

BULLETIN

OF THE

DEPARTMENT OF LABOR.

No. 11—JULY, 1897.

ISSUED EVERY OTHER MONTH.

EDITED BY

CARROLL D. WRIGHT,
COMMISSIONER.

OREN W. WEAVER,
CHIEF CLERK.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1897.

CONTENTS.

	Page.
Workers at gainful occupations at the Federal censuses of 1870, 1880, and 1890, by William C. Hunt, of the Department of Labor.....	393-433
Public baths in Europe, by Edward Mussey Hartwell, Ph. D., M. D	434-486
Digest of recent reports of State bureaus of labor statistics :	
Indiana.....	487-491
Maine	492-494
Digest of recent foreign statistical publications.....	495-503
Decisions of courts affecting labor.....	504-536
Laws of various States relating to labor enacted since January 1, 1896.....	537-547
Recent Government contracts.....	548

LIST OF PLANS.

Plan No.	Page.
1A. Cheetham Public Baths and Hall, Manchester, England—Elevation.....	441
1B. Cheetham Public Baths and Hall, Manchester, England—Ground floor..	441
2A. Public Baths and Washhouses, St. Mary Stratford Bow, London, Eng- land—Elevation	443
2B. Public Baths and Washhouses, St. Mary Stratford Bow, London, Eng- land—Ground floor.....	443
3A. Model Bath House of the Berlin Society for People's Baths, Berlin (Ger- many) Industrial Exhibition, 1896—Elevation and first floor	463
3B. Model Bath House of the Berlin Society for People's Baths, Berlin (Ger- many) Industrial Exhibition, 1896—Cross section and longitudinal section	463
3C. Model Bath House of the Berlin Society for People's Baths, Berlin (Ger- many) Industrial Exhibition, 1896—Longitudinal section of dressing and shower cabin and ground plan of dressing and shower cabin show- ing fixtures.....	463
4. Stuttgart Swimming Bath, Stuttgart, Germany—Ground floor.....	476

BULLETIN
OF THE
DEPARTMENT OF LABOR.

No. 11.

WASHINGTON.

JULY, 1897.

**WORKERS AT GAINFUL OCCUPATIONS AT THE FEDERAL CENSUSES
OF 1870, 1880, AND 1890.**

BY WILLIAM C. HUNT.

The first attempt to determine through the United States census the number of persons engaged in the various classes of remunerative labor, from an inquiry on the population schedule, was made in 1820, at the fourth decennial census of the country. At that census the inquiry related simply to the number of persons engaged in each of three great classes of occupations—agriculture, commerce, and manufactures, the number in each household so employed being entered on the population schedule by the census taker at the time of the enumeration. The results of this inquiry were as follows:

PERSONS ENGAGED IN GAINFUL OCCUPATIONS, BY SELECTED CLASSES, 1820.

Classes of occupations.	Persons.
Agriculture.....	2,070,646
Commerce.....	72,493
Manufactures.....	349,506
Total.....	2,492,645

The total number of persons engaged in these three classes of occupations in 1820 was 2,492,645, but this number must not be taken as representing, in any sense, the whole number of persons engaged in all

kinds of remunerative labor at that census. The inquiry was limited to the number engaged in these three classes, and no effort was made to ascertain the specific occupation in which each person was engaged. The marshals, employed then as enumerators, determined, therefore, each for himself, the limit of occupations for these three classes and drew the line of separation between them. As there could not have been uniformity of judgment, it is apparent that this system could not result in either completeness or accuracy.

In 1830 no like attempt was made, but at the census of 1840 a similar inquiry was made as to the number of persons engaged in each of seven general classes of employment, with the following results:

PERSONS ENGAGED IN GAINFUL OCCUPATIONS, BY SELECTED CLASSES, 1840.

Classes of occupations.	Persons.
Mining	15, 210
Agriculture	3, 719, 951
Commerce	117, 607
Manufactures and trades	791, 739
Navigation of the ocean	58, 021
Navigation of canals, lakes, and rivers	33, 076
Learned professions and engineers	65, 255
Total	4, 798, 850

The total number of persons represented by these seven classes of occupations in 1840 comprehended more nearly the whole number of persons engaged in gainful occupations than was the case in 1820, although it is evident from the above classification that servants and the large number of persons engaged in other domestic and personal services, and probably government officials, clerks, and employees, are not included.

Since and including the census of 1850, information has been obtained as to the specific occupation followed as a means of livelihood.

In 1850 the inquiry concerning occupations was limited to free males over 15 years of age, and the printed results comprehended simply an alphabetical list comprising 323 occupation designations, but no attempt was made to classify them according to the number engaged in any of the great classes, as agriculture, manufactures, and the like.

In 1860 the specific occupations were given in the printed census report for all free persons over 15 years of age, without distinction as to sex, in an alphabetical list comprising 584 items, but without other description or classification.

In 1870 occupations were classified under four general heads, namely, agriculture, professional and personal services, trade and transportation, and manufactures and mechanical and mining industries, comprising 338 occupation designations. This presentation of occupations comprehended all persons 10 years of age or over, subdivided according

to sex, three age periods, and, for those of foreign birth, according to twelve principal nationalities.

In 1880 a classification of occupations similar to that of 1870 was made, the number of specific occupations being reduced to 265, and the subdivision by sex, age, and principal nationalities maintained, but on a somewhat restricted basis with respect to nationality.

In 1890 the same general plan of classifying occupations was observed as in 1870 and 1880, but several changes were made for various reasons, and the number of specific occupations reduced to 218. In making these changes and consolidations, the desirability of following the general plan of classification used in the censuses of 1870 and 1880 was not lost sight of, so that the figures obtained in 1890 are in the main comparable with the results of the two preceding censuses; but the subdivision according to sex, age periods, and nationalities of the foreign born was in 1890 very much extended and many other important details added. The census of 1890 probably constitutes the most complete presentation of occupation data that has ever been produced in this or any other country; it not only fully comprehends the subdivision by sex, age periods, and principal nationalities, as given in the censuses of 1870 and 1880, but also a classification according to general nativity and color, conjugal condition, illiteracy, inability to speak English, months unemployed, citizenship, and birthplace of mothers.

In order that proper comparison may be made between the different censuses, a rearrangement of occupations under each of the general classes, in accordance with the classification used in 1890, has been extended by the Census Office to the printed results of preceding censuses, bringing into classified form the results for 1850 and 1860, which in the printed reports are presented in an alphabetical list, and giving for 1870 and 1880 the readjusted totals for each of the general classes.

The results of this rearrangement appear as a part of the analysis of the occupation tables in Part II of the census report on population.

The completed results for the censuses prior to 1890 have been made available for use by this Department, as well as the final results for 1890, so far as they are applicable to the purposes of this article.

As already stated, the census report for 1850 gave the occupations of only free males over 15 years of age, and that for 1860 for free persons 16 years of age or over, without distinction of sex, but at the censuses of 1870, 1880, and 1890 the statistics of occupations included all persons of each sex 10 years of age or over. The table following shows, by sex, the total number of persons enumerated, the whole number of persons 10 years of age or over, the number of persons of that age engaged in gainful occupations, and the percentage of persons at work, first, of the total number of persons enumerated, and second, of the whole number of persons 10 years of age or over, as returned at each of the last three censuses.

NUMBER AND PER CENT OF PERSONS 10 YEARS OF AGE OR OVER ENGAGED IN GAINFUL OCCUPATIONS, BY SEX, 1870, 1880, AND 1890.

Sex and census years.	Total population.	Persons 10 years of age or over.	Persons 10 years of age or over engaged in gainful occupations.	Per cent of persons engaged in gainful occupations of—	
				Total population.	Persons 10 years of age or over.
MALES.					
1870	19,493,565	14,258,866	10,669,685	54.73	74.83
1880	25,518,820	18,735,980	14,744,942	57.78	78.70
1890	32,067,880	24,352,659	18,821,090	58.69	77.29
FEMALES.					
1870	19,064,806	13,970,079	1,836,288	9.63	13.14
1880	24,636,968	18,025,627	2,647,157	10.74	14.69
1890	30,564,370	23,060,900	3,914,571	12.81	16.97
BOTH SEXES.					
1870	38,558,371	28,228,945	12,505,923	32.43	44.30
1880	50,155,783	36,761,607	17,392,099	34.68	47.31
1890	62,622,250	47,413,559	22,735,661	36.31	47.95

The whole number of persons engaged in gainful occupations in 1870 constituted 32.43 per cent of the total population, but at the census of 1890 there were 36.31 per cent of the population engaged in such remunerative labor. Considered as regards the whole number of persons 10 years of age or over, those engaged in gainful occupations constituted 44.30 per cent in 1870 and 47.95 per cent in 1890.

At the census of 1840 the 4,798,859 persons (presumably 10 years of age or over) engaged in seven general classes of employment constituted 28.11 per cent of the total population (17,069,453) and 41.27 per cent of the whole number of persons 10 years of age or over (11,629,006).

Of the total male population in 1870, 54.73 per cent were engaged in gainful occupations as compared with 58.69 per cent in 1890. The males at work constituted 74.83 per cent of all males 10 years of age or over in 1870, 78.70 per cent in 1880, and 77.29 per cent in 1890. The slight decrease in the proportion of males who were at work in 1890 as compared with 1880 is due to the very much smaller number of children at work in 1890, as explained later on.

The whole number of females engaged in remunerative labor constituted 9.63 per cent of all of that sex in 1870 and 12.81 per cent of all females in 1890. Of the total number of females 10 years of age or over, those at work constituted 13.14 per cent in 1870 and 16.97 per cent in 1890.

The distribution of persons engaged in gainful occupations, in the aggregate and by sex, according to the number and per cent reported for each class of occupations, is shown for 1870, 1880, and 1890 in the table following.

NUMBER AND PER CENT OF PERSONS 10 YEARS OF AGE OR OVER IN EACH CLASS OF OCCUPATIONS, BY SEX, 1870, 1880, AND 1890.

Census years and classes of occupations.	Number.			Per cent.		
	Males.	Females.	Total.	Males.	Females.	Total.
1870.						
Agriculture, fisheries, and mining.	5,744,314	397,049	6,141,363	53.84	21.62	49.11
Professional service.....	278,841	92,257	371,098	2.61	5.02	2.97
Domestic and personal service.....	1,338,663	973,157	2,311,820	12.55	53.00	18.48
Trade and transportation.....	1,209,571	19,828	1,229,399	11.34	1.08	9.83
Manufacturing and mechanical industries.....	2,098,246	353,997	2,452,243	19.66	19.28	19.61
Total.....	10,669,635	1,836,288	12,505,923	100.00	100.00	100.00
1880.						
Agriculture, fisheries, and mining.	7,409,970	594,654	8,004,624	50.25	22.46	46.03
Professional service.....	425,947	177,255	603,202	2.89	6.70	3.47
Domestic and personal service.....	2,321,937	1,181,506	3,503,443	15.75	44.63	20.14
Trade and transportation.....	1,803,629	62,852	1,866,481	12.23	2.38	10.73
Manufacturing and mechanical industries.....	2,783,459	630,890	3,414,349	18.88	23.83	19.63
Total.....	14,744,942	2,647,157	17,392,099	100.00	100.00	100.00
1890.						
Agriculture, fisheries, and mining.	8,333,813	679,523	9,013,336	44.28	17.36	39.65
Professional service.....	632,646	311,687	944,333	3.36	7.96	4.15
Domestic and personal service.....	2,632,879	1,667,698	4,300,577	14.31	42.60	19.18
Trade and transportation.....	3,097,701	228,421	3,326,122	16.46	5.84	14.63
Manufacturing and mechanical industries.....	4,064,051	1,027,242	5,091,293	21.59	26.24	22.39
Total.....	18,821,090	3,914,571	22,735,661	100.00	100.00	100.00

According to the above figures, persons engaged in agriculture, fisheries, and mining constituted very nearly one-half (49.11 per cent) of the whole number of persons occupied in 1870 and less than two-fifths (39.65 per cent) in 1890. More than two thirds of this loss has occurred during the last decade—that is, between 1880 and 1890. There has been, on the other hand, an increase in the proportion of persons engaged in each of the other great classes in 1890 as compared with 1870, the largest increases being shown for persons engaged in trade and transportation and in manufacturing and mechanical industries. To properly understand the magnitude of this loss in the number of people engaged in agriculture, fisheries, and mining from 1870 to 1890, let us examine the table a little closely.

In 1870 the total employed in all occupations was 12,505,923, and in 1890, 22,735,661—an increase of 81.79 per cent. Now, if we exclude agriculture, fisheries, and mining, we find that there were in all other occupations 6,364,560 persons in 1870 and 13,722,325 in 1890. In these other occupations, then—professional service, domestic and personal service, trade and transportation, and manufacturing and mechanical industries—the increase was 7,357,765, or 115.60 per cent. It is apparent, then, that the gain in agriculture, fisheries, and mining must have been small. The figures show this: In 1870 there were 6,141,363 persons engaged in these three employments and 9,013,336 in 1890—an increase of 2,871,973, or 46.76 per cent, as against an increase of 115.60 per cent in the other classes.

In 1880 there was a larger percentage of persons engaged in domestic and personal service than in either 1870 or 1890, and this can only be

explained by the statement that probably the number of laborers (not specified) in 1880 included very many laborers who should more properly have been credited to agriculture and to manufacturing and mechanical industries. This becomes very apparent when the proportion of males in each class of occupations in 1880 is compared with similar results for 1870 and 1890. At the census of 1880 the males engaged in domestic and personal service constituted 15.75 per cent of all males occupied, although in 1870 they constituted but 12.55 per cent and in 1890 but 14.31 per cent. Considering, in the same way, the percentage of males engaged in manufacturing and mechanical industries at each census, it is seen that there were 19.66 per cent in 1870 and 21.59 per cent in 1890 as against 18.88 per cent in 1880. The number of persons reported in 1870 as laborers (not specified) constituted 45.29 per cent of all persons engaged in domestic and personal service, and 43.88 per cent in 1890, as compared with 53.21 per cent in 1880. The whole number of males reported as laborers (not specified) constituted 76.58 per cent of all males engaged in domestic and personal service in 1870, 77.58 per cent in 1880, and 69.02 per cent in 1890, while females so occupied constituted, respectively, 2.25, 5.32, and 3.29 per cent of all females in domestic and personal service at each census.

The proportion of males engaged in agriculture, fisheries, and mining is very much less in 1890 than in 1870, showing practically the same loss proportionately as for all persons so engaged without regard to sex, while for females there has been a somewhat smaller loss proportionately. Besides this loss for females, there has been, also, a decrease from 53 per cent in 1870 to 42.60 per cent in 1890 in the number of females engaged in domestic and personal service, with a corresponding increase in the proportion of females engaged in each of the other three classes in the order named, manufacturing and mechanical industries, trade and transportation, and professional service. The largest increase in the proportion of males engaged in any one class in 1890 as compared with 1870 is in trade and transportation, or an increase from 11.34 per cent in 1870 to 16.46 per cent in 1890.

The relative increase or decrease in the number of workers in each of the great classes of occupations during the past twenty years can be also measured by determining the proportion which the whole number of persons in each class bore to the total population at each census. These percentages are as follows:

PER CENT OF PERSONS IN EACH CLASS OF OCCUPATIONS OF TOTAL POPULATION,
1870, 1880, AND 1890.

Classes of occupations.	1870.	1880.	1890.
Agriculture, fisheries, and mining.....	15.93	15.96	14.39
Professional service.....	.96	1.20	1.51
Domestic and personal service.....	5.99	6.09	6.07
Trade and transportation.....	3.19	3.72	5.31
Manufacturing and mechanical industries.....	6.36	6.81	8.13
Total.....	32.43	34.68	36.31

In 1870 persons engaged in agriculture, fisheries, and mining constituted 15.93 per cent of the total population, a slightly larger percentage in 1880, and but 14.39 per cent in 1890. The percentages of persons engaged in agriculture only (excluding those in fishing and mining) were 15.43 in 1870, 15.38 in 1880, and 13.68 in 1890. These figures show a steady decline in the proportion of persons engaged in agricultural pursuits, and the relatively decreasing importance of agriculture as a means of livelihood becomes much more apparent if these percentages are contrasted with similar percentages derived from the censuses of 1820 and 1840. At the census of 1820 the 2,070,646 persons reported as being engaged in agriculture constituted 21.49 per cent of the total population. There was about the same proportion in 1840, when 3,719,951 persons, or 21.79 per cent of the entire population at that census, were reported as being engaged in agriculture.

Next to agriculture, fisheries, and mining, the largest percentage of the population at each census, excepting that of 1880, when there was a slight excess in domestic and personal service, was found in manufacturing and mechanical industries, the number of persons so employed constituting 8.13 per cent in 1890 as compared with 6.81 per cent in 1880, 6.36 per cent in 1870, 4.64 per cent in 1840, and 3.63 per cent in 1820, assuming, of course, that the number of persons so reported at the last two censuses named approximated very nearly to the real facts in each case.

The great changes which have taken place since 1820 in the proportion of the total population engaged in agriculture and in manufactures are emphasized when considered with respect to individual States and Territories, as shown by the tables following.

PERSONS ENGAGED IN AGRICULTURE, BY STATES AND TERRITORIES, 1820 TO 1890.

States and Territories.	1820.	1840.	1870.	1880.	1890.
North Atlantic division:					
Maine.....	55,081	101,630	83,788	83,437	81,284
New Hampshire.....	52,384	77,949	46,969	45,122	42,279
Vermont.....	50,951	73,150	58,278	55,645	53,939
Massachusetts.....	68,400	87,837	73,060	65,215	69,720
Rhode Island.....	12,559	16,617	11,802	10,986	11,630
Connecticut.....	50,518	56,955	43,766	44,274	45,596
New York.....	247,648	455,954	376,040	379,178	397,541
New Jersey.....	40,812	56,701	63,250	59,388	68,603
Pennsylvania.....	140,801	207,533	263,487	305,197	328,873
Total.....	714,164	1,134,326	1,020,440	1,048,442	1,099,465
South Atlantic division:					
Delaware.....	13,259	16,015	15,984	17,880	18,187
Maryland.....	79,135	72,046	80,540	91,139	91,301
District of Columbia.....	853	884	1,366	1,480	1,752
Virginia.....	276,422	318,771	244,966	254,651	259,327
West Virginia.....	.....	.....	^a 74,053	107,790	119,974
North Carolina.....	174,196	217,095	269,518	261,449	370,811
South Carolina.....	166,707	198,363	206,755	295,022	326,528
Georgia.....	101,185	209,383	336,723	433,284	416,263
Florida.....	.....	12,117	42,897	59,386	64,896
Total.....	811,757	1,044,174	1,272,802	1,622,081	1,669,014
North Central division:					
Ohio.....	110,991	272,579	397,613	398,188	400,229
Indiana.....	61,315	143,806	267,426	331,783	322,229
Illinois.....	12,395	105,337	376,895	437,138	431,532
Michigan.....	1,468	56,521	189,552	249,226	287,625
Wisconsin.....	.....	7,047	161,828	199,711	237,659
Minnesota.....	.....	.....	76,615	133,690	192,291
Iowa.....	.....	10,469	210,548	303,922	322,057
Missouri.....	14,247	92,408	264,320	350,415	390,201
Dakota (b).....	.....	.....	2,630	23,652	112,391
Nebraska.....	.....	.....	23,147	90,610	170,170
Kansas.....	.....	.....	73,408	206,190	250,659
Total.....	200,416	693,167	2,043,982	2,735,525	3,117,043
South Central division:					
Kentucky.....	132,161	197,738	261,320	320,809	320,191
Tennessee.....	101,919	227,739	267,415	294,467	330,835
Alabama.....	30,642	177,439	292,412	381,673	372,046
Mississippi.....	22,033	139,724	259,542	340,296	359,658
Louisiana.....	53,941	79,289	142,104	206,014	239,091
Texas.....	.....	.....	167,091	360,261	430,616
Oklahoma.....	.....	.....	.....	.....	13,911
Arkansas.....	3,613	26,355	109,432	217,005	255,346
Total.....	344,309	848,284	1,499,316	2,120,525	2,321,694
Western division:					
Montana.....	.....	.....	2,251	4,903	15,107
Wyoming.....	.....	.....	337	1,698	8,092
Colorado.....	.....	.....	6,518	14,097	38,269
New Mexico.....	.....	.....	18,669	14,324	23,604
Arizona.....	.....	.....	1,289	3,536	6,942
Utah.....	.....	.....	10,492	14,725	20,298
Nevada.....	.....	.....	2,685	4,596	5,663
Idaho.....	.....	.....	1,507	4,082	13,596
Washington.....	.....	.....	4,413	13,779	43,494
Oregon.....	.....	.....	13,480	27,733	47,129
California.....	.....	.....	50,380	83,829	136,516
Total.....	.....	.....	112,021	187,302	358,710
The United States.....	2,070,646	3,719,951	5,948,561	7,713,875	8,565,926

^a West Virginia set off from Virginia December 31, 1862.^b North and South Dakota combined in 1890.

