	17
Walden		1		8	21	21		1		2
Warsaw		1		6	17	17		1		1
Warwick		1		2	17	4	13	1		2
Watertown		1	1	72	125	125		2	1	11
Watervliet		1		10	28	28				1
Waverly		1		6	20	20			1	1
Wellsville		1		10	15	15		1		2
White Plains		1	1	68	72	51	21	1	1	10
Yonkers		1	1	255	299	299		1	1	19
NORTH CAROLINA		22	3	400	715	672	43	9	9	55
Asheville		1		17	55	33	22		1	3
Burlington		1		12	32	32				2
Charlotte		1		60	70	70			1	4
Durham		1	1	28	42	36	6	1		5
Elizabeth City		1		10	14	14				1
Goldsboro		1		6	17	17		1		3
Graham		1		6	16	16				1
Greensboro		1		26	45	35	10	1	1	4
Greensville		1		10	18	18			1	2
Henderson		1		5	19	14	5			1
High Point		1		12	26	26		1		3
Kinston		1		10	21	21			1	2
Lumberton		1		4	16	16				1
Mount Airy		1		5	5	5		1		1
New Bern		1		25	34	34		1	1	1
Raleigh		1	1	40	67	67			1	5
Rocky Mount		1		30	28	28		1		1
Salisbury		1		9	23	23		1		1
Washington		1		6	26	26				5
Wilmington		1	1	39	89	89			1	1
Wilson		1		8	22	22			1	3
Winston-Salem		1		32	30	30		1		5

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued.

DIVISION, STATE, AND MUNICIPALITY.	NUMBER OF SYSTEMS.			Total number of miles of single wire.	NUMBER OF BOXES OR SIGNALING STATIONS.			NUMBER OF TRANSMITTERS.		Number of receiving registers of all kinds.
	Combined fire alarm and police patrol.	Fire alarm.	Police patrol.		Total.	Signaling.	Telephoning.	Manual.	Automatic.	
NORTH DAKOTA		2	1	33	71	62	9			5
Fargo		1	1	22	39	30	9			3
Grand Forks		1		11	32	32				2
OHIO	2	55	30	9,169	6,573	5,586	987	32	13	437
Ada		1		6	15	15			1	1
Akron		1	1	182	268	268				17
Alliance		1	1	100	98	98			1	4
Barberton		1	1	22	61	55	6			5
Bellaire		1		9	25	25		1		4
Bellefontaine		1		8	15	15		1		1
Bratenahl			1	9	18	18				2
Bucyrus		1		12	20	20				1
Canton		1	1	265	154	154		1	1	11
Chillicothe		1	1	25	65	44	21		1	2
Cincinnati		1	1	1,766	1,091	772	319	1		66
Circleville		1	1	9	25	25				1
Cleveland		1	1	3,106	1,203	841	362	1		99
Columbus		1	1	582	402	385	17	1		26
Conneaut		1		12	41	41			1	4
Coshocton		1		12	26	26		1		2
Dayton		1	1	266	351	351		1	1	8
Defiance		1		10	20	20				1
East Cleveland	1			49	30	30				4
East Liverpool		1	1	107	98	98		1		6
East Youngstown		1		5	7	7				1
Elyria			1	6	15	15				1
Findlay		1		28	37	37				2
Galion		1	1	24	39	33	6	1		2
Greenville		1		15	22	22		1		1
Hamilton		1		25	43	43			1	4
Ironton		1		33	48	48				5
Kenton		1		20	23	23		1		1
Lakewood		1		21	63	63			1	1
Lancaster		1	1	32	47	32	15			2
Lima		1		34	56	56			1	5
Lorain			1	18	21	21				1
Mansfield		1	1	80	83	83		1		6
Marietta		1	1	21	39	39				3
Marion		1		40	64	60	4	1		15
Martins Ferry		1		14	31	31				3
Massillon		1	1	40	67	67		2		4
Middletown		1	1	56	64	48	16	1		4
Newark		1	1	72	70	32	38	1	1	5
New Philadelphia		1		18	21	21		1		1
Norwood		1	1	75	62	62				5
Piqua		1		20	46	40	6			2
Portsmouth		1	1	54	107	77	30	1		4
St. Bernard		1	1	28	36	36		1		2
Salem		1		6	2	2		1		1
Sandusky		1		40	52	52			1	6
Sidney		1		21	32	32		1		1
Springfield		1	1	132	197	164	33	1		2
Steubenville		1	1	60	54	54				3
Tiffin	1			40	55	55		1		1
Toledo		1	1	1,162	584	509	75	1		36
Troy		1		10	25	25		1		1
Van Wert		1	1	13	17	17		1		2
Warren		1		20	23	23		1		2
Wellsville		1		13	26	26				3
Wooster		1		8	18	18				1
Wyoming		1		4	20	20				1
Xenia		1		23	26	26		1		2
Youngstown		1	1	166	180	180		1	1	23
Zanesville		1	1	115	125	86	39	1	1	7
OKLAHOMA	1	8	2	255	436	430	6	2	4	18
Anadarko	1			13	14	14				1
Ardmore		1		12	30	30		1	1	1
Bartlesville		1		10	15	15				1
Enid		1		19	22	22		1		1
McAlister		1		8	17	17			1	2
Muskogee		1		19	51	51			1	1
Oklahoma City		1	1	114	163	163			1	1
Sapulpa		1		9	26	26				2
Tulsa		1	1	51	98	92	6			8

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued.

Division, state, and municipality.	Number of systems.			Total number of miles of single wire.	Number of boxes or signaling stations.			Number of transmitters.		Number of receiving registers of all kinds.
	Combined fire alarm and police patrol.	Fire alarm.	Police patrol.		Total.	Signaling.	Telephoning.	Manual.	Automatic.	
OREGON	1	10	1	415	507	488	19	3	2	32
Albany		1		5	12	12				1
Ashland		1		4	7	7				1
Astoria		1		13	25	25		1		5
Hillsboro		1		3	8	8				1
Hood River		1		1	2	2				1
La Grande		1		8	24	24				1
Marshfield			1	6	7	7				1
Oregon City	1			7	10	4	6			1
Pendleton		1		12	22	22				1
Portland		1		349	370	370		1	2	17
St. Helens		1		2	13		13			1
The Dalles		1		5	7	7				1
PENNSYLVANIA	11	128	34	8,408	9,754	9,248	506	39	36	544
Allentown		1	1	215	208	186	22	1		17
Altoona		1	1	148	163	133	30		1	17
Ambridge		1		10	12	12			1	1
Archbald		1		10	15	15		1		1
Aspinwall		1		4	15	11	4		1	1
Bangor		1		5	22	14	8		1	1
Beaver Falls		1	1	29	38	28	10	1	1	7
Berwick		1		6	11	11				1
Bethlehem		1		26	33	33			1	5
Bloomsburg		1		4	14	14				3
Braddock		1	1	33	45	45			1	2
Bradford		1		29	73	73			1	4
Bristol		1	1	23	24	15	9			2
Canonsburg		1		8	24	24				1
Carbondale		1		14	26	26				1
Carlisle		1		12	28	28		1		1
Carnegie			1	15	22		22	1		1
Chambersburg		1		15	27	27				5
Charleroi		1		10	25	25				2
Chester		1	1	211	91	52	39		1	3
Clearfield		1		4	4	4				1
Coatesville		1		10	17	17				3
Connellsville		1		10	29	29				6
Coopersburg		1		2	11	11				2
Corry		1		15	16	16		1		3
Crafton	1			33	26		26			1
Darby			1	5	10		10			1
Dickson City		1	1	16	20	20				4
Dorranceton		1		8	26	26				3
Dunmore		1		20	30	30				2
East Greenville		1		6	7	7				2
Easton		1		28	62	62		1	1	10
East Pittsburgh		1		7	3	3				2
Ebensburg		1		1	1	1				1
Edgewood		1	1	12	29	29				2
Edwardsville		1		6	20	20				1
Emaus		1		2	5	5				1
Ephrata		1		12	19	19				1
Erie		1	1	210	210	210			1	2
Etna		1		12	18	18				2
Ford City	1			19	11	11			1	1
Forty Fort		1		9	21	21				1
Frackville		1		6	12	12				2
Franklin		1	1	11	22	18	4			3
Freeland		1		6	11	11				1
Greensburg		1	1	26	48	48			1	3
Hanover		1		7	23	23		1		2
Harrisburg		1	1	70	131	111	20		1	17
Hazelton		1	1	40	70	50	20			4
Homestead		1		9	25	25				6
Hughestown		1		3	9	9				2
Jeannette		1		15	37	37				2
Johnstown		1	1	102	159	159		1	1	11
Kane		1		8	22	22				2
Kennett Square		1		4	21	21				2
Lancaster		1	1	62	96	96			1	6
Lansford		1		8	19	19				1
Larksville		1		7	24	24				5
Lebanon		1		20	44	44				7
Lititz		1		5	8	8				1
Luzerne		1		7	16	16				4
McDonald		1		5	7	7				2
McKeesport	1			95	151	112	39	1		4
Mahanoy City		1		4	16	16			1	4
Mauch Chunk		1		4	15	15				1

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued.

DIVISION, STATE, AND MUNICIPALITY.	NUMBER OF SYSTEMS.			Total number of miles of single wire.	NUMBER OF BOXES OR SIGNALING STATIONS.			NUMBER OF TRANSMITTERS.		Number of receiving registers of all kinds.
	Combined fire alarm and police patrol.	Fire alarm.	Police patrol.		Total.	Signaling.	Telephoning.	Manual.	Automatic.	
PENNSYLVANIA—Continued.										
Meadville		1		33	68	43	25	1		3
Middletown		1		5	10	10				1
Millvale		1		12	13	13				1
Minersville		1		4	14	14				1
Monongahela		1		6	16	16				1
Munhall	1			23	24		24			1
Nanticoke		1	1	20	40	30	10	1		7
Natrona		1		6	24	24				3
Nazareth		1		12	12	12				1
New Brighton			1	2	6	6		1		1
New Castle		1	1	74	90	74	16	1		7
New Kensington		1		3	14	14				2
Norristown		1		40	32	32			1	7
Northampton		1		11	12	12				1
North Braddock		1	1	20	39	39				2
North East		1		5	23	23				1
Ogontz			1	80	14		14			1
Oil City		1		14	35	35		1		4
Old Forge	1			90	30	22	8			4
Olyphant		1		8	18	18				1
Parnassus		1		3	14	14				1
Parsons		1		5	14	14				2
Peckville		1		8	16	16				3
Pen Argyl		1		5	14	14				2
Philadelphia		1	1	2,500	3,251	3,198	53	1		58
Phoenixville		1		10	25	25		1	1	3
Pine Grove		1		2	12	12				1
Pitcairn		1		5	17	17				1
Pittsburgh		1	1	1,827	1,590	1,590		3	2	53
Pittston		1		10	21	21				3
Plymouth		1	1	14	39	39			1	6
Pottstown		1		26	34	34			1	1
Pottsville		1		38	60	50	10	1	1	17
Quakertown		1		4	20	20				1
Rankin		1	1	16	22	17	5		1	2
Reading		1	1	425	176	176		1	1	17
Rochester		1		1	2	2		1		1
St. Clair		1		12	14	14				1
Scranton	1			560	311	270	41	2	1	6
Sewickly	1			59	26	26				1
Shamokin		1		10	27	27			1	5
Sharon		1		6	8	8				1
Sharpsburg		1	1	14	32	27	5			4
Shenandoah		1		25	35	35		1	1	4
Shickshinny		1		6	7	7				1
Souderton		1		1	3	3				1
South Bethlehem		1	1	16	44	44			1	6
South Brownsville		1		8	15	15				1
South Fork		1		1	2	2				1
Steelton		1		10	22	22				4
Sunbury		1		13	29	29		1		2
Susquehanna		1		7	22	22		1		3
Swissvale	1			19	43	23	20	1		3
Tamaqua		1		2	16	16				2
Tarentum		1		5	25	25				4
Taylor		1		10	9	9				1
Throop		1		7	18	18				3
Titusville		1		11	29	29		1		3
Towanda		1		1	2	2		1		1
Uniontown		1	1	65	50	38	12	1		5
Vandergrift	1			10	13	13				1
Warren		1		16	25	25		1		3
Washington		1		17	62	62		1		1
West Chester		1		12	28	28			1	2
West Homestead		1		5	12	12				1
West Newton		1		4	15	15			1	2
West Pittston		1		5	12	12			1	1
West View		1		26	10	10				1
West Wyoming		1		2	4	4				1
Wilkes-Barre		1	1	124	163	163			1	9
Wilkinsburg		1	1	34	59	59		1		4
Williamsport	1			17	17	17				1
Wilmerding		1	1	13	30	30		1		2
Windber		1		5	14	14		1		2
Woodlawn		1		18	24	24		1		4
Wyoming		1		7	12	12			1	1
Yeadon	1			6	5	5				1
York		1	1	54	102	102		1	1	2

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued.

