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A Comparative Study of Railway Wages and the Cost of Living in The United States The United Kingdom and the Principal Countries of Continental Europe

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4. A Comparative Statement of Physical Valuation and Capitalization.
5. Preliminary Bulletin for November, 1910—Revenues and Expenses.
6. Railway Traffic Statistics, 1900-1909. (See No. 31.)
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14. Summary of Revenues and Expenses of Steam Roads in the United States for April, 1911.
15. The Conflict Between Federal and State Regulation of the Railways.
16. Summary of Revenues and Expenses of Steam Roads in the United States for May, 1911.

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**A Comparative Study
of Railway Wages and the Cost of Living in
The United States
The United Kingdom
and the Principal Countries of Continental Europe**

WASHINGTON, D. C.

JUNE, 1912

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SUMMARY.

I.

Information is not obtainable upon which can be based a comprehensive statement of railway wages being paid at this time in the different countries. Therefore it is necessary to make comparisons for the latest year for which comparable data are available.

The average daily compensation of railway employees of all classes for the year 1910 was in the United States, \$2.23; in the United Kingdom, \$1.05; excluding supplementary allowances negligibly affecting the average, it was in Prussia-Hesse 81 cents, and in Austria 89 cents. The lowest paid railway employee in the United States, the ordinary trackman, receives a greater compensation than many of the railway employees of France, even those of higher grades and with responsible duties. The compensation of railway employees is from two to three times as high in the United States as in Italy.

A recent report of the Board of Trade on railway wages shows that the average weekly pay of enginemen in the United Kingdom in 1907 was \$11.17; of firemen, \$6.67. In the same year enginemen on American railways received an average weekly compensation of \$25.80, counting six days to the week, and firemen \$15.24. Recent returns make it clear that in 1912 enginemen and firemen in the United States are compensated at rates of pay for specific runs that are two, three and four times as high as the corresponding rates on representative English railways. The annual compensation of enginemen in the United States, as reported by two representative railway companies, now ranges from \$1,100 in switching service to over \$2,800 in passenger service, and of firemen from \$700 in switching service to over \$1,700 in passenger service.

For Continental Europe official returns in requisite detail are not available for a later year than 1908. The salaries and allowances of the typical engineman in Germany amounted for that year to \$646.88, in Austria to \$870.80; of a fireman in Germany to \$424.59, in Austria to \$532.03. The annual compensation of enginemen on

two of the principal railways of France ranged in 1908 from \$505.66 to \$906.91, and of firemen from \$324.24 to \$595.98. In Italy enginemen received in 1908, salary and allowances included, from \$581.10 to \$812.70 a year; firemen, from \$330.30 to \$475.05 a year. In these Continental countries the maximum compensation is received only after many years of service..

The average annual compensation of enginemen in the United States in 1908, on an estimated basis of 300 days' service, was \$1,335; of firemen, \$792. In this country the rate of compensation to these employees does not depend on length of service.

In Belgium enginemen received in 1907 from \$23.16 to \$38.60 a month; firemen, from \$17.37 to \$23.16 a month; conductors and station employees, from 46 cents to 96 cents a day. In the United States, in the same year 1907, enginemen averaged, on the basis of 25 days' service, \$107.50 a month; firemen, \$63.50 a month; conductors, \$3.69 a day; station employees, from \$1.78 to \$2.05 a day.

II.

An accurate wage comparison must take into account relative cost of living, and this has been done, so far as ascertainable data permits.

The rental of a three or four room house or flat is almost as high in Berlin, Paris, or London as throughout the United States, but in England and on the Continent it generally runs from thirty dollars to ninety dollars a year less. The quantity of food and fuel estimated by the Board of Trade of England as the standard consumption of a typical workingman's family costs in the United States 17.8 per cent more than in France or in Germany; 35.3 per cent more than in Belgium, and 38 per cent more than in the United Kingdom.

III.

It is well within the truth to estimate in a broad and general way that while the cost of living of a railway employee in the United States is less than fifty per cent higher than that of a corresponding employee in the United Kingdom or on the Continent, his compensation averages over twice as great.

A COMPARATIVE STUDY OF RAILWAY WAGES AND THE COST OF LIVING

I. RAILWAY WAGES.

United States, United Kingdom, France, Germany, Austria-Hungary, Belgium, and Italy.

The following comparison of wages received by railway employees in the United States and various foreign countries does not attempt to analyze the wages or the conditions surrounding their payment so minutely that the results can be regarded as strictly comparable at every point. Such an analysis would be impracticable, owing to the lack of data which would enable the taking account of all the conditions that directly or indirectly influence the real value of wages—that is, their value to the recipient. A few of these conditions are regularity of payment, permanence of position, social status, opportunities for advancement or promotion, amount and value of incidental additions to wages in the shape of bonuses and allowances, and, most important of all, the purchasing power of money, which to the wage-earner is expressed by the retail prices of commodities that he buys. The mere enumeration of these factors which enter into the ascertainment of real wages, as contrasted with nominal or money wages, sufficiently indicates the difficulty, if not the impossibility, of a strictly accurate wage comparison. The effort here is by bringing together average or typical wages paid to railway workers in the several countries, with such qualifications and explanations as available data permit, to indicate along broad and general lines the relative wage levels in these countries. The comparison is more or less comprehensive as the extent of the available data has been greater or less. The relatively greater amount of specific information obtainable as to conditions in England gives especial significance to the English and American comparisons.

UNITED STATES.

The average daily compensation received by the railway employees of the United States during each year of the decade ending 1910 was as follows:

Year.	Average daily compensation. <i>a</i>
1900.....	\$1.90
1901.....	1.91
1902.....	1.92
1903.....	1.99
1904.....	2.05
1905.....	2.07
1906.....	2.08
1907.....	2.20
1908.....	2.25
1909.....	2.24
1910.....	2.29

It will be seen that there has been an almost steady increase for ten years, the wage in 1910 being higher than in 1900 by more than one-fifth. The average daily earnings of the several groups or classes of employees, according to the report of the Interstate Commerce Commission, were as follows in 1910:

a. These figures are derived from the returns made by carriers in their annual reports to the Interstate Commerce Commission. In their annual reports to the Commission railways are required to give, relative to each one of eighteen classes of employees, the following information:

1. Number of employees on June 30.
2. Aggregate number of days worked during the year.
3. Aggregate compensation paid during the year.
4. Average daily compensation. This is to be determined by dividing the total yearly compensation by the total number of days worked.

The problem of determining average daily compensation rests upon the determination of the number of days worked, and here a variety of methods are employed by the railways. In some cases the determination of what constitutes a day's work rests with the officer employing the specific class of labor. In classes of labor remunerated on a mileage basis it is possible, and frequently is the case, that individuals receive compensation for more constructive days than there are actual days in the period. In such cases the average daily compensation, as reported, is less than it really is for the calendar day. For example, trainmen are commonly paid on a mileage basis, the usual practice being to consider one hundred miles as a day's work. Frequently, however, trainmen make more than one hundred miles per day, so that when the total miles run during the month are reduced to the basis mentioned, the number of constructive days exceeds the actual number of days in the month. Some roads add together the total days worked each month to get the total for the year; others compute the annual total from the total of typical months, and there are still other methods employed. The conclusion is obvious that while comparisons can be made only in a general way between different railways, comparisons from year to year for all roads will be valid, since it may be assumed that the method used by each railway is approximately the same from year to year.

	Average daily compen- sation, 1910.
Station agents.....	\$2.12
Other station men.....	1.84
Enginemen.....	4.55
Firemen.....	2.74
Conductors.....	3.91
Other trainmen.....	2.60
Machinists.....	3.08
Carpenters.....	2.51
Other shopmen.....	2.18
Section foremen.....	1.99
Other trackmen.....	1.47
Switch tenders, crossing tenders, and watchmen.....	1.69
Telegraph operators and dispatchers.....	2.33
Employees—account floating equipment.....	2.22
All other employees and laborers.....	2.01
General officers.....	13.27
Other officers.....	6.22
General office clerks.....	2.40

UNITED KINGDOM.

BOARD OF TRADE ANNUAL REPORT—1900 TO 1910.

The British Board of Trade, which is a department of the English Government corresponding roughly to the Department of Commerce and Labor in the United States, has for a number of years ascertained the average earnings of the employees of the larger railways of the United Kingdom for a selected week in December. These returns cover 27 railway companies, employing over 90 per cent of the railway employees of the United Kingdom. They apply to all classes of employees except officers and clerks and persons employed casually for less than three days. The earnings ascertained are actual cash earnings during the week, no allowance being made for uniforms or other perquisites. The results are as follows for the decade 1900 to 1910:

AVERAGE WEEKLY EARNINGS OF RAILWAY EMPLOYEES.

Year.	United Kingdom.	England and Wales.	Scotland.	Ireland.
1900.....	\$6.10	\$6.22	\$5.58	\$4.74
1901.....	6.09	6.21	5.63	4.72
1902.....	6.07	6.19	5.62	4.69
1903.....	6.05	6.17	5.59	4.72
1904.....	6.09	6.23	5.62	4.65
1905.....	6.15	6.29	5.67	4.68
1906.....	6.19	6.32	5.68	4.82
1907.....	6.29	6.42	5.71	4.79
1908.....	6.08	6.21	5.53	4.79
1909.....	6.17	6.30	5.67	4.85
1910.....	6.27	6.40	5.66	5.01

If each of these weekly averages be divided by six,^a the respective results will be the daily average wage, which may be compared with corresponding returns for the United States as follows:

^a According to the Board of Trade report on railway earnings, nearly 96 per cent of the men employed regularly on the railways of the United Kingdom in 1907 were "six-day workers," that is, employees who were paid overtime for Sunday work, or were allowed equivalent time off. Hence a division of the weekly earnings of British railway employees by six gives a very close approximation to their average earnings per day.

AVERAGE DAILY EARNINGS OF RAILWAY EMPLOYEES.

Year.	United States (a)	United Kingdom.	England and Wales.	Scotland.	Ireland.
1900.....	\$1.84	\$1.017	\$1.037	\$0.93	\$0.79
1901.....	1.84	1.015	1.035	0.938	0.787
1902.....	1.86	1.012	1.032	0.937	0.782
1903.....	1.93	1.008	1.028	0.932	0.787
1904.....	2.00	1.015	1.038	0.937	0.775
1905.....	2.01	1.025	1.048	0.945	0.78
1906.....	2.02	1.032	1.053	0.947	0.803
1907.....	2.14	1.048	1.07	0.952	0.798
1908.....	2.19	1.013	1.035	0.922	0.798
1909.....	2.17	1.028	1.05	0.945	0.808
1910.....	2.23	1.045	1.067	0.943	0.835

Not only have the daily wages been higher in the United States throughout the whole decade than in the United Kingdom as a whole and in its constituent parts, but the rate of increase since 1900 has been faster in the United States. Thus the per cent of increase of the wages in 1910 over those of 1900 was as follows:

United States.....	21.2 per cent.
United Kingdom.....	2.8 per cent.
England and Wales.....	2.9 per cent.
Scotland.....	1.4 per cent.
Ireland.....	5.7 per cent.

BOARD OF TRADE SPECIAL REPORT FOR 1907.

An important report on the earnings of English railway employees was issued in February, 1912, by the British Board of Trade. This is one of a series of reports relating to the earnings and hours of labor of workpeople in the United Kingdom. The returns contained in this report are for the year 1907, and cover virtually all the railways of the United Kingdom. These returns were furnished voluntarily by the railway companies, the preliminary classification and tabulation of the figures being made by the Railway Clearing House, an organization maintained by the railways.

While the data contained in the report was in course of preparation the condition of railway workmen improved, in regard both to wages and to hours. What this improvement amounts to it is impossible to ascertain statistically, but it has been, according to the report, "in the direction of increases of wages and reductions of hours, the more

(a) To make the table comparable throughout, the averages for the United States given in this column exclude compensation to general and other officers and general office clerks.

recent changes especially affecting the lower grades of labor." Mr. W. M. Acworth, of London, estimates that from 1907 to 1912, the period in question, there occurred an allround increase of from three to four per cent in wages and a decrease of from one and one half to two per cent in the hours constituting a week's work.

The number of steam railway employees included in the report was 407,802. Of these, 401,437 were male time workers in regular employment. This number was in turn made up of 365,901 men and 35,536 lads and boys. These figures cover all workers employed in railway operation receiving regular weekly wages. Thus there are excluded officers, clerks, and station masters, who are on annual salary, employees engaged in construction of equipment, who receive wages by the day, and workers casually employed. The report further excludes employees engaged in outside operations, such as canals, harbors, docks, steamships and hotels. A statement including all these groups would cover 621,341 railway employees, which was the total number in the United Kingdom in 1907, according to an enumeration made in that year by the Board of Trade.

The number of employees in 1907 was ascertained from the pay-rolls of the last pay-week of January, April, July, and October, 1907. For the last pay-week in October there were also ascertained the rate of wages, or nominal earnings, of each regular time worker and the actual earnings of each employee, whether time or piece worker. The report is confined chiefly to a study of the wages of the 365,901 adult male workers employed on a regular time basis.

The average annual cash earnings of all the employees covered by the investigation amounted to nearly £65, or about \$316. This is an average of \$6.08 per week. Lads and boys averaged 11 shillings 11 pence a week, or \$2.90, while the 365,901 adult male time workers received an average of 26 shillings 8 pence per week, or \$6.49. These earnings include all cash bonuses, *i. e.*, extra payments made to promote the zeal and efficiency of men in certain positions (principally goods checkers, goods porters, one-horse carmen and draymen, signalmen, engine drivers, firemen, passenger guards, and foremen). These bonus payments were made to about one-tenth of the men; averaged over all the men employed, they amounted to four cents per week per man. The earnings also include all extra payments for overtime work, but do not take account of allowances made to employees in the shape of uniforms or other clothing, houses rent-free or at a reduced rental,

etc. Allowances for uniforms^a were granted to over one-half of the men, principally conductors, brakemen, signalmen, engine drivers, firemen, switchmen, porters, and foremen. These men received allowances for uniforms averaging about 14 cents a week, or nearly 8 cents per man per week for all the men employed. Housing allowances were granted to about four per cent of the men, averaging 44.6 cents a week per recipient, or about 2 cents per man for all the men. Smaller allowances were those granted in the shape of food to dining-car attendants, garden ground to trackmen, and travel free or at reduced rates. Adding these various supplementary allowances, so far as their cash value can be ascertained, to the weekly earnings of the men employed on a time basis, the average compensation per man is found to be increased from 26 shillings 8 pence a week to 27 shillings 1 penny, or from \$6.49 to \$6.59.

Hours of duty, exclusive of meal times, averaged 58 hours a week for the men and 58.9 hours for the lads and boys. Over two-thirds of the regular employees had the privilege of annual leave, usually of from 3 to 6 days, on full pay.

Average rates of wages, and as a corollary average earnings, were affected by the places of residence of the different grades of employees. Thus 69 per cent of the checkers, 65 per cent of the one-horse carmen, 63 per cent of the goods porters, 56 per cent of the passenger guards, and 42 per cent of the mechanics were found in the large cities, but only 14 per cent of the platelayers and packers and only 20 per cent of the signalmen were city dwellers. The wages for the same grades of labor are commonly higher in the large than in the small cities.

The average actual weekly earnings for the principal classes of employees, based on the pay-roll for the last pay-week in October, 1907, were as follows:

^a In general, it may be stated that in the United States railway employees are not furnished uniforms at the expense of the companies.

AVERAGE WEEKLY EARNINGS AND HOURS OF LABOR OF THE RAILWAY EMPLOYEES
OF THE UNITED KINGDOM, BY CLASSES: 1907.