PERSONS ENGAGED IN MANUFACTURING AND MECHANICAL INDUSTRIES, BY STATES AND TERRITORIES, 1820 TO 1890.

States and Territories.	1820.	1840.	1870.	1880.	1890.
North Atlantic division:					
Maine.....	7,643	21,879	55,582	65,122	80,054
New Hampshire.....	8,699	17,826	45,716	56,351	71,408
Vermont.....	8,484	13,174	20,759	23,720	29,702
Massachusetts.....	33,464	85,166	284,090	357,592	475,646
Rhode Island.....	6,091	21,271	45,721	64,048	81,548
Connecticut.....	17,541	27,932	82,661	111,524	146,397
New York.....	60,038	173,193	461,844	604,835	828,216
New Jersey.....	15,941	27,004	97,133	149,356	223,892
Pennsylvania.....	60,215	105,833	300,725	436,665	623,837
Total.....	218,116	493,328	1,394,231	1,869,213	2,565,750
South Atlantic division:					
Delaware.....	2,821	4,060	9,240	13,472	18,104
Maryland.....	18,040	21,529	58,112	76,202	102,015
District of Columbia.....	2,184	2,273	11,623	14,849	23,311
Virginia.....	32,336	54,147	44,273	56,564	77,614
West Virginia.....	.....	.....	15,544	21,472	30,842
North Carolina.....	11,844	14,322	18,415	30,755	50,945
South Carolina.....	6,747	10,325	13,138	18,272	31,137
Georgia.....	3,557	7,984	25,992	33,656	58,994
Florida.....	.....	1,177	3,648	7,216	18,152
Total.....	78,129	115,822	199,985	272,456	410,814
North Central division:					
Ohio.....	18,956	66,265	179,792	223,915	330,987
Indiana.....	3,229	20,590	72,811	102,369	139,508
Illinois.....	1,007	13,185	123,613	184,284	319,140
Michigan.....	196	6,890	73,964	109,543	162,098
Wisconsin.....	.....	1,814	49,307	79,031	129,295
Minnesota.....	.....	.....	16,694	30,223	83,748
Iowa.....	.....	1,629	44,726	64,091	83,654
Missouri.....	1,952	11,100	74,818	99,928	152,907
Dakota (b).....	.....	.....	310	5,170	15,295
Nebraska.....	.....	.....	5,617	17,564	55,792
Kansas.....	.....	.....	17,259	31,960	54,674
Total.....	25,340	121,473	657,911	959,078	1,533,098
South Central division:					
Kentucky.....	11,779	23,217	41,310	57,082	82,675
Tennessee.....	7,860	17,815	26,869	33,275	58,172
Alabama.....	1,412	7,195	15,707	20,024	39,019
Mississippi.....	650	4,151	9,412	12,213	19,637
Louisiana.....	6,041	7,565	23,849	28,050	41,664
Texas.....	.....	.....	15,240	28,214	58,065
Oklahoma.....	.....	.....	.....	.....	2,168
Arkansas.....	179	1,173	6,018	10,439	21,920
Total.....	27,921	61,116	138,405	189,297	323,320
Western division:					
Montana.....	.....	.....	1,143	2,670	11,764
Wyoming.....	.....	.....	887	1,153	4,634
Colorado.....	.....	.....	2,250	16,713	39,380
New Mexico.....	.....	.....	1,775	2,579	3,997
Arizona.....	.....	.....	774	2,375	2,733
Utah.....	.....	.....	3,415	7,087	13,352
Nevada.....	.....	.....	4,398	5,641	3,061
Idaho.....	.....	.....	636	1,523	3,987
Washington.....	.....	.....	1,620	4,524	36,082
Oregon.....	.....	.....	4,320	9,604	22,960
California.....	.....	.....	40,493	70,436	113,461
Total.....	.....	.....	61,711	124,305	258,311
The United States.....	349,506	791,739	2,452,243	3,414,349	5,091,293

a West Virginia set off from Virginia December 31, 1862.
 b North and South Dakota combined in 1890.

PER CENT OF PERSONS ENGAGED IN AGRICULTURE OF TOTAL POPULATION, BY STATES AND TERRITORIES, 1820 TO 1890.

States and Territories.	1820.	1840.	1870.	1880.	1890.
North Atlantic division:					
Maine.....	18.45	20.25	13.37	12.86	12.30
New Hampshire.....	21.47	27.39	14.76	13.00	11.23
Vermont.....	21.59	25.06	17.63	16.75	16.23
Massachusetts.....	12.13	11.91	5.01	3.66	3.11
Rhode Island.....	15.13	15.27	5.43	3.97	3.37
Connecticut.....	18.36	18.37	8.14	7.11	6.11
New York.....	18.05	18.77	8.58	7.46	6.63
New Jersey.....	14.71	15.19	6.98	5.25	4.75
Pennsylvania.....	13.44	12.04	7.48	7.13	6.25
Total.....	16.39	16.78	8.30	7.23	6.32
South Atlantic division:					
Delaware.....	18.23	20.51	12.79	12.20	10.79
Maryland.....	19.43	15.33	10.31	9.75	8.76
District of Columbia.....	2.58	.88	1.04	.83	.76
Virginia.....	25.95	25.71	10.99	16.84	15.60
West Virginia.....			^a 16.75	17.48	15.73
North Carolina.....	27.27	28.81	25.16	25.82	22.92
South Carolina.....	33.16	33.37	29.30	29.63	23.37
Georgia.....	29.67	30.28	28.44	28.10	22.66
Florida.....		22.24	22.85	22.04	16.57
Total.....	26.52	26.60	21.74	21.25	18.84
North Central division:					
Ohio.....	19.09	17.94	14.92	12.45	10.90
Indiana.....	41.66	21.70	15.91	16.77	14.70
Illinois.....	22.47	22.12	14.84	14.20	11.28
Michigan.....	16.75	26.63	16.01	15.23	13.74
Wisconsin.....		22.77	15.34	15.18	14.09
Minnesota.....			17.42	17.12	14.77
Iowa.....		24.28	17.63	18.71	16.84
Missouri.....	21.41	24.08	15.36	16.44	14.56
Dakota (b).....			18.55	21.20	21.97
Nebraska.....			18.82	20.93	16.07
Kansas.....			20.14	20.70	17.56
Total.....	23.33	20.68	15.75	15.75	13.94
South Central division:					
Kentucky.....	23.43	25.36	19.78	19.46	17.23
Tennessee.....	24.11	27.46	21.25	19.09	18.72
Alabama.....	23.96	30.04	29.33	30.23	24.59
Mississippi.....	29.20	37.20	31.35	30.07	27.89
Louisiana.....	35.27	23.50	19.55	21.92	21.37
Texas.....			20.41	22.63	19.26
Oklahoma.....					22.50
Arkansas.....	25.35	27.61	22.59	27.04	22.63
Total.....	25.36	28.04	23.30	23.77	21.16
Western division:					
Montana.....			10.93	12.52	11.43
Wyoming.....			3.70	8.17	13.33
Colorado.....			16.35	7.25	9.28
New Mexico.....			20.32	11.98	15.37
Arizona.....			13.35	8.74	11.64
Utah.....			12.09	10.23	9.76
Nevada.....			6.32	7.38	12.33
Idaho.....			10.05	12.52	16.11
Washington.....			18.42	18.34	12.45
Oregon.....			14.83	15.87	15.02
California.....			8.99	9.69	11.30
Total.....			11.31	10.60	11.85
The United States.....	21.49	21.79	15.43	15.38	13.68

^a West Virginia set off from Virginia December 31, 1862.
^b North and South Dakota combined in 1890.

PER CENT OF PERSONS ENGAGED IN MANUFACTURING AND MECHANICAL INDUSTRIES OF TOTAL POPULATION, BY STATES AND TERRITORIES, 1820 TO 1890.

States and Territories.	1820.	1840.	1870.	1880.	1890.
North Atlantic division:					
Maine.....	2.56	4.36	8.87	10.04	12.11
New Hampshire.....	3.56	6.26	14.30	16.24	18.96
Vermont.....	3.60	4.51	6.28	7.14	8.94
Massachusetts.....	6.40	11.54	19.49	20.05	21.24
Rhode Island.....	7.34	19.55	21.04	23.16	23.60
Connecticut.....	6.38	9.01	15.38	17.81	19.62
New York.....	4.38	7.13	10.54	11.90	13.81
New Jersey.....	5.75	7.23	10.72	13.20	15.49
Pennsylvania.....	5.75	6.14	8.54	10.20	11.96
Total.....	5.01	7.30	11.34	12.88	14.74
South Atlantic division:					
Delaware.....	3.88	5.20	7.39	9.19	10.74
Maryland.....	4.58	4.58	7.44	8.15	9.79
District of Columbia.....	6.61	5.21	8.83	8.36	10.12
Virginia.....	3.04	4.37	3.61	3.74	4.69
West Virginia.....	.....	.....	3.52	3.47	4.04
North Carolina.....	1.85	1.90	1.72	2.20	3.13
South Carolina.....	1.34	1.74	1.80	1.81	2.70
Georgia.....	1.04	1.15	2.20	2.18	3.21
Florida.....	.....	2.16	1.91	2.68	4.64
Total.....	2.55	2.95	3.42	3.59	4.64
North Central division:					
Ohio.....	3.26	4.36	6.75	7.16	9.01
Indiana.....	2.19	3.60	4.33	5.17	6.36
Illinois.....	1.83	2.77	4.88	5.99	8.34
Michigan.....	2.24	3.25	6.25	6.69	7.74
Wisconsin.....	.....	5.86	4.68	6.01	7.66
Minnesota.....	.....	.....	3.80	4.64	6.43
Iowa.....	.....	3.78	3.75	3.94	4.09
Missouri.....	2.93	2.89	4.35	4.61	5.71
Dakota (b).....	.....	.....	2.19	3.82	2.99
Nebraska.....	.....	.....	4.57	3.88	5.27
Kansas.....	.....	.....	4.74	3.21	3.83
Total.....	2.95	3.62	5.07	5.52	6.86
South Central division:					
Kentucky.....	2.09	2.98	3.13	3.46	4.45
Tennessee.....	1.86	2.15	2.13	2.16	3.29
Alabama.....	1.10	1.22	1.58	1.59	2.58
Mississippi.....	.86	1.11	1.14	1.03	1.52
Louisiana.....	3.95	2.15	3.28	2.98	3.72
Texas.....	.....	.....	1.86	1.77	2.60
Oklahoma.....	.....	.....	.....	.....	3.51
Arkansas.....	1.26	1.20	1.24	1.30	1.94
Total.....	2.06	2.02	2.15	2.12	2.95
Western division:					
Montana.....	.....	.....	5.55	6.82	8.90
Wyoming.....	.....	.....	9.73	5.55	7.63
Colorado.....	.....	.....	5.64	8.60	9.55
New Mexico.....	.....	.....	1.93	2.16	2.60
Arizona.....	.....	.....	8.01	5.87	4.58
Utah.....	.....	.....	3.93	4.92	6.42
Nevada.....	.....	.....	10.35	9.06	6.69
Idaho.....	.....	.....	4.24	4.67	4.72
Washington.....	.....	.....	6.76	6.02	10.58
Oregon.....	.....	.....	4.75	5.50	7.32
California.....	.....	.....	7.23	8.15	9.56
Total.....	.....	.....	6.23	7.03	8.53
The United States.....	3.63	4.64	6.36	6.81	8.13

^a West Virginia set off from Virginia December 31, 1862.

^b North and South Dakota combined in 1890.

Excluding the District of Columbia from consideration, there was no State or Territory in 1820 which did not have more than one-tenth of its total population engaged in agriculture, the percentages ranging from 12.13 in Massachusetts to 41.66 in Indiana. In 1890, however, persons engaged in agricultural pursuits constituted but little more than 3 per cent of the total population of Massachusetts and Rhode Island, less than 5 per cent of the total population of New Jersey, a little more than 6 per cent of the total population of Connecticut, New

York, and Pennsylvania, and not quite 9 per cent of the total population of Maryland. The percentages for the remaining States and Territories show that, with the exception of the extreme western section of the country, there has been, generally speaking, a material decrease in the proportion of the population engaged in agriculture in 1890 as compared with the proportions found at the earlier census periods.

Considering the proportions found in manufacturing and mechanical industries, it is seen that in 1820 there were only five States, outside of the District of Columbia, in which this class of workers constituted more than 5 per cent of the total population, namely, 7.34 in Rhode Island, 6.40 in Massachusetts, 6.38 in Connecticut, and 5.75 in New Jersey and Pennsylvania, but that in 1890 the only States and Territories in the North Atlantic, North Central, and Western divisions which did not have at least 5 per cent of the total population so occupied were Iowa, North and South Dakota combined, Kansas, New Mexico, Arizona, and Idaho, while in the South Atlantic and South Central sections of the country Delaware and Maryland (excluding the District of Columbia) were the only States which had more than 5 per cent of their population similarly engaged. The largest proportions of persons in manufacturing and mechanical pursuits in 1890 are found, as a matter of course, in the North Atlantic States, this class of workers constituting nearly one-fourth of the population of Rhode Island and somewhat more than one-fifth of that of Massachusetts, very nearly one-fifth of that of New Hampshire and Connecticut, over 15 per cent of that of New Jersey, and between 10 and 15 per cent of that of the remaining States, with the exception of Vermont, where there were but 8.94 per cent so occupied.

The statistics of occupations do not include persons less than 10 years of age, and a more exact comparison can be made by considering only persons 10 years of age or over at each census and showing the proportion of the whole number and of each sex, respectively, engaged in each class of occupations. These percentages are given in the following table:

PER CENT OF PERSONS IN EACH CLASS OF OCCUPATIONS OF TOTAL PERSONS 10 YEARS OF AGE OR OVER, BY SEX, 1870, 1880, AND 1890.

Sex and classes of occupations.	1870.	1880.	1890.
Males:			
Agriculture, fisheries, and mining.....	40.29	39.55	34.22
Professional service.....	1.96	2.27	2.60
Domestic and personal service.....	9.39	12.39	11.06
Trade and transportation.....	8.48	9.63	12.72
Manufacturing and mechanical industries.....	14.71	14.86	16.69
Total.....	74.83	78.70	77.29
Females:			
Agriculture, fisheries, and mining.....	2.84	3.30	2.95
Professional service.....	.66	.98	1.35
Domestic and personal service.....	6.97	6.56	7.23
Trade and transportation.....	.14	.35	.99
Manufacturing and mechanical industries.....	2.53	3.50	4.45
Total.....	13.14	14.69	16.97

PER CENT OF PERSONS IN EACH CLASS OF OCCUPATIONS OF TOTAL PERSONS 10 YEARS OF AGE OR OVER, BY SEX, 1870, 1880, AND 1890—Concluded.

Sex and classes of occupations.	1870.	1880.	1890.
Both sexes:			
Agriculture, fisheries, and mining	21.76	21.77	19.01
Professional service	1.31	1.64	1.99
Domestic and personal service	8.19	9.53	9.20
Trade and transportation	4.35	5.08	7.01
Manufacturing and mechanical industries	8.69	9.29	10.74
Total	44.30	47.31	47.95

Since 1870 there has been a slight loss in the proportion of the population 10 years of age or over engaged in agriculture, fisheries, and mining, but the proportion of this element of the population in each of the other classes of occupations was larger in 1890 than in 1870. This is also true with respect to the proportion of males 10 years of age or over engaged in each class of occupations. There has been an increase in the proportion of females 10 years of age or over in each class of occupations in 1890 as compared with 1870, the largest increase in the proportion being that for manufacturing and mechanical industries.

Persons engaged in gainful occupations have increased at a more rapid rate during each of the past two decades than the general population. With the exception of those engaged in agriculture, this has also been true with respect to each class of occupations, and in very many instances the percentages of increase have been very large, especially those for females. The number and percentage of increase in each class of occupations is given in detail, by sex, for the past two decades in the following table:

NUMBER AND PER CENT OF INCREASE IN EACH CLASS OF OCCUPATIONS, BY SEX, 1870 TO 1880 AND 1880 TO 1890.

Sex and classes of occupations.	Increase from 1870 to 1880.		Increase from 1880 to 1890.	
	Number.	Per cent.	Number.	Per cent.
Males:				
Agriculture, fisheries, and mining	1,665,656	29.00	923,843	12.47
Professional service	147,106	52.76	206,690	48.53
Domestic and personal service	983,274	73.45	370,942	15.98
Trade and transportation	594,058	49.11	1,294,072	71.75
Manufacturing and mechanical industries	685,213	32.66	1,280,592	46.01
Total	4,075,307	38.20	4,076,148	27.64
Females:				
Agriculture, fisheries, and mining	197,605	49.77	84,869	11.27
Professional service	84,998	92.13	134,432	75.84
Domestic and personal service	208,349	21.41	486,192	41.15
Trade and transportation	43,024	216.99	165,569	263.43
Manufacturing and mechanical industries	276,893	78.22	396,352	62.82
Total	810,869	44.16	1,267,414	47.88
Both sexes:				
Agriculture, fisheries, and mining	1,863,261	30.34	1,008,712	12.60
Professional service	232,104	62.55	341,131	56.55
Domestic and personal service	1,191,623	51.54	857,134	24.47
Trade and transportation	637,082	51.82	1,459,641	78.20
Manufacturing and mechanical industries	962,106	39.23	1,676,944	49.11
Total	4,886,176	39.07	5,343,562	30.72

The whole number of workers, without regard to sex, increased from 12,505,923 in 1870 to 17,392,099 in 1880, an increase in ten years of 4,886,176, or 39.07 per cent. In 1890 there were 22,735,661 persons engaged in gainful occupations, showing an increase from 1880 to 1890 of 5,343,562, or 30.72 per cent. There was an increase in the general population between 1870 and 1880 of 30.08 per cent, and between 1880 and 1890 of 24.86 per cent, while the population 10 years of age or over increased during the same periods 30.23 and 28.98 per cent, respectively.

The male workers increased 38.20 per cent from 1870 to 1880 and 27.64 per cent from 1880 to 1890, while the female workers increased 44.16 per cent during the decade ending in 1880 and 47.88 per cent during the decade ending in 1890.