Division, State, and municipality.	Number of systems.			Total number of miles of single wire.	Number of boxes or signaling stations.			Number of transmitters.		Number of receiving registers of all kinds.
	Combined fire alarm and police patrol.	Fire alarm.	Police patrol.		Total.	Signaling.	Telephoning.	Manual.	Automatic.	
RHODE ISLAND		19	6	1,480	1,637	1,446	191	6	6	55
Anthony		1		7	20	20				1
Arctic		1		25	35	35				1
Burrillville		1		6	9	9				1
Central Falls		1	1	27	56	56				2
Cranston		1		37	51	51		1		1
Cumberland		1		11	13	13				1
East Providence		1	1	55	27	10	17		1	1
Harrisville		1		6	5	5				1
Jamestown		1		10	6	6				1
Narragansett Pier		1		18	8	8		1		1
Newport		1	1	139	93	93			1	7
Pascoag		1		8	9	9				1
Pawtucket		1	1	100	187	187		1	1	7
Phenix		1		12	21	21				1
Providence		1	1	885	870	696	174	1		9
River Point		1		7	17	17				1
Valley Falls		1		12	14	14				1
Westerly		1		8	28	28			1	2
Woonsocket		1	1	107	168	168		2	2	15
SOUTH CAROLINA		14	2	286	482	462	20	5	6	33
Aiken		1		10	11	11			1	1
Camden		1		6	15	15			1	3
Charleston		1	1	119	181	181			1	7
Columbia		1	1	70	69	69			1	8
Darlington		1		5	11	11		1		1
Florence		1		8	21	21				1
Georgetown		1		4	12	12		1		3
Greenwood		1		6	16	16				1
Hartsville		1		4	20	20			1	1
Orangeburg		1		7	38	18	20	1		3
Rock Hill		1		10	25	25				1
Spartanburg		1		12	35	35		1	1	1
Sumpter		1		10	13	13		1		1
Union		1		15	15	15				1
SOUTH DAKOTA		4	2	59	88	88		1		13
Lead		1	1	18	37	37		1		4
Mitchell		1		8	17	17				2
Sioux Falls		1	1	32	31	31				6
Yankton		1		1	3	3				1
TENNESSEE		7	2	513	568	553	15	1	4	23
Chattanooga		1	1	70	115	115		1	1	2
Cleveland		1		16	32	32			1	1
Columbia		1		7	14	14				1
Knoxville		1		25	78	78			1	1
Memphis		1	1	290	143	128	15			2
Nashville		1		95	175	175			1	15
St. Elmo		1		10	11	11				1
TEXAS		16	5	963	1,492	1,360	132	13	3	118
Abilene		1		12	27	6	21			1
Beaumont		1		17	43	43		1		1
Dallas		1	1	243	371	325	46	1		7
El Campo		1		5	6	6				1
El Paso		1		25	75	75		1		6
Fort Worth		1	1	217	180	180		2	1	20
Galveston		1		60	80	80		1	1	11
Houston		1	1	125	248	248		1		13
Lufkin		1		2	3	3				1
Port Arthur		1		12	46	46		1		3
San Antonio		1		60	130	130		1		23
Sherman		1		18	44	44		1		3
Temple		1		20	85	20	65	1	1	9
Texarkana		1	1	30	37	37		1		4
Victoria		1		3	5	5				1
Waco		1	1	114	112	112		1		14
UTAH		3	1	134	186	186		1	1	12
Bingham Canyon		1		4	5	5				1
Ogden		1		18	25	25				3
Salt Lake City		1	1	112	156	156		1	1	8

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued.

Division, State, and Municipality.	Number of systems.			Total number of miles of single wire.	Number of boxes or signaling stations.			Number of transmitters.		Number of receiving registers of all kinds.
	Combined fire alarm and police patrol.	Fire alarm.	Police patrol.		Total.	Signaling.	Telephoning.	Manual.	Automatic.	
VERMONT		23	3	222	453	447	6	3	6	38
Barre		1	1	19	34	28	6			3
Barton		1		1	2	2				1
Bellows Falls		1		12	18	18				1
Bennington		1		12	22	22				4
Brattleboro		1		10	26	26		1		1
Burlington		1	1	43	91	91			1	6
Essex Junction		1		1	1	1			1	1
Fair Haven		1		1	1	1				1
Hardwick		1		5	12	12				1
Hartford		1		5	14	14				1
Ludlow		1		4	9	9				1
Middlebury		1		3	4	4				1
Montpelier		1		16	52	52		1	1	3
Newport		1		5	12	12				1
Poultney		1		1	2	2				1
Proctor		1		8	10	10				1
Rutland		1	1	25	50	50			1	3
St. Albans		1		17	29	29				2
Springfield		1		6	20	20				1
West Derby		1		4	8	8		1		1
White River Junction		1		7	14	14				1
Winooski		1		7	11	11			1	1
Woodstock		1		10	11	11			1	1
VIRGINIA		13	6	1,031	1,230	1,209	21	3	7	53
Danville		1		16	37	37				2
Farmville		1		8	12	12				2
Fredericksburg		1		1	1	1				1
Harrisonburg		1		4	8	8				1
Lynchburg		1	1	73	115	115			1	7
Newport News		1		22	38	38		1		1
Norfolk		1	1	135	228	228			1	15
Petersburg		1	1	53	93	93				3
Portsmouth		1	1	45	62	62			1	6
Richmond		1	1	590	459	459		1	3	3
Roanoke		1	1	66	117	96	21	1	1	9
Staunton		1		7	32	32				1
Suffolk		1		11	28	28				2
WASHINGTON		18	6	1,269	1,538	1,524	14	10	7	95
Aberdeen		1	1	33	52	52			1	3
Arlington		1		1	3	3				1
Bellingham		1		48	50	50				5
Centralia		1		2	3	3		1		1
Ellensburg		1		6	12	12		1	1	1
Everett		1	1	39	65	65		1		3
Hoquiam		1		17	33	33		1		3
North Yakima		1	1	36	60	60		1		4
Olympia		1		9	17	17				2
Oroville		1		1	2	2				1
Port Townsend		1		5	13	13		1		2
Raymond		1		1	4	4		1		1
Roslyn		1		2	15	15				1
Seattle		1	1	457	544	544		1	2	27
Spokane		1	1	315	347	333	14		2	18
Tacoma		1	1	270	242	242		1		18
Walla Walla		1		22	56	56			1	3
Wenatchee		1		5	20	20		1		1
WEST VIRGINIA		11	2	243	368	364	4	2	2	34
Benwood		1		12	18	18				3
Bluefield		1		12	28	24	4		1	2
Charleston		1		16	31	31		1		3
Huntington		1	1	82	92	92		1		7
McMechen		1		3	6	6				1
Moundsville		1		5	10	10				2
Parkersburg		1	1	48	54	54				4
Piedmont		1		1	2	2				1
Richwood		1		2	7	7				1
Rowlesburg		1		3	6	6				1
Wheeling		1		59	114	114			1	9

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, BY GEOGRAPHIC DIVISIONS, STATES, AND MUNICIPALITIES: 1917—Continued.

Table 3—Continued.

DIVISION, STATE, AND MUNICIPALITY.	NUMBER OF SYSTEMS.			Total number of miles of single wire.	NUMBER OF BOXES OR SIGNALING STATIONS.			NUMBER OF TRANSMITTERS.		Number of receiving registers of all kinds.
	Combined fire alarm and police patrol.	Fire alarm.	Police patrol.		Total.	Signaling.	Telephoning.	Manual.	Automatic.	
WISCONSIN	3	35	11	2,952	2,793	2,742	51	8	15	207
Appleton		1		30	73	73			1	2
Ashland	1			22	33	33			1	1
Baraboo		1		3	4	4				1
Beloit		1		24	71	71		1	1	8
Bloomington		1		1	1	1				1
Burlington		1		12	14	14				2
Cassville		1		2	10	10				1
Chippewa Falls		1		11	23	23			1	2
Eau Claire		1	1	42	67	48	19	1	1	4
Edgerton		1		1	2	2				1
Elk Mound		1		2	6	6				1
Ellsworth		1		2	7	7				1
Fond du Lac		1	1	53	53	53			1	4
Fort Atkinson		1		3	12	12				1
Green Bay		1		31	58	58				7
Hudson		1		4	7	7				1
Hurley		1		6	10	10				1
Janesville		1		34	74	74				4
Kenosha		1	1	60	102	102		1	1	7
La Crosse		1	1	75	63	50	13		1	9
Lake Geneva		1		7	14	14				1
Madison	1			41	102	102		1		7
Manitowoc		1	1	41	106	106			1	3
Marinette		1		21	68	68		1		1
Milwaukee		1	1	1,997	1,191	1,191		1	1	95
Monroe		1		6	7	7				2
Oconto		1		9	30	30				1
Oshkosh		1	1	78	139	139			1	7
Prescott		1		1	2	2				1
Racine		1	1	76	79	79			1	7
Rhinelander		1		7	17	17				5
Sheboygan		1	1	64	81	81			1	3
Stevens Point	1			16	25	25				1
Superior		1	1	83	98	90	8	1	1	2
Tomahawk		1		1	4	4				1
Watertown		1		15	34	34				1
Wausau		1		43	61	61			1	6
West Allis		1	1	28	45	34	11	1		4
WYOMING		6		77	131	110	21		1	12
Casper		1		14	34	34				1
Cheyenne		1		39	37	37			1	4
Evanston		1		8	21		21			1
Laramie		1		5	16	16				3
Rock Springs		1		10	19	19				2
South Superior		1		1	4	4				1

This table shows in detail the combined statistics for all municipal electric fire-alarm and police-patrol signaling systems in the United States. As the two systems are so closely allied, it was deemed advisable to combine them in the table. Although there were 1,713 systems reported, they represent only 1,349 cities and towns. Of this number, 921 reported only fire-alarm systems and 19 reported only police-patrol systems; 364 reported as having both fire and police systems; and 45 as having combined and interchangeable systems.

Underground wires.—Table 4 shows for 1917, 1912, and 1907 the number of miles of single wire in subways and conduits in cities having a population of 30,000 or more.

ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS—MILES OF SINGLE WIRE IN SUBWAYS OR CONDUITS IN CITIES OF 30,000 INHABITANTS OR MORE.