Occupation. <i>a</i>	Number.	Average weekly earn- ings. <i>b</i>	Hours of duty per week. <i>b</i>
Foremen.....	14,208	\$8.70	58.8
Gangers (permanent way).....	10,772	6.31	55.0
Porters (coaching and traffic):			
"Six-day" workers.....	18,146	4.81	60.7
Other workers.....	5,760	4.34	....
Porters (goods).....	18,506	5.31	60.4
Checkers (goods).....	10,095	6.51	60.3
Shunters.....	14,097	6.23	55.0
Porter shunters.....	238	4.87	61.7
Passenger guards.....	6,586	7.12	61.4
Porter guards.....	773	5.15	62.8
Goods guards and brakemen.....	15,643	7.58	61.0
Porter brakemen.....	444	6.12	61.5
Ticket collectors and examiners.....	3,360	6.00	60.7
Signalmen.....	26,849	6.69	57.5
Porter signalmen.....	2,287	4.87	63.3
Engine drivers.....	26,430	11.17	62.0
Firemen.....	26,029	6.67	62.0
Engine cleaners.....	9,930	4.91	58.6
Carriage and wagon examiners and greasers.....	4,173	6.47	59.2
Carriage cleaners.....	4,478	4.93	56.9
Mechanics.....	27,095	7.71	54.3
Platelayers and packers.....	44,355	5.15	55.1
Carmen and draymen—one horse.....	15,078	6.02	} 61.2
Carmen and draymen—two or more horses.....	2,017	6.68	
Cartage staff.....	2,570	6.29	59.3
Laborers (locomotive, carriage, and wagon dept.)..	8,518	5.29	55.5
Laborers (permanent way).....	27,197	5.27	55.0
Other men.....	16,098	5.94	58.3

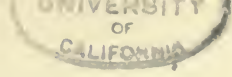
WAGES UNDER CONCILIATION SCHEME, 1909 AND 1910.

Later data regarding English railway wages than that embodied in the foregoing table are contained in the reports of settlements of wages on individual railways under the conciliation scheme. The conciliation scheme was put into effect by an agreement of November 6, 1907, and all the revisions reported under the scheme relate to wages that are more nearly current than those covered by the Board of Trade report from which the foregoing table was taken. Certain of these revisions

(*a*) Unless otherwise specified these employees are "six-day" workers. "Other workers" are those who work Sundays in turn without extra pay or equivalent time off. "Other workers" are shown in the table only where their number is considerable.

"Gangers" correspond in general to gang foremen on American railways. "shunters" to switchmen, "guards" to conductors, "platelayers and packers" to ordinary trackmen. "Goods" refers to freight.

(*b*) Exclusive of mealtimes and overtime.



are cited below. It should be noted that the amounts given in this connection are rates of pay, and not average amounts actually earned.

On the Brecon & Merthyr Railway, a Welsh railway operating about 60 miles of line, the following minimum and maximum rates of pay were instituted during 1909 and 1910:

BRECON & MERTHYR RAILWAY.

	Weekly rate of pay.	
Goods and mineral guards.....	\$5.60 to	\$6.81
Brakesmen.....	4.87 "	5.35
Passenger engine drivers.....	7.30 "	10.58
Goods and mineral engine drivers.....	7.30 "	10.22
Passenger firemen.....	4.38 "	6.08
Goods and mineral firemen.....	4.38 "	5.84
Foremen (per day).....	1.05 "	1.22
Gangers.....	5.84 "	6.45
Second hands.....	5.11 "	5.60
Platelayers.....	4.87 "	5.35

On the North Eastern Railway, an English railway operating about 1,700 miles of line, an arbitrator's award of November 4, 1909, established maximum and minimum rates of pay under the conciliation scheme as follows:

NORTH EASTERN RAILWAY.

	Weekly rate of pay.	
Cleaners.....	\$2.43 to	\$4.87
Goods and mineral guards.....	7.54 "	7.79
Firemen (per day).....	.85 "	1.22
Passenger guards (class 3).....	6.57	
Lengthmen.....	4.38 to	6.33
Point oilers ^a	4.38 "	6.33

On the Great North of Scotland Railway, operating something over 300 miles of line, the following rates of pay were instituted late in 1909:

GREAT NORTH OF SCOTLAND RAILWAY.

	Weekly rate of pay.	
Guards.....	\$6.08 to	\$6.81
First relief signalmen.....	6.57	
Foremen.....	5.11	
Laborers.....	4.38	

REPORT OF THE AMALGAMATED SOCIETY OF RAILWAY SERVANTS—1907.

An investigation into wages and hours of labor of railway employees was carried on during the months of August, September, and October, 1907, by the Amalgamated Society of Railway Servants, the leading

^a "Point" is the English term for switch.

railway labor union of the United Kingdom. The report of the investigation appeared in 1908. As the date of this investigation closely approximates that of the Board of Trade report already discussed, an interesting comparison is offered. The Board of Trade report, it will be recalled, was based on returns furnished by the railways as employers; the report of the Amalgamated Society was based on returns furnished by the branch secretaries of the union—that is, by the representatives of the employees.^a

The report of the Amalgamated Society of Railway Servants covers all railway employees except high officials, station masters, clerks, machine-shop workers, casual and miscellaneous workers. The total number included for the United Kingdom is 259,284. Of this number 15,921 were estimated to be boys. The report presents in tabular form the standard weekly wage ascertained for the various grades of employees on the several railways. The average weekly wage of all grades combined, exclusive of additions for overtime or Sunday pay, bonuses, and allowances, was found to be as follows:

	Standard weekly rate of pay.	
	Men.	Boys
United Kingdom.....	\$5.82	\$2.86
England and Wales.....	5.90	2.86
Scotland.....	5.56	3.00
Ireland.....	4.62	2.39

Additional payments and allowances mentioned by the report are as follows: Bonuses, which are given chiefly to engine drivers and signalmen; lodging allowances, made to employees who find it necessary to lodge away from home; uniform allowances in the shape of overcoats, caps, and jackets, or full uniforms. No attempt is made by the report to estimate the average weekly cash value of these various allowances.

It is possible to compare the average weekly rates of pay returned in this report for the United Kingdom with the corresponding returns of the Board of Trade report of 1907, exclusive of overtime pay, bonuses, and other allowances. The comparison is made in the following table for all occupations combined, and for those occupations which are classified with sufficient definiteness to be identified as the same in both reports.

^a Although the report of the Amalgamated Society has been subjected to criticism, its results closely approximate those of the Board of Trade, and it is of interest to bring the two reports into comparison.

STANDARD WEEKLY RATE OF PAY: UNITED KINGDOM, 1907^a

Occupation.	Board of Trade Report.		Report of Amalgamated Society of Ry. Servants.	
	Number.	Weekly rate of pay.	Number.	Weekly rate of pay.
All occupations.....	365,901	\$5.92	243,363	\$5.82
Engine drivers.....	26,430	9.73	25,991	9.45
Firemen	26,029	5.78	25,518	5.84
Passenger guards and conductors...	6,586	6.73	6,873	6.35
Goods guards and brakesmen.....	15,643	6.85	15,576	6.53
Shunters	14,097	5.78	11,006	5.88
Examiners	4,173	5.86	2,801	5.88
Signalmen	26,849	6.00	26,072	5.74
Carriage cleaners.....	4,478	4.66	4,383	4.48
Passenger porters.....	18,146	4.54	20,571	4.24
Ticket collectors.....	3,360	5.60	3,058	5.23
Checkers	10,095	5.84	4,346	5.70
Goods porters.....	18,506	4.87	14,581	4.74
Gangers	10,772	5.74	7,914	5.86
Platelayers	44,355	4.72	37,870	4.70

It will be seen that for the most part the weekly rates of pay returned in the two reports very nearly coincide. The average for all occupations combined is \$5.92 per week in the Board of Trade report and \$5.82 in the report of the Amalgamated Society.

RAILWAY WAGES IN UNITED STATES AND UNITED KINGDOM
COMPARED.

Below are shown the earnings of employees of the several classes for the United Kingdom and for the United States, the American returns for the fiscal year 1908 (July 1, 1907, to June 30, 1908) being selected as most nearly comparable with the returns of the Board of Trade for the last pay week of October, 1907. The returns in each case are given as actual earnings, except that uniform, housing, and minor allowances, which averaged about ten cents per man per week in the United Kingdom, are not included. The British returns have been reduced to a per diem basis by dividing the weekly earnings by six.

^a This table relates to adult males only. Inasmuch as the returns received by the Amalgamated Society in some instances neglected to distinguish men and boys, only those occupations are here shown from which, by the nature of the work, boys are almost wholly excluded.

AVERAGE DAILY EARNINGS.

Occupation.	United States, 1907-8.	United Kingdom, October, 1907.
All occupations ^a	\$2.19	\$1.048 ^(b)
Station agents.....	2.09	^c
Other station men.....	1.82	0.90 ^(d)
Enginemen.....	4.45	1.86
Firemen.....	2.64	1.11
Conductors.....	3.81	1.23 ^(e)
Other trainmen.....	2.60	1.25 ^(f)
Machinists.....	2.95	1.285 ^(g)
Carpenters.....	2.40	1.285 ^(g)
Other shopmen.....	2.12	0.88 ^(h)
Trackmen (other than section foremen).....	1.45	0.89 ⁽ⁱ⁾
Switch tenders, crossing tenders and watchmen..	1.78	1.07 ^(k)
"All other employees and laborers".....	1.97	0.99 ^(l)

The average daily earnings of railway employees in 1907 amounted to \$2.19 in the United States and \$1.048 in the United Kingdom, the earnings for the United States being 109 per cent greater than for the United Kingdom. If the value of all extra allowances for uniform, housing, etc., be added to the English earnings, the American compensation is still the greater by about 100 per cent. Roughly the American railway employee was paid in 1907-8 twice as much per day as the English railway employee.

For the separate occupation classes, the pay received in the United States is higher than the pay of the corresponding classes in the United Kingdom by the following percentages:

(a) Except officers and clerks.

(b) First week in December, 1907.

(c) Not covered by investigation of Board of Trade.

(d) Passenger and goods porters, goods checkers, and ticket collectors and examiners.

(e) Passenger guards, porter guards, goods guards and brakemen. It is impossible to separate guards and brakemen.

(f) Porter brakemen, goods guards and brakemen. It is impossible to separate guards and brakemen.

(g) Mechanics.

(h) Engine and carriage cleaners, carriage and wagon examiners and greasers.

(i) Gangers, platelayers and packers, and permanent way laborers.

(k) Shunters and porter shunters, signalmen and porter signalmen.

(l) "Other men."

Conductors.....	209.8	per cent.
Enginemen.....	139.2	" "
Firemen.....	137.8	" "
Machinists.....	129.6	" "
"Other trainmen".....	108.0	" "
"Other station men".....	102.2	" "
"All other employees".....	99.0	" "
Switch tenders, crossing tenders, and watchmen....	66.4	" "
Trackmen (other than section foremen).....	62.9	" "

COMPENSATION OF ENGINEMEN AND FIREMEN FOR SPECIFIC RUNS—
1912.

Statements have been obtained from several English railways regarding the amounts paid to enginemen and firemen for specific runs. The amounts are given in the next table. In comparison with the data for England, there are shown mileage payments made by the Baltimore & Ohio Railroad to its enginemen and firemen, which are typical of their wages in that part of the United States east of the Mississippi and north of the Ohio River. These are rates of pay in effect during January, 1912.

ENGINEMEN.

LONDON & SOUTH WESTERN RAILWAY.	Total Miles.	Passenger.		Goods.	
		Express.	Slow.	Express.	Slow.
London to Southampton and back..	158	\$1.95	\$1.82	\$2.31	\$2.92
London to Salisbury and back....	168	1.95	1.82	2.31	2.92
London to Portsmouth and back...	150	1.95	1.82	2.31	2.92
London to Dorset and back.....	272	3.89	.....	.....	4.74
London to Bournemouth and back..	222	2.92	.....	.....	.....
London to Yeovil and back.....	250	.....	.....	.....	4.25
London to Exeter and back.....	344	3.89	.....	.....	5.11

GREAT WESTERN RAILWAY.	Total miles.	Time on duty.		Time allowed.		Maximum rate.
		Hrs.	Min.	Hrs.	Min.	
London to Plymouth (limited) ...	225¾	6	3	11	3	\$2.15
London to Bristol and back	236½	9	14	13	.....	2.53
London to Bristol and back	236½	11	44	14	15	2.77

BALTIMORE & OHIO RAILROAD.		Payment per mile, cents. ^a	
Passenger service.....	{ main line.....	4.0	—4.25
	{ branch lines.....		3.9
Through freight service. {	main line.....	4.45	—5.0
	branch lines.....	4.1	—4.45
Local and mixed service. {	main line.....	4.7	—5.0
	branch lines.....	4.2	—4.45

FIREMEN.

LONDON & SOUTH WESTERN RAILWAY.	Total miles.	Passenger.		Goods.	
		Express.	Slow.	Express.	Slow.
London to Southampton and back..	158	\$1.16	\$1.095	\$1.46	\$1.82
London to Salisbury and back.....	168	1.16	1.095	1.46	1.82
London to Portsmouth and back....	150	1.16	1.095	1.46	1.82
London to Dorset and back.....	272	2.31	.....	.....	2.72
London to Bournemouth and back..	222	1.74	.....	.....	.....
London to Yeovil and back.....	250	.....	.....	.....	2.74
London to Exeter and back.....	344	2.31	.....	.....	3.28

GREAT WESTERN RAILWAY.	Total miles.	Time on duty.		Time allowed.		Maximum rate.
		Hrs.	Min.	Hrs.	Min.	
London to Plymouth (limited)...	225 $\frac{3}{4}$	6	3	11	3	\$1.34
London to Bristol and back.....	236 $\frac{1}{2}$	9	14	13	.....	1.58
London to Bristol and back.....	236 $\frac{1}{2}$	11	44	14	15	1.73

^a In passenger service, 100 miles or less constitute a day. Overtime is computed on a speed basis of 20 miles per hour at 45 cents per hour. In through freight and local and mixed service 100 miles or 10 hours, or less, constitute a day. All over 100 miles or 10 hours are compensated pro rata. The variations in rates are due to differences in weight and style of engine.

BALTIMORE & OHIO RAILROAD.		Payment per mile, cents. <i>a</i>
Passenger service.....	{ main line.....	2.3 — 2.5
	{ branch lines.....	2.25
Through freight service.....	{ main line.....	2.75 — 3.1
	{ branch lines.....	2.75 — 2.9
Local freight and pick-up service.	{ main line.....	2.95 — 3.1
	{ branch lines.....	2.75 — 2.9

The foregoing tables may be summarized on a per mile basis, as follows :

ENGINEMEN.

	Rate of pay per mile—cents.		
	B. & O.	Great Western.	London & S. W.
Passenger :			
Express.....	3.9—4.25	0.95	1.13—1.43
Local.....	3.9—4.25	1.07—1.17	1.08—1.21
Freight :			
Fast or through.....	4.1—5.0	.....	1.375—1.54
Slow or local.....	4.2—5.0	.....	1.49—1.95

FIREMEN.

	Rate of pay per mile—cents.		
	B. & O.	Great Western.	London & S. W.
Passenger :			
Express.....	2.25—2.5	0.59	0.67—0.85
Local.....	2.25—2.5	0.67—0.735	0.65—0.73
Freight :			
Fast or through.....	2.75—3.1	.....	0.87—0.97
Slow or local.....	2.75—3.1	.....	0.95—1.21

^a In passenger service, 100 miles or less constitute a day. Overtime is computed on a speed basis of 20 miles per hour at a pro rata rate per hour. In through freight and local and pick-up service, 100 miles or 10 hours, or less, constitute a day. Overtime is compensated pro rata. The variations in rates are due to differences in weight and style of engines.

These tables make it clear that enginemen and firemen on a typical Eastern road in the United States are compensated at rates of pay that are two, three, and four times as high as the rates of compensation of engineers and firemen on representative English roads. This is strikingly brought out by placing by the side of the amounts paid by the railways of England for representative runs of those listed on pages 19 and 20 the amounts which would be paid at the minimum rate of wage prevailing on the eastern railways of the United States for corresponding service. If the maximum American wage were used in this comparison the disparity would be still greater.

Character of run.	Distance— Miles.	Wage received at English rate of pay.	What wage would be at American rate of pay.
Enginemen.			
Passenger—Express	158	\$1.95	\$6.32
do. do.	236½	2.53	9.46
do. Slow	168	1.82	6.72
Freight—Fast.....	150	2.31	6.67
do. Slow.....	272	4.74	12.78
Firemen.			
Passenger—Express	158	\$1.16	\$3.63
do. do.	236½	1.58	5.44
do. Slow	168	1.095	3.86
Freight—Fast.....	150	1.46	4.12
do. Slow.....	272	2.72	8.02

While it has been shown that English railway wages are much lower than in the United States, it must also be borne in mind (1) that the level of commodity prices is much lower in England, and (2) that the standard of comfort demanded by the English workman is lower and his manner of living simpler than that of his American colleague. An attempt is made in the second part of this study to ascertain the cost of living and the level of prices in the United States and foreign countries.

NOTE TO THE STUDY OF RAILWAY WAGES ON THE CONTINENT OF EUROPE.