In general, these percentages indicate a relatively larger increase of female workers than of male workers during each of these two periods, but do not show the extent and the directions of this increase. This is more clearly illustrated by the following table, giving the percentages of males and females engaged in gainful occupations and in each class of occupations, respectively, at each of the three censuses named:

PER CENT OF MALES AND FEMALES OF TOTAL PERSONS 10 YEARS OF AGE OR OVER IN EACH CLASS OF OCCUPATIONS, 1870, 1880, AND 1890.

Sex and classes of occupations.	1870.	1880.	1890.
Agriculture, fisheries, and mining:			
Males	93.53	92.57	92.46
Females	6.47	7.43	7.54
Total	100.00	100.00	100.00
Professional service:			
Males	75.14	70.61	66.99
Females	24.86	29.39	33.01
Total	100.00	100.00	100.00
Domestic and personal service:			
Males	57.91	66.28	61.76
Females	42.09	33.72	38.24
Total	100.00	100.00	100.00
Trade and transportation:			
Males	98.39	96.63	93.13
Females	1.61	3.37	6.87
Total	100.00	100.00	100.00
Manufacturing and mechanical industries:			
Males	85.56	81.52	79.82
Females	14.44	18.48	20.18
Total	100.00	100.00	100.00
All occupations:			
Males	85.32	84.78	82.78
Females	14.68	15.22	17.22
Total	100.00	100.00	100.00

At the census of 1890 considerably more than one-sixth, or 17.22 per cent, of the total number of persons at work were females as compared with a little more than one-seventh, or 14.68 per cent, at the

census of 1870. With the exception of those engaged in domestic and personal service, there was a larger proportion of females in each class of occupations in 1890 than in 1870. The increase in the proportion of females is especially noticeable in professional service, in which class they constituted in 1890 very nearly one-third of all persons so occupied as compared with less than one-fourth in 1870. There has been also a considerable increase in the proportion of females in manufacturing and mechanical industries, or from one-seventh in 1870 to one-fifth in 1890, and in trade and transportation, or from less than 2 per cent in 1870 to very nearly 7 per cent in 1890.

The proportion of women in gainful occupations has increased greatly since 1870 in very many of the States and Territories, as shown by the following table:

PER CENT OF MALES AND FEMALES OF TOTAL PERSONS 10 YEARS OF AGE OR OVER ENGAGED IN GAINFUL OCCUPATIONS, BY STATES AND TERRITORIES, 1870, 1880, AND 1890.

States and Territories.	1870.		1880.		1890.	
	Males.	Females.	Males.	Females.	Males.	Females.
North Atlantic division:						
Maine	86.34	13.66	85.55	14.45	82.47	17.53
New Hampshire	79.92	20.08	78.85	21.15	77.62	22.38
Vermont	87.59	12.41	86.87	13.63	84.49	15.51
Massachusetts	77.87	22.13	75.83	24.17	73.20	26.80
Rhode Island	75.48	24.52	74.47	25.53	72.60	27.40
Connecticut	82.44	17.56	79.83	20.17	77.48	22.52
New York	82.76	17.24	80.88	19.12	78.90	21.10
New Jersey	85.00	15.00	83.17	16.83	80.50	19.50
Pennsylvania	86.84	13.16	85.10	14.90	83.46	16.54
Total	83.30	16.70	81.61	18.39	79.51	20.49
South Atlantic division:						
Delaware	85.10	14.90	85.47	14.53	83.90	16.10
Maryland	82.65	17.35	81.88	18.12	78.45	21.55
District of Columbia	71.78	28.22	70.49	29.51	68.23	31.77
Virginia	81.78	18.22	83.17	16.83	80.73	19.27
West Virginia	92.92	7.08	93.47	6.53	90.30	9.70
North Carolina	83.25	16.75	81.89	18.11	78.56	21.44
South Carolina	69.26	30.74	69.37	30.63	70.64	29.36
Georgia	74.03	25.97	74.52	25.48	76.08	23.92
Florida	83.81	16.19	80.57	19.43	80.69	19.31
Total	79.30	20.70	79.15	20.85	77.99	22.01
North Central division:						
Ohio	90.07	9.93	88.67	11.33	85.53	14.47
Indiana	93.23	6.77	91.90	8.10	88.27	11.73
Illinois	91.47	8.53	89.39	10.61	85.20	14.80
Michigan	85.79	14.21	90.34	9.66	87.37	12.63
Wisconsin	91.28	8.72	88.89	11.11	85.98	14.02
Minnesota	91.81	8.19	90.17	9.83	86.01	13.99
Iowa	93.28	6.72	91.51	8.49	87.27	12.73
Missouri	92.34	7.66	90.02	9.98	87.24	12.76
Dakota (a)	97.28	2.72	95.07	4.93	89.40	10.60
Nebraska	95.68	4.32	93.15	6.85	88.41	11.59
Kansas	94.74	5.26	94.00	6.00	89.94	10.06
Total	91.22	8.78	90.45	9.55	88.80	13.20
South Central division:						
Kentucky	87.87	12.13	89.53	10.47	85.88	14.12
Tennessee	87.06	12.94	87.41	12.59	85.45	14.55
Alabama	75.46	24.54	74.83	25.17	76.00	24.00
Mississippi	72.87	27.13	73.43	26.57	73.03	26.97
Louisiana	77.27	22.73	73.83	26.17	74.29	25.71
Texas	87.94	12.06	83.71	11.29	87.65	12.35
Oklahoma					94.94	5.06
Arkansas	88.38	11.62	88.26	11.74	86.13	13.87
Total	82.13	17.87	82.47	17.53	81.77	18.23

a North and South Dakota combined in 1890.

PER CENT OF MALES AND FEMALES OF TOTAL PERSONS 10 YEARS OF AGE OR OVER ENGAGED IN GAINFUL OCCUPATIONS, BY STATES AND TERRITORIES, 1870, 1880, AND 1890.—Concluded.

States and Territories.	1870.		1880.		1890.	
	Males.	Females.	Males.	Females.	Males.	Females.
Western division:						
Montana.....	98.78	1.22	97.72	2.28	93.58	6.42
Wyoming.....	95.49	4.51	94.78	5.22	93.82	6.18
Colorado.....	97.52	2.48	95.28	4.72	90.02	9.98
New Mexico.....	89.51	10.49	94.46	5.54	92.74	7.26
Arizona.....	95.09	4.91	97.89	2.11	94.06	5.94
Utah.....	95.00	5.00	92.79	7.21	89.42	10.58
Nevada.....	98.35	1.65	95.34	4.66	92.21	7.79
Idaho.....	98.85	1.15	98.13	1.87	94.62	5.38
Washington.....	97.58	2.42	96.47	3.53	93.25	6.75
Oregon.....	97.77	2.23	95.87	4.13	91.49	8.51
California.....	94.23	5.77	92.51	7.49	88.87	11.13
Total.....	94.99	5.01	94.03	5.97	90.69	9.31
The United States.....	85.32	14.68	84.78	15.22	82.78	17.22

The employment of women in large numbers in the Departments of the National Government gives to the District of Columbia the largest proportion of women to the whole number of persons at work of any State or Territory in 1890, at which census they constituted 31.77 per cent of the entire number of gainful workers as compared with 28.22 per cent in 1870. Other large proportions of women workers are found in the extreme Southern States, owing to the employment of colored females in field labor, and in the great manufacturing States of the East, owing to the large number of females at work in the mills and factories of that section of the country.

A better measure, perhaps, of the real change which has taken place in the proportion of each sex in each class of occupations in 1890 as compared with 1870 and 1880 is afforded by taking the whole number of workers at each census as 100 per cent in each case and comparing the resulting percentages of males and females found in each class of occupations. These percentages are as follows:

PER CENT OF MALES AND FEMALES IN EACH CLASS OF OCCUPATIONS OF TOTAL PERSONS 10 YEARS OF AGE OR OVER AT WORK, 1870, 1880, AND 1890.

Sex and classes of occupations.	1870.	1880.	1890.
Males:			
Agriculture, fisheries, and mining.....	45.93	42.61	36.66
Professional service.....	2.23	2.45	2.78
Domestic and personal service.....	10.71	13.55	11.84
Trade and transportation.....	9.67	10.37	13.62
Manufacturing and mechanical industries.....	16.78	16.00	17.88
Total.....	85.32	84.78	82.78
Females:			
Agriculture, fisheries, and mining.....	3.17	3.42	2.99
Professional service.....	.74	1.02	1.37
Domestic and personal service.....	7.78	6.79	7.34
Trade and transportation.....	.16	.30	1.00
Manufacturing and mechanical industries.....	2.83	3.63	4.52
Total.....	14.68	15.22	17.22

This table shows that, when considered as regards the whole body of workers, there was, outside of agriculture, fisheries, and mining, a slightly larger proportion of males in each class of occupations in 1890 than in 1870. The decrease in the per cent of males engaged in agriculture, fisheries, and mining of the whole number of persons 10 years of age or over was quite large, viz, from 45.93 per cent in 1870 to 36.66 in 1890. That is to say, out of every 100 persons 10 years of age or over at work in 1870 there were 45.93 engaged in agriculture, fisheries, and mining, while in 1890 there were only 36.66, a decrease of 9.27. The increase in the number of males in the other classes of occupations, except trade and transportation, was small, viz, professional service, 0.55; manufactures, 1.10; domestic service, 1.13, and trade and transportation, 3.95; making altogether a decrease from 1870 to 1890 of 2.54 in the number of males in every 100 persons 10 years of age or over at work. A corresponding increase of 2.54 is, of course, shown in the number of females to every 100 persons, namely, from 14.68 in 1870 to 17.22 in 1890. In detail, there was a decrease in the number of females out of every 100 persons 10 years of age or over at work in agriculture, fisheries, and mining of 0.18, and in domestic service of 0.44, and an increase in the number in professional service of 0.63, in trade and transportation of 0.84, and in manufactures of 1.69.

Females engaged in agriculture, fisheries, and mining and in domestic and personal service in 1890 constituted, in each case, a slightly smaller proportion of the whole number of persons at work than in 1870, but in each of the other three classes they constituted a somewhat larger proportion, particularly in manufacturing and mechanical industries.

If the results for 1890 are compared with those for 1880, practically the same conditions are apparent as have been noticed when compared with the results for 1870, with the exception that in 1880 the proportion of males engaged in domestic and personal service is considerably larger than in 1870 or 1890, while the proportion of males in manufacturing and mechanical industries is less in 1880 than at either of the other two censuses. This is probably due, as already explained, to the difference in the classification of laborers in 1880 as compared with 1870 and 1890. The smaller proportion of females engaged in domestic and personal service in 1880 than in 1870 or 1890 is also due, in part at least, to the same cause, as indicated by the increased proportion of females engaged in agriculture, fisheries, and mining in 1880 as compared with 1870 and 1890.

Since 1880 there has been a considerable diminution in the number and proportion of children at work, illustrating the spread of the common-school system and the growth of public sentiment against the employment of children of school age in any capacity which tends to deprive them of the opportunity to acquire an education. Although an exact comparison between the three periods, 1870, 1880, and 1890, can not be made, owing to the slight difference in the classification of

ages for 1890, yet a very close approximation to the real facts can be had.

NUMBER AND PER CENT OF CHILDREN AT WORK AT THE THREE CENSUS YEARS
1870, 1880, AND 1890.

Census years and classification of ages.	Males.	Females.	Total.
1870.			
Total children 10 to 15 years of age, inclusive.....	2,840,200	2,764,169	5,604,369
Number of above at work.....	548,064	191,100	739,164
Per cent of above at work.....	19.30	6.91	13.19
1880.			
Total children 10 to 15 years of age, inclusive.....	3,376,114	3,273,369	6,649,483
Number of above at work.....	825,187	293,169	1,118,356
Per cent of above at work.....	24.44	8.96	16.82
1890.			
Total children 10 to 14 years of age, inclusive.....	3,574,787	3,458,722	7,033,509
Number of above at work.....	400,586	202,427	603,013
Per cent of above at work.....	11.21	5.85	8.57

This table shows that 13.19 per cent of children from 10 to 15 years of age were at work at the census of 1870. At the census of 1880 the proportion of children from 10 to 15 years of age at work was considerably larger, being 16.82 per cent. To find what per cent were workers in 1890 is somewhat difficult, as the age period then used was 10 to 14, instead of 10 to 15, as in 1870 and in 1880. Nevertheless, it is believed that a result closely approximating the truth may be obtained, and in the following way:

The whole number of children from 10 to 14 years of age in 1890 was 7,033,509, and of this number 603,013, or 8.57 per cent, were at work. The total number of children 15 years of age in 1890 was 1,288,864, but to arrive at the number of these who were workers in that year, an estimate must be made on the basis of those 10 to 14 years of age who were at work. If a distribution be made of estimated per cents of workers for each age from 10 to 14 years that should produce 8.57 per cent of all five ages taken together, and out of this distribution an estimate be projected for those 15 years of age, a fairly satisfactory conclusion might be reached. This distribution may be made, approximately, as follows: For 10 years of age, 3 per cent; for 11 years of age, 5 per cent; for 12 years of age, 8 per cent; for 13 years of age, 11.5 per cent; for 14 years of age, 15.5 per cent. From this we may conclude, as a greater proportion of children enter gainful occupations as the age progresses, that it will not be far from the truth to consider that 20 per cent of those 15 years of age in 1890 were at work. On this basis, then, 20 per cent of 1,288,864 children in 1890, or 257,773, were workers. Adding this to 603,013, the number reported as workers from 10 to 14 years of age, the result is a total of 860,786. This number, without doubt, represents very closely the number from 10 to 15 years of age at work in 1890, and this is 10.34 per cent of the whole number of children 10 to 15 years of age at that period (8,322,373).

The decrease in the proportion of children at work in 1890 as compared with 1880 is very much more marked among the males than among the females.

The decrease in the proportion of male children at work accounts for the slight decrease in the proportion of the whole number of males 10 years of age or over at work in 1890 as compared with 1880, already referred to. In 1880 it has been shown that out of a total male population 10 years of age or over of 18,735,980 there were 14,744,942, or 78.70 per cent, engaged in gainful occupations. In 1890 the whole number of males 10 years of age or over was 24,352,659, and if there had been the same proportion at work as in 1880, or 78.70 per cent, the number would have been 19,165,543. There were, however, but 18,821,090 males 10 years of age or over engaged in gainful occupations in 1890, or 344,453 less than the number based upon the proportion at work in 1880. The number of males from 10 to 14 years of age who were at work in 1890 was 400,586, as against 825,187 males from 10 to 15 years of age at work in 1880, which more than offsets the difference between the number of males 10 years of age or over actually at work in 1890 and the number that would have been at work if the proportion given in 1880 had been maintained in 1890, even after making due allowance for the slight difference in the age classification used at the two censuses.

Eliminating children at work, it is possible to consider somewhat at length the results derived from the several censuses regarding what may be termed effective workers; that is, those 15 years of age or over in 1890 as compared with those 16 years of age or over, so far as reported at each census since and including 1850.

As previously explained, the statistics of occupations in 1860 related to the whole number of free persons 16 years of age or over, without regard to sex, and in 1850 were limited to free males 16 years of age or over, so that comparisons can only be made for both sexes for 1860, 1870, 1880, and 1890; for males for 1850, 1870, 1880, and 1890, and for females for 1870, 1880, and 1890. The numbers given in the following table comprehend those 16 years of age or over, actual or estimated, at each census, with the exception of that of 1890, which gives in each case the number of persons 15 years of age or over:

NUMBER AND PER CENT OF PERSONS 16 YEARS OF AGE OR OVER ENGAGED IN GAINFUL OCCUPATIONS, BY SEX, 1850 TO 1890.
[Figures for 1890 are for persons 15 years of age or over.]

Census years and classification of persons.	Males.	Females.	Total.
1850.			
Free males 16 years of age or over.....	a 5,882,009		
Number of above in gainful occupations.....	5,329,506		
Per cent of above in gainful occupations.....	90.61		
1860.			
Free persons 16 years of age or over.....			a 15,963,018
Number of above in gainful occupations.....			8,225,557
Per cent of above in gainful occupations.....			51.53

a Number from 16 to 19 years of age estimated.

NUMBER AND PER CENT OF PERSONS 16 YEARS OF AGE OR OVER ENGAGED IN GAINFUL OCCUPATIONS, BY SEX, 1850 TO 1890—Concluded.

Census years and classification of persons.	Males.	Females.	Total.
1870.			
Total persons 16 years of age or over.....	11, 418, 666	11, 205, 910	22, 624, 576
Number of above in gainful occupations.....	10, 121, 571	1, 645, 188	11, 766, 759
Per cent of above in gainful occupations.....	88. 64	14. 68	52. 01
1880.			
Total persons 16 years of age or over.....	15, 359, 866	14, 752, 258	30, 112, 124
Number of above in gainful occupations.....	13, 919, 755	2, 353, 988	16, 273, 743
Per cent of above in gainful occupations.....	90. 62	15. 96	54. 04
1890.			
Total persons 15 years of age or over.....	20, 777, 872	19, 602, 178	40, 380, 050
Number of above in gainful occupations.....	18, 420, 504	3, 712, 144	22, 132, 648
Per cent of above in gainful occupations.....	88. 65	18. 94	54. 81

At the census of 1850 there were, approximately, 5,882,009 free males 16 years of age or over, and of this number 5,329,506, or 90.61 per cent, were engaged in gainful occupations. These figures do not include male slaves 16 years of age or over, of whom there were, approximately, 841,677 and very nearly all of whom were undoubtedly at work. In 1870 of the whole number of males 16 years of age or over, including both white and colored, 88.64 per cent were engaged in gainful occupations, and in 1880 there were 90.62 per cent of all the males 16 years of age or over at work. In 1890 the number of males 15 years of age or over at work constituted 88.65 per cent of the total number of males of that age, and if an exact comparison could be had for those 16 years of age or over there would be found to be fully as large a proportion at work as in 1880.

The number of females engaged in remunerative occupations was obtained for the first time at the census of 1870, and of the whole number of females 16 years of age or over at that census 14.68 per cent were at work. There was a considerably larger percentage at work in 1880, constituting 15.96 per cent of all females 16 years or over, and at the census of 1890, although based upon a somewhat different age classification, the proportion had increased materially, the number of female workers 15 years of age or over constituting 18.94 per cent of the whole number of females of that age.

Taking the whole number of persons at work, without regard to sex, it is apparent that there was somewhat more than one-half of the whole number of persons 16 years of age or over at work in 1860, although the figures relate to free persons only; that the proportion had been considerably increased in 1880, and that there were fully 55 per cent at work in 1890, the number 15 years of age or over constituting 54.81 per cent of the total population of that age.

The distribution of the whole number of persons of the specified ages reported as in gainful occupations at each census, according to the

number and percentage in each class of occupations, is shown in the table which follows:

NUMBER AND PER CENT OF PERSONS 16 YEARS OF AGE OR OVER IN EACH CLASS OF OCCUPATIONS, BY SEX, 1850 TO 1890.

[Figures for 1890 are for persons 15 years of age or over.]