Table 4

STATE AND CITY.	1917	1912	1907
ALABAMA:			
Birmingham	3	4	
ARKANSAS:			
Little Rock	16	13	12
CALIFORNIA:			
Berkeley	2		
Los Angeles	481	423	41
Oakland	832	825	153
Pasadena	12	5	3
Sacramento	35	8	
San Diego	10	3	5
San Francisco	188	101	275
San Jose	9		
COLORADO:			
Colorado Springs	44		
Denver	62	58	36
Pueblo	71	71	41
CONNECTICUT:			
Bridgeport	17	11	
Hartford	160	151	102
Meriden	19	1	2
New Britain	12	2	8
New Haven	242	276	156
Stamford	19		
Waterbury	12		
DELAWARE:			
Wilmington	50	50	4
DISTRICT OF COLUMBIA:			
Washington	1,033	[1] 4,888	[1] 3,091
FLORIDA:			
Jacksonville	55		
Tampa	19		
GEORGIA:			
Atlanta	150	88	72
Augusta	20	12	
Macon	54	7	
Savannah	63	52	56
IDAHO:			
Boise	41		
ILLINOIS:			
Aurora	50		
Chicago	5,192	2,864	1,904
Decatur	45		
Joliet	14	16	17
Peoria	144	145	130
Rockford	6	2	
Springfield	18	2	18
INDIANA:			
Evansville	13		
Fort Wayne	42	42	13
Indianapolis	214	200	50
South Bend	43	35	10
IOWA:			
Cedar Rapids	15		
Council Bluffs	5		
Davenport	10	10	10
Des Moines	47	47	20
Waterloo	71		
KENTUCKY:			
Covington	28		
Lexington	70	7	
Louisville	193	169	
Newport	66	12	
LOUISIANA:			
New Orleans	30	30	
Shreveport	9		
MAINE:			
Portland	178	165	133
MARYLAND:			
Baltimore	906	725	280
MASSACHUSETTS:			
Boston	2,132	1,754	1,844
Brockton	75	66	
Brookline	62		
Cambridge	45	1	3
Chelsea	15	15	11
Everett	19		
Fall River	146	126	107
Fitchburg	17	11	1
Haverhill	46	46	38
Holyoke	19	8	
Lawrence	38	38	
Lowell	136	102	100
Lynn	118	86	69
Malden	24	21	22
New Bedford	136	66	49
Newton	123	75	95
Pittsfield	30	15	10
Quincy	29	19	19
Salem	111	1	
Somerville	91	31	
Springfield	319	268	250
Waltham [2]	20	19	25
Worcester	348	334	285
MICHIGAN:			
Bay City	12	12	7
Detroit	9,752	8,710	1,105
Grand Rapids	120	116	87
Jackson	15	10	
Kalamazoo	17	15	1
Lansing	52	5	3
Saginaw	21	10	1
MINNESOTA:			
Duluth	60	55	37
Minneapolis	522	400	330
St. Paul	649	636	378
MISSOURI:			
Joplin	37	6	
MISSOURI—Continued.			
Kansas City	75		
St. Joseph	54	52	51
St. Louis	481	481	455
MONTANA:			
Butte	9		
NEBRASKA:			
Omaha	711	298	64
NEW HAMPSHIRE:			
Manchester	108		
NEW JERSEY:			
Atlantic City	219	158	146
Camden	200	200	3
East Orange	37	4	19
Elizabeth	16		13
Hoboken	8		
Newark	436	423	294
Passaic	97	97	
Paterson	64	6	11
Trenton	400	269	264
NEW YORK:			
Albany	25	10	25
Auburn	44	5	2
Binghamton	85	9	
Buffalo	1,065	443	253
Elmira	55	26	12
Jamestown	45	1	
Mount Vernon	73	46	46
New Rochelle	113		
New York City	4,976	2,775	2,830
Niagara Falls	62	5	
Poughkeepsie	3		
Rochester	784	781	703
Schenectady	65	2	
Syracuse	1,476	22	32
Utica	20	4	
Yonkers	70		4
NORTH CAROLINA:			
Wilmington	3		
Winston-Salem	12		
OHIO:			
Akron	32	32	66
Canton	85	76	76
Cincinnati	910	640	470
Cleveland	2,420	2,042	1,250
Columbus	283	262	269
Dayton	100	100	89
Springfield	26	13	
Toledo	736	731	750
Youngstown	68	51	
Zanesville	56		
OKLAHOMA:			
Oklahoma City	1		
OREGON:			
Portland	151	231	78
PENNSYLVANIA:			
Allentown	50	50	
Altoona	90	73	50
Chester	41		
Erie	27	6	9
Harrisburg	21		
Johnstown	13		
McKeesport	50	49	60
New Castle	27	21	22
Philadelphia	1,299	[3] 5,899	[3] 4,281
Pittsburgh	1,260	1,260	957
Reading	50		
Scranton	250	55	52
Wilkes-Barre	66		
York	7		
RHODE ISLAND:			
Newport	68		
Providence	560	560	547
Woonsocket	28	18	12
SOUTH CAROLINA:			
Charleston	32	9	12
TENNESSEE:			
Memphis	130	85	75
Nashville	22	4	
TEXAS:			
Dallas	16	4	
El Paso	5	2	3
Fort Worth	128	80	
Galveston	16	15	5
Houston	19	4	
San Antonio	30	25	6
Waco	15		
UTAH:			
Salt Lake City	41	32	20
VIRGINIA:			
Lynchburg	18	3	12
Norfolk	42	40	36
Portsmouth	2		
Richmond	378	352	198
Roanoke	18	18	34
WASHINGTON:			
Seattle	171	100	
Spokane	95	80	
Tacoma	50		
WEST VIRGINIA:			
Wheeling	6		
WISCONSIN:			
Kenosha	10		
La Crosse	37	4	10
Madison	13		
Milwaukee	1,710	1,844	1,097
Oshkosh	20	18	
Racine	20	10	18
Superior	48	2	

[1] Includes wire not in use.
[2] Population less than 30,000 in 1912.
[3] Only a portion of the wire is devoted to fire-alarm and police-patrol purposes; the remainder is used for municipal telephone circuits and is not included in the United States totals for 1912.

One of the improvements that has characterized the installation of signaling systems during recent years has been the placing of the wire in subways or conduits. In common with electric lighting, telephone, and telegraph wires, the tendency to place the wires for fire-alarm and police-patrol systems underground is growing rapidly. There is great advantage to be obtained from this practice, as storms and climatic conditions work havoc with exposed wires, and when these are protected there is less danger of injury to the delicate mechanism used for receiving and sending alarms.

There were 176 cities in 1917, compared with 132 in 1912, having a population of 30,000 or more, that reported fire-alarm and police-patrol systems, with a total of 50,254 miles of wire underground, an increase of 4,659 miles, or 10.2 per cent, since the census of 1912. The total underground mileage of the United States in 1917 was 51,721, and as 50,254 miles, or 97.2 per cent, of this was reported by the cities of 30,000 inhabitants or more, the fact that cities are generally placing their wires underground is well emphasized.

Chicago shows the largest increase in underground wire mileage, 2,328 miles during the period from 1912 to 1917; New York City follows closely with an increase of 2,201 miles, and Syracuse, N.Y., and Detroit, Mich., also show remarkable increases, 1,454 and 1,042 miles, respectively. The decreases in underground wire shown for certain cities are due, as a rule, to the fact that the individual circuits have been enlarged and the total number of circuits reduced, resulting in a reduction of wire mileage without any diminution of the service supplied by underground construction.

Table 5 shows, by states, for 1917, 1912, and 1907, the total mileage of single wire, the mileage in subways or conduits, and the percentage which the latter figure forms of the former.

Fire alarms, fire loss, assessed valuation, and insurance.—Table 6, on page 54, presents the number of fire alarms, assessed valuation of property, property loss by fires, and insurance paid, for municipalities having a population of 30,000 or more, for 1917, 1912, and 1907.

ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, MILES OF SINGLE WIRE IN SUBWAYS OR CONDUITS, BY STATES.

Table 5

STATE.	TOTAL NUMBER OF MILES OF SINGLE WIRE.			MILES OF SINGLE WIRE IN SUBWAYS OR CONDUITS.			PERCENTAGE WHICH MILEAGE IN SUBWAYS OR CONDUITS FORMS OF TOTAL MILEAGE.		
	1917	1912	1907	1917	1912	1907	1917	1912	1907
United States	107,658	90,284	70,812	51,721	41,994	28,016	48.0	46.5	39.6
Alabama	235	211	241	3	4	.....	1.3	1.9	.....
Arizona	99	38	8	9	.....	.....	9.1	.....	.....
Arkansas	66	61	42	16	37	12	24.2	60.7	28.6
California	5,183	4,994	2,232	1,584	1,385	479	30.6	27.7	21.5
Colorado	713	660	432	188	159	77	26.4	24.1	17.8
Connecticut	1,838	1,575	1,193	496	444	276	27.0	28.2	23.1
Delaware	225	225	90	50	50	4	22.2	22.2	4.4
District of Columbia	1,158	[1] 4,888	[1] 3,091	1,033	4,888	3,091	89.2	100.0	100.0
Florida	410	279	215	81	.....	.....	19.8	.....	.....
Georgia	878	572	529	290	163	128	33.0	28.5	24.2
Idaho	148	137	39	42	7	.....	28.4	5.1	.....
Illinois	9,415	6,397	6,692	5,599	3,088	2,124	59.5	48.3	31.7
Indiana	2,147	1,823	1,423	329	290	81	15.3	15.9	5.7
Iowa	646	521	430	166	75	31	25.7	14.4	7.2
Kansas	122	113	144	15	25	.....	12.3	22.1	.....
Kentucky	921	667	401	358	188	.....	38.9	28.2	.....
Louisiana	473	1,010	496	39	32	.....	8.2	3.2	.....
Maine	870	739	597	218	185	152	25.1	25.0	25.5
Maryland	1,330	1,298	1,055	906	725	280	68.1	55.9	26.5
Massachusetts	10,363	8,915	8,320	4,377	3,384	3,068	42.2	38.0	36.9
Michigan	14,458	10,904	2,886	10,055	8,984	1,272	69.5	82.4	44.1
Minnesota	2,461	2,278	1,965	1,309	1,097	747	53.2	48.2	38.0
Missouri	2,763	2,462	2,977	647	539	506	23.4	21.9	17.0
Montana	173	161	107	19	1	.....	11.0	0.6	.....
Nebraska	1,049	661	242	726	300	76	69.2	45.4	31.4
Nevada	71	55	36	.....	19	2	.....	34.5	5.6
New Hampshire	710	484	476	121	7	19	17.0	1.4	4.0
New Jersey	4,535	3,655	2,549	1,765	1,396	799	38.9	38.2	31.3
New York	16,134	11,169	10,133	9,153	4,437	4,058	56.7	39.7	40.0
North Carolina	400	242	155	15	3	.....	3.8	1.2	.....
North Dakota	33	31	27	6	6	2	18.2	19.4	7.4
Ohio	9,169	7,979	6,572	4,768	3,977	2,992	52.0	49.8	45.5
Oregon	415	572	199	153	231	78	36.9	40.4	39.2
Pennsylvania	8,408	[2] 11,999	[2] 9,084	3,292	7,459	5,435	39.2	62.2	59.8
Rhode Island	1,480	1,287	1,167	697	691	656	47.1	53.7	56.2
South Carolina	286	235	235	34	18	27	11.9	7.7	11.5
South Dakota	59	24	15	9	4	.....	15.3	16.7	.....
Tennessee	513	341	296	152	89	75	29.6	26.1	25.3
Texas	963	782	389	234	147	15	24.3	18.8	3.9
Utah	134	105	51	41	32	20	30.6	30.5	39.2
Vermont	222	207	179	8	5	1	3.6	2.4	0.6
Virginia	1,031	947	621	458	419	280	44.4	44.2	45.1
Washington	1,269	868	309	320	182	2	25.2	21.0	0.6
West Virginia	243	221	157	6	.....	2	2.5	.....	1.3
Wisconsin	2,952	2,829	2,177	1,914	1,899	1,149	64.8	67.1	52.8
Wyoming	77	72	26	20	20	.....	26.0	27.8	.....
All other states	410	325	112	.....	.....	.....	.....	.....	.....

[1] Includes wire not in use.