In the countries of Continental Europe there are scales of annual salaries for railway employees which, however, do not apply to the lower classes who are usually paid at a daily rate of wage. Each scale provides for a gradation in the salaries of the class of employees to which it applies, progression from the minimum to the maximum requiring service throughout an extended series of years.

Such gradations do not exist in the United States. Here, in some departments of the railway service advance in salary depends to an extent upon experience, but in the case of trainmen there are virtually no distinctions in rates of pay based on seniority, variations in the compensation to enginemen, firemen, conductors, and other trainmen depending mainly upon the length and character of their run. The range of such variations in the United States is roughly indicated by the following table, based upon statements furnished by two representative railways, one operating in the East and one in the West, showing the minimum and maximum of annual earnings of enginemen and firemen during 1911-1912.

ENGINEMEN.	Minimum.	Maximum.
Railway A	\$1,606.00	\$1,971.00
Railway B.		
Passenger service.....	1,293.60	2,855.16
Freight service.....	1,372.80	2,442.00
Switching service.....	1,102.00	1,830.00

FIREMEN.	Minimum.	Maximum.
Railway A	\$1,022 00	\$1,204.50
Railway B.		
Passenger service.....	806.40	1,799.84
Freight service.....	842.40	1,630.80
Switching service.....	735.00	1,217.00

FRANCE.^a

Railway employees in France are classified either as officials who receive an annual salary or as workmen who are paid a daily wage.

Salaries and fixed wages on the French railways are so arranged that there is for every class of employee a minimum rate of pay, effective at the beginning of the employee's term of service, and a maximum rate, reached after passing, during a number of years, through several intermediate stages of gradually advancing compensation. Thus on the state railway system every class is subdivided into from four to seven subclasses, each representing a certain number of years of service. From this it is clear that the maximum rates paid on French railways are reached only after an extended service and by comparatively few employees, and that the predominant range of salaries and wages must in all cases lie considerably below the maximum.

Employees of French railways at the close of the year 1909 numbered 330,000 persons, of whom a fifth were employed on the state railway system (réseau de l'État).

FRENCH STATE RAILWAYS.

Annual salaries on the state railways, as fixed by decrees of 1899 and 1901, are as follows:

	Annual salary.	
	Minimum.	Maximum.
Heads of departments.....	\$1,158.00	\$3,667.00
Assistant heads of departments.....	1,158.00	1,833.50
Assistant secretaries.....	1,158.00	1,833.50
Chief engineers and assistants.....	2,509.00	3,667.00
Assistant chief engineers, principal engineers, and engineers.....	1,351.00	2,509.00
Assistant engineers.....	1,158.00	1,833.50
Principal mechanics.....	694.80	1,080.80
Mechanics.....	347.40	636.90
Examiners, mechanical department.....	231.60	405.30
Electricians.....	231.60	405.30

^a Unless otherwise specified, the data contained in this discussion are drawn from the report of the British Board of Trade on Railways in Belgium, France, and Italy, 1910, pp. 202-218, which relates to the year 1908.

Annual salary.

	Minimum.	Maximum.
Traffic manager.....	\$2,509.00	\$3,667.00
Assistant traffic manager.....	1,351.00	2,509.00
Principal commercial staff.....	1,158.00	1,833.50
Chief and assistant medical officers.....	386.00	965.00
Inspector general and chief inspector.....	1,351.00	2,509.00
Assistant chief inspector.....	1,158.00	1,833.50
Inspectors and chief station inspectors.....	772.00	1,351.00
Assistant inspectors.....	521.10	810.60
Principal clerks.....	521.10	1,833.50
Chief clerks and rate clerks.....	772.00	1,351.00
Assistant chief clerks.....	694.80	1,080.80
Chief clerks for grande vitesse and petite vitesse.....	347.40	636.90
Clerks.....	289.50	810.60
Dispatchers' clerks.....	289.50	636.90
Principal clerks for grande vitesse and petite vitesse..	289.50	521.10
Booking office clerks.....	260.55	434.25
Telegraph clerks.....	231.60	405.30
Principal accountants and clerks accountants.....	521.10	810.60
Accountants.....	289.50	810.60
Cashiers.....	289.50	521.10
Chief draughtsmen.....	521.10	810.60
Draughtsmen.....	289.50	636.90
Storekeepers.....	231.60	810.60
Distributors of stores.....	231.60	405.30
Store laborers.....	202.65	270.20
Works managers.....	772.00	1,351.00
Foremen.....	260.55	810.60
Assistant foremen.....	231.60	636.90
Station masters and assistant station masters.....	347.40	694.80
Controllers.....	521.10	810.60
Controllers of trains.....	347.40	636.90
First-class engine drivers.....	521.10	810.60
Engine drivers.....	347.40	636.90
Conductors.....	347.40	694.80
Firemen and firemen stationary engines.....	260.55	434.25
Guards.....	260.55	434.25
Brakesmen.....	231.60	405.30
District chiefs.....	347.40	694.80
Timekeepers.....	289.50	694.80

	Annual salary.	
	Minimum.	Maximum.
Principal messengers.....	\$260.55	\$434.25
Messengers.....	231.60	405.30
Leading porters.....	289.50	521.10
Registering porters.....	260.55	434.25
Office and door porters.....	231.60	347.40
Representatives at joint stations.....	289.50	521.10
Chief shunters.....	260.55	434.25
Pointsmen.....	231.60	405.30
Chief rail-layers.....	260.55	434.25
Rail-layers.....	173.70	241.25
Watchmen.....	231.60	405.30
Bridge watchmen.....	202.65	270.20
Signalmen.....	231.60	405.30
Semaphore and lamp keepers.....	202.65	270.20
Gatekeepers.....	173.70	241.25
Cranesmen.....	260.55	434.25
Weighing-machine attendants.....	231.60	405.30
Coopers.....	231.60	405.30
Laborers.....	202.65	270.20

In addition to wages or salaries paid by the state railways, a certain amount of money, not to exceed 2 per cent of the gross earnings of the year, is distributed to selected employees each year in the form of premiums for thrift and good management. Employees with large families are specially assisted, and grants are made in individual cases for funeral expenses, for assistance to orphans, and for various other purposes. All employees who are on permanent salary or fixed wages share in a pension fund, which is supplied partially by state subsidy and partially by annual deductions from the employees' salaries. The minimum pension is about \$70 a year.

PARIS-ORLEANS RAILWAY.

On the Paris-Orleans Railway, a private railway employing about one-seventh of the railway workers of France, the following scale of salaries is in effect:

	Annual salary.	
	Minimum.	Maximum.
Chief clerks (head office).....	\$579.00	\$1,737.00
Assistant chief clerks (head office).....	463.20	1,042.20
Principal assistant chief clerks.....	463.20	1,158.00
Central administrative principal clerks.....	405.30	694.80
Booking office clerks.....	347.40	579.00
Chief clerks, assistant chief clerks, and principal clerks, grande vitesse and petite vitesse.....	347.40	579.00
Clerks, grande vitesse and petite vitesse.....	289.50	521.10
Central administration staff.....	289.50	579.00
Ticket clerks.....	231.60	376.35
Principal station masters.....	694.80	1,389.60
Station masters.....	521.10	1,158.00
Secondary station masters.....	405.30	810.60
Station masters, small stations.....	347.40	521.10
Assistant principal station masters.....	347.40	694.80
Relieving principal station masters.....	260.55	318.45
Platform superintendents.....	347.40	521.10
Assistant station foremen.....	231.60	376.35
Checkers.....	231.60	318.45
Inspectors.....	521.10	1,158.00
Traffic and assistant traffic inspectors.....	405.30	810.60
Inspecting collectors.....	289.50	347.40
Overseers.....	231.60	318.45
Principal accountants.....	347.40	579.00
Accountants.....	405.30	694.80
Cashiers.....	463.20	810.60
Lighting overseers.....	405.30	810.60
Foremen lampmen.....	260.55	405.30
Lampmen and lamp cleaners (per month).....	14.72	29.38
Leading under porters.....	289.50	463.20
Registering porters.....	289.50	405.30
Porters.....	231.60	318.45
Section foremen.....	289.50	405.30
Gangers.....	231.60	318.45
Guards.....	318.45	376.35
Brakesmen.....	260.55	318.45
Telegraph staff.....	231.60	376.35
Semaphore staff.....	231.60	318.45
Signal workmen.....	231.60	289.50
Pointsmen.....	231.60	376.35
Storemen.....	231.60	347.40
Office keepers.....	231.60	289.50
Workmen (per month).....	14.72	29.38
Watchmen.....	231.60	289.50

Dwelling allowances are granted by the railway to employees living in Paris or Bordeaux whose salary is less than \$463.20, and to employees living elsewhere whose salary is less than \$405.30. The dwelling allowance varies in amount according to the size of the city of residence, running from \$38.60 a year in Paris down to \$6.95.

In addition, the Paris-Orleans Railway grants subsidies to heads of families on the following basis: Employees with a salary not exceeding \$289.50 a year, who have dependent on them more than two children under 15, or sick children of any age, or orphan relatives under 15, or father, mother, father-in-law or mother-in-law, are granted monthly subsidies of \$0.965 for the third dependent person of any of the classes named, and from \$0.965 to \$1.93 for the fourth and each additional person. Employees with a salary exceeding \$289.50 but not over \$405.30 do not receive the monthly subsidy for the third dependent of any of the classes named, but are granted \$0.965 for the fourth and from \$0.965 to \$1.93 for the fifth and each additional member. The variation in the subsidy for the fourth (or fifth) person is determined by the size of the city of residence, the largest subsidy being paid to employees living in Paris and Bordeaux.

Engine drivers and firemen receive additional allowances in the shape of "kilometric" premiums; that is, premiums varying with the kilometers traveled. Thus to engine drivers on passenger trains a premium of \$1.20 is paid for each 1,000 kilometers (621 miles) up to 4,000 kilometers a month; \$1.39 for the fifth thousand, \$1.97 for the sixth, \$2.45 for the seventh, \$2.93 for the eighth, and \$3.90 for the ninth and each additional thousand. To engine drivers on freight or mixed trains, the payment per 1,000 kilometers is two-fifths greater than on passenger trains, and to engine drivers on switching locomotives three-fifths greater than on passenger trains, switching mileage being counted at the rate of 5 kilometers (3.1 miles) per hour. To firemen on passenger trains the monthly premium is 60 cents for each 1,000 kilometers (621 miles) up to 4,000, 74 cents for the fifth thousand, 98 cents for the sixth, \$1.23 for the seventh, \$1.47 for the eighth, and \$1.95 for the ninth and each additional thousand. These payments to firemen are increased in the case of freight trains and switching locomotives, respectively, in the same ratio as the payment to engine-men. A further premium is paid to firemen on compound engines, amounting to 29 cents per 1,000 kilometers (621 miles). Premiums are also granted for the economical use of fuel at the rate of \$1.54 for every unused ton of fuel under a specified maximum.

Premiums are given to engine drivers and firemen for maintaining the regular time schedule. In case a train is late, the engine driver receives for every minute of time made up a premium of from 1.2 cents to 14.5 cents, according to the class of train handled, while the fireman receives from 0.4 cent to 6.8 cents. The engine driver and the fireman may also be fined corresponding amounts for each minute of time lost.

PARIS-LYONS-MEDITERRANEAN RAILWAY.

The salary list of the Paris-Lyons-Mediterranean Railway, a private railway employing about one-fourth of the railway workers of France, is as follows:

	Annual salary.	
	Minimum.	Maximum.
Inspectors, and assistant and commercial inspectors....	\$579.00	\$1,254.50
Telegraph and weighing-machine inspectors.....	231.60	772.00
Auditors.....	405.30	1,254.50
Cashiers.....	405.30	694.80
Principal clerks.....	405.30	1,254.50
Clerks.....	405.30	694.80
Booking office clerks.....	231.60	772.00
Station masters (1st and 2d class).....	260.55	1,254.50
Chief goods porters and checkers.....	318.45	579.00
Assistant goods porters.....	196.86	405.30
Chief guards and guards.....	196.86	463.20
Chief gangers.....	231.60	463.20
Gangers.....	196.86	405.30
Telegraphists.....	231.60	463.20
Signalmen.....	231.60	405.30
Watchmen and messengers.....	231.60	405.30

Monthly lodging allowances of from \$1.16 to \$3.47 are paid to employees with an annual salary of less than \$347.40 who live in particularly expensive localities. The amount varies with the locality, the maximum being granted to employees assigned for duty at stations on the Riviera during the months of the winter-resort season. To employees receiving a monthly salary no lodging allowance is paid, as this is included in the salary.

An indemnity of from one to six per cent of their salary is paid to employees who are required by the company to change their residence, providing the change is not made as a punishment.

The company grants monthly premiums for the economical use of coal and lubricants. For every ton of coal which is economized under a certain standard allowance the engine driver and fireman receive \$1.93, divided between them proportionately to the distance they have respectively covered during the month; for every kilogram of lubricant economized they receive 5.8 cents. Conversely, the same amounts are charged against engine drivers and firemen as fines for the extravagant use of coal and lubricants above the standard amounts; these fines are not charged against the employee's salary, but against the premiums he may have earned.

Distance or kilometric premiums are paid to engine drivers and to firemen. The company also grants premiums to engine drivers for making up time, and fines them for loss of time. These premiums to enginemen and firemen are of a similar nature to those described above for the Paris-Orleans Railway.

SOUTHERN RAILWAY.

On the Southern Railway (Sud de la France), a small private railway, the salaried staff receives compensation as follows:

	Annual salary.	
	Minimum.	Maximum.
Chief clerks and head office clerks.....	\$289.50	\$1,061.50
Clerks (chief office).....	254.76	
District clerks.....	254.76	694.80
Shop clerks.....	254.76	694.80
Excise clerks.....	231.60	254.76
Booking clerks.....	46.32	289.60
Inspectors.....	289.50	521.10
Engine drivers.....	312.66	597.00
Firemen.....	208.44	312.66
Guards.....	231.60	463.20
Train crews.....	202.65	254.76
Station masters.....	231.60	
Assistant station masters.....	312.66	
Relieving chief station staff.....	289.50	
Relieving station staff.....		231.60
Platform superintendents.....	289.50	
Checkers.....	231.60	347.40
Telegraphists.....		289.60
Cashiers.....		312.66
Accountants.....	254.76	
Accountant porters.....	231.60	463.20
Porters.....	231.60	405.30

	Annual salary.	
	Minimum.	Maximum.
Foremen shunters.....	\$231.60	\$463.20
Pointsmen.....	231.60	312.66
Yard staff.....	202.65	254.76
Day laborers (per day).....	.483	.676

Allowances are granted to employees as follows: Chief office clerks receive, in addition to their regular salary, an annual allowance amounting to about one month's pay. A number of classes are given liberal traveling allowances, amounting in some cases to more than 100 per cent of their regular salaries. These classes are inspectors, guards, train crews, relieving station staff, assistant station masters, platform superintendents, telegraphists, foremen shunters, checkers, and pointsmen.

To engine drivers and firemen premiums are given for distance covered, for economy of fuel and lubricants, and for keeping to schedule time, aggregating from \$193 to \$231.60 a year for engine drivers and \$115.80 to \$144.75 a year for firemen. In addition, when they are obliged to sleep away from home, engine drivers are entitled to 48 cents per night and firemen to 39 cents.

Dwelling allowances varying from \$32.81 to \$38.60 a year are made to employees entitled to lodging, when such lodging is not provided by the company.

To every employee of limited salary, a subsidy is granted for each member of his family over four. A similar subsidy has already been described in connection with the Paris-Orleans Railway.

The Southern Railway also grants subsidies, or indemnities, to certain grades of employees, because of the high cost of living in certain regions or because of residence in unhealthful localities. These vary from \$13.90 to \$44.00 per annum, according to the locality and to the rank of the employee.

Certain perquisites in the way of free transportation for his family and indemnities for rents still due are allowed when an employee is shifted by order of the company. When an employee is necessarily absent from his residence by day or night on exceptional temporary duty, he is entitled to sustenance allowance of from 68 cents to \$1.25 per day.

Finally, bonuses are awarded each year to such employees as have shown zeal and attention to work. These bonuses are never less than \$3.86 and may run as high as \$347.40 in exceptional cases.

All the railway companies of France carry luggage porters on their rolls, but as a general rule pay them little or no wage, reliance being placed wholly or in part upon gratuities from the public. Two railways pay small salaries to their porters, who are not entitled to demand gratuities. All the railways, also, use female labor to some degree. Women act as gatekeepers at crossings, as typists in offices, as ticket agents in stations, and on the state railways as petty station masters.