Census years and classes of occupations.	Number.			Per cent.		
	Males.	Females.	Total.	Males.	Females.	Total.
1850.						
Agriculture, fisheries, and mining.	2,511,888	.....	.....	47.13	.....	.....
Professional service	159,430	.....	.....	2.99	.....	.....
Domestic and personal service	980,052	.....	.....	18.58	.....	.....
Trade and transportation	481,741	.....	.....	9.04	.....	.....
Manufacturing and mechanical industries	1,186,495	.....	.....	22.26	.....	.....
Total	a5,829,506	.....	.....	100.00	.....	.....
1860.						
Agriculture, fisheries, and mining.	.....	.....	3,547,700	.....	.....	43.08
Professional service	.....	.....	329,887	.....	.....	4.00
Domestic and personal service	.....	.....	1,678,960	.....	.....	20.39
Trade and transportation	.....	.....	801,607	.....	.....	9.73
Manufacturing and mechanical industries	.....	.....	1,877,403	.....	.....	22.80
Total	.....	.....	b8,285,557	.....	.....	100.00
1870.						
Agriculture, fisheries, and mining.	5,312,886	323,842	5,636,728	52.49	19.68	47.90
Professional service	278,727	91,914	370,641	2.78	5.59	3.15
Domestic and personal service	1,284,754	882,408	2,167,162	12.69	53.64	18.42
Trade and transportation	1,192,215	18,656	1,210,871	11.78	1.13	10.29
Manufacturing and mechanical industries	2,052,989	323,368	2,381,357	20.28	19.96	20.24
Total	10,121,571	1,645,188	11,766,759	100.00	100.00	100.00
1880.						
Agriculture, fisheries, and mining..	6,811,510	453,774	7,270,284	48.94	19.49	44.67
Professional service	425,669	176,609	602,278	3.06	7.50	3.70
Domestic and personal service	2,203,775	1,074,694	3,278,469	15.83	45.66	20.15
Trade and transportation	1,768,129	59,839	1,827,968	12.70	2.54	11.23
Manufacturing and mechanical industries	2,710,672	584,072	3,294,744	19.47	24.81	20.25
Total	13,919,755	2,353,988	16,273,743	100.00	100.00	100.00
1890.						
Agriculture, fisheries, and mining..	8,077,683	595,706	8,673,389	43.85	16.05	39.19
Professional service	632,184	311,241	943,425	3.43	8.38	4.26
Domestic and personal service	2,642,382	1,590,187	4,232,569	14.35	42.84	19.12
Trade and transportation	3,058,593	223,203	3,281,796	16.60	6.01	14.83
Manufacturing and mechanical industries	4,009,662	991,807	5,001,469	21.77	26.72	22.60
Total	18,420,504	3,712,144	22,132,648	100.00	100.00	100.00

a Free males only.

b Free persons only.

For purposes of comparison, the results given in the preceding table for 1850 and 1860 are of little value, owing to the absence of the slave population, a very large part of which was engaged in agricultural pursuits. The percentages of free males in 1850 and of free persons in 1860, of the specified ages, engaged in agriculture, fisheries, and mining, are for this reason much smaller than the percentages given in 1870 and 1880 for all classes of the population, both white and colored.

It is also readily apparent that the proportion of persons in each of the other classes of occupations in 1850 and 1860 are, for the same reason, somewhat larger than would be the case if the entire population 16 years of age or over was considered.

Taking the last three censuses, however, it is seen that in 1870 the males engaged in agriculture, fisheries, and mining constituted 52.49 per cent of the whole number of males 16 years of age or over in gainful occupations, but that in 1890 there were only 43.85 per cent of the males 15 years of age or over at work who were so occupied. The percentage of females engaged in agriculture, fisheries, and mining of the whole number of females of the respective ages at work decreased from 19.68 to 16.05 during the same period. Making allowance for the difference in age classification and in the classification of laborers (not specified) in 1880, already noted, there has been a steady increase since 1870 in the proportion of males and females of the specified ages in each of the other classes of occupations, with the single exception of females in domestic and personal service.

It has already been shown that of all the males 15 years of age or over not quite nine-tenths, and of all the females very nearly one-fifth, were engaged in gainful occupations in 1890, while of the whole number of persons, without regard to sex, considerably more than one-half were at work in 1890.

The following table shows the percentage of persons, in the aggregate and for each sex, found in each class of occupations in 1890, as compared with similar results at preceding censuses, so far as they are available:

PER CENT OF PERSONS 16 YEARS OF AGE OR OVER IN EACH CLASS OF OCCUPATIONS OF TOTAL PERSONS 16 YEARS OF AGE OR OVER, BY SEX, 1850 TO 1890.

[Figures for 1890 are for persons 15 years of age or over.]

Sex and classes of occupations.	1850.	1860.	1870.	1880.	1890.
Males:					
Agriculture, fisheries, and mining.....	42.71	.....	46.53	44.34	38.87
Professional service.....	2.71	.....	2.44	2.77	3.04
Domestic and personal service.....	16.83	.....	11.25	14.35	12.72
Trade and transportation.....	8.19	.....	10.44	11.51	14.72
Manufacturing and mechanical industries.....	20.17	.....	17.98	17.65	19.30
Total.....	^a 90.61	.....	88.64	90.62	88.65
Females:					
Agriculture, fisheries, and mining.....	.....	.....	2.89	3.11	3.04
Professional service.....	.....	.....	.82	1.20	1.59
Domestic and personal service.....	.....	.....	7.87	7.28	8.11
Trade and transportation.....	.....	.....	.17	.41	1.14
Manufacturing and mechanical industries.....	.....	.....	2.93	3.96	5.06
Total.....	.....	.....	14.68	15.96	18.94
Both sexes:					
Agriculture, fisheries, and mining.....	.....	22.20	24.91	24.14	21.48
Professional service.....	.....	2.06	1.64	2.00	2.34
Domestic and personal service.....	.....	10.50	9.55	10.89	10.48
Trade and transportation.....	.....	5.02	5.35	6.07	8.13
Manufacturing and mechanical industries.....	.....	11.75	10.53	10.94	12.38
Total.....	.....	^b 51.53	52.01	54.04	54.81

^a Free males only.

^b Free persons only.

Of the total population 15 years of age or over in 1890, 21.48 per cent were engaged in agriculture, fisheries, and mining, 12.38 per cent in manufacturing and mechanical industries, 10.48 per cent in domestic and personal service, 8.13 per cent in trade and transportation, and 2.34 per cent in professional service, the total number of persons 15 years of age or over at work constituting 54.81 per cent of the entire number of persons 15 years of age or over. These figures show a loss in the proportion of persons engaged in agriculture, fisheries, and mining as compared with 1870, and a gain in the proportion in each of the other classes of occupations.

Of the whole number of males 15 years of age or over in 1890, very nearly two-fifths, or 38.87 per cent, were engaged in agriculture, fisheries, and mining; not quite one-fifth, or 19.30 per cent, in manufacturing and mechanical industries; considerably more than one-seventh, or 14.72 per cent, in trade and transportation; a little more than one-eighth, or 12.72 per cent, in domestic and personal service, while those in professional service constituted 3.04 per cent. The proportion of males in agriculture, fisheries, and mining was very much less in 1890 than in 1870, but in each of the other classes the proportion was larger.

The largest proportion of females 15 years of age or over in any of the general classes of occupations in 1890 is that for domestic and personal service, the number in this class constituting 8.11 per cent of the entire number of females 15 years of age or over. There were, besides, 5.06 per cent of the whole number of females 15 years of age or over in 1890 in manufacturing and mechanical industries, 3.04 per cent in agriculture, fisheries, and mining, 1.59 per cent in professional service, and 1.14 per cent in trade and transportation, being in each case a somewhat larger proportion than in 1870.

The discussion thus far has shown, in brief, that persons at work, especially females, have increased very much faster than the population at large; that as a result the proportion of workers relative to the total population and to the whole number of persons of the respective ages was considerably greater in 1890 than at the preceding census periods, and that this increased proportion is apparent for each of the great classes of occupations, with the single exception of agriculture, fisheries, and mining.

This shows very clearly the constantly increasing disinclination of our population to follow agricultural pursuits, a tendency which has been materially hastened, no doubt, by the wide application of machinery to the processes of agriculture and which has further tended, as a matter of course, to make the old hand processes of cultivation unprofitable and therefore uninviting. But if, in spite of this growing disinclination toward agriculture and notwithstanding that our great manufacturing and commercial centers have become very much crowded in recent years, it shall be demonstrated, upon a further analysis of the census results, that the increased proportion of workers is found

generally in the higher walks of business life and in those occupations which call for skilled labor principally rather than in the lowest or more laborious forms of employment, the conclusion is inevitable that the great body of workers has, as a whole, progressed and has perceptibly risen in the social scale of life.

The figures of the census do not afford an altogether satisfactory basis for such a comparison, but, so far as they go, they are sufficiently indicative of the generally upward movement. To show this upward movement the results relative to occupations for the last three censuses have been brought together into four great groups designated as A, B, C, and D, as follows:

PERSONS 10 YEARS OF AGE OR OVER ENGAGED IN GAINFUL OCCUPATIONS, BY SPECIAL GROUPS AND CLASSES, 1870, 1880, AND 1890.

Occupations.	1870.	1880.	1890.
GROUP A.			
Bankers, brokers, manufacturers, etc.:			
Bankers and brokers (a)	11, 015	19, 373	35, 968
Builders and contractors.....	10, 231	14, 597	45, 988
Manufacturers and officials of manufacturing companies.....	45, 021	b 52, 217	101, 610
Officials of banks and of insurance, trade, transportation, trust, and other companies.....	10, 590	c 15, 553	39, 900
Publishers of books, maps, and newspapers.....	1, 577	2, 781	6, 284
Total.....	78, 443	104, 521	229, 750
Farmers, planters, etc.:			
Apiarists.....	136	1, 016	1, 773
Farmers, planters, and overseers.....	2, 981, 320	4, 229, 051	5, 281, 557
Gardeners, florists, nurserymen, and vine growers.....	33, 632	56, 032	72, 601
Total.....	3, 015, 088	4, 286, 099	5, 355, 931
Merchants and dealers, etc.:			
Boarding and lodging house keepers.....	12, 785	19, 058	44, 349
Hotel keepers.....	26, 394	32, 453	44, 076
Livery stable keepers.....	8, 504	14, 213	26, 757
Merchants and dealers.....	357, 263	479, 439	691, 325
Restaurant and saloon keepers and bartenders.....	50, 767	83, 078	146, 474
Undertakers.....	1, 996	5, 113	9, 891
Total.....	457, 709	633, 354	962, 872
Professional pursuits:			
Actors.....	2, 053	4, 812	9, 728
Architects.....	2, 017	3, 375	8, 070
Artists and teachers of art.....	4, 081	9, 104	22, 496
Authors and literary and scientific persons.....	979	1, 131	6, 714
Chemists, assayers, and metallurgists.....	772	1, 069	4, 503
Clergymen.....	43, 874	64, 698	83, 203
Dentists.....	7, 839	12, 314	17, 438
Designers, draftsmen, and inventors.....	1, 286	2, 820	9, 391
Engineers (civil, mechanical, electrical, and mining) and surveyors.....	7, 374	8, 261	43, 239
Journalists.....	5, 286	12, 308	21, 849
Lawyers.....	40, 736	64, 137	89, 690
Musicians and teachers of music.....	16, 010	30, 477	62, 155
Officers of United States Army and Navy.....	2, 286	2, 600	2, 920
Officials (Government).....	44, 743	67, 081	79, 664
Physicians and surgeons.....	62, 448	85, 071	104, 805
Professors and teachers.....	126, 822	d 227, 710	347, 344
Theatrical managers, showmen, etc.....	1, 177	2, 604	18, 055
Veterinary surgeons.....	1, 166	2, 130	6, 494
Other professional service.....	149	(e)	1, 569
Total.....	371, 098	603, 202	944, 333
Total for Group A.....	3, 922, 338	5, 627, 176	7, 492, 886

a Includes commercial brokers.

b Includes officials of mining companies.

c Partly estimated.

d Teachers and scientific persons.

e Included with "other domestic and personal service."

PERSONS 10 YEARS OF AGE OR OVER ENGAGED IN GAINFUL OCCUPATIONS, BY SPECIAL GROUPS AND CLASSES, 1870, 1880, AND 1890—Continued.

Occupations.	1870.	1880.	1890.
GROUP B.			
Agents, collectors, commercial travelers, etc.:			
Agents (claim, commission, real estate, insurance, etc.) and collectors.....	20,316	33,989	174,582
Auctioneers.....	2,266	2,331	3,205
Commercial travelers.....	7,262	28,158	59,691
Total.....	29,844	64,478	236,478
Bookkeepers, clerks, salesmen, etc.:			
Bookkeepers, clerks, and salesmen (a).....	310,988	536,733	1,014,544
Foremen and overseers.....			36,084
Telegraph and telephone operators.....	8,316	b 23,166	52,214
Weighers, gaugers, and measurers.....	926	3,302	3,860
Total.....	320,230	563,201	1,106,702
Total for Group B.....	350,074	627,679	1,343,180
GROUP C.			
Clothing makers:			
Button makers.....	1,272	4,872	2,601
Corset makers.....		4,660	6,533
Dressmakers, milliners, and seamstresses.....	c 93,520	280,981	499,090
Glove makers.....	2,329	4,511	6,416
Hat and cap makers.....	12,625	16,860	24,013
Lace and embroidery makers.....		d 1,708	5,256
Rubber factory operatives.....	3,886	6,350	16,162
Sewing machine operators.....	3,042	7,505	7,126
Shirt, collar, and cuff makers.....	4,080	11,823	21,107
Straw workers.....	2,029	4,229	3,666
Tailors and tailoresses.....	e 161,820	133,756	185,400
Umbrella and parasol makers.....	1,439	1,967	3,403
Total.....	286,042	485,222	781,373
Engineers and firemen (not locomotive).....	34,233	79,628	139,765
Food preparers:			
Bakers.....	27,680	41,309	60,197
Butchers.....	44,354	76,241	105,456
Butter and cheese makers.....	f 3,534	f 4,570	11,211
Confectioners.....	8,219	13,692	23,251
Meat, fish, and fruit packers, canners, and preservers.....	2,377	6,296	7,109
Millers (flour and grist).....	41,582	53,440	52,841
Total.....	127,746	195,548	260,065
Leather workers:			
Boot and shoe makers and repairers.....	171,127	194,079	213,544
Harness and saddle makers and repairers.....	33,426	39,960	43,480
Leather curriers, dressers, finishers, and tanners.....	30,726	29,842	39,332
Trunk, valise, leather case, and pocketbook makers.....	2,047	4,410	6,279
Total.....	237,326	268,291	302,635
Mechanical trades:			
Carpenters and joiners.....	344,596	373,143	611,482
Marble and stone cutters.....	25,831	32,842	61,070
Masons (brick and stone).....	89,710	102,473	158,918
Mechanics (not otherwise specified).....	16,514	7,858	15,485
Painters, glaziers, and varnishers.....	86,657	130,319	219,912
Paper hangers.....	2,490	5,013	12,369
Plasterers.....	23,800	22,083	39,002
Plumbers and gas and steam fitters.....	11,143	19,383	56,607
Roofers and slaters.....	2,750	4,026	7,043
Total.....	603,491	697,140	1,181,838
Metal workers:			
Agricultural implement makers (not otherwise specified).....	3,811	4,891	3,755
Blacksmiths.....	142,075	172,726	205,337
Brass workers (not otherwise specified).....	4,863	11,568	17,265
Clock and watch makers and repairers.....	g 1,779	13,820	25,252
Copper workers.....	2,122	2,342	3,384
Electroplaters.....			2,756
Gold and silver workers.....	h 18,508	h 28,405	20,263

a Includes stenographers and typewriters.

b Estimated.

c Seamstresses included with "tailors and tailoresses."

d Lace makers.

e Tailors, tailoresses, and seamstresses.

f Cheese makers.

g Clock makers.

h Includes jewelers.

PERSONS 10 YEARS OF AGE OR OVER ENGAGED IN GAINFUL OCCUPATIONS, BY SPECIAL GROUPS AND CLASSES, 1870, 1880, AND 1890—Continued.

Occupations.	1870.	1880.	1890.
GROUP C—concluded.			
Metal workers—Concluded.			
Gunsmiths, locksmiths, and bell hangers	8,184	10,572	9,158
Iron and steel workers	87,098	118,927	144,921
Lead and zinc workers	649	2,105	4,616
Machinists	54,755	101,130	177,090
Metal workers (not otherwise specified)	79		10,694
Molders			66,289
Nail and tack makers		5,808	4,588
Sewing machine makers (not otherwise classified)	3,881	2,725	880
Steam boiler makers	6,958	12,771	21,339
Stove, furnace, and grate makers	1,543	3,841	8,932
Tinners and tinware makers	30,524	42,818	55,488
Tool and cutlery makers	6,764	15,588	17,985
Wheelwrights	20,942	15,592	12,856
Wire workers	2,796	7,170	12,319
Total	397,331	570,294	831,162
Printers, engravers, bookbinders, etc.:			
Bookbinders	9,104	13,833	23,858
Engravers	4,226	4,577	8,320
Printers, lithographers, pressmen, etc. (a)	40,424	72,726	118,424
Total	53,754	91,136	150,602
Steam-railroad employees	154,027	236,058	462,213
Textile workers:			
Carpet makers	15,669	17,068	22,302
Cotton-mill operatives	111,606	169,771	173,142
Hosiery and knitting mill operatives	3,653	12,194	29,555
Mill and factory operatives (not specified)	44,806	39,632	93,596
Print-works operatives	3,738	5,419	6,701
Silk-mill operatives	3,256	18,071	34,855
Woolen-mill operatives	53,836	88,010	84,109
Total	241,564	350,165	444,260
Tobacco and cigar factory operatives	40,271	77,045	111,625
Wood workers:			
Basket makers	3,297	5,654	5,225
Broom and brush makers	5,816	8,479	10,115
Cabinetmakers	42,835	50,054	35,015
Carriage and wagon makers (not otherwise classified)	42,464	49,881	34,538
Coopers	43,647	53,190	47,486
Door, sash, and blind makers	5,155	4,946	5,041
Saw and planing mill employees	58,025	87,411	133,637
Upholsterers	6,111	10,443	25,666
Wood workers (not otherwise specified)	10,789	16,833	67,360
Total	218,139	287,500	364,983
Other mechanical pursuits, etc.:			
Apprentices	17,391	44,170	82,457
Artificial flower makers	1,160	3,399	3,046
Barbers and hair dressers	23,935	44,851	84,982
Bone and ivory workers	901	1,888	1,691
Box makers	6,080	15,762	23,640
Britannia workers	1,092	1,375	904
Glass workers	9,518	17,984	34,282
Hair workers	1,026	1,965	1,254
Model and pattern makers	63,970	65,822	10,309
Paper-mill operatives	12,460	21,430	27,817
Photographers	7,558	9,990	20,040
Piano and organ makers and tuners, etc.	3,579	7,850	15,335
Potters	5,060	7,233	14,928
Powder and cartridge makers	761		1,385
Rope and cordage makers	2,675	3,514	8,001
Sail, awning, and tent makers	2,309	2,850	3,257
Ship and boat builders	23,175	19,515	22,051
Starch makers	229	1,385	746
Telegraph and telephone linemen and electric light and power company employees			11,134
Other persons in manufacturing and mechanical industries	25,308	54,235	76,714
Total	148,205	265,268	449,864
Total for Group C	2,542,129	3,603,295	5,480,435

a Includes compositors and electrotypes and stereotypers.

b Pattern makers.

PERSONS 10 YEARS OF AGE OR OVER ENGAGED IN GAINFUL OCCUPATIONS, BY SPECIAL GROUPS AND CLASSES, 1870, 1880, AND 1890—Concluded.