[2] In Philadelphia, Pa., only a portion of the mileage of wire shown is devoted to fire-alarm and police-patrol purposes, the remainder being used for municipal telephone circuits. This telephone wire is not included in the United States totals for 1912 (5,734 miles of single wire, 5,097 miles in subways or conduits) but is included for 1907, the figures for amounts included not being available.

NUMBER OF FIRE ALARMS, ASSESSED VALUATION OF PROPERTY, PROPERTY LOSS BY FIRES, AND INSURANCE PAID, IN MUNICIPALITIES HAVING A POPULATION OF 30,000 INHABITANTS OR MORE: 1917, 1912, AND 1907.

Table 6

STATE AND MUNICIPALITY.	TOTAL NUMBER OF ALARMS.			ASSESSED VALUATION OF PROPERTY.			PROPERTY LOSS BY FIRES. Amount.[1]			PROPERTY LOSS BY FIRES. Per capita.			TOTAL INSURANCE PAID.[1]		
	1917	1912	1907	1917	1912	1907	1917	1912	1907	1917	1912	1907	1917	1912	1907
ALABAMA:															
Birmingham	1,800	1,485	575	$103,771,928	$85,119,638	$28,710,054	$568,017	$813,109	$335,281	$2.99	$5.57	$7.12	$471,832	$733,159	$293,899
Mobile	131	277	229	33,407,969	32,216,959	26,359,040	323,044	49,290	(2)	5.13	.90	.....	286,225	36,524	389,400
Montgomery	594	436	293	24,468,403	23,363,804	21,143,221	78,519	134,309	123,089	1.64	3.20	3.00	75,341	132,341	108,467
ARKANSAS:															
Little Rock	621	337	212	34,679,742	31,373,900	19,070,688	130,580	225,493	106,257	1.88	4.51	2.57	101,678	208,023	76,525
CALIFORNIA:															
Berkeley	477	290	114	45,856,804	38,812,245	(2)	19,532	55,220	15,000	.31	1.20	.37	15,297	(2)	(2)
Fresno	30	(2)	(2)	22,540,100	(2)	(2)	253,989	(2)	(2)	6.09	.....	.....	221,987	(2)	(2)
Los Angeles	1,681	1,833	1,074	480,745,280	330,934,480	267,126,304	714,714	850,635	631,942	1.30	2.43	6.17	(2)	(2)	(2)
Oakland	1,408	614	(2)	144,839,340	116,881,725	103,653,400	219,877	136,259	(2)	1.00	.78	.....	142,143	118,696	(2)
Pasadena	109	127	(2)	57,649,740	47,138,470	(2)	10,995	73,200	(2)	.23	2.15	.....	9,070	69,700	(2)
Sacramento	147	217	180	69,145,293	63,176,320	27,253,150	122,066	88,737	51,465	1.61	1.22	1.64	88,126	49,462	38,844
San Diego	339	367	104	83,005,910	49,068,148	(2)	45,958	52,251	13,445	.51	1.16	.76	34,507	38,075	4,135
San Francisco	3,151	1,873	966	542,563,056	510,429,316	454,708,331	(2)	1,035,233	1,271,488	.....	2.38	3.71	(2)	773,749	867,760
San Jose	51	(2)	(2)	25,801,215	(2)	(2)	44,193	(2)	(2)	.98	.....	.....	34,388	(2)	(2)
Stockton	269	(2)	(2)	27,142,763	(2)	(2)	116,624	(2)	(2)	2.74	.....	.....	107,962	(2)	(2)
COLORADO:															
Colorado Springs	213	(2)	(2)	36,120,650	(2)	(2)	30,344	(2)	(2)	.87	.....	.....	28,886	(2)	(2)
Denver	1,391	1,028	1,026	306,660,785	133,987,715	118,921,855	288,975	389,221	290,577	1.14	1.69	1.89	270,313	344,936	272,500
Pueblo	320	299	246	30,824,932	16,768,073	16,261,148	200,000	15,000	32,849	3.51	.32	1.05	189,937	12,996	26,081
CONNECTICUT:															
Bridgeport	702	439	311	169,667,403	97,683,477	74,508,171	137,035	68,843	96,588	.69	.65	1.12	121,155	67,685	92,776
Hartford	741	174	(2)	193,527,847	138,060,842	72,535,383	900,273	[3] 206,315	(2)	7.50	[3] 2.02	.....	727,454	[3] 171,559	(2)
Meriden	157	92	67	(2)	(2)	(2)	31,640	39,035	17,807	.90	1.30	.69	30,807	36,035	(2)
New Britain	244	162	116	46,926,717	40,592,672	(2)	210,994	50,477	21,225	3.52	1.01	.63	209,794	(2)	(2)
New Haven	733	843	608	173,006,885	139,779,146	116,312,984	271,876	279,034	168,086	1.70	1.99	1.36	264,509	252,325	155,633
Stamford	192	(2)	(2)	36,480,928	(2)	(2)	302,017	(2)	(2)	7.95	.....	.....	273,386	(2)	(2)
Waterbury	583	395	193	91,591,184	69,204,926	55,963,821	219,723	186,769	92,226	2.20	2.43	1.45	178,589	172,342	89,879
DELAWARE:															
Wilmington	253	213	(2)	85,648,545	57,390,838	49,238,867	(2)	180,540	(2)	.....	1.96	.....	(2)	(2)	(2)
DISTRICT OF COLUMBIA:															
Washington	1,544	1,165	897	440,415,899	359,932,253	277,727,824	207,476	626,260	434,272	.56	1.78	1.39	(2)	(2)	(2)
FLORIDA:															
Jacksonville	630	371	284	59,560,440	55,834,360	22,203,230	241,373	113,726	83,977	3.02	1.75	2.21	223,731	107,115	70,933
Tampa	479	287	(2)	31,006,590	25,643,737	(2)	158,409	115,266	(2)	2.64	2.45	.....	132,337	106,470	(2)
GEORGIA:															
Atlanta	1,419	914	593	183,259,785	154,827,487	91,840,350	378,312	347,633	222,843	1.85	2.11	2.10	324,721	331,507	(2)
Augusta	356	493	274	36,779,114	32,360,077	22,800,438	337,584	112,646	54,949	5.92	2.25	1.26	335,589	102,548	54,949
Macon	548	318	234	32,286,730	25,358,761	19,735,901	61,611	84,844	31,394	1.28	1.97	.96	58,891	70,998	27,078
Savannah	478	362	278	60,226,252	51,488,818	47,392,051	147,636	12,289	191,107	1.92	.18	2.89	143,404	(2)	(2)
IDAHO:															
Boise	128	(2)	(2)	19,282,113	(2)	(2)	76,173	(2)	(2)	3.05	.....	.....	74,623	(2)	(2)
ILLINOIS:															
Aurora	48	(2)	(2)	9,590,591	(2)	(2)	45,552	(2)	(2)	1.30	.....	.....	43,032	(2)	(2)
Chicago	17,400	13,910	9,162	1,032,876,669	940,450,171	477,921,976	5,328,610	6,162,561	(2)	2.13	2.59	.....	5,328,610	6,162,561	5,170,033
Danville	420	(2)	(2)	9,157,867	(2)	(2)	46,867	(2)	(2)	1.34	.....	.....	39,392	(2)	(2)
Decatur	295	250	155	9,331,944	7,234,964	(2)	150,361	31,272	41,588	3.65	.95	2.00	126,243	28,755	33,041
East St. Louis	947	470	257	12,577,913	13,311,411	6,357,939	633,119	109,334	59,315	7.91	1.82	1.39	206,391	96,879	55,100
Joliet	293	183	161	7,899,342	7,519,794	3,990,637	48,771	40,291	(2)	1.22	1.06	.....	25,493	40,291	20,338
Peoria	551	537	374	24,242,311	22,084,481	11,375,291	219,604	110,947	(2)	2.93	1.63	.....	219,604	110,947	132,545
Quincy	275	244	130	10,976,082	10,537,403	5,920,267	53,272	30,271	34,210	1.33	.82	.87	(2)	30,271	(2)
Rockford	474	237	148	22,361,767	19,701,707	7,645,167	90,933	259,938	27,721	1.60	5.20	.76	85,041	244,288	27,276
Springfield	647	429	272	15,629,298	17,382,465	8,652,875	149,471	166,801	199,178	2.37	3.03	5.03	145,027	165,097	198,383
INDIANA:															
Evansville	538	443	226	44,856,040	38,510,400	32,637,960	139,164	93,503	(2)	1.55	1.28	.....	139,164	(2)	196,702
Fort Wayne	582	336	277	41,115,040	35,220,470	30,581,530	67,081	47,926	60,221	.82	.74	1.15	64,280	45,661	58,939
Indianapolis	2,775	1,777	1,171	249,278,340	218,048,140	174,244,325	769,901	633,370	(2)	2.75	2.53	.....	654,563	(2)	131,756
South Bend	692	377	252	34,024,830	28,290,570	21,897,950	163,139	74,053	26,567	2.33	1.30	.60	101,571	60,782	(2)
Terre Haute	565	405	271	37,677,970	33,763,845	28,656,920	69,821	81,145	95,634	1.00	1.25	1.81	69,821	79,226	(2)
IOWA:															
Cedar Rapids	358	223	217	12,961,860	28,310,167	(2)	38,363	23,905	28,278	.91	.71	1.10	36,495	21,885	26,923
Council Bluffs	262	(2)	(2)	7,082,758	(2)	(2)	187,341	(2)	(2)	5.85	.....	.....	161,246	(2)	(2)
Davenport	460	333	(2)	33,928,221	24,283,260	21,753,635	107,670	30,324	(2)	1.96	.68	.....	104,893	28,634	(2)
Des Moines	1,541	891	546	37,689,691	22,684,473	18,510,340	1,010,009	356,367	153,377	9.57	3.97	1.89	869,957	348,389	142,200
Dubuque	230	190	216	33,649,205	25,912,190	24,376,450	277,826	80,000	(2)	6.31	2.00	.....	277,132	77,031	30,000
Sioux City	565	353	203	17,119,349	9,590,098	8,127,937	120,505	647,219	64,324	1.85	12.69	1.46	112,724	606,529	62,509
Waterloo	368	(2)	(2)	9,879,961	(2)	(2)	64,199	(2)	(2)	1.83	.....	.....	53,669	(2)	(2)
KANSAS:															
Kansas City	(2)	(2)	438	93,607,916	90,367,010	13,888,502	1,113,157	372,753	106,713	11.13	4.01	1.33	1,081,529	349,085	87,415
Topeka	505	260	213	57,412,715	52,160,655	12,460,855	92,793	66,986	40,948	1.75	1.40	.96	82,184	55,760	20,939
Wichita	(2)	(2)	169	65,807,214	63,880,157	7,690,657	217,026	53,911	23,979	2.97	.90	.65	(2)	53,911	22,079
KENTUCKY:															
Covington	345	319	169	32,427,432	27,850,276	25,319,119	40,711	200,411	17,198	.68	3.64	.34	27,887	150,867	16,698
Lexington	301	290	277	30,584,485	23,901,824	(2)	463,803	78,112	90,122	11.04	2.11	3.42	311,205	65,332	76,272
Louisville	1,063	1,177	900	214,493,882	192,414,861	166,302,330	975,001	819,332	722,445	3.87	3.41	3.15	975,001	819,332	(2)
Newport	152	127	161	16,667,065	15,921,886	13,288,890	21,438	12,418	67,405	.66	.40	2.20	9,293	11,962	64,495
LOUISIANA:															
New Orleans	1,061	624	610	244,078,013	235,564,586	217,366,255	544,548	453,085	593,353	1.47	1.29	1.89	(2)	(2)	(2)
Shreveport	315	(2)	(2)	22,452,500	(2)	(2)	151,876	(2)	(2)	3.80	.....	.....	132,281	(2)	(2)
MAINE:															
Portland	576	516	411	73,864,863	67,093,268	54,198,386	260,137	251,039	188,071	4.00	4.05	3.36	239,399	225,350	184,054
MARYLAND:															
Baltimore	2,156	1,947	1,626	868,426,115	723,800,340	626,756,439	(2)	996,650	916,603	.....	1.59	1.63	(2)	883,097	905,523
MASSACHUSETTS:															
Boston	4,795	5,420	4,414	1,609,321,540	1,489,608,820	1,315,709,757	4,056,887	2,530,475	2,314,517	5.27	3.61	3.80	3,733,440	2,397,388	2,160,682
Brockton	165	661	466	55,816,791	49,981,748	37,408,333	141,697	104,540	87,644	2.18	1.67	1.72	129,854	90,011	78,048
Brookline	92	(2)	(2)	128,418,800	(2)	(2)	20,867	(2)	(2)	.60	.....	.....	20,062	(2)	(2)
Cambridge	790	719	498	132,192,170	111,581,235	107,009,290	296,759	328,488	166,233	2.70	3.10	1.67	260,342	304,446	153,626
Chelsea	175	380	279	31,233,160	28,147,960	26,414,750	94,185	119,760	126,098	2.18	3.42	3 27	90,237	112,157	107,704
Everett	294	261	171	33,683,350	29,742,700	24,050,350	71,622	53,214	25,482	1.81	1.48	.82	71,896	52,060	18,996
Fall River	416	519	333	113,516,937	97,935,957	84,730,844	136,780	147,842	275,013	1.05	1.21	2.59	120,261	133,939	246,526
Fitchburg	225	193	174	42,101,258	33,150,934	26,474,438	41,148	25,637	12,985	.98	.67	.39	39,805	25,111	12,261
Haverhill	393	357	206	47,219,338	37,051,095	28,609,398	111,242	227,845	73,158	2.25	5.01	1.92	104,895	218,809	64,398
Holyoke	352	459	244	66,459,408	57,526,680	44,753,780	63,286	125,720	145,673	.99	2.09	2.82	55,524	123,856	128,903
Lawrence	465	398	307	83,087,870	75,493,314	54,246,294	139,099	63,466	168,118	1.38	.70	2.30	132,299	38,485	164,887
Lowell	851	839	706	94,503,423	84,792,243	75,454,738	144,202	264,528	247,591	1.26	2.45	2.60	129,207	254,952	207,967
Lynn	1,079	1,000	788	95,087,511	81,529,354	65,912,157	171,818	125,982	120,180	1.68	1.37	1.49	170,544	123,129	106,753
Malden	214	301	214	43,846,591	40,617,596	32,759,650	62,946	63,313	(2)	1.18	1.40	.....	62,946	62,997	48,912
New Bedford	573	487	141	113,123,156	101,744,559	71,279,611	193,385	143,359	15,008	1.61	1.37	.19	(2)	(2)	12,921