Hours of labor are regulated by the Minister of Public Works, whose decrees define and prescribe in detail the time schedules which shall apply on the railways. Hours of duty and periods of rest are allotted to all groups of employees under careful regulations.

As a general rule the railways of France do not supply their employees with uniforms, although in some cases the company assists in obtaining uniforms at a reduced price.

Certain privileges as to free passes and reduced rates of travel are granted by all the French railways to their employees. In addition, all the railway companies maintain pension funds, which are supplied in part by deductions from the salaries of employees and in part by subventions from the companies.

RAILWAY WAGES IN THE UNITED STATES AND FRANCE COMPARED.

It is difficult to secure, from the foregoing data, a statement of French railway wages comparable with American wage statistics, because the United States reports show actual earnings, while the French statistics are merely of maximum and minimum rates of pay. From the statistics presented the following rough comparisons may, however, be drawn:

On the Southern railway of France, day laborers receive from 48.3 to 67.6 cents per day. Whether this wage is compared with the daily compensation of "other trackmen" in the United States in 1908, which averaged \$1.45, or of "all other employees and laborers," which averaged \$1.97, or of "other station men," which averaged \$1.82, it will be seen that the American wage is two or three times as high as the French.

The yearly salary and allowances of engine drivers on the Southern railway of France range from \$505.66 to \$828.60, and the salary and allowances of firemen from \$324.24 to \$457.41. The yearly compensation, including premiums, of engine drivers on the Eastern railway of

France runs from \$649.06 to \$906.91, and the compensation of firemen from \$458.38 to \$595.98.

Taking for purposes of approximate comparison an annual rate of pay about halfway between the minimum and maximum in each of these cases, and for the United States multiplying by 300 (the working days per year), the average daily compensation of enginemen (\$4.45) and firemen (\$2.64) in 1908, the following results are reached:

ESTIMATED YEARLY COMPENSATION: 1908.

	United States	France	
	All railways.	Eastern Railway.	Southern Railway.
Enginemen	\$1,335	\$777.98	\$667.13
Firemen	792	527.18	390.82

On several of the French railways, even the lowest grades of employees are dignified by the receipt of salaries on a stated annual basis. While the range of salaries is in general low, it is difficult to compare them with American railway wages, as the latter are calculated on a daily earnings basis. It may be pointed out that the daily wage of the lowest paid class of American railway employees in 1908, "other trackmen," multiplied by 300 working days per year, amounts to about \$435, and that this minimum American wage is higher than the great majority of the wage minima on French railways, and higher also than many of the maxima, even among the upper grades of employment. Even when the different bonuses and allowances granted by the French railways to employees are added to their salaries and made a part of their annual compensation—and it must be remembered that the allowances are limited to the lower paid employees—the range of American railway wages is clearly very much higher than in France.

GERMANY.^a

Railway employees in Germany are divided into two classes—the official staff (Beamte) and the workmen (Arbeiter). The official staff comprises all permanent officials from president down to office messengers, while the workmen include assistants to the official staff and all ordinary laborers and temporary employees. Thus a foreman shunter is classed as an official, while his assistant, the ordinary shunter, is classed as a workman.

Officials (Beamte) are paid every three months in advance. In Prussia they receive a dwelling allowance in addition to salary, while train crews and other persons whose duties necessitate constant travel are granted "journey money" on a mileage scale. In Bavaria still another allowance is made to certain officials, constituting a bonus because of the important character of particular duties performed. Further allowances are made to the officials of the Bavarian and Saxon railways whose duties necessitate their permanent residence in some other state or country. No overtime pay is allowed to officials, but every provision possible is made in order that they may not have to work overtime.

Uniforms are not supplied to the employees on the German state railways. In Prussia and Saxony, however, the state railway managements contribute toward uniforms for the men. On the private railways uniforms are supplied by the company.

Workmen (Arbeiter) are paid at the end of each month, and are subject to dismissal on short notice. They do not wear distinctive uniforms, except caps provided by the railways.

Wages and salaries on the German railways in the aggregate were as follows for the years 1904 to 1909.

COMPENSATION TO RAILWAY EMPLOYEES, GERMANY: 1904-1909.^b

Year.	Average miles operated.	Average number of employees.	Total compensation.	Average annual compensation.
1904.....	33,290	582,370	\$186,956,879	\$321.03
1905.....	33,916	606,612	197,338,162	325.31
1906.....	34,422	648,437	217,562,675	335.52
1907.....	34,898	695,558	243,344,944	349.86
1908.....	35,391	699,156	257,443,345	368.22
1909.....	36,045	691,087	261,847,535	378.89

^a Unless otherwise specified, the data contained in this discussion is drawn from the Report of the Board of Trade Railway Conference, 1909, pp. 135-151, which relates to the year 1908.

^b Official statistics of the railways of Germany (Statistik der im Betriebe befindlichen Eisenbahnen Deutschlands), 1909, Table 25. The reported compensation includes supplementary allowances in part.

In 1908 the average compensation of employees on the railways included in the Association of German Railway Administrations was as follows:^a

	Average annual compensation: 1908.
Germany	\$367.67
Prussia-Hesse	366.93
Saxony.....	369.75
Bavaria	378.11
Austria-Hungary (including Bosnia-Herzegovina).....	269.23
Austria	255.54
Hungary	284.96
Luxemburg, Holland, etc.....	274.73

These data relate to yearly compensation. For daily compensation, it will be necessary to turn to the annual report of the Prussian-Hessian railway system. The average daily wage of all the employees of that system for the years 1900 to 1910 was as follows:

	Average daily earnings. ^b
1900.....	\$0.647
1901.....	0.652
1902.....	0.657
1903.....	0.662
1904.....	0.671
1905.....	0.688
1906.....	0.726
1907.....	0.757
1908.....	0.771
1909.....	0.783
1910.....	0.807

The increase from 1900 to 1910, it will be noted, was 16 cents per day, or 25 per cent.

PRUSSIAN STATE RAILWAYS.

The scale of annual salaries on the Prussian state railways is given in the following table, which shows the minimum and maximum salaries, the value of the various allowances, and the years required to reach the maximum salary.

^a Statistische Nachrichten von den Eisenbahnen des Vereins Deutscher Eisenbahnverwaltungen, 1908, pp. 132-135.

^b Official statistics of Prussian-Hessian railways (Bericht über die Ergebnisse des Betriebes der vereinigten preussischen und hessischen Staatseisenbahn), 1910, p. 226. These returns do not include overtime payments or *premiums for distance* paid to train crews. They do not, in all probability, include dwelling allowances.

Class of employee.	Annual salary.		Dwelling allow- ance.	Kilomet- ric allow- ance.	Years re- quired to reach maxi- mum salary.
	Mini- mum.	Maxi- mum.			
Auditors.....	\$428.40	\$999.60	\$51.41 to 128.52	.....	21
Technical office assistants ...	357.00	714.00	" " "	.....	21
First class clerks.....	357.00	642.60	" " "	.....	18
Draughtsmen and second class clerks.....	357.00	523.60	" " "	.....	18
Foremen.....	333.20	428.40	25.70 " 85.68	.....	12
Foremen in workshops.....	499.80	999.60	51.41 " 128.52	.....	18
First class station masters ...	571.20	999.60	" " "	.....	12
Second class station masters.	428.40	856.80	" " "	.....	18
Station porters and platform collectors.....	214.20	285.60	25.70 " 85.68	.....	15
Engine drivers.....	333.20	523.60	51.41 " 128.52	\$128.52	15
Locomotive firemen.....	238.00	357.00	25.70 " 85.68	71.40	18
Chief guards.....	333.20	452.20	51.41 " 128.52	71.40	18
Baggage guards.....	285.60	380.80	25.70 " 85.68	71.40	15
Goods guards and brakemen.	214.20	285.60	" " "	47.60	21
Traveling carriage and wagon examiners.....	214.20	333.20	" " "	47.60	21
Foremen shunters, telegraph- ists and first class signalmen	333.20	428.40	" " "	.....	15
Signalmen.....	285.60	380.80	" " "	.....	18
Pointsmen and gangers <i>a</i>	214.20	333.20	" " "	.....	18
Messengers.....	238.00	357.00	" " "	.....	21
Railway and night watchmen.	190.40	238.00	" " "	.....	18

A few officials receive extra payment for onerous duty, varying from \$47.60 to \$95.20 per annum. "Kilometric" allowances varying from one cent to 1.4 cents per 10 kilometers (6.2 miles) are paid to passenger-train crews and from 1.4 cents to 2.1 cents per 10 kilometers to crews of goods, military and mixed trains. To crews of coal, mineral and similar trains, also for shunting service performed at other than home stations, an hourly allowance of from 1.4 cents to 2.4 cents is paid instead of journey money. In cases where train crews are away from their home station over night, an allowance of from 15.9 cents to 35.7 cents is granted per night of absence.

In Prussia coöperative clothing supply clubs exist, to which the state makes contributions at the rate of \$7.30 per man per annum.

In addition to other allowances, a special service bonus is granted to workmen who have been in the continuous service of the Prussian state railways for 20 years or more and have conducted themselves in a satisfactory manner. Time served in the army, or in the employ

^a "Pointsmen" correspond to switchtenders.

of private railways which have been acquired by the state, is counted as part of the term of service. This bonus amounts to about \$5 a year after 20 years of service, \$7.50 after 25 years, \$10 after 30 years, \$15 after 35 years, \$20 after 40 years, \$25 after 45 years, and \$37.50 for each year of service greater than 50. In 1906 workmen on the state railways to the number of 7,363 were receiving service bonuses, amounting in the aggregate to \$63,630. Of this number, 39 had served 50 years or more, 441 had served from 40 to 50 years, 2,329 had served from 30 to 40 years, and 4,554 had served from 20 to 30 years.

Rewards are also granted to workmen in special circumstances, when they have distinguished themselves in some calamity or crisis. Absence on enforced civil duty is compensated in full, while military duty up to 14 days a year is compensated at two-thirds the regular rate of pay.

SAXON STATE RAILWAYS.

On the Saxon state railways the scale of salaries is as follows:

SAXON STATE RAILWAYS.

Class of employee.	Annual salary.		Supplement for living in foreign country—		Allowance for uniform.	House rent charge if in official house.	Dwelling allowance.	Years required to reach maximum salary.
	Minimum.	Maximum.	With official residence.	Without official residence.				
Draughtsman	\$357.00	\$528.36	.....	.....	.....	.....	\$42.84 to \$71.40	12
First class station master	556.92	642.60	\$44.98	\$72.11	\$17.37	\$57.12	42.84 " 71.40	6
Second class station master	399.84	571.20	36.41	58.55	17.37	42.84	42.84 " 71.40	8
Station porter	249.90	357.00	22.13	35.70	15.71	28.56	28.56 " 57.12	15
Engine driver	442.68	656.88	41.41	66.40	5.95	.....	42.84 " 71.40	10
First class fireman	314.16	428.40	27.85	44.98	5.95	.....	28.56 " 57.12	8
Second class fireman	257.04	385.56	24.28	38.56	5.95	.....	28.56 " 57.12	12
Chief guard	357.00	528.36	33.56	53.55	18.56	.....	42.84 " 71.40	12
Guard	257.04	385.56	24.28	38.56	18.33	.....	28.56 " 57.12	18
Foreman shunter	357.00	528.36	33.56	53.55	14.99	42.84	42.84 " 71.40	12
First class signaller	342.72	428.40	29.27	46.41	11.66	.....	28.56 " 57.12	12
Second class signaller	257.04	385.56	24.28	38.56	11.66	.....	28.56 " 57.12	18
Messenger	314.16	428.40	.....	.....	14.04	35.70	28.56 " 57.12	12

Dwelling allowances vary according to the cost of living in the various cities. If a rented house is furnished to a railway official, his dwelling allowance is fixed at the rental figure.

Station masters who have supervision of "halts," or way stations, receive as a rule a supplementary allowance of \$8.57 per "halt" per year.

Engine drivers receive while on duty, in addition to subsidies for dwellings and uniforms, 3.6 cents per hour plus 1.7 cents per kilometer traveled. Chief guards receive 3.6 cents per hour while on duty, in addition to salary and other allowances; guards receive 2.6 cents per hour, and firemen 1.4 cents per hour.

The foregoing statistics apply to officials, or Beamte. Arbeiter, or workmen, are paid in general the standard wages obtaining for that grade of labor in each district. Practically all workmen receive the same rates of pay, whatever the duties performed. Thus in Hamburg a shunter, or switchman, receives from 76.2 to 83.3 cents a day, with a supplementary payment in consideration of the arduous nature of his work amounting to from 4.8 cents to 7.1 cents a day; or a total of from 81 cents to 90.4 cents. Goods porters are paid on a piece-work basis with a guarantee of 83.3 cents per day.

Luggage porters, or "gepäckträger," receive no wages, except at small stations where traffic is light. In the latter case they receive a small amount for lamp and room cleaning and sundry small services. Otherwise, in lieu of wages they depend upon the public for gratuities.

As in France, hours of labor on the German railways are governed by detailed regulations. These are agreed upon by all the German confederated states.

Privileges of travel free or at reduced rates are granted to employees and their families under certain provisions, which vary from state to state. The age limit for entering the employ of German railways is 40 years. Lower railway officials are allowed from one to three weeks of annual leave. Workmen are allowed from three to eight days annually, after seven years of satisfactory service. Higher officials may obtain leave up to five or six weeks.

RAILWAY WAGES IN THE UNITED STATES AND GERMANY COMPARED.

From the railway wage data presented in the foregoing pages for Germany, it is possible to draw certain comparisons with American railway wages.

The average daily earnings of all employees on the Prussian-Hessian railways for the years 1900 to 1910 may be compared with the average daily compensation of all employees on American railways for the same years. It should be recalled that the Prussian-Hessian averages omit certain special allowances such as premiums and dwelling allowances.

	Average daily compensation.		Percentage by which American compensation is greater than Prussian-Hessian.
	United States.	Prussia-Hesse.	
1900.....	\$1.90	\$0.647	193.6
1901.....	1.91	0.652	192.9
1902.....	1.92	0.657	192.2
1903.....	1.99	0.662	200.6
1904.....	2.05	0.671	205.5
1905.....	2.07	0.688	200.9
1906.....	2.08	0.726	186.5
1907.....	2.20	0.757	190.6
1908.....	2.25	0.771	191.8
1909.....	2.24	0.783	186.1
1910.....	2.29	0.807	183.8

The average daily earnings of the several classes of employees on the Prussian-Hessian railways in 1910 are given below. The daily earnings for 1909-1910 of the most nearly corresponding classes of American railway employees are included in the table for comparison:

AVERAGE DAILY EARNINGS OF RAILWAY EMPLOYEES. BY CLASSES—FOR 1910.
PRUSSIA-HESSE AND UNITED STATES.

Class of employees in Prussia-Hesse.	Average daily earnings— Prussia-Hesse. United States.		Equivalent class in United States.
Technical office employees, draftsmen, etc.	\$1.76	} \$2.40	General office clerks.
Employees in inside work.....	.86		
Station employees, freight handlers, etc. ....	.77	1.84	"Other station men."
Track walkers, section hands, etc.	.62	1.47	"Other trackmen."
Engineers, conductors, etc.....	.74	4.55	Enginemen.
		2.74	Firemen.
		3.91	Conductors.
Other train service men.....	.68	} 2.69	"Other trainmen."
Workmen in train operation.....	.80		
Workmen in inside work.....	.80	2.01	{ "All other employees and laborers."
Maintenance of way employees...	.67	1.47	
Shopworkers .....	.99	3.08	Machinists.
		2.51	Carpenters.
		2.18	"Other shopmen."

Class of employees in Prussia-Hesse.	Average daily earnings— Prussia-Hesse. United States.		Equivalent class in United States.
Artisans and mechanics, time rates.....	\$1.03	} \$3.08	Machinists.
Artisans and mechanics, piece rates.....	1.17		
Skilled shopworkers, time rates...	.92	} { 3.08	Machinists.
Skilled shopworkers, piece rates..	1.08			2.51
Other shopmen, time rates.....	.80	} 2.18	"Other shopmen."
Other shopmen, piece rates.....	.96		
Shop apprentices.....	.27	....	No such group.

The classification is rough, but the variation from accuracy is probably slight. A glance over the table shows that the American earnings in nearly every case are higher than the German by one hundred per cent or more.