Occupations.	1870.	1880.	1890.
GROUP D.			
Agricultural laborers, etc.:			
Agricultural laborers.....	2,885,996	3,323,876	3,004,061
Dairymen and dairywomen.....	3,550	8,948	17,895
Lumbermen and raftsmen.....	17,752	30,651	65,860
Stock raisers, herders, and drovers.....	15,359	44,075	70,729
Wood choppers.....	8,338	12,731	33,697
Other agricultural pursuits.....	2,478	7,495	17,747
Total.....	2,933,473	3,427,776	3,209,995
Boatmen, fishermen, sailors, etc.:			
Boatmen and canal men.....	23,670	24,697	16,716
Fishermen and oyster men.....	27,106	41,352	60,162
Pilots.....	3,649	3,770	4,259
Sailors.....	50,663	60,070	55,839
Total.....	110,088	129,889	137,036
Draymen, hostlers, and street-railway employees:			
Draymen, hackmen, teamsters, etc.....	120,756	177,586	368,499
Hostlers.....	17,586	31,697	54,036
Street-railway employees.....	5,103	11,687	37,434
Total.....	143,445	220,970	459,969
Laborers (not specified).....	1,046,966	1,864,245	1,913,873
Manufacturing pursuits (miscellaneous):			
Bleachers, dyers, and scourers.....	4,901	8,222	14,210
Bottlers and mineral and soda-water makers.....	458	2,081	7,230
Brewers and maltsters.....	11,246	16,278	20,362
Brick and tile makers and terra-cotta workers.....	26,070	36,052	60,214
Candle, soap, and tallow makers.....	1,942	2,923	3,450
Charcoal, coke, and lime burners.....	63,834	65,851	8,704
Chemical-works employees.....	.....	2,923	3,628
Distillers and rectifiers.....	2,874	3,245	3,314
Fertilizer makers.....	316	1,383	732
Gas-works employees.....	2,086	4,695	5,224
Oil-well employees.....	3,803	7,340	9,147
Oil-works employees.....	1,747	3,929	5,624
Salt-works employees.....	1,721	1,431	1,765
Sugar makers and refiners.....	1,609	2,327	2,616
Well borers.....	.....	.....	4,854
Whitewashers.....	2,873	3,316	3,996
Total.....	65,480	101,996	155,070
Messengers, packers, porters, etc.:			
Messengers and errand and office boys.....	8,717	13,985	51,355
Newspaper carriers and newsboys.....	2,002	3,374	5,288
Packers and shippers.....	5,461	9,342	24,946
Porters and helpers (in stores and warehouses).....	16,631	32,192	23,356
Total.....	32,811	58,893	105,945
Miners and quarrymen:			
Miners.....	152,107	234,228	349,592
Quarrymen.....	13,589	15,169	37,650
Total.....	165,696	249,397	387,248
Servants, etc.:			
Janitors.....	1,769	6,703	21,556
Launderers and laundresses.....	60,906	121,942	243,462
Nurses and midwives.....	12,162	15,601	47,586
Servants (c).....	1,009,417	1,155,351	1,546,827
Sextons.....	1,151	2,449	4,982
Total.....	1,076,405	1,302,106	1,869,413
All other persons:			
Hucksters and peddlers.....	34,337	53,491	50,083
Hunters, trappers, guides, and scouts.....	1,111	1,012	2,534
Other domestic and personal service.....	15,886	38,567	13,063
Other persons in trade and transportation.....	e 36,346	e 47,162	3,883
Soldiers, sailors, and marines (U. S.).....	28,338	24,161	27,919
Watchmen, policemen, and detectives.....	.....	f 13,384	74,629
Total.....	111,018	178,677	181,111
Total for Group D.....	5,691,882	7,533,949	8,419,160

a Estimated.

b Charcoal and lime burners.

c Includes housekeepers and stewards.

d Includes employees of Government (not clerks).

e Includes steamboat men and women, and employees of banks and of express, insurance, and other companies (not clerks); employees in 1880 partly estimated.

f Watchmen (private) and detectives.

As will be seen from the preceding table, occupations have been grouped according to the character of the employment, throwing into subgroups under each great group, so far as possible, all occupations which are in any way related, or which possess points of similarity in processes or in the nature of the work performed. This general grouping of occupations, for the purposes of this discussion, is preferable to the division into five great classes, as given in the census reports, while the consolidation of specific occupations under the various subgroups offsets, to a large extent, the differences of classification apparent at each census period, and, on the whole, produces results which admit of exact, or more nearly exact, comparison.

Bearing in mind, then, the limitations of the census classification of occupations, it will be seen that Group A relates to what may be termed the proprietor class, comprising farmers, planters, bankers, brokers, manufacturers, merchants and dealers, professional people, and those of kindred pursuits; Group B relates to what may be termed the clerical class, comprising agents, collectors, commercial travelers, bookkeepers, clerks, salesmen, and other clerical occupations; Group C to what may be termed skilled workers, comprising, so far as the census figures admit of such distinctions, those occupations or groups of occupations in which skilled labor plays the principal part, such as clothing makers, engineers and firemen (not locomotive), food preparers, leather workers, those engaged in the mechanical trades, metal workers, printers, engravers, book-binders, steam-railroad employees, textile workers, tobacco and cigar factory operatives, wood workers, and similar mechanical pursuits; and Group D relates to what may be termed, for want of a better designation, the laboring class, comprising those employments which are, as a rule, the more laborious, and in which the bulk of the work done does not call for a high degree of mechanical skill or ability, such as agricultural laborers, boatmen, fishermen, pilots, sailors, draymen, hostlers, street-railway employees, laborers (not specified), miscellaneous manufacturing pursuits, messengers, packers, porters, miners, quarrymen, servants, and the like.

Throughout this discussion it should be remembered, as already stated, that the census figures do not admit of a fine classification of the labor of the country, particularly so far as it relates to the division into skilled and unskilled employments, but, considered on broad grounds, the classifications are sufficiently distinctive to show the general trend of the employments of the people.

Before discussing these results in detail, it is well to divide the whole body of workers into three elements, namely, men, women, and children; the first two classes comprising, respectively, all males and females 16 years of age or over in 1870 and 1880, and 15 years of age or over in 1890, who were at work, and the third class comprising all children of both sexes between 10 and 16 years of age in 1870 and 1880, and between 10 and 15 years of age in 1890, who were engaged in gainful

labor, following the age classifications used at each of the censuses named. On this basis, the following tables show the number of men, women, and children engaged in each group and in each subgroup of occupations at the censuses of 1870, 1880, and 1890, respectively:

MEN ENGAGED IN GAINFUL OCCUPATIONS, BY SPECIAL GROUPS AND CLASSES, 1870, 1880, AND 1890.

Occupation groups.	1870.	1880.	1890.
GROUP A.			
Bankers, brokers, manufacturers, etc.....	78, 156	103, 901	223, 609
Farmers, planters, etc.....	2, 992, 128	4, 226, 429	5, 126, 673
Merchants and dealers, etc.....	442, 796	601, 469	893, 736
Professional pursuits.....	278, 727	425, 669	632, 184
Total.....	3, 791, 807	5, 357, 468	6, 881, 202
GROUP B.			
Agents, collectors, commercial travelers, etc.....	29, 681	63, 642	230, 771
Bookkeepers, clerks, salesmen, etc.....	301, 670	506, 229	914, 158
Total.....	331, 351	569, 871	1, 144, 929
GROUP C.			
Clothing makers.....	32, 201	114, 247	166, 496
Engineers and firemen (not locomotive).....	34, 200	79, 537	139, 554
Food preparers.....	124, 163	189, 206	248, 390
Leather workers.....	224, 916	241, 648	265, 032
Mechanical trades.....	598, 338	694, 734	1, 178, 069
Metal workers.....	387, 428	554, 490	810, 066
Printers, engravers, bookbinders, etc.....	47, 773	79, 746	124, 943
Steam-railroad employees.....	153, 091	234, 736	459, 616
Textile workers.....	116, 452	159, 946	203, 760
Tobacco and cigar factory operatives.....	33, 108	61, 687	80, 502
Wood workers.....	213, 288	277, 925	352, 337
Other mechanical pursuits, etc.....	128, 500	211, 729	370, 642
Total.....	2, 143, 458	2, 899, 631	4, 399, 343
GROUP D.			
Agricultural laborers, etc.....	2, 132, 906	2, 307, 769	2, 516, 004
Boatmen, fishermen, sailors, etc.....	113, 835	127, 995	135, 617
Draymen, hostlers, and street-railway employees.....	141, 475	213, 349	455, 770
Laborers (not specified).....	995, 498	1, 709, 683	1, 827, 563
Manufacturing pursuits (miscellaneous).....	62, 686	97, 684	145, 032
Messengers, packers, porters, etc.....	27, 535	43, 757	75, 670
Miners and quarrymen.....	161, 006	256, 944	375, 828
Servants, etc.....	112, 062	183, 141	286, 165
All other persons.....	107, 352	107, 563	172, 376
Total.....	3, 854, 955	5, 092, 785	5, 995, 030
Grand total.....	10, 121, 571	13, 919, 755	18, 420, 504

WOMEN ENGAGED IN GAINFUL OCCUPATIONS, BY SPECIAL GROUPS AND CLASSES, 1870, 1880, AND 1890.

Occupation groups.	1870.	1880.	1890.
GROUP A.			
Bankers, brokers, manufacturers, etc.....	284	606	1, 141
Farmers, planters, etc.....	22, 960	53, 393	228, 840
Merchants and dealers, etc.....	14, 321	31, 473	68, 316
Professional pursuits.....	91, 914	176, 609	311, 241
Total.....	129, 479	267, 061	609, 538
GROUP B.			
Agents, collectors, commercial travelers, etc.....	140	689	5, 466
Bookkeepers, clerks, salesmen, etc.....	10, 335	37, 395	173, 204
Total.....	10, 475	38, 084	183, 670

WOMEN ENGAGED IN GAINFUL OCCUPATIONS, BY SPECIAL GROUPS AND CLASSES,
1870, 1880, AND 1890—Concluded.

Occupation groups.	1870.	1880.	1890.
GROUP C.			
Clothing makers	197,970	357,338	604,257
Engineers and firemen (not locomotive) .....	.....	.....	47
Food preparers	2,234	4,162	9,664
Leather workers	9,418	21,872	34,789
Mechanical trades	2,480	471	1,647
Metal workers	4,886	7,266	13,329
Printers, engravers, bookbinders, etc.	3,912	8,543	23,461
Steam-railroad employees	62	420	1,412
Textile workers	90,884	140,081	208,216
Tobacco and cigar factory operatives	3,458	9,182	28,853
Wood workers	1,614	2,416	7,554
Other mechanical pursuits, etc.	11,653	33,603	60,171
Total	328,521	585,854	992,380
GROUP D.			
Agricultural laborers, etc.	300,831	400,255	366,294
Boatmen, fishermen, sailors, etc.	63	118	304
Draymen, hostlers, and street-railway employees	81	4	254
Laborers (not specified)	18,677	51,443	50,821
Manufacturing pursuits (miscellaneous)	836	1,465	3,901
Messengers, packers, porters, etc.	204	2,454	7,962
Miners and quarrymen	18	65	319
Servants, etc.	853,361	988,321	1,490,664
All other persons	2,642	9,344	6,597
Total	1,176,713	1,463,469	1,928,550
Grand total	1,645,188	2,353,988	3,712,144

CHILDREN ENGAGED IN GAINFUL OCCUPATIONS, BY SPECIAL GROUPS AND
CLASSES, 1870, 1880, AND 1890.

Occupation groups.	1870.	1880.	1890.
GROUP A.			
Bankers, brokers, manufacturers, etc.	3	14	.....
Farmers, planters, etc. ....	.....	1,277	418
Merchants and dealers, etc.	592	412	820
Professional pursuits	457	924	903
Total	1,052	2,627	2,146
GROUP B.			
Agents, collectors, commercial travelers, etc.	23	147	241
Bookkeepers, clerks, salesmen, etc.	8,225	19,577	14,340
Total	8,248	19,724	14,581
GROUP C.			
Clothing makers	5,871	13,637	10,680
Engineers and firemen (not locomotive)	33	91	164
Food preparers	1,349	2,240	2,011
Leather workers	2,992	4,771	2,834
Mechanical trades	2,673	1,935	2,172
Metal workers	5,017	8,538	5,767
Printers, engravers, bookbinders, etc.	2,069	2,847	2,138
Steam-railroad employees	874	902	1,185
Textile workers	34,278	50,138	32,234
Tobacco and cigar factory operatives	3,705	6,176	5,270
Wood workers	3,237	7,159	5,096
Other mechanical pursuits, etc.	8,052	19,876	19,051
Total	70,150	118,310	88,712
GROUP D.			
Agricultural laborers, etc.	499,736	719,752	327,697
Boatmen, fishermen, sailors, etc.	2,180	1,776	1,115
Draymen, hostlers, and street-railway employees	1,889	2,017	3,945
Laborers (not specified)	32,791	103,119	35,484
Manufacturing pursuits (miscellaneous)	1,958	2,847	3,137
Messengers, packers, porters, etc.	5,072	12,682	22,373
Miners and quarrymen	4,072	12,488	11,101
Servants, etc.	110,982	120,644	90,584
All other persons	1,024	1,770	2,138
Total	659,714	977,695	497,574
Grand total	739,164	1,118,366	603,013

The proportion of persons in each group of occupations at the censuses of 1870, 1880, and 1890 is given for men, women, children, and of all persons, respectively, in the following table:

PER CENT OF MEN, WOMEN, AND CHILDREN, AND OF ALL PERSONS, IN EACH SPECIAL GROUP OF OCCUPATIONS, 1870, 1880, AND 1890.

Classes of persons and occupation groups.	1870.	1880.	1890.
MEN.			
Group A	37.46	38.40	37.36
Group B	3.27	4.09	6.22
Group C	21.18	20.83	23.88
Group D	38.09	36.59	32.54
Total	100.00	100.00	100.00
WOMEN.			
Group A	7.87	11.34	16.42
Group B .....	.64	1.62	4.65
Group C	19.97	24.87	26.73
Group D	71.52	62.17	51.90
Total	100.00	100.00	100.00
CHILDREN.			
Group A .....	.14	.24	.36
Group B	1.12	1.70	2.42
Group C	9.49	10.58	14.71
Group D	89.25	87.42	82.51
Total	100.00	100.00	100.00
ALL PERSONS.			
Group A	31.36	32.35	32.96
Group B	2.80	3.61	5.91
Group C	20.33	23.72	24.10
Group D	45.51	43.32	37.03
Total	100.00	100.00	100.00

Considering first the results for all persons, the figures show that when the distribution of the gainful workers of the country, according to the four groups of occupations at each census period, is considered, it is seen that there has been a steady increase in the proportions found in each of the first three groups in 1880 and 1890 as compared with 1870, with a corresponding decrease in the proportion of persons constituting Group D, and that the changes in the proportions have been especially marked during the decade ending in 1890. This means, if the results can be considered as being at all indicative of the real changes which have taken place in our working population, that the proportion of workers engaged in the more laborious forms of employment in 1890 as compared with 1870 and 1880 has become considerably smaller, constituting in 1890 but 37.03 per cent of all workers, whereas in 1870 they constituted 45.51 per cent. The other side of the picture is found in an increase in twenty years of from 31.36 per cent of all workers in 1870 to 32.96 per cent in 1890 in Group A, constituting, as near as may be, the proprietor class; from 2.80 per cent of all workers in 1870 to 5.91 per cent in 1890 in Group B, constituting the clerical class, and from 20.33 of all workers in 1870 to 24.10 per cent in 1890 in

Group C, representing principally skilled workers; or, in brief, a general uplifting in the scale of life, as measured by the kind of work done.

The same general results are noted for men, women, and children in 1890 as compared with 1870, except that there has been a slight loss in the proportion of men in Group A. The decrease in the proportion of workers in Group D is very marked in the case of each of these three classes, and this is especially noticeable with respect to women, for whom there is shown a change in 20 years from 71.52 per cent of all women workers in 1870 to 51.90 per cent in 1890.

If the analysis is continued to include the proportions found in each of the various subgroups at each census, the following tables are obtained:

PER CENT OF MEN ENGAGED IN GAINFUL OCCUPATIONS, BY SPECIAL GROUPS AND CLASSES, 1870, 1880, AND 1890.

Occupation groups.	1870.	1880.	1890.
GROUP A.			
Bankers, brokers, manufacturers, etc	0.77	0.75	1.24
Farmers, planters, etc.....	29.56	30.36	27.83
Merchants and dealers, etc.....	4.88	4.32	4.85
Professional pursuits	2.75	3.06	3.44
Total.....	37.46	38.49	37.36
GROUP B.			
Agents, collectors, commercial travelers, etc.....	.29	.46	1.26
Bookkeepers, clerks, salesmen, etc.....	2.98	3.63	4.96
Total.....	3.27	4.09	6.22
GROUP C.			
Clothing makers .....	.81	.82	.90
Engineers and firemen (not locomotive) .....	.34	.57	.76
Food preparers.....	1.23	1.36	1.35
Leather workers	2.22	1.74	1.44
Mechanical trades	5.91	4.99	6.39
Metal workers	3.83	3.98	4.40
Printers, engravers, bookbinders, etc .....	.47	.57	.68
Steam-railroad employees.....	1.51	1.69	2.49
Textile workers.....	1.15	1.15	1.11
Tobacco and cigar factory operatives.....	.33	.44	.44
Wood workers	2.11	2.00	1.91
Other mechanical pursuits, etc.....	1.27	1.52	2.01
Total.....	21.18	20.83	23.88
GROUP D.			
Agricultural laborers, etc	21.07	16.58	13.66
Boatmen, fishermen, sailors, etc.....	1.12	.92	.74
Draymen, hostlers, and street-railway employees.....	1.40	1.57	2.47
Laborers (not specified)	9.84	12.28	9.92
Manufacturing pursuits (miscellaneous).....	.62	.70	.80
Messengers, packers, porters, etc .....	.27	.32	.41
Miners and quarrymen.....	1.60	1.70	2.04
Servants, etc	1.11	1.32	1.56
All other persons.....	1.06	1.20	.94
Total.....	33.09	36.59	32.54
Grand total.....	100.00	100.00	100.00

PER CENT OF WOMEN ENGAGED IN GAINFUL OCCUPATIONS, BY SPECIAL GROUPS AND CLASSES, 1870, 1880, AND 1890.

Occupation groups.	1870.	1880.	1890.
GROUP A.			
Bankers, brokers, manufacturers, etc.....	0.02	0.02	0.03
Farmers, planters, etc.....	1.39	2.48	6.17
Merchants and dealers, etc.....	.87	1.34	1.84
Professional pursuits.....	5.59	7.50	8.38
Total.....	7.87	11.34	16.42
GROUP B.			
Agents, collectors, commercial travelers, etc.....	.01	.03	.15
Bookkeepers, clerks, salesmen, etc.....	.63	1.59	4.80
Total.....	.64	1.62	4.95
GROUP C.			
Clothing makers.....	12.03	15.18	16.28
Engineers and firemen (not locomotive).....			(a)
Food preparers.....	.14	.18	.26
Leather workers.....	.57	.93	.94
Mechanical trades.....	.15	.02	.04
Metal workers.....	.30	.31	.41
Printers, engravers, bookbinders, etc.....	.24	.36	.63
Steam-railroad employees.....	(a)	.02	.04
Textile workers.....	5.52	5.95	5.61
Tobacco and cigar factory operatives.....	.21	.39	.70
Wood workers.....	.10	.10	.20
Other mechanical pursuits, etc.....	.71	1.43	1.62
Total.....	19.97	24.87	26.73
GROUP D.			
Agricultural laborers, etc.....	18.29	17.00	9.87
Boatmen, fishermen, sailors, etc.....	(a)	.01	.01
Draymen, hostlers, and street-railway employees.....	(a)	(a)	.01
Laborers (not specified).....	1.14	2.19	1.35
Manufacturing pursuits (miscellaneous).....	.05	.06	.10
Messengers, packers, porters, etc.....	.01	.10	.21
Miners and quarrymen.....	(a)	(a)	.01
Servants, etc.....	51.87	42.41	40.16
All other persons.....	.16	.40	.18
Total.....	71.52	62.17	51.90
Grand total.....	100.00	100.00	100.00

a Per cent not appreciable.