[1] Statistics for insurance paid, and property loss taken from the Insurance Yearbook, 1918, 1913, and 1908. [2] Figures not available. [3] Report for 8 months.

NUMBER OF FIRE ALARMS, ASSESSED VALUATION OF PROPERTY, PROPERTY LOSS BY FIRES, AND INSURANCE PAID, IN MUNICIPALITIES HAVING A POPULATION OF 30,000 INHABITANTS OR MORE: 1917, 1912, AND 1907—Continued.

Table 6—Continued. STATE AND MUNICIPALITY.	TOTAL NUMBER OF ALARMS.			ASSESSED VALUATION OF PROPERTY.			PROPERTY LOSS BY FIRES. Amount.[1]			PROPERTY LOSS BY FIRES. Per capita.			TOTAL INSURANCE PAID.		
	1917	1912	1907	1917	1912	1907	1917	1912	1907	1917	1912	1907	1917	1912	1907
MASSACHUSETTS—Contd.															
Newton	618	452	382	$89,620,520	$80,132,445	$67,523,685	$57,950	$100,688	$60,062	$1.31	$2.70	$1.58	$57,815	$99,273	$50,121
Pittsfield	76	163	96	41,134,766	34,014,985	(2)	146,094	328,576	53,520	3.65	9.13	2.46	144,594	327,051	50,356
Quincy	382	378	291	62,608,230	35,375,898	(2)	86,260	66,859	32,122	2.05	1.91	1.34	79,549	64,359	29,986
Salem	405	274	180	43,693,310	37,293,231	31,451,589	58,997	140,689	(2)	1.35	3.06	.....	(2)	129,261	18,286
Somerville	708	697	411	79,445,729	69,632,540	61,527,750	113,074	68,784	79,201	1.26	.86	1.10	111,139	67,754	75,846
Springfield	887	880	491	201,923,179	151,960,100	92,378,624	196,212	215,535	505,715	1.78	2.25	6.47	179,517	184,375	480,121
Taunton	376	342	251	27,611,852	24,023,517	21,907,906	103,504	177,058	85,304	2.86	5.06	2.76	93,442	132,922	63,421
Waltham	346	(2)	(2)	32,335,650	(2)	(2)	33,264	(2)	(2)	1.01	.....	.....	31,449	(2)	(2)
Worcester	1,448	1,333	1,156	189,271,723	153,883,558	124,841,138	210,293	149,513	145,479	1.24	.96	1.10	192,599	132,302	119,374
MICHIGAN:															
Bay City	395	385	(2)	26,835,240	18,119,690	15,133,967	83,036	66,503	(2)	1.66	1.33	.....	70,776	(2)	(2)
Detroit	5,532	2,981	1,677	1,176,517,900	452,255,100	339,217,590	3,773,559	1,347,622	1,617,990	4.72	2.69	4.40	(2)	(2)	(2)
Flint	401	213	(2)	47,594,444	23,555,106	(2)	166,126	415,225	(2)	2.86	10.38	.....	159,303	94,420	(2)
Grand Rapids	862	500	440	163,726,341	89,197,915	78,834,500	274,438	156,323	160,490	2.03	1.30	1.58	241,325	145,103	141,595
Jackson	533	247	147	37,355,825	20,046,001	(2)	46,069	20,869	29,678	1.12	.61	1.18	34,842	19,319	29,468
Kalamazoo	314	260	155	47,666,700	22,436,570	19,034,110	40,556	54,312	63,706	.81	1.29	1.88	40,556	54,312	63,569
Lansing	382	241	84	41,362,175	16,475,695	(2)	55,398	151,110	79,790	.92	4.08	4.84	41,569	133,136	77,423
Saginaw	453	386	385	47,325,205	27,245,669	25,032,733	558,985	60,734	102,599	9.02	1.10	2.06	523,635	52,000	92,000
MINNESOTA:															
Duluth	592	442	336	80,546,051	47,507,603	35,153,158	336,041	213,803	258,157	3.65	2.58	3.70	321,081	194,053	234,227
Minneapolis	3,045	2,360	1,472	265,152,603	252,089,279	177,499,018	1,767,042	1,155,203	1,048,838	4.71	3.57	3.67	1,674,696	1,058,099	971,380
St. Paul	1,865	1,515	1,076	171,870,306	167,423,292	108,549,241	865,121	751,746	(2)	3.26	.37	.....	865,121	751,746	528,448
MISSOURI:															
Joplin	522	347	235	11,092,317	10,042,877	7,389,833	41,870	72,617	26,770	1.14	2.20	.72	(2)	67,290	28,611
Kansas City	3,875	3,169	1,701	210,020,632	178,820,427	144,548,041	1,316,125	1,263,466	541,886	4.57	4.77	2.92	1,224,347	1,114,040	482,361
St. Joseph	634	617	389	43,446,510	39,215,020	34,261,501	100,446	200,000	68,915	1.12	2.50	5.72	91,315	188,565	62,024
St. Louis	5,505	5,248	2,630	733,459,194	652,261,285	571,791,577	2,027,558	1,509,088	1,588,726	2.46	2.01	2.40	1,895,986	1,362,376	1,374,772
Springfield	409	330	158	17,350,017	16,178,302	(2)	41,899	88,948	(2)	.89	2.25	.....	29,282	75,113	7,036
MONTANA:															
Butte	389	223	192	27,835,100	24,184,365	23,150,350	25,064	423,074	21,935	.50	9.84	.48	24,127	344,868	21,935
NEBRASKA:															
Lincoln	307	290	232	11,385,320	9,498,467	7,795,540	116,552	109,283	75,261	2.33	2.43	1.52	110,824	97,120	62,739
Omaha	1,264	1,037	651	47,564,581	32,749,722	23,457,487	1,191,147	608,967	217,204	6.81	4.76	1.70	1,112,048	555,379	207,584
NEW HAMPSHIRE:															
Manchester	538	541	383	88,831,436	65,118,287	35,388,394	274,852	87,217	23,555	3.35	1.21	.36	212,442	68,150	19,168
NEW JERSEY:															
Atlantic City	279	286	197	97,086,427	88,171,200	51,433,280	171,000	150,667	16,349	3.11	3.01	.39	146,999	61,427	10,264
Bayonne	305	418	138	65,507,416	48,828,025	33,286,470	41,138	60,193	46,280	.59	1.00	.....	41,138	60,193	(2)
Camden	424	266	187	77,028,752	56,778,458	49,897,528	50,718	159,261	199,141	.48	1.67	2.31	50,718	(2)	(2)
East Orange	273	148	132	55,468,282	50,490,649	(2)	30,477	81,502	(2)	.72	2.33	.....	(2)	(2)	9,130
Elizabeth	360	323	256	72,521,791	60,210,102	49,988,620	288,261	61,746	77,884	3.10	.80	1.22	288,261	61,746	(2)
Hoboken	275	319	249	76,342,886	69,496,462	65,856,519	142,031	114,214	86,009	1.82	1.52	1.27	102,128	99,737	66,447
Jersey City	830	1,102	861	323,882,767	257,644,605	267,039,754	804,835	441,354	319,746	2.97	1.56	1.31	776,414	431,634	269,754
Newark	2,005	1,183	908	438,423,922	383,864,182	295,787,923	890,526	1,095,667	657,370	2.10	2.92	2.22	770,601	957,292	581,117
Orange City	144	(2)	(2)	23,861,971	(2)	(2)	13,993	(2)	(2)	.47	.....	.....	(2)	(2)	(2)
Passaic	265	246	86	51,416,697	37,516,260	28,432,904	91,835	185,804	59,979	1.23	3.20	1.44	91,835	185,804	(2)
Paterson	611	651	424	114,582,377	100,052,522	90,707,516	310,119	573,922	142,348	2.39	4.41	1.25	299,854	568,905	132,275
Perth Amboy	87	85	(2)	24,035,271	19,166,188	(2)	(2)	250,400	(2)	.....	7.15	.....	(2)	(2)	(2)
Trenton	339	241	189	91,729,509	72,050,589	68,978,869	88,810	43,441	278,753	.84	.43	3.15	86,365	41,646	274,453
West Hoboken	118	68	47	28,312,863	24,327,979	20,919,200	22,245	17,055	46,968	.53	.46	1.49	20,245	(2)	46,403
NEW YORK:															
Albany	984	927	846	124,630,833	103,792,737	82,814,082	1,098,725	332,616	153,686	9.99	3.17	1.55	1,051,949	325,616	140,913
Amsterdam	177	137	93	16,515,730	15,859,948	(2)	118,548	55,873	46,257	3.45	1.68	2.21	118,548	55,873	39,142
Auburn	122	165	107	23,560,096	22,538,902	18,410,728	21,515	61,871	166,183	.58	1.77	4.98	20,747	61,073	165,031
Binghamton	263	169	127	46,198,231	34,875,515	25,212,530	83,138	42,530	60,488	1.54	.85	1.36	78,909	37,142	59,498
Buffalo	2,205	2,087	1,554	590,213,183	371,582,942	325,776,081	1,007,697	804,548	(2)	2.12	1.89	.....	1,007,697	804,548	1,018,017
Elmira	279	225	216	30,629,817	24,718,743	20,934,891	51,055	85,472	182,063	1.22	2.28	5.09	51,005	85,472	181,964
Jamestown	172	132	83	21,596,521	16,831,602	(2)	63,799	69,926	63,209	1.68	2.00	2.76	54,512	59,769	60,319
Mount Vernon	229	175	105	42,216,696	38,751,167	(2)	82,750	32,961	109,415	1.97	.96	5.15	55,830	(2)	(2)
New Rochelle	169	(2)	(2)	43,592,267	(2)	(2)	159,241	(2)	(2)	5.01	.....	.....	158,352	(2)	(2)
New York City	10,700	14,194	13,851	9,313,637,087	9,177,495,629	7,796,175,039	14,278,523	11,827,994	(2)	2.55	2.24	.....	(2)	11,589,339	12,116,524
Niagara Falls	175	144	(2)	41,957,513	41,459,289	(2)	(2)	40,545	(2)	.....	1.16	.....	(2)	40,545	(2)
Poughkeepsie	120	(2)	(2)	30,811,175	(2)	(2)	131,192	(2)	(2)	4.10	.....	.....	131,192	(2)	(2)
Rochester	1,183	1,048	829	249,043,783	206,451,956	159,045,153	628,050	261,462	(2)	2.37	1.11	.....	(2)	(2)	569,545
Schenectady	366	150	217	66,503,105	56,828,899	45,287,076	126,762	165,312	70,978	1.38	2.07	1.08	124,821	158,907	69,363
Syracuse	876	552	414	163,440,173	151,068,969	104,977,771	184,419	339,040	332,438	1.23	2.39	2.76	158,893	330,625	259,998
Troy	212	217	378	66,047,835	63,011,733	59,224,212	205,201	230,064	(2)	2.63	2.95	.....	(2)	230,064	(2)
Utica	360	347	306	65,161,621	56,103,838	45,194,304	136,807	107,905	274,226	1.55	1.42	4.12	132,622	101,654	239,829
Yonkers	610	557	322	135,601,665	87,000,771	65,417,544	167,398	304,421	84,935	1.76	3.38	1.27	157,658	394,418	72,294
NORTH CAROLINA:															
Charlotte	309	211	145	24,607,685	18,216,755	(2)	289,812	140,097	95,208	6.74	3.69	5.26	203,790	137,482	77,294
Wilmington	104	(2)	(2)	17,370,418	(2)	(2)	19,626	(2)	(2)	.65	.....	.....	18,162	(2)	(2)
Winston-Salem	126	(2)	(2)	20,586,654	(2)	(2)	26,990	(2)	(2)	.67	.....	.....	20,713	(2)	(2)
OHIO:															
Akron	910	413	194	144,710,200	93,967,200	25,639,470	394,347	385,746	173,597	3.29	4.82	3.33	308,401	359,695	127,618
Canton	442	297	150	93,632,140	60,429,260	16,772,960	88,110	2,031,737	(2)	1.17	36.94	.....	86,150	56,292	9,840
Cincinnati	2,357	1,916	1,365	610,499,870	525,826,770	242,988,590	1,011,465	901,472	1,971,217	2.37	2.27	5.68	801,852	901,472	1,414,369
Cleveland	3,584	3,060	1,912	969,767,060	756,831,185	240,262,315	1,704,309	1,485,045	514,782	2.72	2.43	1.08	1,571,080	1,305,456	428,974
Columbus	1,057	769	624	295,818,180	247,576,390	87,307,905	445,097	582,852	567,986	1.98	2.99	3.82	345,286	472,162	421,685
Dayton	779	677	489	178,831,930	150,005,610	56,581,280	300,623	121,242	124,818	2.12	1.01	1.21	253,878	99,436	117,287
Hamilton	289	231	181	45,784,990	46,251,980	(2)	29,470	84,991	16,166	.72	2.36	.68	29,195	80,189	16,166
Lima	309	170	125	39,878,350	31,054,190	(2)	95,894	37,795	8,270	2.34	1.14	.38	93,755	(2)	8,270
Lorain	197	(2)	(2)	44,679,580	(2)	(2)	24,010	(2)	(2)	.63	.....	.....	20,278	(2)	(2)
Springfield	203	215	154	62,394,220	50,105,900	21,497,980	361,452	103,822	120,800	6.45	2.16	2.83	297,229	97,058	39,372
Toledo	1,300	964	658	289,456,450	223,939,440	78,984,280	449,988	343,631	121,192	2.20	1.91	.74	430,843	319,656	115,767
Youngstown	992	689	368	185,392,100	137,272,100	28,046,390	223,584	36,670	396,434	1.07	.41	7.29	202,189	33,465	396,034
Zanesville	127	(2)	(2)	30,798,880	(2)	(2)	24,861	(2)	(2)	.89	.....	.....	24,523	(2)	(2)
OKLAHOMA:															
Muskogee	527	(2)	(2)	24,251,766	(2)	(2)	115,562	(2)	(2)	2.63	.....	.....	92,158	(2)	(2)
Oklahoma City	808	434	313	65,110,503	95,173,338	5,667,529	186,664	73,000	(2)	1.74	1.04	.....	110,000	(2)	(2)
Tulsa	502	(2)	(2)	24,337,792	(2)	(2)	403,943	(2)	(2)	.....	.....	.....	(2)	(2)	(2)
OREGON:															
Portland	824	1,294	779	303,006,010	298,941,430	166,661,695	276,744	809,983	424,183	.93	3.24	3.76	242,119	704,102	331,220
PENNSYLVANIA:															
Allentown	187	124	96	61,534,920	36,301,021	30,179,109	28,975	92,362	115,397	.45	1.71	2.71	20,718	86,977	(2)
Altoona	370	362	305	27,240,143	25,007,408	32,565,235	50,200	49,129	250,986	.87	.91	5.13	45,543	46,751	229,992
Chester	207	124	101	21,425,586	18,526,284	17,288,435	77,300	13,915	(2)	1.72	.35	.....	(2)	(2)	(2)
Easton	143	(2)	(2)	23,011,761	(2)	(2)	29,911	(2)	(2)	.98	.....	.....	28,324	(2)	(2)