From the table of salaries and allowances on Prussian state railways, the following statement of aggregate annual payments to the several classes of trainmen may be drawn:

	Annual salary.	Dwelling allowance.	Kilometric allowance.
Engine drivers.. .. .	\$333.20—\$523.60	\$51.41—\$128.52	\$128.52
Locomotive firemen.....	238.00—357.00	25.70—85.68	71.40
Chief guards.....	333.20—452.20	51.41—128.52	71.40
Baggage guards	285.60—380.80	25.70—85.68	71.40
Goods guards and brakemen..	214.20—285.60	25.70—85.68	47.60

Taking for purposes of further comparison an amount halfway between the minimum and maximum salary and dwelling allowance, this table may be summarized as follows:

	Average annual salary.	Average dwelling allowance.	Kilometric allowance.	Total annual allowance.
Engine drivers	\$428.40	\$89.96	\$128.52	\$646.88
Locomotive firemen.....	297.50	55.69	71.40	424.59
Chief guards.....	392.70	89.96	71.40	554.06
Baggage guards.....	333.20	55.69	71.40	460.29
Goods guards and brakemen.	249.90	55.69	47.60	353.19

These statistics of trainmen's compensation in Prussia, which may be taken as representative, are compared with the compensation of trainmen in the United States in 1908 in the following table. The yearly compensation of each class of trainmen in the United States

has been reached by multiplying the average daily compensation by 300 working days per year.

	Estimated annual compensation: 1908.	
	Prussia.	United States.
Engine drivers.....	\$646.88	\$1,335
Locomotive firemen.....	424 59	792
Chief guards.....	554.06 }	1,143 <i>a</i>
Baggage guards.....	460.29 }	
Goods guards and brakemen.....	353.19	780 <i>b</i>

This table is presented not so much for an exact comparison of trainmen's compensation in the United States and Prussia as for an approximate indication of the level of salaries in the two countries.

It has been stated that switchmen in Hamburg receive from 81 cents to 90.4 cents a day, and goods porters a minimum of 83.3 cents per day. These typical instances of wages in a large German city may be compared in passing with the average daily earnings of railway switchmen and laborers in the United States during 1910, amounting to \$1.69 and \$2.01 respectively.

a Conductors. *b* "Other trainmen."

AUSTRIA-HUNGARY.^a

As in Germany, railway employees in Austria-Hungary are divided into two broad classes—Beamte, or permanent-salaried officials, and Arbeiter, or workmen employed by the day.

Rates of pay vary as between the state and the private railways in Austria and Hungary, the higher officials being better paid and the lower grades of employees not so well paid on the private lines. Day by day, however, the disparity between the pay on private and on public lines becomes less marked, as the private railways recognize the expediency of paying approximately as much as the state railways. The prospect of the nationalization of the private lines has also a tendency toward unification of pay.

The fixed pay of higher and lower officials on all the railways is in the form of a yearly salary, plus a fixed dwelling allowance. These two items are taken into consideration in calculating pensions. In addition, certain supplementary payments will be noted.

According to official returns, the average pay of the two main classes of employees on the Austrian railways in 1910, not including supplementary allowances, was as follows:

AUSTRIA—ALL RAILWAYS: 1910.^b

(Operated Mileage, 14,212 Miles.)

	Number.	Total compensation.	Average annual compensation.
Officials (Beamte, Unterbeamte, Diener)	134,690	\$57,362,115	\$425 88
Workmen (Arbeiter)	142,929	24,239,503	169.59
Total	277,619	\$81,601,618	\$293.93

Inasmuch as the compensation of officials is computed on the basis of 365 days a year, and the compensation of workmen on the basis of 300 days, the foregoing annual results may be reduced to a per diem

^a Unless otherwise stated, the data in this discussion of railway wages in Austria-Hungary are taken from the report of the British Board of Trade on Austro-Hungarian railways, issued in 1909 as one of its series of reports on Continental Railways, pp. 84-104. The rates of pay described in this report were those in effect in 1907.

^b Official statistics of Austrian railways (Österreichische Eisenbahnstatistik), 1910, Vol. I, pp. 551-553.

basis by dividing 365 and 300, respectively, into the annual compensation of the officials and the workmen. The results are \$1.17 per day for the officials, \$0.565 for the workmen, and \$0.89 for all employees combined.

The report of the Board of Trade on the railways of Austria-Hungary states that railway Arbeiter are paid in the city of Vienna at the following rates per day:

	Daily wage.
Ordinary workmen.....	50.7 cents
Skilled laborers.....	77.1 "
Foremen.....	81.2 "

AUSTRIAN STATE RAILWAYS.

On the Austrian state railways, employing about four-fifths of all the railway workers of Austria, the annual salaries are as follows:

	Annual salary.		Years required to reach maximum.
	Minimum.	Maximum.	
Engine drivers (1st class).....	\$243.60	\$527.80	24
Engine drivers (2d class).....	182.70	365.40	32
Chief guards	243.60	446.60	18
Guards	162.40	324.80	24
Firemen	162.40	324.80	24
Works foremen	263.90	609.00	27
Carriage and wagon foremen.....	182.70	365.40	32
Carriage and wagon cleaners.....	162.40	284.20	16
Lampmen	162.40	284.20	16
Station masters (1st class).....	243.60	527.80	24
Station masters (2d class).....	182.70	365.40	32
Ticket inspectors	243.60	527.80	24
Ticket examiners	162.40	324.80	21
Station foremen	162.40	324.80	21
Station attendants	162.40	284.20	16
Porters	162.40	324.80	24
Stores foremen	182.70	365.40	32
Gangers	182.70	365.40	32
Foremen shunters	182.70	365.40	32
Shunters	162.40	284.20	16
Signalmen	162.40	324.80	24
Messengers	162.40	324.80	24
Watchmen	152.25	203.00	15

A glance through this table will show that the length of time required to reach the maximum salary is in some cases so great that but a small proportion of the employees would at any one time be receiving the maximum rate. Advances from the minimum to the maximum salary is not by regular annual progression, but through grades.

For example, each employee who is obliged to wait 32 years before attaining the maximum salary is obliged to pass through nine grades. The first grade is made up of employees of less than two years' service; the second grade includes employees of two to five years' service; the third, fourth, fifth, and sixth grades each represent three additional years of service; while the seventh, eighth, and ninth grades each represent five years of service.

There is a dwelling allowance which for all classes is highest in Vienna, and is a given percentage of the Vienna allowance for other cities. Thus the allowance for any individual employee is computed according to his rank as an employee and according to the size of his city of residence. The dwelling allowances range from \$60.90 to \$203.00 in Vienna, and are 80 per cent, 70 per cent, 60 per cent, and 50 per cent of the Vienna allowance, respectively, in the various grades of the other Austrian cities.

Additional allowances on the Austrian state railways are as follows: Engine crews receive so-called "kilometric money," which is a bonus based on kilometers traveled, while the train crews receive hourly money, or a bonus based on hours of duty. Engine drivers receive a kilometric allowance of 3.2 cents for each 10 kilometers (6.2 miles) of passenger train mileage. Freight train drivers receive 1½ times as large an allowance. For all mileage over 5,000 kilometers (3,107 miles) a month the rates are increased 50 per cent. Firemen receive 1.6 cents per 10 kilometers (6.2 miles) for passenger train duty, and their bonus also is increased by one-half for freight train mileage.

Premiums are paid to the locomotive staff for economical use of fuel and lubricants. For every unused ton of standard coal under a certain maximum, the engine driver receives 24.4 cents and the fireman 8.1 cents, but the premium cannot in any one quarter year exceed \$36.54 for the engine driver or \$12.18 for the fireman. Similarly, for every kilogram of unused lubricating oil, a premium of 1.4 cents is allowed.

The train crew also receive bonuses, which are paid on an hourly basis. Chief guards and baggage and goods guards receive from 3.7 to 4.9 cents per hour. For "traveling time off duty," *i. e.*, time represented by intervals of waiting between trains, periods during which the men hold themselves in readiness for duty, they receive 1.6 cents an hour. Guards and other trainmen receive from 2.6 to 3.7 cents an hour for train duty, and 1.2 cents for "traveling time off duty."

Lodging allowances are paid to employees who are absent from home more than 72 hours, and are not within reach of official barracks.

To officials who travel constantly over fixed portions of the line, such as members of the engineering staff, a yearly traveling allowance, or journey money, is granted, ranging from \$97.44 to \$487.20, according to their rank. To officials who are called upon to make considerable journeys on foot, walking allowances are made for distances greater than 7 kilometers (4.3 miles), ranging from 5.3 cents per kilometer (8.5 cents per mile) to 18.7 cents per kilometer (30 cents per mile).

Other forms of payment for traveling expenses are made to the official class in the shape of per diem allowances, intended to cover the expenses incurred by them when on service journeys, or when employed at other than their home stations. These per diem allowances range in amount from 61 cents per day to \$1.22 per day. Workmen sent on journeys receive for traveling expenses an amount equal to their daily wage for each day's absence up to 20 days.

SÜDBAHN OF AUSTRIA.

On the Südbahn, or Southern railway of Austria, a private line employing one-ninth of the railway workers of Austria, the following is the scale of salaries:

	Annual salary.		Dwelling allowance (Vienna).	Years requir- ed to reach maximum salary.
	Minimum.	Maximum		
Chief foreman in workshops.	\$284.20	\$609.00	\$133.98-\$203.00	20
Foremen in workshops.....	243.60	568.40	113.68- 203.00	23
Station masters	243.60	527.80	113.68- 174.58	22
Clerks (1st class).....	243.60	527.80	113.68- 174.58	22
Clerks (2d class).....	182.70	345.10	73.08- 133.98	26
Engine drivers (1st class)....	263.90	609.00	113.68- 203.00	23
Engine drivers (2d class)....	203.00	243.60	73.08- 113.68	6
Firemen	162.40	345.10	60.90- 133.98	29
Chief guards	243.60	487.20	113.68- 174.58	21
Guards	162.40	345.10	60.90- 133.98	27
Goods guards	162.40	324.80	60.90- 133.98	26
Ticket inspectors	243.60	527.80	113.68- 174.58	21
Foremen shunters	162.40	345.10	60.90- 133.98	29
Shunters	162.40	324.80	60.90- 133.98	26
Signalmen	162.40	324.80	60.90- 133.98	31
Lampmen	162.40	324.80	60.90- 133.98	26
Porters	182.70	345.10	73.08- 133.98	26
Messengers	162.40	345.10	60.90- 133.98	29
Line watchmen	162.40	243.60	60.90- 113.68	19
Day and night watchmen....	152.25	203.00	60.90- 73.08	12

As on the state railways, the dwelling allowance for cities other than Vienna is computed as a percentage of the Vienna allowance.

On the Südbahn, as on the State railway system, engine drivers and firemen receive kilometric bonuses. The remainder of the train crew receives "travel money," or bonuses, for each hour of travel while on duty, and also while "traveling off duty"—*i. e.*, while stopping at other than the home station or while experiencing minor delays.

The following tabulation shows the average yearly bonuses and allowances of various kinds paid to the locomotive crews on the Südbahn:

	Engine drivers.	Firemen.
Kilometric money	\$206.05	\$149.21
Daily and overnight allowances.....	6.50	4.87
Economical use of stores.....	131.95	44.05
Other allowances	20.30	10.15
Total.....	<u>\$364.80</u>	<u>\$208.28</u>

If to these allowances be added the yearly salary of the median, or half-way, grade of engine drivers and firemen, and estimated average dwelling allowances of \$100 and \$70 respectively, the result will show the total annual earnings of representative grades of these two classes of employees. These are as follows:

	Typical annual salary.	Allowances.	Total.
First-class engine drivers.....	\$406.00	\$464.80	\$870.80
Firemen	253.75	278.28	532.03

HUNGARIAN STATE RAILWAYS.

On the Hungarian state railways, the scheme of salaries is as follows:

	Annual salary.		Years required to reach maximum.
	Minimum.	Maximum.	
Chief foremen in workshops.....	\$507.50	\$730.80	12
Foremen in workshops.....	284.20	568.40	21
Chief engine drivers.....	365.40	568.40	14
Engine drivers	243.60	406.00	13
Ticket inspectors	487.20	649.60	12
Chief guards	365.40	527.80	14
Guards	243.60	406.00	13
Goods guards	162.40	284.20	23
Firemen (1st class).....	243.60	324.80	15
Firemen (2d class).....	162.40	263.90	12
Station masters (1st class).....	365.40	649.60	25
Station masters (2d class).....	243.60	406.00	15

	Annual salary		Years required to reach maximum.
	Minimum.	Maximum.	
Inspectors	\$365.40	\$649.60	25
Chief telegraphists	365.40	649.60	25
Telegraphists	243.60	406.00	15
Clerks (1st class).....	365.40	649.60	25
Clerks (2d class).....	243.60	406.00	15
Foremen	243.60	406.00	15
Foremen shunters	243.60	324.80	16
Shunters	162.40	263.90	17
Signalmen (1st class).....	243.60	324.80	19
Signalmen (2d class).....	162.40	263.90	20
Lampmen (1st class).....	243.60	324.80	19
Lampmen (2d class).....	162.40	263.90	20
Messengers (1st class).....	243.60	324.80	19
Messengers (2d class).....	162.40	263.90	20
Porters	203.00	406.00	20
Watchmen (1st class).....	162.40	223.20	15
Watchmen (2d class).....	121.80	182.70	15

Dwelling allowances are granted to all salaried employees, ranging from \$30.45 to \$162.40 a year, according to amount of salary and the size of city of residence. In addition, engine and train crews receive mileage or hourly allowances. As in Austria, these allowances add considerably to their income.

In general, the scale of lodging allowances, premiums for economy of stores, traveling allowances and traveling expenses, is similar on all the Austro-Hungarian railways. The scale has been described in some detail for the state lines in Austria, and is for the most part applicable to the Südbahn and other private lines.

Only in the case of the Arbeiter, or daily workmen, and piece-workers do railway employees in Austria-Hungary receive extra pay for overtime or Sunday duty; employees receiving a fixed salary work seven days a week, when called upon, without extra remuneration. All salaried employees coming into contact with the public are required to wear uniforms. Only to the lower grades are these uniforms supplied free of charge; to the higher grades they are usually furnished by the company in the case of the first outfit, but not afterward. A regular system of fines exists for breaches of discipline, carelessness, and inefficiency. Other disciplinary measures consist in reductions of grade, transfers, and the like.

Hours of duty are regulated under a series of detailed and fixed rules. The age limits for entering the service of the railways of Austria-Hungary are 18 to 35 years. Holidays are granted to offi-

cials, varying from 8 days to 4 weeks annually, according to rank and length of service. The staff receives in addition certain well-defined privileges as to travel free or at reduced rates.

Pensions on the various lines are on the contributory basis, but the scale varies from railway to railway.

RAILWAY WAGES IN THE UNITED STATES AND AUSTRIA-HUNGARY COMPARED.

On the Austrian railways as a whole, it has been shown that railway employees received in 1910 an average daily compensation of 89 cents, not including supplementary allowances. Employees on the railways of the United States in 1910 averaged \$2.29 in daily earnings, which was 157 per cent higher than in Austria.

Wages in Vienna are probably as high as in any city of Austria-Hungary and higher than throughout the country generally. Therefore it is conservative to compare the rates of wages of workmen, skilled laborers, and firemen in that city with the daily earnings of corresponding classes of American railway employees. Ordinary employees and laborers on American railways received in 1907, for example, an average daily wage of \$1.92, which may be compared with the 50.7 cents and the 77.1 cents of the ordinary and skilled workmen in Vienna; while section foremen on American railways received \$1.90, compared with 81.2 cents received by foremen in Vienna.

The estimated annual earnings of engine drivers and firemen on the Südbahn of Austria have been shown for 1907. If the average daily earnings of American enginemen in 1907 (\$4.30) and of firemen (\$2.54) be multiplied by 300 working days per year, the result is an estimated annual earning of \$1,290 for enginemen, which may be compared with \$870.80 for first-class engine drivers on the Südbahn; and for American firemen an estimated annual earning of \$762, as compared with \$532.03 for firemen on the Südbahn.

BELGIUM.^a

Over nine-tenths of the total railway mileage of the kingdom of Belgium is operated by the state. The employees of the Belgian state railway system in 1909 numbered 67,475.