PER CENT OF CHILDREN ENGAGED IN GAINFUL OCCUPATIONS, BY SPECIAL GROUPS AND CLASSES, 1870, 1880, AND 1890.

Occupation groups.	1870.	1880.	1890.
GROUP A.			
Bankers, brokers, manufacturers, etc.....	(a)	(a)	.....
Farmers, planters, etc.....		0.12	0.07
Merchants and dealers, etc.....	0.08	.04	.14
Professional pursuits.....	.06	.08	.15
Total.....	.14	.24	.36
GROUP B.			
Agents, collectors, commercial travelers, etc.....	.01	.01	.04
Bookkeepers, clerks, salesmen, etc.....	1.11	1.75	2.38
Total.....	1.12	1.76	2.42
GROUP C.			
Clothing makers.....	.79	1.22	1.77
Engineers and firemen (not locomotive).....	(a)	.01	.03
Food preparers.....	.18	.20	.33
Leather workers.....	.41	.43	.47
Mechanical trades.....	.36	.17	.36
Metal workers.....	.68	.76	.96
Printers, engravers, bookbinders, etc.....	.28	.26	.36
Steam-railroad employes.....	.12	.08	.20
Textile workers.....	4.64	4.48	5.35
Tobacco and cigar factory operatives.....	.50	.55	.87
Wood workers.....	.44	.64	.85
Other mechanical pursuits, etc.....	1.09	1.78	3.16
Total.....	9.49	10.58	14.71
GROUP D.			
Agricultural laborers, etc.....	67.61	64.36	54.34
Boatmen, fishermen, sailors, etc.....	.30	.16	.19
Draymen, hostlers, and street-railway employes.....	.26	.23	.65
Laborers (not specified).....	4.43	9.22	5.88
Manufacturing pursuits (miscellaneous).....	.26	.25	.52
Messengers, packers, porters, etc.....	.60	1.13	3.71
Miners and quarrymen.....	.55	1.12	1.84
Servants, etc.....	15.01	10.79	15.02
All other persons.....	.14	.16	.36
Total.....	89.25	87.42	82.51
Grand total.....	100.00	100.00	100.00

a Per cent not appreciable.

PER CENT OF ALL PERSONS ENGAGED IN GAINFUL OCCUPATIONS, BY SPECIAL GROUPS AND CLASSES, 1870, 1880, AND 1890.

Occupation groups.	1870.	1880.	1890.
GROUP A.			
Bankers, brokers, manufacturers, etc.....	0.62	0.60	1.01
Farmers, planters, etc.....	24.11	24.64	23.56
Merchants and dealers, etc.....	3.66	3.64	4.24
Professional pursuits.....	2.97	3.47	4.15
Total.....	31.36	32.35	32.90
GROUP B.			
Agents, collectors, commercial travelers, etc.....	.24	.37	1.04
Bookkeepers, clerks, salesmen, etc.....	2.56	3.24	4.87
Total.....	2.80	3.61	5.91
GROUP C.			
Clothing makers.....	2.29	2.79	3.44
Engineers and firemen (not locomotive).....	.27	.46	.61
Food preparers.....	1.02	1.13	1.14
Leather workers.....	1.90	1.54	1.33
Mechanical trades.....	4.83	4.01	5.20
Metal workers.....	3.18	3.28	3.66
Printers, engravers, bookbinders, etc.....	.43	.52	.66
Steam-railroad employes.....	1.23	1.36	2.02
Textile workers.....	1.93	2.01	1.95
Tobacco and cigar factory operatives.....	.32	.44	.49
Wood workers.....	1.74	1.65	1.61
Other mechanical pursuits, etc.....	1.10	1.53	1.68
Total.....	20.33	20.72	24.10
GROUP D.			
Agricultural laborers, etc.....	23.46	19.71	14.12
Boatmen, fishermen, sailors, etc.....	.93	.75	.60
Draymen, hostlers, and street-railway employes.....	1.15	1.27	2.02
Laborers (not specified).....	8.37	10.72	8.42
Manufacturing pursuits (miscellaneous).....	.52	.58	.68
Messengers, packers, porters, etc.....	.26	1.34	.47
Miners and quarrymen.....	1.32	1.48	1.70
Servants, etc.....	8.61	7.49	8.22
All other persons.....	.89	1.03	.80
Total.....	45.51	43.32	37.03
Grand total.....	100.00	100.00	100.00

An analysis of these figures shows that the general conclusions already stated are fully borne out by the detailed presentation of the proportions found in each of the various subgroups, such variations as are apparent being due either to the difference in classification of occupations at the three censuses considered or to actual changes in conditions governing specific employments.

Under Group A, for instance, it is seen for farmers, planters, etc., that there was a slight increase in the proportion in 1880 as compared with 1870, but that in 1890 the proportion has been decreased, and that, furthermore, this decrease was wholly due to a very considerable loss in the proportion of men who were so occupied in 1890, which was partially offset by a material increase in the proportion of women who were returned as farmers, planters, etc. For bankers, brokers, manufacturers, etc., a very slight decrease in the proportion is shown from 1870 to 1880 and a small increase from 1880 to 1890; these changes in proportions being almost wholly credited to men, as women and children

do not figure much in this class of employments. Among merchants and dealers, etc., there was but a slight change in the proportion between 1870 and 1880, but between 1880 and 1890 there was a small increase, the loss between 1870 and 1880 being confined principally to men, although children so occupied also showed a decrease during the same decade. For persons engaged in professional pursuits there has been uniformly an increase in each case, the increase in the proportion of women so occupied in 1890 as compared with 1870 being especially pronounced. So far as Group A is concerned, therefore, the detailed statement of results shows conclusively that, with the exception of farmers, planters, etc., there has been a perceptible increase in the proportions of each subgroup of workers, the losses shown between 1870 and 1880 for two of these subgroups being minor only, while the loss in the proportion of farmers, planters, etc., was the legitimate outcome of changes which have taken place in the conditions surrounding this great class of workers.

Passing to Group B, we find that each subgroup shows an increased proportion of workers at each of the last two censuses as compared with 1870; that the most noticeable increase in the proportion of agents, collectors, commercial travelers, etc., is shown for men, and that for bookkeepers, clerks, salesmen, etc.—although the increase in the proportion of this class of workers is considerable for each of the three elements, men, women, and children—by far the largest increase in the proportion is shown for women.

Among the skilled workers comprising Group C there has been, with few exceptions, a uniform increase in the proportions found in each subgroup, and this is especially true with respect to clothing makers, engineers and firemen (not locomotive), food preparers, metal workers, printers, engravers, bookbinders, etc., steam-railroad employees, tobacco and cigar factory operatives, and other mechanical pursuits, etc. In two subgroups, namely, leather workers and wood workers, there has been a slight loss in the proportion of workers during each decade, but this loss is common to men only, and is probably due largely to the influence of machinery upon the boot and shoe and woodworking industries. The proportions of textile workers have not as a whole increased much in twenty years, while the subgroup comprising the mechanical trades showed a loss in the proportion of workers in 1880 as compared with 1870, but this loss was more than offset by a gain in the proportion from 1880 to 1890. So that, making allowances for minor differences in classification and the changed conditions of work in certain industries, it can be safely stated that the great body of skilled workers constitute beyond question a larger proportion of the whole number of persons engaged in gainful pursuits in 1890 than in either 1870 or 1880.

In considering the subdivisions under Group D, it appears at first glance that practically all the decrease in this group is confined to the subgroup of agricultural laborers, etc., but it will be seen upon a

closer inspection that, notwithstanding this great decrease in the proportion of persons engaged in agricultural labor, there has been no material increase in the proportion found in any other subgroup comprising this group, and, furthermore, that since 1880 there has been a very considerable decrease in the proportion of laborers (not specified), practically offsetting the somewhat fictitious increase from 1870 to 1880, already explained, and also a very material decrease in 1890, in the proportion of women in the subgroup of servants, etc., of which they constitute by far the largest part. Stating the results in detail, there has been a decrease in the proportion of agricultural laborers, etc., from 23.46 per cent in 1870 to 14.12 per cent in 1890, when considered in the aggregate.

There has also been a slight general decrease in the proportion of boatmen, fishermen, and sailors, and a decrease in the proportion of servants, etc., the decrease for women in this subgroup being very large (from 51.87 per cent in 1870 to 40.16 per cent in 1890), while for the great class of laborers (not specified) there has been practically no increase in the proportion since 1870. The other subgroups show slight increases in the proportion in 1890 as compared with 1870, but in no case are they in any sense material increases, showing that the great loss in the proportion of persons engaged in agricultural labor has not been offset by a large increase in the proportions found in the other forms of laborious employment, but rather that the corresponding increases in the proportions are found in the higher forms of labor represented by Groups A, B, and C.

The census tabulations admit of another form of comparison—that relating to the division of the whole body of workers according to whether they are of native or of foreign birth. The following tables show the number of native and foreign born persons found in each group and in each subgroup of occupations in 1870, 1880, and 1890:

NATIVE-BORN PERSONS ENGAGED IN GAINFUL OCCUPATIONS, BY SPECIAL GROUPS AND CLASSES, 1870, 1880, AND 1890.

Occupation groups.	1870.	1880.	1890.
GROUP A.			
Bankers, brokers, manufacturers, etc.....	60, 674	79, 877	174, 898
Farmers, planters, etc.....	2, 587, 412	3, 648, 895	4, 548, 091
Merchants and dealers, etc.....	311, 614	430, 102	672, 848
Professional pursuits.....	324, 240	530, 026	828, 965
Total	3, 288, 940	4, 688, 840	6, 224, 797
GROUP B.			
Agents, collectors, commercial travelers, etc.....	25, 072	58, 821	197, 109
Bookkeepers, clerks, salesmen, etc.....	263, 288	484, 757	941, 964
Total	288, 360	538, 078	1, 139, 073
GROUP C.			
Clothing makers.....	190, 182	351, 252	562, 117
Engineers and firemen (not locomotive).....	24, 286	57, 984	101, 229
Food preparers.....	78, 985	125, 950	161, 897
Leather workers.....	153, 479	173, 481	192, 275
Mechanical trades.....	436, 401	514, 003	848, 321
Metal workers.....	263, 311	395, 349	552, 014
Printers, engravers, bookbinders, etc.....	40, 337	74, 314	124, 175

NATIVE-BORN PERSONS ENGAGED IN GAINFUL OCCUPATIONS, BY SPECIAL GROUPS AND CLASSES, 1870, 1880, AND 1890—Concluded.

Occupation groups.	1870.	1880.	1890.
GROUP C—concluded.			
Steam-railroad employes.....	94,505	169,380	346,374
Textile workers.....	149,815	210,296	261,699
Tobacco and cigar factory operatives.....	24,099	50,041	73,174
Wood workers.....	146,642	200,006	242,411
Other mechanical pursuits, etc.....	104,198	197,601	330,731
Total.....	1,706,340	2,519,657	3,796,417
GROUP D.			
Agricultural laborers, etc.....	2,735,702	3,237,582	2,897,714
Boatmen, fishermen, sailors, etc.....	90,386	96,270	101,067
Draymen, hostlers, and street-railway employes.....	98,315	159,827	346,340
Laborers (not specified).....	611,594	1,340,361	1,222,890
Manufacturing pursuits (miscellaneous).....	33,890	59,348	89,747
Messengers, packers, porters, etc.....	20,709	43,233	85,537
Miners and quarrymen.....	63,408	116,219	191,654
Servants, etc.....	797,353	977,951	1,317,752
All other persons.....	72,037	120,066	104,789
Total.....	4,523,394	6,150,877	6,357,506
Grand total.....	9,802,034	13,897,452	17,517,793

FOREIGN-BORN PERSONS ENGAGED IN GAINFUL OCCUPATIONS, BY SPECIAL GROUPS AND CLASSES, 1870, 1880, AND 1890.

Occupation groups.	1870.	1880.	1890.
GROUP A.			
Bankers, brokers, manufacturers, etc.....	17,769	24,644	54,857
Farmers, planters, etc.....	427,676	637,204	807,840
Merchants and dealers, etc.....	146,095	203,252	290,024
Professional pursuits.....	46,858	73,176	115,368
Total.....	638,398	938,330	1,268,089
GROUP B.			
Agents, collectors, commercial travelers, etc.....	4,772	11,157	39,360
Bookkeepers, clerks, salesmen, etc.....	56,942	78,444	164,738
Total.....	61,714	89,601	204,107
GROUP C.			
Clothing makers.....	95,860	133,970	219,256
Engineers and firemen (not locomotive).....	9,947	21,644	38,536
Food preparers.....	48,761	69,598	98,168
Leather workers.....	83,847	94,810	110,300
Mechanical trades.....	167,090	183,137	333,567
Metal workers.....	134,020	174,945	279,148
Printers, engravers, bookbinders, etc.....	13,417	16,822	26,427
Steam-railroad employes.....	59,522	66,678	115,839
Textile workers.....	91,649	139,869	182,501
Tobacco and cigar factory operatives.....	16,172	27,004	38,451
Wood workers.....	71,497	87,494	122,572
Other mechanical pursuits, etc.....	44,007	67,667	119,133
Total.....	835,789	1,083,638	1,684,018
GROUP D.			
Agricultural laborers, etc.....	197,771	190,194	312,231
Boatmen, fishermen, sailors, etc.....	25,702	33,619	35,989
Draymen, hostlers, and street-railway employes.....	45,130	61,143	113,623
Laborers (not specified).....	435,372	523,884	690,433
Manufacturing pursuits (miscellaneous).....	31,590	42,648	65,323
Messengers, packers, porters, etc.....	12,102	15,660	20,408
Miners and quarrymen.....	102,288	193,178	195,594
Servants, etc.....	279,052	324,155	551,661
All other persons.....	38,981	58,591	70,312
Total.....	1,167,988	1,383,072	2,061,654
Grand total.....	2,703,889	3,494,647	5,217,868

Reducing the results shown in the preceding tables to percentages, the following tables are obtained:

PER CENT OF NATIVE-BORN PERSONS ENGAGED IN GAINFUL OCCUPATIONS, BY SPECIAL GROUPS AND CLASSES, 1870, 1880, AND 1890.

Occupation groups.	1870.	1880.	1890.
GROUP A.			
Bankers, brokers, manufacturers, etc.....	0.62	0.57	1.00
Farmers, planters, etc.....	26.39	26.26	25.97
Merchants and dealers, etc.....	3.18	3.10	3.84
Professional pursuits.....	3.31	3.81	4.73
Total.....	33.50	33.74	35.54
GROUP B.			
Agents, collectors, commercial travelers, etc.....	.25	.28	1.12
Bookkeepers, clerks, salesmen, etc.....	2.69	3.49	5.38
Total.....	2.94	3.87	6.50
GROUP C.			
Clothing makers.....	1.94	2.53	3.21
Engineers and firemen (not locomotive).....	.25	.42	.58
Food preparers.....	.81	.91	.92
Leather workers.....	1.56	1.25	1.10
Mechanical trades.....	4.45	3.70	4.84
Metal workers.....	2.69	2.84	3.15
Printers, engravers, bookbinders, etc.....	.41	.53	.71
Steam-railroad employees.....	.96	1.22	1.98
Textile workers.....	1.53	1.51	1.49
Tobacco and cigar factory operatives.....	.25	.36	.42
Wood workers.....	1.50	1.44	1.38
Other mechanical pursuits, etc.....	1.06	1.42	1.89
Total.....	17.41	18.13	21.67
GROUP D.			
Agricultural laborers, etc.....	27.91	23.30	16.54
Boatmen, fishermen, sailors, etc.....	.92	.69	.58
Draymen, hostlers, and street-railway employees.....	1.00	1.15	1.98
Laborers (not specified).....	6.24	9.64	6.98
Manufacturing pursuits (miscellaneous).....	.35	.43	.51
Messengers, packers, porters, etc.....	.21	.31	.49
Miners and quarrymen.....	.65	.84	1.09
Servants, etc.....	8.13	7.04	7.52
All other persons.....	.74	.86	.60
Total.....	46.15	44.26	36.29
Grand total.....	100.00	100.00	100.00

PER CENT OF FOREIGN-BORN PERSONS ENGAGED IN GAINFUL OCCUPATIONS, BY SPECIAL GROUPS AND CLASSES, 1870, 1880, AND 1890.

Occupation groups.	1870.	1880.	1890.
GROUP A.			
Bankers, brokers, manufacturers, etc.....	0.66	0.70	1.05
Farmers, planters, etc.....	15.82	18.24	15.48
Merchants and dealers, etc.....	5.40	5.82	5.56
Professional pursuits.....	1.73	2.09	2.21
Total.....	23.61	26.85	24.30
GROUP B.			
Agents, collectors, commercial travelers, etc.....	.18	.32	.75
Bookkeepers, clerks, salesmen, etc.....	2.10	2.24	3.16
Total.....	2.28	2.56	3.91
GROUP C.			
Clothing makers.....	3.54	3.83	4.20
Engineers and firemen (not locomotive).....	.37	.62	.74
Food preparers.....	1.80	1.99	1.88
Leather workers.....	3.10	2.71	2.12
Mechanical trades.....	6.18	5.24	6.39
Metal workers.....	4.96	5.01	5.35
Printers, engravers, bookbinders, etc.....	.50	.48	.51
Steam-railroad employes.....	2.20	1.91	2.22
Textile workers.....	3.39	4.00	3.50
Tobacco and cigar factory operatives.....	.60	.77	.74
Wood workers.....	2.64	2.51	2.35
Other mechanical pursuits, etc.....	1.63	1.94	2.28
Total.....	30.91	31.01	32.28
GROUP D.			
Agricultural laborers, etc.....	7.32	5.44	5.99
Boatmen, fishermen, sailors, etc.....	.95	.96	.69
Draymen, hostlers, and street-railway employes.....	1.67	1.75	2.18
Laborers (not specified).....	16.10	14.99	13.23
Manufacturing pursuits (miscellaneous).....	1.17	1.22	1.25
Messengers, packers, porters, etc.....	.45	.45	.39
Miners and quarrymen.....	3.78	3.81	3.75
Servants, etc.....	10.32	9.28	10.57
All other persons.....	1.44	1.63	1.46
Total.....	43.20	39.58	39.51
Grand total.....	100.00	100.00	100.00

Briefly analyzed, these tables show that for native-born workers there has been a steady increase since 1870 in the proportion found in each of the first three groups and a corresponding decrease in the proportion found in Group D. For the foreign-born workers, however, the proportions found in each group at each census period have fluctuated greatly, due partly, no doubt, to the influences of immigration, especially during the decade from 1880 to 1890. From 1870 to 1880 there was a considerable increase in the proportion of foreign-born workers in Group A, a corresponding decrease in Group D, and slight increases only in Groups B and C. The results for 1890 as compared with 1880 show, on the other hand, a loss in the proportion of foreign-born workers in Group A, a very small loss in the proportion in Group D, and an increase in Groups B and C.