[1] Statistics for insurance paid, and property loss taken from the Insurance Yearbook, 1918, 1913, and 1908.

[2] Figures not available.

NUMBER OF FIRE ALARMS, ASSESSED VALUATION OF PROPERTY, PROPERTY LOSS BY FIRES, AND INSURANCE PAID, IN MUNICIPALITIES HAVING A POPULATION OF 30,000 INHABITANTS OR MORE: 1917, 1912, AND 1907—Continued.

Table 6—Continued. STATE AND MUNICIPALITY.	TOTAL NUMBER OF ALARMS.			ASSESSED VALUATION OF PROPERTY.			PROPERTY LOSS BY FIRES. Amount.[1]			PROPERTY LOSS BY FIRES. Per capita.			TOTAL INSURANCE PAID.[1]		
	1917	1912	1907	1917	1912	1907	1917	1912	1907	1917	1912	1907	1917	1912	1907
PENNSYLVANIA—Contd.															
Erie	435	289	219	$53,113,208	$26,068,062	$22,520,599	$707,564	$75,253	$38,673	$9.31	$1.07	$0.63	(2)	$75,253	(2)
Harrisburg	109	109	(2)	52,521,891	47,577,399	41,792,207	97,805	[3] 33,085	(2)	1.36	[4] .4	.....	(2)	[3] 33,085	(2)
Johnstown	111	454	191	52,817,611	19,233,820	16,986,895	56,543	32,466	61,492	.81	.54	1.39	$40,252	31,209	(2)
Lancaster	116	92	49	29,414,166	25,852,390	20,537,391	48,727	30,000	(2)	.90	.61	.....	48,727	30,000	$18,863
McKeesport	180	192	158	26,478,162	24,302,800	22,722,383	56,273	32,301	(2)	1.13	.74	.....	(2)	32,301	18,537
New Castle	373	274	207	20,381,790	19,995,000	16,961,270	35,628	67,980	37,943	.79	1.70	.99	28,629	65,480	36,043
Norristown	17	(2)	(2)	13,393,955	(2)	(2)	14,705	(2)	(2)	.49	.....	.....	12,705	(2)	(2)
Philadelphia	5,738	3,823	3,591	2,397,619,723	1,556,323,614	1,287,287,123	3,692,136	3,081,412	2,093,522	2.13	1.93	1.43	3,325,776	2,966,175	1,871,018
Pittsburgh	2,427	2,200	1,431	792,942,840	749,583,440	686,742,887	(2)	1,198,201	644,103	.....	2.12	1.21	(2)	(2)	429,402
Reading	165	103	170	62,752,105	54,958,975	51,663,400	386,169	23,238	(2)	3.51	.23	.....	(2)	(2)	(2)
Scranton	544	426	351	84,612,280	81,555,630	66,757,430	289,609	154,615	236,792	1.90	1.14	1.95	261,854	149,664	234,325
Wilkes-Barre	216	234	145	69,420,012	50,473,882	43,120,243	50,476	131,699	224,017	.66	1.88	3.64	45,641	(2)	(2)
Williamsport	141	(2)	105	16,022,105	15,154,520	(2)	78,446	150,417	24,456	2.24	4.30	.85	67,287	149,887	19,234
York	38	75	76	26,651,855	24,901,571	19,932,816	(2)	105,286	24,381	.....	2.29	.61	(2)	(2)	21,685
RHODE ISLAND:															
Newport	207	(2)	(2)	65,991,500	(2)	(2)	36,769	(2)	(2)	1.23	.....	.....	36,769	(2)	(2)
Pawtucket	433	(2)	(2)	60,660,566	(2)	(2)	237,821	(2)	(2)	3.96	.....	.....	222,011	(2)	(2)
Providence	1,120	1,825	1,654	363,087,700	313,063,860	230,683,760	556,615	1,104,765	447,712	2.24	4.80	2.15	516,382	1,061,427	400,186
Woonsocket	332	223	(2)	32,397,175	25,631,100	19,206,150	42,795	15,060	(2)	1.02	.38	.....	33,413	(2)	(2)
SOUTH CAROLINA:															
Charleston	225	267	204	21,436,184	19,742,774	17,723,953	35,991	38,164	76,801	.55	.64	1.36	35,203	36,179	66,468
Columbia	730	(2)	(2)	15,762,485	(2)	(2)	55,458	(2)	(2)	1.28	.....	.....	52,710	(2)	(2)
TENNESSEE:															
Chattanooga	439	270	258	36,381,141	28,598,222	21,846,060	201,946	98,291	116,331	3.01	1.96	3.38	154,947	93,439	102,728
Knoxville	394	270	189	24,887,672	22,782,239	19,008,500	71,164	105,407	102,585	.95	2.85	2.80	62,936	85,915	(2)
Memphis	1,758	1,042	698	118,696,504	110,519,277	72,235,336	697,446	314,334	950,814	4.50	2.17	7.38	520,437	264,111	814,155
Nashville	687	575	485	88,761,402	77,161,306	62,619,338	330,836	367,585	265,096	2.82	3.22	2.52	255,163	279,244	(2)
TEXAS:															
Austin	200	(2)	(2)	24,000,250	(2)	(2)	83,594	(2)	(2)	1.99	.....	.....	53,299	(2)	(2)
Dallas	1,081	840	483	120,523,351	89,430,575	49,592,234	948,488	644,677	135,826	7.30	6.32	2.50	709,452	497,663	87,385
El Paso	469	315	157	50,012,560	32,250,450	(2)	289,872	29,804	116,243	5.57	.66	7.31	291,038	24,633	68,778
Fort Worth	857	726	477	67,857,256	62,451,780	34,681,475	239,120	416,577	117,012	2.28	4.98	4.38	196,030	396,771	104,507
Galveston	366	496	343	41,519,937	27,097,687	21,033,525	(2)	38,683	106,538	.....	.94	3.02	(2)	28,938	98,421
Houston	840	653	(2)	131,145,690	77,294,351	50,876,142	642,798	4,602,692	(2)	5.14	51.14	.....	419,450	(2)	(2)
San Antonio	771	506	279	109,172,256	88,674,375	54,661,470	313,688	472,172	172,175	2.41	4.72	2.69	254,108	394,368	100,695
Waco	300	(2)	(2)	37,350,300	(2)	(2)	(2)	(2)	(2)	.....	.....	.....	(2)	(2)	(2)
UTAH:															
Ogden	173	(2)	(2)	31,502,508	(2)	(2)	29,567	(2)	(2)	.90	.....	.....	24,970	(2)	(2)
Salt Lake City	726	436	372	172,822,623	62,288,818	46,917,527	160,903	84,884	(2)	1.29	.85	.....	125,576	74,175	132,363
VIRGINIA:															
Lynchburg	180	(2)	(2)	35,725,763	(2)	(2)	364,758	(2)	(2)	10.42	.....	.....	361,080	(2)	(2)
Norfolk	562	511	392	96,731,205	63,881,180	48,027,360	699,844	344,234	184,345	6.86	4.15	2.69	666,773	254,042	(2)
Portsmouth	179	156	(2)	16,081,346	12,343,960	(2)	113,322	58,096	(2)	2.70	1.66	.....	(2)	39,063	(2)
Richmond	611	727	360	189,816,393	148,768,790	105,811,707	238,218	345,456	(2)	1.44	2.66	.....	222,496	336,500	278,536
Roanoke	312	276	148	33,053,450	35,361,123	(2)	159,151	54,125	14,852	3.35	1.35	.69	106,409	48,785	13,697
Washington:															
Bellingham	202	(2)	(2)	10,699,997	(2)	(2)	38,522	(2)	(2)	1.13	.....	.....	38,522	(2)	(2)
Everett	166	(2)	(2)	13,894,839	(2)	(2)	53,094	(2)	(2)	1.49	.....	.....	27,479	(2)	(2)
Seattle	1,776	1,089	643	212,868,707	212,929,048	155,751,045	433,980	447,594	337,517	1.18	1.79	4.18	(2)	(2)	(2)
Spokane	958	636	486	80,217,218	89,799,772	35,796,907	304,782	270,107	253,606	1.93	2.23	6.88	235,041	243,306	176,154
Tacoma	696	507	422	54,629,845	73,299,008	42,960,214	249,381	428,313	461,988	2.11	5.04	12.25	240,456	361,423	380,485
WEST VIRGINIA:															
Charleston	237	(2)	(2)	36,304,971	(2)	(2)	(2)	(2)	(2)	.....	.....	.....	(2)	(2)	(2)
Huntington	184	155	(2)	42,047,601	29,432,257	(2)	170,910	56,613	(2)	3.42	1.62	.....	161,446	39,015	(2)
Wheeling	258	265	162	67,093,661	61,851,235	58,277,648	478,947	38,822	73,111	9.58	.86	1.74	352,344	23,415	(2)
WISCONSIN:															
Kenosha	26	(2)	(2)	35,469,285	(2)	(2)	25,771	(2)	(2)	.78	.....	.....	25,771	(2)	(2)
La Crosse	214	155	185	25,629,544	20,475,907	19,651,048	51,410	29,209	191,556	1.61	.96	6.57	49,906	27,524	156,668
Madison	371	(2)	(2)	56,453,360	(2)	(2)	(2)	(2)	(2)	.....	.....	.....	(2)	(2)	(2)
Milwaukee	2,700	2,206	1,764	552,090,755	460,548,763	216,975,945	775,281	834,649	531,681	1.72	2.11	1.65	750,281	823,447	528,061
Oshkosh	158	95	90	33,142,540	22,706,113	19,102,153	54,513	7,627	80,500	1.38	.22	2.56	53,397	7,627	(2)
Racine	256	144	94	54,253,028	26,552,448	19,728,555	65,155	65,790	22,180	1.40	1.57	.66	57,099	63,380	19,600
Superior	282	253	253	35,258,688	23,739,502	15,525,566	134,195	32,085	1,591,647	2.80	.76	41.09	123,053	19,997	1,510,799