The salary scale which applies to the official staff of the state railways is as follows:

	BELGIAN STATE RAILWAYS.	
	Minimum.	Annual salary. Maximum.
Higher officials	\$1,737.00	\$2,547.60
Director of technical department.....	1,351.00	1,737.00
Inspector of control and director of service.....	1,158.00	1,737.00
Inspector (2 classes).....	1,061.50	1,351.00
Head of division (2 classes).....	1,061.50	1,351.00
Principal chief clerk.....	1,158.00	1,158.00
Chief clerk	868.50	1,061.50
Assistant chief clerk	772.00	868.50
Principal clerk	675.50	772.00
Clerks (3 classes).....	231.60	598.30
Chief draughtsman	868.50	1,061.50
Assistant chief draughtsman	772.00	868.50
Principal draughtsman	675.50	772.00
Draughtsman (2 classes).....	328.10	598.30
Principal controller	1,158.00	1,158.00
Controller (3 classes).....	675.50	1,061.50
Head of main depot.....	868.50	965.00
Head of depot (2 classes).....	521.10	772.00
Principal station master.....	1,061.50	1,061.50
Station master (4 classes).....	328.10	965.00
Principal head station porter.....	501.80	617.60
Head station porter.....	424.60	463.20
Porters at principal stations.....	386.00	424.60
Porters	231.60	386.00
Principal policeman	386.00	424.60
Policeman and interpreter.....	231.60	386.00
Chief accountant (2 classes).....	772.00	1,061.50
Accountant	521.10	772.00
Chief engineer (2 classes).....	1,061.50	1,351.00
Engineer (2 classes).....	598.30	1,061.50
Head of principal technical section (3 classes).....	772	158.00
Section head (3 classes).....	386.00	772.00
Principal architect (2 classes).....	772.00	1,158.00
Architect (3 classes).....	386.00	772.00
Chief chemist (2 classes).....	1,061.50	1,351.00
Chemist	386.00	1,061.50
Chief guard	386.00	463.20
Guard	231.60	386.00

^a Unless otherwise specified, the data contained in this discussion are drawn from the report of the British Board of Trade on Railways in Belgium, France, and Italy, 1910, pp. 67-82.

Employees of the state railways who are not of the official staff receive compensation on a monthly, daily, or hourly basis. The salary scale for workmen who are paid by the month is applied to workmen in the permanent way and mechanical departments, and is as follows:

BELGIAN STATE RAILWAYS.

	Monthly salary.	
	Minimum.	Maximum.
Works foreman	\$59.83	\$77.20
Leading machinist	34.74	54.04
Leading brake, heating, and lighting overseer.....	34.74	54.04
Foreman of lamps or gashouse.....	27.02	38.60
Foreman inspector of stock.....	27.02	38.60
Foreman electrician	27.02	38.60
Electrician	21.23	28.95
Timekeeper	25.09	46.32
Storekeeper	17.37	27.02
Gas stoker	17.37	23.16
Engine driver	23.16	38.60
Fireman	17.37	23.16
Leading cleaner	19.30	27.02
Carriage inspector	34.74	54.04
Leading shunter	21.23	27.02
Ganger	28.95	50.18
Checker	17.37	27.02

Employees paid by the day are connected with the traffic department. These employees are divided within each class into three grades, for each of which there is a minimum and maximum wage. In the following table there is presented for each class of employees only one minimum and one maximum, the minimum of the lowest grade and the maximum of the highest grade. Thus there is shown the whole range of wages within which each class of employees is compensated:

BELGIAN STATE RAILWAYS.

	Daily wage.	
	Minimum	Maximum.
Chief loader	\$.579	\$.965
Loader .....	.463	.618
Packer .....	.463	.618
Weigher .....	.540	.772
Overseer .....	.965	1.158
Leading shunter .....	.579	.965
Shunter .....	.463	.695

	Daily Wage.	
	Minimum.	Maximum.
Brakesman .....	.540	.965
Conductor .....	.463	.656
Ticket sorter .....	.463	.579
Watchman .....	.463	.579
Cleaner .....	.463	.579
Messenger .....	.193	.425

Officials on the Belgian state railways are entitled to increases in salary at least as often as once every six years. Other employees are promoted according to seniority, merit, attention to duty, and good conduct.

Premiums for the running of trains are granted to such station men as are directly concerned with the train service, and to head guards, guards, enginemen, and train crews. Each year a certain sum is appropriated by the management for these premiums, and this is then apportioned among the classes named according to a ratio which depends partly on length of service and partly on rank and number of days of duty. For specially important service or for special attention to duty additional or supplementary premiums may also be granted.

Quarterly premiums for economy of fuel and stores are paid to the employees concerned. If the amount consumed is considerably greater than the standard amount allowed per unit of work, the employees responsible for the extravagance are subject to penalties. Engine drivers and firemen are allowed premiums for punctuality, and conversely are fined for delays due to their own negligence. Other premiums are granted to various classes of employees; such, for example, are the premiums to employees who discover irregularities in the shipment of goods.

Traveling allowances are granted to all employees traveling on service, and in addition lodging allowances to certain grades of officials and to clerks for each night which they are required to spend away from their residence.

Station masters are entitled to heated and lighted lodgings. When lodgings are not furnished by the state, station masters may receive annual dwelling allowances. Cottages built along the railway line are reserved for married employees living with their families; a nominal rental for this is deducted from the salary of the occupier, amounting to 1.93 cents per day, or about 58 cents a month.

Uniforms are obtained by employees through a benefit club, which is supported by monthly deductions from their salaries, and which distributes uniforms to employees at or below cost price, according to the state of its reserve fund.

As in other countries, employees are entitled to certain privileges in the way of travel free or at reduced rates. All employees may receive 12 free coupons a year for stated journeys, and this number may be increased in the case of those who live at some distance from parents or relatives and wish to visit them frequently.

Workmen on the state railways must be Belgian citizens not over 32 to 35 years of age at the time of appointment, must have met all military requirements, must be of good moral character and free from physical defects.

Hours of duty and rest are carefully regulated. Pensions are paid to retired staff employees by the state, the pension being wholly non-contributory. In addition there is maintained a fund for the payment of pensions to the widows and orphans of employees. To this fund employees are required to contribute, and to the fund are allotted all fines, confiscations, or other deductions from salaries. There exists also a workmen's fund, designed to afford pensions or temporary relief to workmen and their families. This fund is maintained in part by enforced contributions and deductions from the wages of workmen, in part by government subsidies, and in part by private donations.

RAILWAY WAGES IN THE UNITED STATES AND BELGIUM COMPARED.

It will be noted that the daily wages cited above for certain classes of Belgian railway employees are rates of wages per day actually employed. As such, they are comparable with the average compensation received per day by railway workmen in the United States. Comparison of these wages per day with the average compensation per day of corresponding grades of workmen in the United States is given in the following table. Against each class of Belgian employees is set the class of American employees most nearly corresponding to it. The data relate to the year 1907 in the case of both countries:

AVERAGE DAILY WAGE: 1907.

Belgium.		United States.	
Class of employee.	Daily wage.	Class of employee.	Daily wage.
Chief loader	\$.579—.965	} "Other station men".....	\$1.78
Loader and packer .....	.463—.618		
Weigher.....	.540—.772		
Ticket sorter.....	.463—.579		
Brakesman ..	.540—.965		
Conductor.....	.463—.656		
Shunter.....	.463—.695		
Watchman.....	.463— 579 }	"Other trainmen".....	2.54
		Conductor.....	3.69
		Switch tenders, crossing tenders and watchmen ..	1.87

ITALY.^a

Of the railway mileage of Italy over eight-tenths is owned by the state. The number of employees on the Italian state railway system is about 150,000.

The average compensation of state railway employees in Italy during the year 1909 amounted to \$289.19. This was made up of an average salary or wage of \$211.57 and an average supplementary allowance of \$77.62. In addition, the administration expended for pensions and various forms of assistance to employees an amount equivalent to \$18.72 for each employee on its rolls.^b

The salary scale of the principal classes of employees on the state railways is as follows:

ITALIAN STATE RAILWAYS.

	Annual salary.		Years required to reach maximum.
	Minimum.	Maximum.	
Chief station masters.....	\$694.80	\$1,042.20	19
Station masters and inspectors (3 grades).....	347.40	810.60	12-17
Yard inspectors.....	208.44	405.30	25
Chief station clerks.....	636.90	926.40	18
Assistant station clerks.....	463.20	675.50	14
Engine drivers.....	289.50	521.10	18
Chief guards.....	208.44	405.30	25
Goods guards.....	150.54	231.60	15
Firemen.....	173.70	318.45	23
Draughtsmen.....	231.60	868.50	16-23
Workshop foremen.....	289.50	579.00	25
Messengers, Class I.....	208.44	347.40	19

A number of classes of employees attached to the staff are paid at a daily rate, as follows:

ITALIAN STATE RAILWAYS.

	Daily wage.		Years required to reach maximum.
	Minimum.	Maximum.	
Brakesmen.....	\$.405	\$.618	23
Signalmen.....	.405	.618	18
Station porters.....	.386	.733	30
Messengers, Class II.....	.482	.772	21

^a Unless otherwise specified, the data contained in this discussion are drawn from the report of the British Board of Trade on Railways in Belgium, France, and Italy, 1910, pp. 271-282.

^b Official statistics of the Italian state railways (Ferrovie dello stato-statistica generale dell' esercizio), 1909, pp. 314-317.

The average amount of supplementary allowances received annually by various classes of train employees is as follows:

Engine drivers.....	\$291.60
Chief guards.....	192.24
Goods guards.....	152.40
Firemen.....	156.60
Brakesmen.....	118.20

These supplementary allowances received by trainmen are made up of hourly and kilometric allowances, allowances for unusual absence from the home station and for traveling expenses under certain conditions of work, and premiums for the economical use of fuel and oil and for time made up by trains within authorized speed limits. On certain sections of the line, where tunnels abound, special daily tunnel allowances are granted.

In addition to the fixed rates of pay and supplementary allowances to trainmen, various forms of extra pay are given, the most important of which is the "locality allowance," granted to employees in proportion to the importance of their home station. Locality allowances are allotted at a normal percentage of the daily or monthly salary, the percentage ranging as high as 15 per cent in some cases. Certain classes of employees, in addition, are expected to live on premises provided by the administration; in default of accommodations a dwelling allowance is granted them. This allowance is never over \$9.65 a month.

Members of the staff residing in malarial districts receive a special daily allowance proportioned to their rank, the season of the year, and the district.

Further subsidiary payments are made, in the shape of premiums for satisfactory performance of duty, to switching employees, the signaling staff, station masters, inspectors, and to the higher grades of station clerks.

In general, the hours of duty must not ordinarily exceed 12 hours, day or night, nor in any case can they run over 17 hours. Overtime is commonly compensated by time off at another period or by overtime payments. The rate of such pay is usually one-eighth of the daily wage per hour of overtime. Permanent employees and also temporary employees with a minimum service record of 12 months are entitled to annual leave on full pay, ranging from 7 to 10 days for the lower grades, and from 10 to 20 days for the middle and higher grades.

Privileges of travel free or at reduced rates are granted to employees under well-defined regulations. Uniforms are not provided by the administration, but it contributes toward their cost and supplies the various articles at fixed prices.

Applicants for positions must be Italian citizens, and not over 30 to 35 years of age. Special preference is given to men who have completed a term of first-class military service.

The pension fund is maintained partly by enforced contributions from employees and partly by state subventions.

In general, the rates of pay on state and private lines are on approximately the same scale.

RAILWAY WAGES IN THE UNITED STATES AND ITALY COMPARED.

The yearly salaries and supplementary allowances of trainmen in Italy have been shown above. These may be summarized as follows:

	Annual salary.	Supplementary allowances.
Engine drivers	\$289.50—\$521.10	\$291.60
Chief guards	208.44— 405.30	192.24
Goods guards	150.54— 231.60	152.40
Firemen	173.70— 318.45	156.60
Brakesmen <i>a</i>	121.50— 185.40	118.20

For purposes of comparison a salary halfway between the maximum and minimum may be taken. To this may be added the annual supplementary allowance and the result, which represents the total estimated annual compensation, may be roughly compared with trainmen's compensation in the United States. This is done in the following table, the American statistics having been secured by multiplying the average daily compensation of the several classes of trainmen in 1908 by 300 working days per year.

ESTIMATED AVERAGE ANNUAL COMPENSATION OF TRAINMEN: 1908.

	Italy.	United States.
Engine drivers.....	\$696 90	\$1,335
Chief guards.....	499.11	1,143
Goods guards	343.47	
Firemen	402.67	792
Brakesmen.....	271.65	780 <i>b</i>

a Annual salary estimated by multiplying daily wage by 300 working days per year.

b "Other trainmen."

The daily wage of signalmen, station porters, and second class messengers, statistics of which have been presented, may be compared with the daily compensation of closely corresponding classes of American railway employees in 1908 as follows:

AVERAGE DAILY WAGE: 1908.

Class of employee	Italy.	United States.	Equivalent class—United States.
Signalmen	\$.405—\$.618	\$2.30	Telegraph operators and dispatchers.
Station porters . . . . .	.386— .733	1.82	“Other station men.”
Messengers, Class II. . . . .	.482— .772	1.97	“All other employees and laborers.”

Even when these Italian wages are increased by the “locality allowance,” which is never greater than 15 per cent of the daily wage, and by any premiums that may be granted for satisfactory service, it is clear that they run far below the level of compensation paid to similar classes of railway labor in the United States.

A COMPARATIVE STUDY OF RAILWAY WAGES AND THE COST OF LIVING.

II. COST OF LIVING.

United States, United Kingdom, France, Germany, and Belgium.

No comparative study of wages is complete without a correlative study of the cost of living. Only when measured by the price standard can wages be accurately compared, and there can be no satisfactory study of wages in different countries unless it applies to real wages, *i. e.*, wages in their relation to the level of commodity prices.

It is proposed to bring together here, so far as possible, what material is available regarding retail prices of commodities and cost of living in the principal European countries, so as to throw light on the relation which the purchasing power of the higher wage of the American workman, and especially the American railway employee, bears to the purchasing power of the lower wage of the English or Continental railway employee.

The subject of the cost of living has been much discussed in recent years both in this and other countries. The United States Bureau of Labor has made a number of budgetary studies, *i. e.*, studies of the expenditures of typical workingmen's families, and a number of unofficial bodies and private individuals have done the same. The commission on the cost of living recently appointed in Massachusetts reported to the legislature of that State in May, 1910. More recently, a committee of the United States Senate on Wages and Prices of Commodities has issued a report consisting of several volumes of hearings, statistical compilations, and findings. Most important of all, the Labor Department of the British Board of Trade completed in 1911 a series of five reports on the wages, housing,* and living conditions in selected industrial towns and cities of the United Kingdom, Germany, France, Belgium, and the United States. These reports were issued between 1908 and 1911.

The present survey of the comparative cost of living in various countries will comprise three divisions: first, a discussion of rents; second, a presentation of retail prices; third, a discussion of family budgets, with especial reference to the United States as compared with England and Wales. The text will be followed by an appendix, presenting in detail the material on which the summaries and conclusions are based.

RENTS.

The material regarding rents gathered by the British Board of Trade in its investigations into cost of living may be summarized in the following tabular statement. The statistics relate to the housing accommodations of the kind and grade usually occupied by working-men's families in the different countries.

RENTAL PER YEAR. *a*

Country.	Two Rooms.	Three Rooms.	Four rooms.	Five rooms.
United States.....		\$85—121	\$110—152	\$146—189
England and Wales <i>b</i>	\$38—44	47— 57	57— 70	70— 82
London.....	57—95	76—114	95—133	114—164
Scotland.....	48—54	66— 81	.....	.....
Ireland.....	32—44	50— 63	70— 85	.....
France.....	30—36	37— 53	44— 55	.....
Paris.....	39—78	58— 94	78— 97	.....
Germany.....	34—44	44— 60	54— 76	.....
Berlin.....	63—76	83—117	.....	.....
Belgium.....	22—29	28— 36	34— 44	.....

The Board of Trade found that the predominant type of dwelling in the United States and in England and Wales was the four or five-room house. The English house usually possesses, in addition, a scullery, or back kitchen. In the other European countries the houses, or in some instances flats, contained a smaller number of rooms, usually from two to three or from three to four. That is, the standard of housing was higher, on the average, in the United States and England than elsewhere. With this fact in mind, it becomes clear that a comparison of rental expenditures, for example, of the United States and France, would involve setting the rental value of a four-room house in the United States over against that of a three-room house or flat in France. Such a comparison would undoubtedly be proper and fair, but in the interest of caution rental values of the same grade of accommodation are here compared, regardless of standards of housing in the several countries.

a Inasmuch as local rates, or taxes, in the United Kingdom are paid by the occupier of a house, they are included in the rentals here reported for the United Kingdom, but not for the other countries. The burden of taxation must in the last analysis fall on the renter, whether the tax is paid directly by him or by the owner; this being true, no deduction is made in this table of the tax paid by the British occupier.

b Exclusive of London.