Comparing the proportions shown for each subgroup in 1890 with those given for 1870, it is seen for Group A that there has been a slight increase in the proportion in each subgroup, with the exception of that

of farmers, planters, etc., in which there has been a small decrease in the proportion of both native and foreign born workers. The increase from 15.82 per cent in 1870 to 18.24 per cent in 1880 in the proportion of foreign-born farmers, planters, etc., and the more than offsetting decrease from 18.24 in 1880 to 15.48 per cent in 1890, may be legitimate as showing the influence of the increased immigration during the latter decade, but is probably due, in part at least, to the differences in classification of occupations at the various censuses. In Group B there has been an increase of native and foreign born workers in each subgroup, while in Group C this is also true, with the exception of leather workers and wood workers, in which there is a slightly smaller proportion of both native and foreign born, and of textile workers, in which there has been a very slight loss in the proportion of the native born only. In Group D the proportion of native-born agricultural laborers, etc., in 1890 is 16.54 per cent as compared with 27.91 per cent in 1870, while there is a decrease during the same period from 7.32 per cent to 5.99 per cent in the proportion of foreign born who were so occupied. Among laborers (not specified) there has been a slight increase in the proportion of native-born workers and a considerable loss in that for foreign-born workers, while for the subgroup of servants, etc., the native born show a small loss and the foreign born a slight increase in the proportion.

It must be conceded, therefore, that, viewed from whatever standpoint, there has been a perceptible increase in the proportion of persons engaged in the higher grades of work in 1890 as compared with conditions 20 years earlier.

PUBLIC BATHS IN EUROPE.

BY EDWARD MUSSEY HARTWELL, PH. D., M. D.

Until within a few years neither American cities nor American philanthropists have considered it necessary to maintain public bathing establishments. In some instances, it is true, floating baths have been maintained during the summer months. The study of the necessitous condition of congested districts in New York, Chicago, Boston, and other large cities has led to a discussion, by sanitarians and others interested in municipal housekeeping, as to the feasibility of providing bathing facilities which should be available the year round in tenement-house and other crowded sections. Within two years appropriations have been made by New York, Chicago, Boston, Buffalo, and the town of Brookline, Mass., for the erection and maintenance of public bath houses. Those in Buffalo and Brookline have been finished and are already in use. It is probable that the policy thus inaugurated will become general and popular wherever in this country large numbers of people are crowded together under conditions unfavorable to cleanliness, comfort, and health.

Inasmuch as the policy of maintaining public bath houses at municipal expense has commended itself to the authorities and taxpayers in most European countries and has become firmly established during the last forty years, and inasmuch as the best planned and most successful of our private undertakings in this field bear witness to the influence of European example, the teachings of European experience in respect to people's, workmen's, and school baths can hardly fail to prove helpful and instructive to those who are endeavoring to ameliorate the conditions due to urban crowding in the United States.

The purpose of the following pages is to give some account of the origin and history of the public bath house movement in certain of the leading industrial countries of western Europe, and to show what the experience of cities like Glasgow, Manchester, London, Berlin, Vienna, and Budapest teaches as to the best methods of locating, planning, and maintaining baths for the people. It would be impossible in the space available to describe or to give a complete list of the public bathing establishments in Europe or even in England alone, where the movement had its beginnings. It must suffice, therefore, to outline the general features of European policy in regard to municipal baths; to compare the leading types of bath and wash houses in Great Britain

and on the Continent in respect to their structural peculiarities, the variety and extent of the facilities afforded by them, and the amount of the pecuniary burden assumed by public authorities for their erection and maintenance, and to indicate in some measure the extent to which employers of labor, profiting by municipal example, have undertaken to provide their workmen with facilities for bathing.

The city of Liverpool is usually credited, and rightly it would seem, with being the first considerable European city to establish a bath house for the benefit of the people at public expense. In the year 1794 the Corporation of Liverpool purchased a private swimming bath establishment at the end of the New Quay, at a cost of about £4,000 (\$19,466), and expended £1,000 (\$4,867) additional in embellishments and in making large alterations from the original plan. These baths were removed in 1820 to make way for the Prince's Dock. In 1828 St. George's Baths, so called, were erected by the Corporation at a cost of nearly £25,000 (\$121,663). This establishment is still in use and is known as the Pier-Head Bath House. It is a river-side bath. At various times the enlargement and improvement of the establishment have been proposed, but thus far the plans for remodeling it have not been carried into effect. It is probable that this establishment will be demolished or remodeled in the near future.

By reason of its being a pioneer establishment the following facts concerning the Pier-Head Bath in Liverpool are given in this connection: The total cost of the building and of keeping it in repair, up to 1895, according to official reports, amounted to £43,660 (\$212,471). The establishment includes two swimming baths, one 46 feet 6 inches by 27 feet in area, and the other 40 by 27 feet; also two small private plunge baths, eleven private tub baths, two vapor baths, and one douche bath. Filtered salt water from the Mersey is used in all these baths, except one private bath tub in which fresh water is employed. From the beginning of May until the end of September the swimming baths are open on week days from 6 a. m. until 9 p. m., and on Sundays from 6 to 9 a. m. During the months of April and October they are open on week days only; on Saturdays from 8 a. m. until 9 p. m.; on other days they are closed at 7 p. m. From November until the end of March these baths are open from 8 a. m. until 7 p. m. from Mondays to Fridays, and on Saturdays from 8 a. m. until 9 p. m. They are not open on Sundays. The private hot and cold baths and vapor and shower baths of this establishment are open during the same days and hours as are specified above for the swimming baths. The scale of charges for sea-water baths is as follows:

Vapor bath	\$0.48½
Private warm bath .....	.36½
Private plunge bath, tepid .....	.36½
Private plunge bath, cold .....	.24½
Public plunge bath .....	.12
Public plunge, after 5 p. m. ....	.06

Tickets for the public plunge or swimming bath from October to the end of March, and from 6 to 8 a. m. from April to the end of September, are sold for 4 shillings (97½ cents) per dozen. A private warm bath of fresh water costs 1 shilling (24½ cents). The women's plunge baths, two tub baths, and the douche bath are now closed, being out of repair.

In 1892 the plunge baths were used by 44,291 bathers, 38,183 being men and 6,108 women. In the same year the number of vapor baths was 604 for men and only 8 for women; of warm baths, 2,598 for men and 280 for women; of cold baths at 1 shilling, 885 for men and 55 for women. But it should be said that the total number of bathers was smaller in 1892 than in any other year from 1890 to 1895, with the exception of 1894. During the six years in question the total receipts of the establishment exceeded the expenditures by £914 (\$4,448).

The Pier-Head Bath House is the most costly of the Liverpool bathing establishments. Next to it comes the Cornwallis Street Bath, which cost for site, building, and furnishing the sum of £27,945 (\$135,994). It was opened in 1851.

On the 23th of May, 1842, the Corporation of Liverpool opened the Frederick Street Baths and Washhouse, which cost £2,648 (\$12,886) to build and furnish. It was the first public bath having a washhouse in connection with it in Great Britain. It comprised private tub baths, a vapor bath, washhouse for infected clothing, washhouse for ordinary clothing, drying rooms, administrative portion, reading room, and superintendent's house. In 1854 the establishment was reconstructed, and the baths, reading room, and the superintendent's house were done away with, since which time it has been maintained as a washhouse only. It stands in the books as having cost £4,451 (\$21,661). At present it contains washing and drying accommodations for 60 washers. In the period 1890-1895 the average annual number of washers using it was 16,268, and its maintenance involved an average annual loss of £171 (\$832).

The Frederick Street Washhouse owed its erection to the example of a benevolent woman, who during a cholera epidemic established a small washhouse at her own cost for the benefit of poor people in an infected district.

In 1849 the Corporation of Liverpool erected two new establishments. It is said that the example of Liverpool was followed by the erection of a bath and wash house in London in 1844. London was credited with the possession of 13 establishments in 1854.

In 1846 the first baths and washhouses act was passed by Parliament. This act authorized municipal corporations and parochial governing boards to raise loans for the purpose of erecting and maintaining baths and washhouses for the benefit of the poorer classes, provided that such establishments should be built and managed by a local board of commissioners. At present the Corporation of Liverpool, through its baths committee, maintains nine establishments under the provisions of the act of 1846 and its amendments.

The total cost of these establishments up to the end of 1895 may be placed at £160,020, or \$778,737. These nine establishments are not all of the same kind. The Frederick street establishment is a wash-house only. The Burlington Street Bath, which was opened in a very crowded quarter in 1895, within 500 yards of an existing bath house, at a cost of £700 (\$3,407), is a swimming bath only, and consists of a single pool, lined with concrete and cement, 75 by 60 feet in area. It is entirely open to the air, and is the only one of the Liverpool baths for which no admission charge is made. It is for the sole use of boys under the age of 15 years. During July and August, 1895, it had an average weekly attendance of over 16,000 bathers. Three of the Liverpool establishments consist of combined bath and wash houses, with total accommodations for 211 washers, while four establishments are bath houses without washhouses attached. The swimming baths under roof in the Liverpool establishments number 18, all told. The bath houses contain 244 private tub baths. The scale of charges varies slightly in the different establishments. Latterly, special rates have been made to swimming clubs and to bathers from the board schools, which correspond to public schools in America. The rate for school boys in some cases is as low as a half-penny (1 cent) per bath.

In the six years 1890 to 1895, inclusive, the running expenses of Liverpool's baths and washhouses exceeded their receipts by £3,498 (\$17,023). The total excess of expenditures, including expenditures for improvements, amounted to £8,226 (\$40,032). With the exception of the Pier-Head establishment, which is on the bank of the Mersey, near the landing stage, all of the Liverpool bath and wash houses are situated in the interior of the town, and for the most part in densely populated districts.

According to the original baths and washhouses act of 1846 the municipal corporation of any borough might adopt that act for the purpose of raising money for the erection and maintenance of baths and washhouses. The act of 1846 was amended by acts passed in 1847 and 1878. By virtue of the public health act of 1875 the baths and washhouses acts might be adopted by the urban sanitary authority of any district in which they were not already in force. As a matter of fact, where they are in force, in places outside the metropolitan district of London, they are usually administered by borough or other urban sanitary authorities. These acts might, however, prior to the passing of the local government act of 1894, be also adopted by the vestries of parishes under the terms of the original act, and where this was done the vestry were required to appoint not less than three, nor more than seven, persons to act as commissioners for putting the acts into execution. Under this provision the commissioners of baths and washhouses had been appointed prior to March 25, 1894, for thirty parishes, all of which, with one exception, are within the metropolitan district of London.

So far as can be learned, no complete census of public baths and

washhouses for the Kingdom of Great Britain and Ireland, or even for England and Wales, has been published within recent years; but an approximate idea as to the number of boroughs and parishes which maintain baths and washhouses, or open bathing places, may be gained from a study of the reports of the local government board. The following statements concerning the number of bathing places, washhouses, etc., and their receipts and expenditures for the year 1893-94, are derived from the latest publications of the local government board bearing upon the subject, namely, the twenty-fifth annual report of the local government board, 1895-96, and the annual local taxation returns for the year 1893-94, Part III. The reports in question contain no data as to the number and character of the baths taken.

It would appear that in 1893-94 baths of some sort were maintained at public expense by at least 191 municipal boards or parishes in England and Wales. The net receipts of these boards amounted to £424,227 (\$2,064,500), of which the amount of £227,520 (\$1,107,226) was received from bathers and washers and from the rates, etc., the residue being derived from loans. The expenditures of the same boards amounted to £377,444 (\$1,836,831) (*a*), less than half of which was out of loans raised for purposes of building or repairs. The outstanding loans for baths and washhouses at the end of the year 1893-94 in England and Wales amounted to £1,294,015 (\$6,297,324) (*b*).

Of the 191 boards mentioned above, 53 were classed as town councils of county boroughs acting as urban sanitary authorities; 74 as town councils of municipal boroughs acting as urban sanitary authorities; 34 as urban sanitary authorities other than town councils, and 30 as commissioners of baths and washhouses. It should be noted that the total number of bath houses and open bathing places must exceed the number of boards given above, for the reason that not a few municipal corporations maintain several baths or washhouses within their limits. Liverpool and Manchester, for instance, have each nine establishments of one kind or another. In a report made to the London school board in 1890 the number of public swimming baths is given as 41 in 19 establishments, and 25 private establishments with 36 baths are referred to.

The following English towns expended upward of £1,000 (\$4,867) each for public bathing places in the year 1893-94: Bath, Birmingham, Blackburn, Bradford, Brighton, Bristol, Bootle, Burnley, Coventry, Croydon, Derby, Ealing, Gloucester, Halifax, Hanley, Harrogate, Huddersfield, Kingston-upon-Hull, Leicester, Liverpool, Manchester, Newcastle-upon-Tyne, Newport, Nottingham, Oldham, Rochdale, Salford, Sheffield, Stockport, and Sunderland.

a From the twenty-fifth annual report of the local government board; the annual local taxation returns for the year 1893-94, Part III, gives the amount as £404,575 (\$1,968,864). The explanation of the difference is not known.

b From the twenty-fifth annual report of the local government board; the annual local taxation returns for the year 1893-94, Part III, gives the amount as £1,273,183 (\$6,195,945). The explanation of the difference is not known.

According to a German report, printed in 1880, there were in 1845 twenty-one towns, besides London and Liverpool, in Great Britain and two in Ireland which had one or more public bath houses.

Twenty-four parishes in London spent upward of £1,000 (\$4,867) each, not derived from loans, during the year 1893-94. Of the 30 towns mentioned above, Bath, Birmingham, Liverpool, Manchester, and Newcastle-upon-Tyne each expended upward of £5,000 (\$24,333) for the purposes mentioned; and in each of 8 London parishes the expenditures for baths and washhouses, outside of expenditures from loans, exceeded £5,000 (\$24,333) in 1893-94. The parish of Islington, for instance, expended more than £15,000 (\$72,998), while the parish of St. George, Hanover Square, expended upward of £13,000 (\$63,265). Baths and washhouses are also maintained at public expense by the leading municipalities of Ireland and Scotland.

Dublin has one public bath and wash house, and Belfast has at least three. The Corporation Bath and Washhouse, Tara street, Dublin, was erected in 1885 and 1886. Its cost was £13,000 (\$63,265), in round numbers. It comprises 2 swimming pools and 37 private bath-rooms containing iron tubs. Two of the tub baths have shower baths attached. The washhouse contains 20 washing stalls.

In the year ending December 31, 1894, the total number of private tub baths taken at the Tara street establishment was 51,407, of which 42,664 were taken by males and 8,743 by females, the receipts being £647 (\$3,149) from males and £79 (\$384) from females. The swimmers, all males, numbered 39,740 during the season (April 1 to October 3, 1894) and yielded receipts amounting to £324 (\$1,577). The receipts from 17,344 washers and manglers who resorted to the washhouse during the year amounted to £142 (\$691). The total expenditures for the year were £1,914 (\$9,314), or £715 (\$3,480) more than the total income. Six hundred and thirty-six pounds (\$3,095) was paid for salaries and wages.

Sir Charles Cameron, the medical officer of health of Dublin, in his report for 1894 notes what appears to be a general rule, that where public baths are open throughout the year the number of all classes of bathers is greatest during the warmest months. This suggests that public baths are resorted to quite as much for the sake of refreshment as for cleansing purposes.

Note is also made of the reassuring fact that although "138,574 poor women have used the washhouse (1885-1894), yet not one case of disease being spread by it has as yet been traced."

In the period from 1878 to 1891 the Corporation of Glasgow built five establishments containing swimming pools, hot tub baths, and washhouses, at a total capital outlay of £123,462 (\$600,828). Glasgow's population in 1891 numbered 565,714. In the period from 1882 to 1891 the deficit provided from assessments in the case of the five establishments mentioned amounted to £30,751 (\$149,650). In the year 1890-91 the number of bathers using the Glasgow establishments was 453,718. The number of washings done was 155,221. The Glasgow washhouses

no longer take in washing for private persons, as was their custom till recently. The receipts for the year amounted to £9,111 (\$44,339) and the expenditures to £11,992 (\$58,359). In Glasgow, as practically everywhere, the returns show that public bath houses are much more used by males than females. For instance, in the year 1891-92 the number of tickets issued in the ten public swimming pools of Glasgow was for males 366,303 and for females 16,408, or a total of 382,711, while in the same year of the total of 131,009 hot baths 119,038 were taken by males and only 11,971 by females. In Glasgow, as in Liverpool and Manchester, the public baths are under the control of a baths committee of the council.

In Liverpool, in 1891, out of a total of 457,320 bathers 436,866 were males and 20,454 were females. In Berlin, out of 727,659 persons resorting to the city public baths in 1891, 510,900 were males and 216,759 were females, while in Vienna, in the same year, there were 283,755 males and 73,715 females who made use of the public baths. Apparently women are not yet ready to demand equality with men in respect to bathing facilities. The disinclination of women to avail themselves of public baths as generally as men is hardly to be explained by their shrinking from publicity or by the possession of long hair.

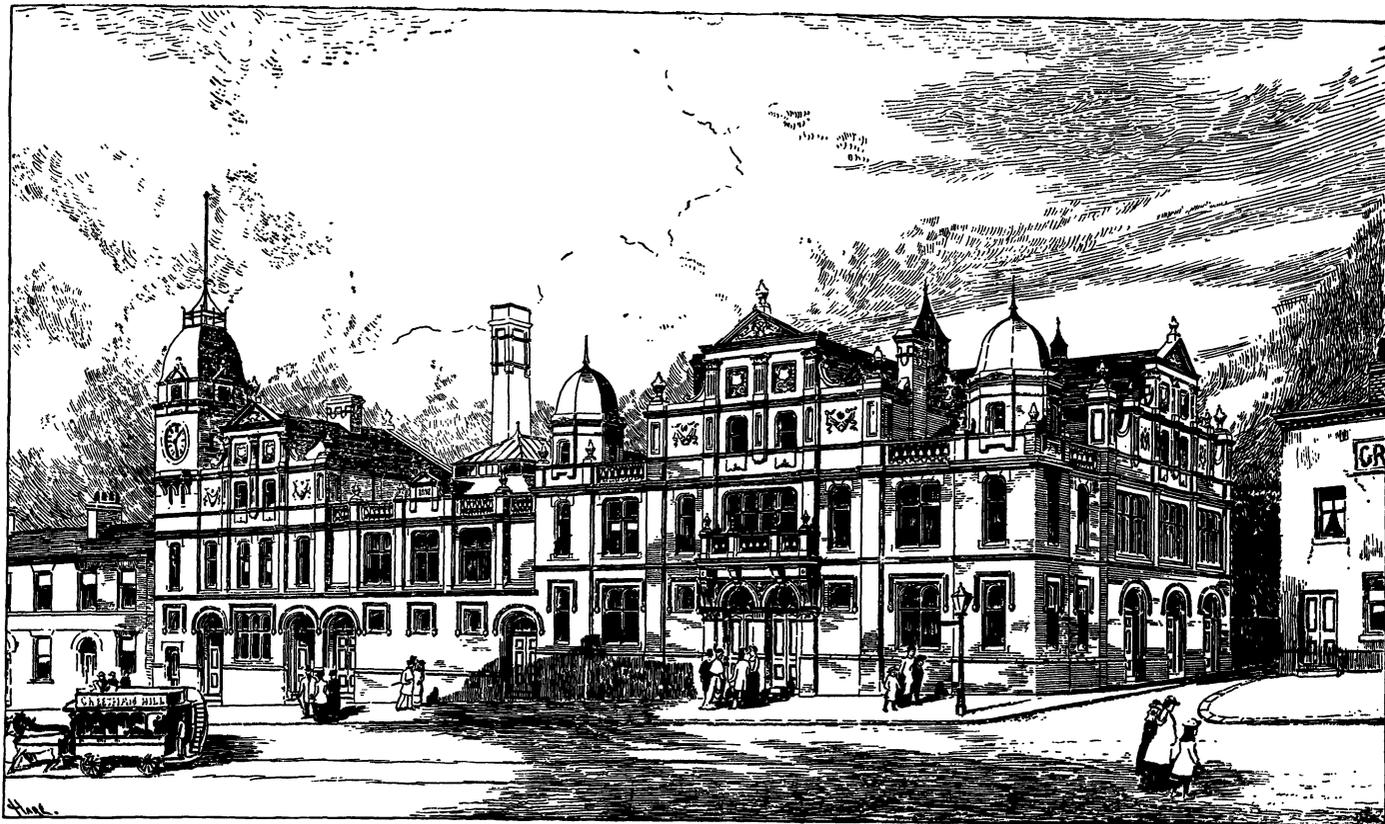
Glasgow contains, besides the five bath establishments already mentioned, 5 club baths belonging to private companies, namely, the Victoria, the Western, the Arlington, the Dennistoun, and Pollokshields. Each contains a swimming bath. The total number of swimming baths in Glasgow, including those belonging to the corporation bath houses, is 15. The writer knows of no other city having so many club baths as Glasgow.