[1] Statistics for insurance paid, and property loss taken from the Insurance Yearbook, 1918, 1913, and 1908. [2] Figures not available. [3] Report for 10 months.

Owing to the constant increase in population in most cities it is only natural that the number of fire alarms and the assessed valuation of property should increase, but it seems incredible that approximately 60 per cent of the cities should show an increase in property destroyed, inasmuch as old buildings in most of our large cities are being replaced by modern fireproof structures and every effort is made to reduce fire losses.

In 1917 the per capita loss for Kansas City, Kans., was $11.13, which was the highest for the year. Lexington, Ky., and Lynchburg, Va., were next, with losses per capita of $11.04 and $10.42, respectively. For the year 1912 the per capita loss for Houston, Tex., was $51.14, while for Canton, Ohio and Sioux City, Iowa, which had large fires during the year, the loss per capita was $36.94 for the former city and $12.69 for the latter.

Of the 25 largest cities for which comparative data as to the property loss by fire are available, 15 show a larger loss per capita for 1917 than in 1912. In 7 of these cities the fire loss was less than $2 per capita in 1917; in 12 cities it was from $2 to $3; in 2 cities, from $3 to $4; and in 4 cities, over $4. The property loss by fire for these cities ranges from $0.56 per capita for Washington, D. C., to $5.27 for Boston, Mass. For these cities the assessed valuation aggregated $23,459,031,610 for 1917, as compared with $20,125,294,393 for 1912, an increase of $3,333,737,217, or 16.6 per cent; and the aggregate property loss by fire was $48,695,678 in 1917, as compared with $41,588,009 in 1912, an increase of $7,107,669, or 17.1 per cent.

APPENDIX

SCHEDULE USED IN SECURING STATISTICS OF TELEGRAPHS.

8—4046 a

(D13—541)

DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS
SAM. L. ROGERS, DIRECTOR

CENSUS OF TELEGRAPHS, 1917

EUGENE F. HARTLEY, CHIEF STATISTICIAN

(All commercial telegraph systems (land, ocean cable, and wireless) must be reported on this schedule.)

Name of Company or System .....

State ..... City .....

General Office (give state, city, street, and number) .....

AUTHORIZATION.

The Act of Congress approved June 7, 1906, authorizes the Director of the Census to collect every fifth year statistics relating to the electric industries, including telegraphs. The Act approved July 2, 1909, directs that it shall be the duty of every owner, president, treasurer, secretary, director, or other officer or agent of any establishment or company covered by the census inquiry, to furnish the information indicated by the schedules that have been prepared in conformity with these requirements.

The last census of telegraphs covered the year 1912, and this schedule has been prepared for the census of 1917. The statistics should relate to the calendar year ending December 31, 1917. Except in the case of number of employees, all questions that relate to a single date, such as cash on hand, wire mileage, stations, etc., should be of the date of the last day of the year covered by the report.

The answers to inquiries in regard to financial matters will be held absolutely confidential; the separate reports will be combined so as to show totals for all companies in each state. The information will be used only for the statistical purposes for which it is given, and will not be disclosed to any individual, state, or local authority, or other Bureau or Department of the Federal Government.

Sam. L. Rogers
Director of the Census.

CERTIFICATE

THIS IS TO CERTIFY that the information contained in this schedule is complete and correct to the best of my knowledge and belief, and it covers the period from ....., 19....., to ....., 19.....

(Signature and official designation of the person furnishing the information.)

(Address of person furnishing the information.)

(Signature of Special Agent.)

2

Each question should be answered; if not applicable, use word "None".

1. Does company do land telegraph? ..... (Answer Yes or No.) Ocean telegraph? ..... Railway telegraph? ..... Wireless telegraph? ..... Telephone business? .....

2. Character of ownership: (State the form of ownership as it existed on the last day of the year covered by the report, whether individual, firm or partnership, incorporated company, or other form.)

3. If a consolidated company, give names and location of constituent companies included in this report .....

4. If a subsidiary or leased company, give name and address of operating company or lessee .....

5. **Miles of single wire.** (The answers to this inquiry should show the total number of miles of pole line and wire in operation or ready for operation. If actual length is not known, give careful estimate. If several wires are on one line of poles or in one conduit or cable, round length of each wire separately.)

	Miles of pole line.	Number of miles of single wire
Aggregate		
Aerial, total		
Owned:		
On reporting company's right of way		
On highway		
On railway right of way		
Leased or controlled:		
On lessor's right of way		
On highway		
On railway right of way		
Underground	X X X X X X X X X	
Submarine	X X X X X X X X X	

6. **Number of main and branch offices or stations.**

	Number.
Aggregate	
Operated solely by reporting company (exclusive of railway offices), total	
Operated with other telegraph and with cable companies	
Operated with telephone companies	
Railway offices, total	
Operated solely by company	
Operated jointly by reporting and railway company	
Tower stations for wireless	

7. **Estimated number of messages sent during the year.** Do not include service messages.

	Government messages.	Full commercial rate, other than Government.	Reduced rate and free.	Total.
Messages:				
Land				
Letterograms				
Submarine				
Wireless				

Each question should be answered; if not applicable, use word "None."

FINANCIAL STATISTICS.

8. **Income account.** Operating revenues and expenses.

Give actual amounts carried on income account statement. This may include income and expenses properly belonging in but not actually received or paid during the year, and therefore need not agree with a cash statement. If accounts do not show the income for each class of service indicated, give a carefully estimated segregation.

The item "Total general operation and maintenance" should include, in addition to legal expenses and salaries and wages, all expenditures during the year for supplies and materials used in operation and maintenance, and all other expense incident to operation and maintenance not elsewhere reported. (Do not include expenditures for additions or extensions made during the year.)

I. C. C. numerals (Class C).	INCOME.	
	I. OPERATING INCOME.	
300	Telegraph and cable operating revenues	$
301	Telegraph and cable operating expenses	
	Net telegraph and cable revenue (deficit in red)	
302	Other operating revenues	
303	Other operating expenses	
	Net miscellaneous operations (deficit in red)	
	Total net operating revenue (deficit in red)	
305	Taxes assignable to operation: State and local ..... $	
	Federal ..... $	
	Operating income (loss in red)	
	II. NONOPERATING INCOME.	
310	Income from lease of plant	
312	Dividend income	
313	Interest income	
311, 314	Miscellaneous nonoperating income	
315, 316	Nonoperating revenues (loss in red)	
	Gross income (loss in red)	

I. C. C. numerals (Class C).	INCOME.	
	III. DEDUCTIONS FROM GROSS INCOME.	
320	Rent from lease of plant	$
322, 323	Interest accrued	
321	Miscellaneous rentals	
324-328	Miscellaneous deductions	
	Total deductions from gross income	
	Net income (loss in red)	
	IV. DISPOSITION OF NET INCOME.	
331	Dividends declared: On common stock, $	
	On preferred stock, $	
330	Charges for sinking fund	
332	Appropriation of income for construction	
333	Appropriation of income for other purposes	
	Total appropriations of income	
	Balance carried to surplus. Cr. / Dr.	

I. C. C. numerals.	EXPENSES.	
301	Total general operation and maintenance, including legal expenses, and total salaries and wages of inquiry 10	$
321	Rentals of offices and other real estate	
320	Rentals of conduits, underground privileges, and wires	
325	Payments for telegraph traffic made to other companies	
328	Miscellaneous (specify principal items)	
305	Taxes, due and accrued:	
	Real and personal property	
	Capital stock	
	Federal	
	Earnings	
	Miscellaneous (specify items)	

I. C. C. numerals.	EXPENSES.	
322	Interest on funded and floating debt and mortgages	$
321	Payments for use of leased lines	
301	Charges for depreciation, if any	
330	Charges for sinking fund, if any (if charged against income)	
	TOTAL	$
	Net income for the year	$
	Net deficit for the year	
331	Dividends declared during the year: On common stock	$
	On preferred stock	

4

Each question should be answered; if not applicable, use word "None."