Reference to the table shows that the rental value of a three-room house or flat in the United States is higher than in any other country. In fact, with the exception of London, Paris and Berlin, the minimum value of such accommodation in the United States is higher than the maximum value of the same accommodation elsewhere. The same is true of four-room houses or flats, again excepting London. While data are not available for two-room accommodations, it is safe to assume that the rentals for these, as in the case of larger accommodations, are higher in the United States than elsewhere.

The range of rents secured by the Board of Trade may be standardized by taking the median or halfway point as the type in each case. This is made possible because of the fact that, as is stated in the reports, the rental most often encountered is always close to a point half way between the maximum and the minimum points of a given range of values. The foregoing table may therefore be summed up as follows:

TYPICAL ANNUAL RENTALS.

Country.	Three rooms.	Four rooms.	Five rooms.
United States.....	\$102	\$131	\$167
England and Wales ^a	52	63	76
London.....	95	114	139
Scotland.....	73	....	....
Ireland.....	56	77	....
France.....	45	49	....
Paris.....	76	87	....
Germany.....	52	65	....
Berlin.....	102	....	....
Belgium.....	32	39	....

This table, while only approximate, shows clearly that rental values in the United States range considerably higher than in the several European countries under consideration.

RETAIL PRICES.

Statistics of retail prices are available in abundance, yet only a few of them can be utilized in an international comparison, because of differences of measurements, grading, and naming of articles. Thus tea comes in many brands, varieties, and mixtures, and the quotation

^a Exclusive of London.

of the price of tea in one place means nothing as a standard with which to compare the price of tea anywhere else. Meats vary widely as to age and quality of animal and cut of steak or roast. The prices of none of the commonest staples can be quoted in comparison, country with country, with full confidence as to their comparability. Thus a degree of uncertainty attaches to all international cost comparisons.

With these qualifications borne constantly in mind, current retail prices of the most easily standardized articles of general consumption in the United States and other countries may be compared as in the following table. The detailed table from which it has been summarized, together with a statement of the sources from which the statistics were taken, will be found in the appendix.

RETAIL PRICES OF COMMODITIES.

Place and Year.

Article.	Basis— cents per	United Kingdom.								Germany.				France.			
		London 1910 A	London 1910 B	Sheffield 1910	Manchester 1910	Bradford 1910	Dublin 1911	Germany 1911	Berlin 1910	Frankfort 1910	Chemnitz 1910	Paris 1910	Havre 1911	Marseilles 1910	Lyons 1910	Bordeaux 1910	
Beef.....	lb.	16-20	.....	12	17-20	16	20	18.4	15-19	18.7	16.8	32.7	39	19.1- 26.4	20.9	.....
Pork.....	lb.	12-16	.....	15-16	21	16-20	.....	16	17-21	.....	19.4	23.6	40	23.6- 30.5	17.7	14-16
Ham.....	lb.	.....	20-28	24-26	17	.....	28	27.2	.....	.....	30.2	36.4- 60.9	.....	.....	.....	32
Flour.....	lb.	2.6-2.9	3.5	3	3.2	2.7-3.2	.....	.....	4.3	4.8	4.3	9.1- 10.9	8	5-7	4.5-5	4.5
Bread.....	lb.	3	3	.....	.....	3.6	.....	.....	5.8	.....	.....	3.6-4.5	4	3.5-3.9	3.7	4
Milk.....	qt.	8	8	.....	.....	6-7	.....	.....	4.9	6	5.5	5.7-9.5	6	7.3	5.7	6
Butter.....	lb.	24-32	29	30	28-32	26-32	30	.....	28	.....	31.1	30.9- 45.5	44	30.5	.....	18-30
Eggs.....	doz.	18-24	24	32	24	.....	30	.....	23	24	22.8	.....	58	.....	.....	.....
Sugar, grannu- lated.....	lb.	5	4.5	5	4.5-6	4.5	.....	.....	.....	.....	6.2	5.9-6.8	10	7.3	7.7	12
Sugar, brown	lb.	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Potatoes.....	bu.	38.6- 51.4	70	.....	.....	68.6	58.4	.....	45.6	42.6	.....	\$1.64- 2.73	\$1.50	78.7	\$3.27	.....
Beans.....	lb.	.....	3	4	.....	.....	.....	.....	4.3	3.6	.....	5	.....	.....	.....	7-8
Oil.....	gal.	.....	12-15	16-20	.....	16-28	.....	.....	.....	.....	21.9	54	.....	8.2	26.5	22
Anthracite coal.....	ton	.....	\$5.83	.....	.....	\$4.38- 5.11	.....	.....	.....	.....	.....	.....	\$13.50	\$11.55	\$11.88- 13.61	.....

Naval vessels are obliged to purchase stores in ports throughout the whole world, and figures are available showing the prices paid by them. Inasmuch as these stores are bought in large quantities, and therefore at the most favorable rates, the data do no more than throw interesting light on the problem. Thus the Massachusetts training ship "Ranger" bought bread in 1909 for 4 cents a pound in Boston, 6.5 cents in England, 3.8 cents in Nice, 4 cents in Amsterdam, 3.5 cents in Antwerp, and 5 cents in Gibraltar. Secretary of the Navy Meyer reported in 1909 that bread cost the navy 3.1 cents a pound in Boston, 4 cents in Nice, 5 cents in Naples, and 5.7 cents in Gibraltar.^a

By far the best available data as to the comparative cost of living is that contained in the reports of the British Board of Trade already described. The predominant range of retail prices of the various articles of food included in its investigation by the Board of Trade is given in the following table for the several countries covered by its study.

^a These instances are from the report of the Massachusetts Commission on the Cost of Living, p. 369, and from Sen. Doc. 488, 61st Cong., 2d sess.

RETAIL PRICES OF COMMODITIES.

Report of British Board of Trade on Cost of Living, 1908-1911.

Article.	Basis— cents per	United States, February, 1909.	United Kingdom—October, 1905.			France, October, 1905.	Germany, October, 1905.	Belgium, June, 1908.
			England and Wales.	Scotland.	Ireland.			
Tea.....	lb.	41 —56	32 —41	32 —45	43 —49	35.5 —42.5	22 —26	13 —17.5
Coffee.....	lb.	20 —25	4	4	4	5.5 —6 a	4.5 —5	5.5 —6.5
Sugar, granulated.....	lb.	5.5 —6	14	14 —16	15 —17	.....	.....	.....
Cheese, American.....	lb.	20	24	26 —28	28	22.5 —28.5	26 —30	25.5 —27.5
Butter.....	lb.	32 —35	6 —8	6 —8	5	4.5 —5.5	5 —5.5	4.5
Milk.....	qt.	8.5 —9.5	2.3 —2.9	2.9 —3.1	2.6 —2.9	3.6 —4.4	3.3 —4	2.7 —2.9
Flour.....	lb.	3.4 —3.9	2.25 —2.75	2.5 —3	2.5 —3	2.75 —3	6 2.5 —3.25	2.1 —2.6
Bread.....	lb.	5.5 —6	42.9 —60	34.3 —51.4	34.3 —51.4	51.4	38.6 —51.4	42.9 —51.4
Potatoes.....	bu.	97.6 —145.7	15 —17	18 —20	13 —16	13 —16.5	16 —18	12 —14
Beef.....	lb.	12 —16	15 —17	18 —20	13 —16	13 —16.5	16 —18	12 —14
Mutton.....	lb.	13 —17	15 —18	16 —19	14 —16	14 —20	.....	13 —15
Pork.....	lb.	12 —15	15 —17	16 —18	14 —16	15.5 —22	18 —22	15 —19.5
Bacon.....	lb.	17 —20	14 —18	17 —21	15 —19	.....	18 —22	14 —17.5
Veal.....	lb.	14 —17	.....	.....	.....	16 —22	.....	17 —21
Eggs.....	doz.	27 —32	.....	.....	.....	22.5 —26.5	.....	21 —24.5
Kerosene.....	gal.	11 —18	.....	.....	.....	.....	.....	.....
Coal:								
Anthracite.....	cwt.	35 —46	19 —24	19 —25	24	33.5 —40.5	22 —32	25 —30
Bituminous.....	cwt.	23 —27	.....	.....	.....	.....	.....	.....

a Loaf sugar. b "Gray" bread, made of rye and wheat mixed in various proportions.

It should be borne in mind that these prices are not necessarily the minimum prices at which the commodities could be obtained, but represent the prices most commonly paid by the working classes. Even where a range of prices is quoted, the lowest price of the range is not necessarily the minimum. The range simply represents a group of prices which relate to the commonly purchased grades or qualities of foods. As was true of rents, where a range of prices is given, the commonest or typical price found is about the median point, half way between the lowest and the highest prices quoted.

The comparison made by the Board of Trade of the cost of living in England and Wales with that in France shows that an English workingman transported to France would pay for the same standard of comfort about 18 per cent more than he does in England. If coal be excluded, he would pay 11 per cent more. Conversely, a French workingman would pay in England about 5.7 per cent less for the same standard of comfort than he is paying in France.

The comparison of the cost of living in England and Wales with that in Germany indicates that the English workingman, transported to Germany and living at his own standard of comfort, would pay 18 per cent more than he is paying in England. This excludes a comparison of tea and coffee. Conversely, a German workingman transported to England, and living at his old standard of comfort, would find that his English price level was about 7.4 per cent lower than it was in Germany.

The comparison of the cost of living in England and Wales and in Belgium shows that, excluding commodities for which comparative prices could not be secured, the English workingman who moved to Belgium would find his budget increased by 2 per cent, or if coal were excluded, slightly decreased. Conversely, a Belgian workingman moving to England would find his cost of living increased by about 2 per cent, or if coal were excluded, increased by slightly over 5 per cent.

The comparison of the cost of living in England and Wales and in the United States shows that an English family moving to the United States and maintaining its regular standard of living, would find its budgetary expenses increased by 38 per cent. Conversely, an American family would pay 20 per cent less for its accustomed dietary if it moved to England than it is now paying in the United States. These comparisons between the cost of living in England and the United States relate to the year 1909, a special investigation being made into

English prices in February, 1909, to provide a budgetary basis comparable with that of the United States.

Combining these various comparisons, and bringing them to a common basis, the following are the results. An English family which was transferred in turn to the respective countries named below and maintained its normal standard of living, would find its expenditures for food and fuel to stand in the following relations to its expenditures in England, the latter being taken as par, or 100 per cent:

In England and Wales.....	100 per cent.
In Belgium	102 " "
In France	118 " "
In Germany	118 " "
In the United States.....	138 " "

From this it will be seen that the cost of living in the United States, compared with that of France, is in the ratio of 138 to 118, or 117.8 per cent—that is, it is 17.8 per cent higher than in France. Similarly, the cost of living in the United States is

17.8 per cent higher than in Germany,

35.3 per cent higher than in Belgium, and

38.0 per cent higher than in the United Kingdom.

This is not a complete statement of the situation, inasmuch as it takes into account only those articles, and in only those proportions, used by the British workingman in his dietary. His standard would doubtless rise in moving to the United States; but for the *same standard of living*, the foregoing comparisons hold.

BUDGETS.

The Board of Trade, in its investigations, made a study of budgets of workingmen's families in the five countries studied. The results are given in some detail in the appendix. Below will be found a brief résumé, presented on a per capita basis:

EXPENDITURES FOR FOOD PER CAPITA.

	Per week.	Per year.
United States	\$1.78	\$92.33
France	1.20	62.40
Germany .....	.98	50.96
United Kingdom.....	.98	50.85
Belgium .....	.94	49.12

Thus the actual expenditure of the average American workingman for food in the northern part of the United States is seen to be greater than that of the average workingman in France by 48.0 per cent; greater than that of the workingman in Germany by 81.2 per cent; greater than that of the workingman in England and Wales by 81.6 per cent; and greater than the amount spent by the workingman of Belgium by 88.0 per cent.

THE UNITED STATES AND ENGLAND AND WALES.

The English-American comparison of the cost of living, as ascertained by the British Board of Trade in 1909, is here presented in somewhat greater detail. While this comparison rests on returns secured from but three trades—the building, the engineering, and the printing trades—yet a comparison of the conditions of these trades in one country with that of the same trades in another country sheds significant light on the relative position of other classes of workmen, such, for example, as railway employees.

In the three trades indicated, the Board of Trade investigators found that on the average the wages of the American workman were higher than those of the English by 130 per cent; that his hours of work per week were fewer by 4 per cent; that his payments for rent for the same kind and amount of house accommodation were higher by 107 per cent; that the retail prices of his food, weighted according to the consumption shown in the British budgets, were, as has earlier been shown, higher by 38 per cent. Put more briefly, it is found that while the wages of the American workman are the higher by 130 per cent, his expenditures for food and rent combined, on the British standard of living, are the higher by only 52 per cent. A much greater margin over the expenditures for food and rent is, therefore, available in the United States than in England and Wales. This margin, says the report of the Board of Trade, "makes possible a command of the necessities and conveniences of life that is both nominally and really greater than that enjoyed by the corresponding class in this country (England)."

A thoughtful American reviewer of this comparison of English and American conditions has said:^a "While these precise figures must be taken with broad qualifications, the conclusion that the

^a W. C. Mitchell, in the *Quarterly Journal of Economics*, November, 1911.

economic condition of the classes studied is better in America than in England is abundantly confirmed by other evidence. The American dietary is found to be more liberal and more varied than the English, and the proportion of income left after paying rent and food bills is larger in America. Indeed, even the lowest income class of American families spend relatively less of their income upon food and rent than the highest income class of British families. Thus the American family has a wider margin of income for buying non-necessaries, enjoys a higher standard of living, and can save more money if so disposed."

For the detailed discussion of the data summarized in Part II, reference is made to the appendix.

APPENDIX.

REPORTS OF THE BRITISH BOARD OF TRADE.

The first of the five reports of the Labor Department of the British Board of Trade on Cost of Living related to the United Kingdom and was based on data collected as of October, 1905, in 77 cities in England and Wales, 11 in Scotland, and 6 in Ireland. For the international comparisons, only the returns from the English and Welsh cities were utilized. These cities aggregated in 1901 a population of 13,500,000. The second report covered 33 cities of the German Empire, with an aggregate population of 9,000,000, and was based on data collected mainly in October, 1905, and partly also in March and April, 1908. The third report related to France, and was also based on data collected mainly as of October, 1905, and partly as of August-October, 1907. The French report covered 30 cities aggregating 6,000,000 population. The fourth report covered 15 cities in Belgium with an aggregate population of 1,680,000, and the data were obtained as of June, 1908. The final report included 28 cities in the northern and southern parts of the United States east of the Mississippi, the data being secured as of the month of February, 1909. The population of these cities aggregated 15,488,000 according to the United States census of 1910.

With reference to the extent to which the statistics presented in these reports are modified by the changes in prices between October, 1905, the date of the investigation in England and Wales, and the dates of the several investigations in the other countries, it may be stated that in Germany, so far as it was possible to judge from the few returns obtained in March, 1908, prices appear to have undergone little change. In France the average increase in food prices between October, 1905, and October, 1907, was estimated at slightly under 5 per cent. In Belgium no appreciable change appears to have occurred down to the autumn of 1908. Allowance has already been made in this study for the increase of 4 per cent which took place in the prices of English commodities between October, 1905, and February, 1909.

The material contained in these reports relates to rates of wages, rents, retail prices, and budgets. The wage data brought together by the Board of Trade in these reports deal with the building, engineering, printing, and furnishing trades.

RENTS.

The predominant type of housing accommodation in England and Wales was found by the Board of Trade to be the tenement of four or five rooms; that is, the self-contained two-story dwelling, in which are four or five rooms and a scullery, or back kitchen. For such accommodations as these the principal range of weekly rents in 1905, including all rates or taxes, was \$1.09 to \$1.34 for the four-room, and \$1.34 to \$1.58 for the five-room dwellings. This would be a yearly rental of \$57 to \$70 for the four-room type, and \$70 to \$82 for the five-room type. Corresponding rents in London for the four-room dwelling ranged from \$1.83 to \$2.55 per week, or \$95 to \$133 per year, and for the five-room dwelling from \$2.19 to \$3.16 per week, or \$114 to \$164 per year.

In Scotland the Board of Trade found the typical residence of the workingman to be the flat of one, two, or three rooms of considerable size. The predominant range of rents (including rates, or taxes) for such flats in Scotland was in 1905 as follows: for one-room flats, \$25 to \$32 per year; for two-room flats, \$48 to \$54 per year; and for three-room flats, \$66 to \$81 per year.

Irish residential conditions were found to be similar to those of England and Wales. Outside of Dublin, the predominant type is the two to five-room dwelling; in Dublin, the tenement house. Rents ranged as follows: one room and scullery, \$19 to \$32 per year; two rooms and scullery, \$32 to \$44 per year; three rooms and scullery, \$50 to \$63 per year; four rooms and scullery, \$70 to \$85 per year.

In Germany, the British Board of Trade found the predominant type to be the flat of two or three rooms, with appurtenances, in a large tenement house. "Appurtenances" in this connection refer to a share of the cellar for the storage of fuel or for laundry use, the use of a loft on certain days for drying purposes, and the like. German rents do not include local taxes, which must be paid separately by the occupiers. Rents paid for two-room flats, outside of Berlin, ranged in 1905 from \$.65 to \$.85 per week, or \$34 to \$44 per year, and for three-room flats from \$.85 to \$1.16 per week, or \$44 to \$60 per year. In Berlin, two-room flats cost \$1.22 to \$1.46 per week, or \$63 to \$76 per year, while three-room flats rented for \$1.70 to \$2.25 per week, or \$88 to \$117 per year.

The French type of housing, according to the British Board of

Trade, is largely of the tenement-house flat type, but partly also of the small-house type. French rents, like the German, do not include local taxes, nor as a rule any charge for water. Rent for two rooms in Paris in 1905 ranged from \$.75 to \$1.50 per week, or \$39 to \$78 per year; in other French towns from \$.57 to \$.69 per week, or \$30 to \$36 per year. Three rooms rented for \$1.12 to \$1.80 per week, or \$58 to \$94 per year, in Paris; in other French towns \$.71 to \$1.01 per week, or \$37 to \$53 per year. Four rooms cost \$1.50 to \$1.86 per week, or \$78 to \$97 per year, in Paris; in other French towns, \$.85 to \$1.05 per week, or \$44 to \$55 per year.

Belgian rent data were collected by the British Board of Trade in 1908. The predominant housing type in Belgium is the small self-contained house or cottage, with fewer but larger rooms than in England. Local rates or taxes are not included in the Belgian rental. Rents in Belgium were reported as follows: two-room dwellings, \$.43 to \$.55 per week, or \$22 to \$29 per year; three-room dwellings, \$.53 to \$.69 per week, or \$28 to \$36 per year; four-room dwellings, \$.65 to \$.85 per week, or \$34 to \$44 per year.

The Board of Trade pursued its rent investigations in the United States in February, 1909. The predominant type of dwelling was found to be the one-family house, although exceptions to this type were numerous. Four and five rooms were most commonly found, the houses containing them being more often built of frame or timber than of brick. Rentals for four-room dwellings or tenements, which were the prevailing type, were from \$2.11 to \$2.92 per week, or \$110 to \$152 per year. For five-room dwellings, which also formed a predominant type, rents per week ranged from \$2.80 to \$3.63, representing yearly rentals of \$146 to \$189.

RETAIL PRICES.

The complete table from which the summary table of retail prices on page 63 was taken is shown on pages 74 and 75. The bibliography of the table appears on page 73.

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- Havre.—Prices in Havre, France, November, 1911. Coöperation and Cost of Living in certain Foreign Countries, p. 6.
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- Bordeaux.—Prices in Bordeaux, France, 1910. Wages and Prices Abroad, Part IV, p. 7.
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RETAIL PRICES OF COMMODITIES.

(The bibliography of this table is given on page 73.)

Article.	Basis— cents per	Place and Year.						
		U. S.	United Kingdom.					
		Mass. 1910	London 1910 A	London 1910 B	Sheffield 1910	Manchester 1910	Bradford 1910	Dublin 1910
Beef.....	lb.	20	16-20	.....	12	17-20	16	20
Veal.....	lb.	.....	.....	.....	.....	.....	14-20	.....
Mutton.....	lb.	.....	.....	.....	14.5	20-21	18-20 <i>d</i>	20
Pork.....	lb.	17.9	12-16	.....	15-16	21	16-20	.....
Bacon.....	lb.	.....	16-24	18-28	22-24	18-24	.....	26
Ham.....	lb.	20.5	.....	20-28	24-26	17	.....	28
Lard.....	lb.	.....	.....	16	.....	17	.....	18
Wheat.....	lb.	.....	.....	2.2 <i>b</i>	2.4-2.5	.....	1.7	2.1
Flour.....	lb.	3.8	2.6-2.9	3.5	3	3.2	2.7-3.2	3.5
Bread.....	lb.	5.8	3	3	.....	.....	3.6	.....
Milk.....	qt.	7.7	8	8	.....	.....	6-7	.....
Butter.....	lb.	35.5	24-32	29	30	28-32	26-32	30
Cheese.....	lb.	.....	14-16	17-20	20	14-20	17-20	24
Eggs.....	doz.	29.4	18-24	24	32	24	.....	30
Sugar, gran.....	lb.	6	5	4.5	5	4.5-6	4.5	.....
Sugar, brown.....	lb.	5.5	.....	4	.....	.....	.....	.....
Potatoes.....	bu.	67.5	38.6-51.4	70	.....	.....	68.6	58.4
Rice.....	lb.	.....	4	5.5	6	.....	3.6	.....
Beans.....	lb.	6 <i>a</i>	.....	3	4	.....	.....	.....
Oatmeal.....	lb.	.....	4-6	5.5	.....	4	.....	3.5
Salt.....	lb.	.....	.....	.....	.....	.....	.....	.....
Oranges.....	doz.	.....	8-12	.....	.....	.....	24-30	.....
Lemons.....	doz.	.....	.....	.....	.....	.....	20	.....
Oil.....	gal.	12	.....	12-15	16-20 <i>c</i>	.....	16-28	.....
Anthracite coal.....	ton	\$7.814	.....	\$5.83	} \$4.01	{ \$4.29- 4.64	\$3.91- 4.56	} \$6.08
Bituminous coal.....	ton	.....	.....	\$6.32- 7.05				

a Quart = 2 lbs. *b* Bu. = 60 lbs. *c* Petroleum 28-30 cents. *d* N. Z. frozen = 9-11 cents.

RETAIL PRICES OF COMMODITIES.

(The bibliography of this table is given on page 73.)

Place and Year.										Basis— cents per	Article.
Germany.				France.					Italy.		
Germany 1911	Berlin 1910	Frankfort 1910	Chemnitz 1910	Paris 1910	Havre 1911	Marseilles 1910	Lyons 1910	Bordeaux 1910	Milan 1908		
cents	cents	cents	cents	cents	cents	cents	cents	cents	cents		
18.4	15-19	18.7	16.8	32.7	39	19.1-26.4	20.9	.....	14.4	lb.	Beef.
20.1	17-20	18.4	18.4	21.8-32.7	48	23.6-30.5	20.9	18-25	.....	lb.	Veal.
19.9	16-19	18.2	18.4	25.4-29.1	e	19.1-23.6	20.9	f	.....	lb.	Mutton.
16	17-21	.....	19.4	23.6	40	17.3-20.9	17.7	14-16	20.6	lb.	Pork.
18.5	19	26	19.4	36.4	.....	20.9	.....	16	.....	lb.	Bacon.
27.2	28	.....	30.2	36.4-60.9	.....	.....	.....	32	.....	lb.	Ham.
.....	17	19.5	16.8	18.2	.....	18.2	.....	18	.....	lb.	Lard.
.....	2.4	.....	.....	.....	.....	2.6	.....	4	2.6 b	lb.	Wheat.
.....	4.3	4.8	4.3	9.1-10.9	8	5.7	4.5-5	4.5	.....	lb.	Flour.
.....	5.8	.....	.....	3.6-4.5	4	3.5-3.9	3.7	4	3.9	lb.	Bread.
.....	4.9	6	5.5	5.7-9.5	6	7.3	5.7	6	.....	qt.	Milk.
.....	28	.....	31.1	30.9-45.5	44	30.5	.....	18-30	27.1	lb.	Butter.
.....	23	24	23.8	21.8-26.4	58	.....	.....	.....	.....	lb.	Cheese.
.....	.....	.....	22.8	.....	10	7.3	7.7	12	.....	doz.	Eggs.
.....	.....	.....	6.2	5.9-6.8	.....	.....	.....	.....	.....	lb.	Sugar, gran.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	lb.	Sugar, brown
.....	45.6	42.6	.....	\$1.64-2.73	\$1.50	78.7	\$3.27	.....	.....	bu.	Potatoes.
.....	.....	.....	5.3	6.4-8.2	10	.....	.....	.....	3.6	lb.	Rice.
.....	4.3	3.6	.....	6.4-7.3	.....	.....	.....	7-8	.....	lb.	Beans.
.....	.....	6.2	.....	.....	.....	.....	.....	3	.....	lb.	Oatmeal.
.....	.....	.....	.....	.....	.....	.....	.....	2	.....	lb.	Salt.
.....	.....	13.2-18	20	.....	.....	.....	.....	.....	.....	doz.	Oranges.
.....	.....	9.6-13.2	20	.....	.....	.....	.....	.....	.....	doz.	Lemons.
.....	.....	.....	21.9	.....	.....	8.2	26.5	22	.....	gal.	Oil.
.....	.....	.....	.....	54	.....	.....	.....	.....	.....	ton	Anthracite coal
.....	.....	.....	.....	\$10.30-	\$13.50	\$11.55	\$11.88	.....	.....	ton	Bituminous coal
.....	.....	.....	.....	12.52	\$12.00	\$7.35	-13.61	\$7.33	.....	.....	.....

e Lamb=14-22 cents. f Lamb=14-22 cents.

BUDGETS.

In the United Kingdom budgets were procured by the Board of Trade in 1903-4 from 1,944 families, averaging 3.6 children living at home, or about 5.6 persons per family. It was found that these families spent for food, not including liquors, an average of \$5.47 per week, or \$285 per year. This is an individual average of \$.98 weekly, or \$50.85 annually.

In Germany budgets were obtained in 1906-7 from 5,046 families, which averaged 2.7 children living at home, or about 4.7 persons per family. Expenditures for food, excluding beer, averaged \$4.60 per week, or \$239 a year, for each family. This is an individual average of \$.98 weekly, or \$50.96 annually. Expenditures for beer amounted to 20 cents per family per week, or \$10.40 per year.

In France budgets were secured in 1907-8 from 5,605 families, which averaged 2.2 children living at home, or about 4.2 persons per family. Expenditures for food, excluding wine and beer, amounted to \$5.11 per week, or \$266 per year, for each family; and for each person \$1.20 weekly and \$62.40 annually. The amounts spent for wine and beer increased the expenditures of the average family by \$.67 a week, or \$35 a year.

In Belgium budgets were collected in 1908-9 from 1,859 families, which averaged 2.7 children at home, or about 4.7 persons per family. Expenditures for food, exclusive of wine and beer, were \$4.44 per week per family, or \$231 per year. This amounts to \$.94 per person per week, or \$49.12 per person per year. Wine and beer expenditures added \$.14 a week, or \$7 a year, to the average family budget.

In the United States budgets were secured in 1909 from 3,215 British-American (*i. e.*, American, Irish, English, Scottish, Welsh, and Canadian) families living in the north. These families averaged 4.9 persons each, and expended for their food \$8.70 per week, or \$452 per year. For each member of the family this amounts to \$1.78 per week, or \$92.33 per year.

A London workingman's family, consisting of man and wife and possibly two small children, may subsist on \$3.66 a week, or \$190 a year, according to the report of the Senate Committee on Wages and Prices. This estimate is based on a study of 75 poor families in London, and may be regarded as a bare minimum. Compare this with the estimate of the Bureau of Labor in 1907 as to the average cost of food

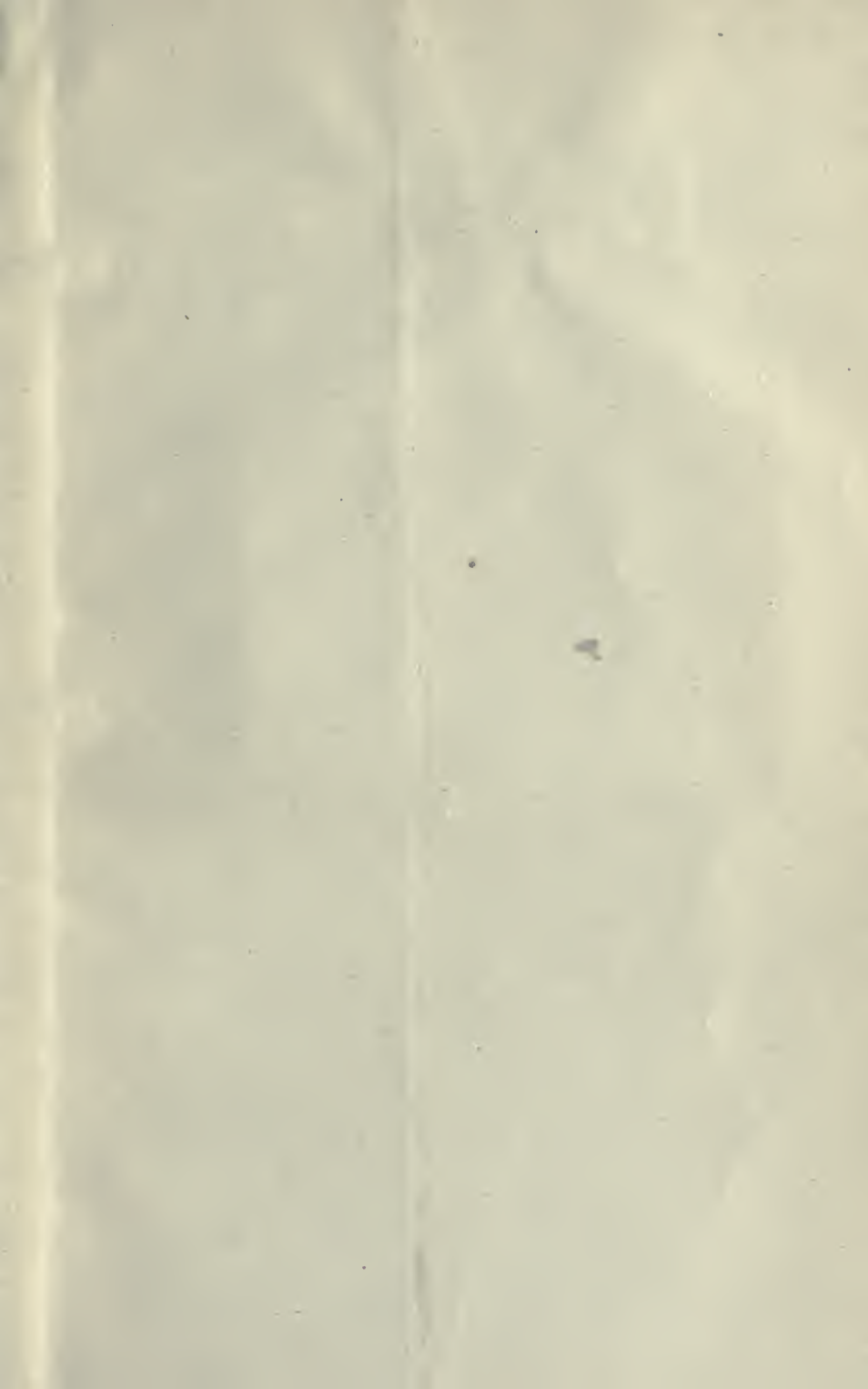
of the American workingman's family in that year—\$374.75—or the Massachusetts commission estimate for 1910 of \$478.10 per year. These estimates may be called standard or typical, rather than minimum, budgets. The Bureau of Labor estimate rests on a study of 2,567 families, while the Massachusetts commission's estimate was reached by adjusting to the year 1910 a Bureau of Labor study of prices in 1903.



BULLETINS OF THE
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(Continued.)

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28. Effect of Recent Wage Advances upon Railway Employees' Com-
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Relation of the Number of Employees and their Compensation to
Traffic and Revenue, 1909-1910-1911.
29. Summary of Revenues and Expenses of Steam Roads in the
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30. Summary of Revenues and Expenses of Steam Roads in the
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31. Railway Traffic Statistics, 1900-1910.
32. Summary of Revenues and Expenses of Steam Roads in the
United States for February, 1912.
33. Summary of Revenues and Expenses of Steam Roads in the
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