9. **Balance sheet.**

I. C. C. numerals.	ASSETS. Kind	Amount
100-102	Plant and equipment	$
	Stocks and bonds of other telegraph and cable companies	
103-104 109	Stocks and bonds of companies other than telegraph companies	
105	Treasury securities: Stock	
	Treasury securities: Bonds	
	Other permanent investments (specify)	
115	Materials and supplies	
106 110-114 116-117 125-128	Cash and current assets	
107-108	Stock and bond discount	
118-120	Sinking and other special funds	
121-124 127	Sundries (specify principal items)	
125	Profit and loss deficit	
	TOTAL	$

I. C. C. numerals.	LIABILITIES. Kind	Amount
160-151	Capital stock: Common	$
	Capital stock: Preferred	
	Capital stock: Debenture	
154-156	Funded debt	
157-159	Real estate mortgages	
170-175	Floating debt (loans and notes payable)	
160-162	Reserves (depreciation and other)	
163	Accounts payable	
167-168	Interest and taxes due and accrued	
152	Dividends due and payable but unpaid	
169	Premium on capital stock and funded debt	
153 164-166 170-178	Sundries (specify principal items)	
179	Profit and loss surplus	
	TOTAL	$

10. **Employees, salaries, and wages.**

Salaries and wages reported here should be the total amount paid during the year, and should also be included under inquiry 8.

Account for all regular officers and employees, except those engaged exclusively on additions or extensions. If any of the persons enumerated were employed only a portion of their time in telegraph service, give only the wages paid in connection with the telegraph service. General superintendents or other heads of departments, if considered as salaried officers of corporation, may be reported as such. Overseers and foremen performing work similar to men over whom they have charge must be included with wage earners. Those whose duties are wholly supervisory should be reported as salaried employees.

If possible, give number employed on September 29, 1917, as per pay roll. If data are not available for that day or month, give data for nearest representative normal day, and state day or month here .....

	Number September 29, 1917.	Salaries and wages for year.
SALARIED EMPLOYEES:		
Salaried officers of corporation		$
Superintendents and managers		
Clerks, stenographers, and other salaried employees		
TOTAL		$
WAGE EARNERS:		
Operators—		
Male		
Female		
All other employees (Do not include those engaged exclusively on additions or extensions)		
TOTAL		$

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SCHEDULE USED IN SECURING STATISTICS OF MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS.

9—40528 [D 14—542]

DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS
SAM. L. ROGERS, DIRECTOR

CENSUS OF MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SIGNALING SYSTEMS, 1917

EUGENE F. HARTLEY, CHIEF STATISTICIAN

In compliance with the act of Congress approved June 7, 1906, a census of municipal electric fire-alarm and police-patrol signaling systems is taken every fifth year. The Bureau of the Census is now taking the census of 1917. All electric fire-alarm and police-patrol systems should be reported on this schedule. Separate reports should be prepared for fire-alarm systems and police-patrol signaling systems, although the two systems may be under the same supervision. If the two systems are operated interchangeably one combined report for both systems may be made. The officials in charge of these systems in the different cities are repectfully requested to answer the following inquiries, and to return this schedule in the accompanying official envelope, which requires no postage.

Sam. L. Rogers
Director of the Census.

CERTIFICATE.

THIS IS TO CERTIFY that the information contained in this schedule is complete and correct to the best of my knowledge and belief, and it covers the period from ....., 191 , to ....., 191

..... (Signature of special Agent.)

..... (Signature and official designation of the person furnishing the information.)

..... (Address of person furnishing the information.)

1. Is there an electric fire-alarm system in your city? ..... Is there an electric police-patrol system in your city? .....
2. Are the two systems operated interchangeably? .....
3. Is this a complete separate report for the fire-alarm system? .....
4. Is this a complete separate report for the police-patrol system? .....
5. Is this a combined report for both fire-alarm and police-patrol systems? .....
6. By what department, bureau, or board are the systems administered (give full particulars for each system, or write same under "Remarks")? .....
7. If all or any part of the wire or other portion of the system is leased from, or operated in connection with, a commercial company, give name of company and full particulars of the agreement or arrangement, or write same under "Remarks" .....
8. Miles of wire: Give the total number of miles of single wire in operation on December 31, 1917. If actual length is not known, give careful estimate. If several wires are on one line, or pole, or in one conduit or cable, count length of each wire separately.

	Miles of single wire.
Overhead	
Subways or conduits	
TOTAL	

11—6274

9. Number of boxes or signaling stations:

	Total number
Signaling	
Telephoning	
TOTAL	

10. Number of manual transmitters (state kind) .....
Number of automatic transmitters (state kind) .....
Number of receiving registers of all kinds .....
11. Number of fire alarms received during the year .....

REMARKS (Please give full description of any peculiar or interesting features of the fire-alarm or police-patrol electrical service of your city):

11—6276

INSTRUCTIONS TO SPECIAL AGENTS.

LISTS AND CANVASS OF ESTABLISHMENTS.

Unlisted establishments.—Although the list of establishments furnished special agents has been made as complete as possible, it has not been practicable to secure absolute accuracy and completeness, and *special agents must be constantly on the alert to discover plants not named on the list. They will be held strictly accountable for a complete canvass of the district to which they are assigned.* They must make careful inquiry for other plants located in that vicinity.

The agents must account for all of the names on the list. A return must be secured for each establishment not already disposed of as noted on list or a satisfactory explanation given on the daily report. This explanation must be such as "Out of business, no successor," "Isolated plant, no current sold," or "Only — per cent sold." The explanation given on the daily report must be full and complete, leaving no doubt as to the conditions. The number of the establishment on the typewritten list must in all cases be written in the upper *right-hand* corner of the schedule and on the *left-hand* margin of the daily report.

Change in name of establishment.—If a change has been made in the name or location of the plant since the list was prepared, or if a report is secured for an establishment under a different name from that appearing on the list, the list must be changed (without erasures) to agree with the new conditions and this change must also be stated on the daily report.

Idle plants.—All plants that commenced operations or did any work during the census year ending December 31, 1917, must be reported, although they may not have been in operation at the end of that year. Reports are not required for plants which were closed or idle during the whole of the year. The circumstances, however, should be explained in the daily report of the agent.

Central offices.—A large number of properties are controlled from offices located eleswhere than at the plants. When known, central offices of this character and the names of the plants for which reports will be prepared at the central office are indicated on the lists. Agents canvassing the districts in which central offices are located must in every instance call at these offices for reports before canvassing the other plants. A return must be secured for every plant noted on the central office list. A large number of controlling companies have advised the office that reports for certain properties will be prepared at their office. The names of these properties will appear on the agent's list, but with a notation, "Central office," or "Report will be secured at ———." Agents must not secure reports for these plants unless the central office is within their district, and then from the business office. If in the city where such plants are located, however, the agent should call and explain that a census of electrical industries is being taken, also that it is understood the report is being prepared at the central office of the company. If the report has not already been made from the plant to the central office, a proper blank schedule should be left and explanation made of the inquiries therein as desired by the person in charge, so that the local officials will know just what information is required if the central office requests them to furnish data for the reports. All such visits should be noted on the agent's daily report.

If a plant is owned by a company whose business office is in another locality, outside the territory assigned the agent and not noted on the list as a central office plant, a portion of the information for which must be obtained from the business office, the agent should complete the schedule so far as possible from the data obtainable at the plant and forward it to the Census Bureau with a full statement of the facts, giving also the name and address of the person from whom further information can be obtained. The agent must, however, exhaust every reasonable means to complete the report before sending it in to the Census Bureau.

Annual reports.—In all cases where an annual report of the company is printed, a copy of the latest report should be secured and forwarded with the schedule. Copies should also be returned of the latest report of the directors or officers of the company, or other printed matter that would add to the information contained in the schedule.

Correction of reports.—An agent should not return to a city already canvassed by him to secure information for a report returned for correction unless especially advised to do so. It is believed that the agent will be able in most cases to supply the information from his knowledge of the conditions or by use of phone. If he can not do so, he should return the schedule to the Census Bureau with such explanation for his error or neglect as he may be able to make. To obviate the necessity of returning schedules for additional information, the agent must carefully examine each report before sending it to the office, since he is expected to secure *complete* reports for all plants not already disposed of on his list before leaving the locality.

METHOD OF SECURING SCHEDULES.

Reports secured by mail.—Schedules were mailed to all companies, and if a report has been received, the name on the agent's list will be marked "Schedule received." If the mail report is unsatisfactory, that fact probably will be indicated on the list. If not satisfactory, the original will be sent to the agent to complete. When completed or corrected such reports must be signed by the agent and promptly returned. If it is found advisable to prepare a new report in place of the original, such report must be marked "Corrected report" on the title-page, and the original marked "Void; see corrected report," and returned with the new report.

Promptness of agents.—In many cases the schedule mailed to the company to be made out and sent back to the office will not have been returned to the bureau and may not be ready when the agent calls. In that event the agent will secure the report at once. If the agent has not been advised that the office is in receipt of any report, whether or not on his list, he must secure the same, or copy, although the company may claim that the report has been furnished.

TITLES OF SCHEDULES.

The electrical industries covered by the census of 1917 will be reported on the following schedules:

Schedule A 5–539. Electric railways.

Schedule A 6–540. Nonoperating and lessor electric railways.

Schedule B 4–537. Electric light and power stations.

Schedule D 15–543. Telephones (large commercial systems).

Schedule D 16–544. Telephone (short schedule for small commercial systems and independent farmer or rural lines).

Schedule D 17–553. Census of telephones, 1917—Supplemental inquiry concerning weekly rates of pay of employees.

Schedule D 14–542. Municipal electric fire-alarm and police-patrol signaling systems.

Schedule D 13–541. Telegraphs.

The reports for commercial telegraph companies (Schedule D 13–541) will be collected wholly by correspondence. Reports for the industries covered by the other seven schedules will be secured by the field force, and also by correspondence.

PREPARATION OF THE SCHEDULES.

Answers to inquiries to be taken from books of accounts and records.—The information secured must be accurate. In drafting the schedule every effort has been made to frame the inquiries in such a form that the answers to them can generally be taken directly from the books of accounts and records. The agent may find a disposition on the part of persons furnishing the information to give general statements or estimates, claiming that they approximate very closely the exact figures. In no case should these general statements or estimates be accepted where it is possible to secure the answers directly from the books of accounts and records. If the accounts cover two or more of the items enumerated for any of the inquiries, the total should be equitably apportioned for the reply to each subinquiry. In all cases where the answers are estimated the amounts must be preceded by the word "Estimate."

All answers must be made clearly and neatly in ink. Each question is to be answered. If any question is found not applicable and no amounts are reported, write the word "None."

Some of the inquiries require no explanation, but the following instructions, in addition to those on the schedules, should be followed by the agents in preparing all reports:

The title-page.—Page 1 must contain the name and location of the company, the address of the general office, the signature, address, and official designation of the person furnishing the information, and the signature of the special agent. *Place the office number of the report in the upper right-hand corner.* If the address of the general or business office is at a different place from that of the plant, care must be taken to give both.

The period covered, where possible, should be that of the year ending December 31, 1917. Where, however, the business year of the establishment does not correspond to the calendar year, the data may be secured for such completed business year as corresponds most nearly to the calendar year 1917. The reports for plants that were in operation only a portion of the census year will be tabulated separately; therefore it is essential to give on the title-page the *exact period* covered by each report.

MUNICIPAL ELECTRIC FIRE-ALARM AND POLICE-PATROL SYSTEMS.

If there is a fire-alarm system and also a police-patrol system in a municipality, a separate report for each should be secured. When the two systems are operated interchangeably, one combined report may be prepared. (See instructions at top of the schedule.)

The statement required from each municipality is short, and the questions of the schedule, when considered with their accompanying instructions, should be readily understood and easily secured.

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