The Victoria Bath, opened in 1877, cost £13,800 (\$67,158). It contains a swimming pool 75 by 36 feet, a Turkish bath, Russian and steam baths, private baths, and various shower baths; also a gymnasium, and smoking, reading, and billiard rooms.

The Western Bath, established by the Arlington Club, was opened in 1871. It belongs to the Glasgow Swimming Bath Company, and cost £9,000 (\$43,799) in round numbers. It is furnished with a swimming bath, used summer and winter, and with a variety of baths, including tub, Roman, and steam baths.

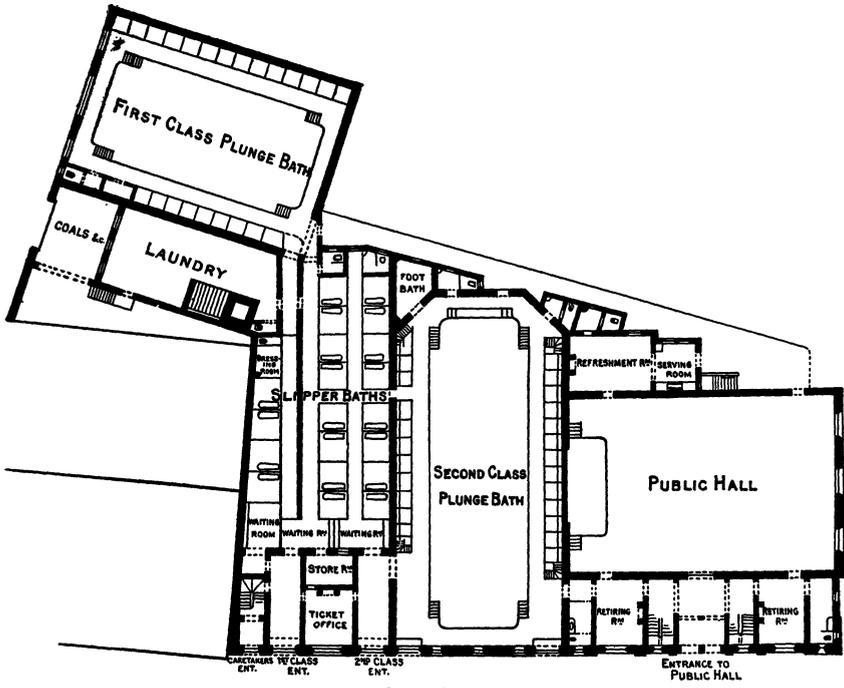
The Dennistoun Baths, established about 1883, with a capital of £6,000 (\$29,199), contain swimming baths, private baths, douche baths, and Turkish baths; and, as in the Victoria Bath, a gymnasium and various club rooms are provided.

The city of Manchester, with an estimated population of 524,000 in 1895, maintains at present 9 public bath houses, erected in the period from 1856 to 1896. These establishments comprise 21 swimming pools, 375 private bathrooms with tubs, 11 pan baths, and 2 Turkish baths. The total number of bathers for the year ending March, 1896, was 789,616. The total receipts for the same period amounted to £6,730 (\$32,752).



CHEETHAM PUBLIC BATHS AND HALL, MANCHESTER, ENGLAND.

PLAN No. 1 A.



Ground floor.

CHEETHAM PUBLIC BATHS AND HALL, MANCHESTER, ENGLAND.
 PLAN NO. 1 B.

The quantity of water used was 106,500,000 gallons. Manchester maintains no public washhouses. It has a large and fine open-air bath for boys in one of its parks. The Whitworth Baths, which cost £16,500 (\$80,297), and which were opened in July, 1890, were given to the city of Manchester by the heirs of the late Sir Joseph Whitworth. They comprise 2 swimming baths, 30 tub baths, and also Turkish baths. They were used by 68,775 bathers in 1895-96, the receipts for the year being £627 (\$3,051).

The Cheetham Baths, Manchester (plans Nos. 1A and 1B), afford a good example of the modern type of British bath houses. The building, which was opened in April, 1894, cost £13,000 (\$63,265). The first-class swimming bath has a water area of 50 by 27 feet, and the second-class bath one of 75 by 24 feet. The latter is surrounded by a balcony for the accommodation of spectators on the occasion of swimming fetes. The pavilion in which it is situated is so arranged as to be capable of being used as a gymnasium in the winter months. The first-class swimming bath is so planned that it can be used by women on such days as may be set apart for that purpose, and a special dressing room has been provided for their accommodation. There are twenty tub baths and three waiting rooms, and these are classified as women's and men's first and second class. There is a commodious residence for the superintendent over the ticket office and entrances to the baths, and in connection with this there is a handsome clock tower.

The public hall on the ground floor is practically a separate building, designed to be used for lectures, public meetings, etc. The principal room has a clear floor area of 64 by 42 feet, and there is a gallery in addition. There are also five retiring and cloak rooms, with lavatories attached, a refreshment room, serving room, and cellar kitchen.

The most common type of public bathing establishments in Great Britain is the swimming bath, with private rooms in addition fitted with tubs and fixtures to afford hot or cold baths at the choice of the bather. In London most of the establishments have washhouses attached. In Glasgow, as we have seen, all the establishments are combined bath and wash houses, while in certain places, as in Manchester, public washhouses have gone out of fashion. In Great Britain the characteristic public bath is of monumental character, being large, handsome, and costly. The distinctive features of the type have undergone little change or development since the establishment of the St. George's Baths at Pier Head, in Liverpool, in 1828. As a rule, the first-class private baths in British establishments contain a shower fixture in connection with the tub; but shower bathrooms and the arrangement known as the rain bath on the Continent and in this country are comparatively rare.

It is impossible to state accurately the total amount expended on the erection of public baths in Great Britain or even in England during the last forty or even the last twenty years. It would appear that London and Liverpool alone spent some £130,000 (\$632,645) prior to 1854.

Inasmuch as the loans sanctioned by the local government board for baths and washhouses amounted within the last dozen years to upward of a million and a half pounds sterling (\$7,299,750) for England and Wales, and from the fact that at the close of the year 1893-94 the outstanding loans raised for that purpose amounted to \$6,297,324, it is sufficiently clear that the expenditure for these purposes has been and continues to be a generous one.

The following tables, compiled from official sources, furnish a somewhat detailed view of the financial transactions of local authorities in England and Wales during the five years ending 1893-94:

FINANCIAL OPERATIONS OF LOCAL AUTHORITIES IN ENGLAND AND WALES IN RESPECT TO BATHS, WASHHOUSES, AND OPEN BATHING PLACES, 1889-90 TO 1893-94.

Year.	Net receipts (not from loans).	Expenditures (not out of loans).	Loans raised.	Expenditures (out of loans).	Loans outstanding.
1889-90	\$713,020	\$606,824	\$211,707	\$342,013	\$4,221,217
1890-91	779,823	756,887	541,705	457,870	4,624,674
1891-92	806,832	812,866	678,361	683,446	5,134,415
1892-93	932,431	1,021,206	605,894	737,576	5,580,182
1893-94	1,107,226	1,035,747	957,274	1,081,084	6,297,324
Total	4,339,332	4,323,530	2,994,941	3,021,989	.....

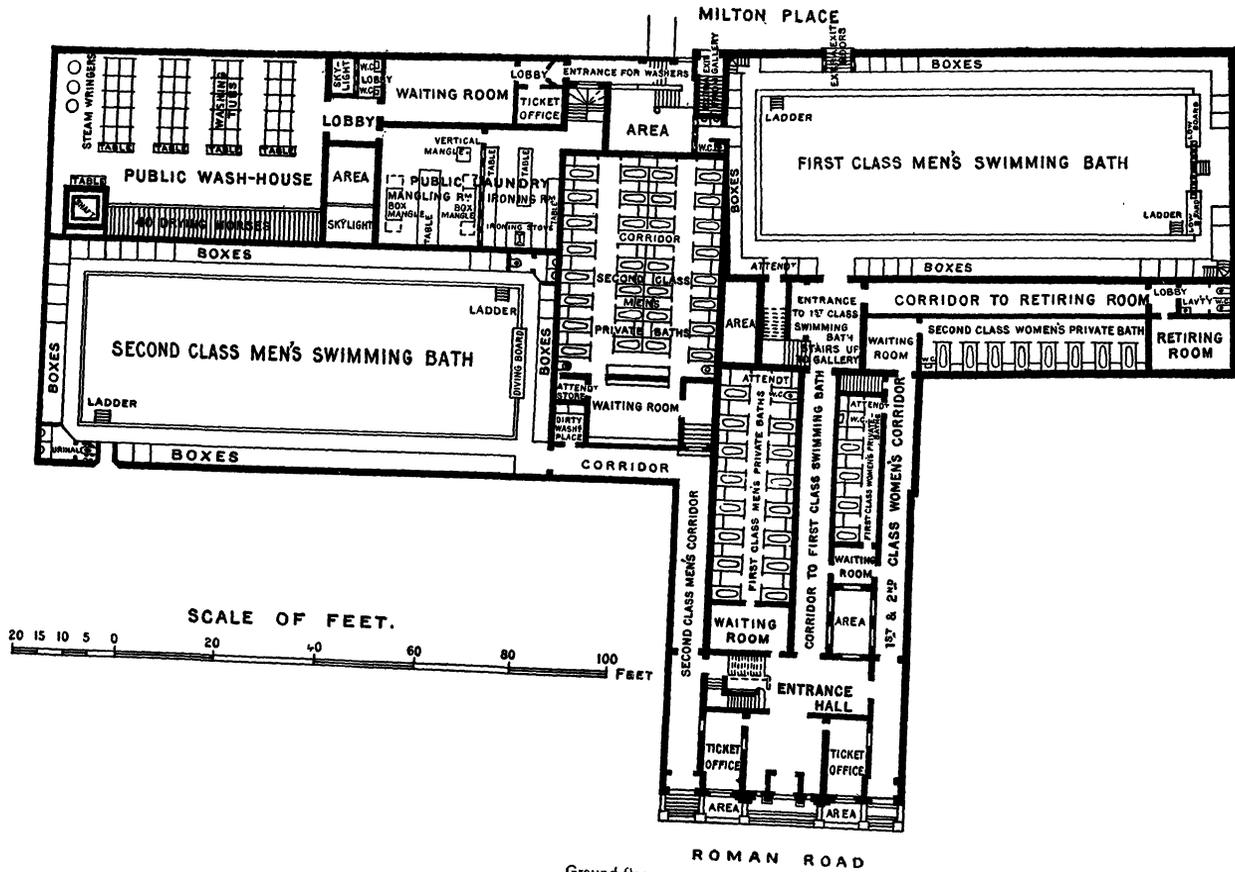
AGGREGATE FINANCIAL OPERATIONS OF LOCAL AUTHORITIES IN ENGLAND AND WALES IN RESPECT TO BATHS, HOSPITALS, ETC., 1889-90 TO 1893-94.

Institutions.	Expenditures (not out of loans).	Expenditures (out of loans).	Loans raised.	Loans outstanding at end of 1893-94.
Baths, washhouses, etc	\$4,323,530	\$3,021,989	\$2,994,941	\$6,297,324
Parks, open spaces, etc	7,557,348	0,256,010	8,700,489	22,962,459
Hospitals	0,371,819	2,720,344	1,940,541	4,558,864
Public libraries and museums	0,193,084	1,550,934	1,648,980	3,428,357
Total	24,445,281	10,549,277	15,284,951	37,246,984

a From the twenty-fifth annual report of the local government board; the annual local taxation returns for the year 1893-94, Part III, gives the sum of the expenditures not out of loans and expenditures out of loans as £404,575 (\$1,968,864). The explanation of the difference is not known.

b From the twenty-fifth annual report of the local government board; the annual local taxation returns for the year 1893-94, Part III, gives the amount as £1,273,183 (\$6,195,945). The explanation of the difference is not known.

The cost of individual establishments varies greatly in different cities and in the same city. Of the 5 Glasgow establishments, for instance, the least expensive cost £17,000 (\$82,731) and the most expensive £34,000 (\$165,461). Leicester has a bath house, opened in 1891, which contains 2 swimming pools and 38 tub baths, that cost £10,500 (\$72,998). The bath at Batley, also those at Bacup, cost about £10,000 (\$48,665). Halifax has a swimming bath 75 by 36 feet, in a building 90 by 54 feet, that cost £7,000 (\$34,066) in 1895; and Leeds has recently erected 2 well-planned bath houses of moderate size at a cost of £8,000 (\$38,932) each, exclusive of site. But on the whole, the tendency in recent years has been toward greater expenditures, at least in the larger cities of England. This is especially the



Ground floor.
 PUBLIC BATHS AND WASHHOUSES, ST. MARY STRATFORD BOW, LONDON, ENGLAND.
 PLAN No. 2 B.

case in London. Thus the Caledonian Road baths, erected by the parish of St. Mary's, Islington, in 1892, cost £27,000 (\$131,396), including £7,615 (\$37,058) for site, and the Hornsey Road baths, erected by the same parish in the same year, cost over £36,000 (\$175,194), including £2,189 (\$10,653) for site. The last-mentioned establishment comprises one first-class swimming bath 132 by 40 feet, with 140 dressing cabins; a second-class swimming bath 100 by 35 feet, with 71 dressing cabins; one women's swimming bath 75 by 25 feet; 103 private bathrooms, and a public washhouse with accommodations for 49 washers. Probably the most expensive bathing establishment in London is that built by the parish of St. George, Hanover Square, in Buckingham Palace Road, Westminster. It cost £45,238 (\$220,151).

RECEIPTS, EXPENDITURES, AND LOAN TRANSACTIONS OF COMMISSIONERS OF BATHS AND WASHHOUSES IN LONDON, 1890 TO 1894.

Items.	1890.	1891.	1892.	1893.	1894.	Total.
Parishes	24	25	26	28	30	.....
Receipts, not from loans:						
Poor rates	\$112,090	\$152,287	\$167,310	\$223,290	\$281,045	\$936,612
Bath tickets	149,728	157,611	161,398	181,302	234,871	884,910
Laundry tickets	56,680	59,374	55,551	60,831	61,985	293,421
Sale of soap, soda, etc.	5,110	5,421	5,420	5,860	6,565	28,391
Rents	6,745	6,268	4,784	4,336	7,071	29,204
Other receipts	1,782	2,413	39,618	4,983	24,649	73,395
Total	332,075	382,374	434,087	480,611	616,186	2,245,333
Expenditures, not out of loans:						
Buildings	735	17,349	6,876	78,098	53,867	156,925
Maintenance and repairs	22,663	27,467	46,514	32,742	46,212	175,598
Coke and gas	49,400	59,260	59,274	62,291	71,182	301,407
Towels, soap, and soda	8,361	8,458	7,918	14,599	14,828	54,164
Water	26,995	30,289	30,109	36,134	47,492	171,019
Loans repaid	62,330	66,437	84,726	96,167	109,170	418,830
Interest on loans	45,117	49,507	59,634	71,445	79,300	305,003
Salaries and wages	85,475	92,303	94,259	114,246	135,226	521,509
Establishment charges	15,515	15,996	15,578	26,342	27,817	101,248
Legal expenses	292	53	6,643	2,462	1,285	10,735
Other payments	2,053	1,669	2,594	6,278	8,390	20,984
Total	318,936	368,788	414,125	540,804	594,769	2,237,422
Loans raised	43,799	337,735	480,810	263,278	470,347	1,595,969
Expenditures, out of loans	176,065	189,487	440,915	480,007	315,987	1,602,461
Loans outstanding at end of year ..	1,292,873	1,564,166	1,960,241	2,127,473	2,488,300	.....

A deputation of the baths committee of the Corporation of Liverpool, which recently visited a considerable number of bathing establishments in London and other parts of England, has expressed the unanimous opinion that the Roman Road baths, erected by the vestry of St. Mary Stratford Bow, in the east of London, in 1892, at a cost of £42,000 (\$204,393) are "on the whole the best public baths they have seen, the design, fittings, valves, materials, and workmanship being the very best that could be produced without extravagance."

These baths (plans Nos. 2A and 2B) include a first-class swimming bath 90 by 30 feet, with 52 dressing cabins; a second-class swimming bath 86 by 30 feet, with 71 dressing cabins; one vapor bath, and a public washhouse for 40 persons. The administrative section of the building contains a superintendent's residence, as is commonly the case in the larger British establishments, and also a board room for the

commissioners. The sides of the swimming baths are lined with white tiles and the bottom with white glazed bricks laid flat. The partitions between the private bathrooms are of enameled slate, the enamel being of a light-green tint. They have polished gun-metal hinges and trimmings. The bath tubs are of porcelain, with wooden tops and slate risers. The service valves for the bath tubs are under the control of the attendant in the corridor and not of the bather. The floors of the bathing establishment are of granolithic, except in the corridors and private bathrooms, where they are of wooden blocks. All the baths are on the ground floor. The inside walls of the bathing halls are faced with white glazed brick.

For the sake of comparison, the lists of charges in the public baths of Glasgow and Manchester and of the Roman Road bath and wash house in the parish of St. Mary Stratford Bow, London, are given below:

GLASGOW.

Charges for swimming ponds:

Males and females.....	\$0.04
Boys and girls under 13 years.....	.02
Boys and girls, 12 admissions.....	18½
Females, 12 admissions.....	36½
Tickets, bought in quantities, admit boys to 17 years of age and girls, who are members of Boys' Brigades, Foundry Boys' Society, Sunday schools, etc., each admission.....	.02
Season tickets—	
Males, 6 months, April 1 to September 30.....	2.43½
Males, 12 months, January 1 to December 31.....	3.04
Females, 6 months, April 1 to September 30.....	.73
Females, 9 months, March 1 to November 30.....	.97½
Clubs of 40, between 9 and 10 p. m.—	
Large pond, one night weekly.....	1.62½
Each additional bather.....	.02
Clubs of 24:	
Small pond, one night weekly.....	.97½
Each additional bather.....	.02

Private hot baths:

Males, first-class.....	.12
Males, second-class.....	.08
Males, 12 admissions, first-class.....	1.09½
Males, 12 admissions, second-class.....	.73
Females.....	.06
Females, 12 admissions.....	.54½

Women who bring their clothes and wash them on the premises are charged 4 cents per hour for the use of a stall, wringing and drying appliances, as well as hot and cold water. They are also charged 1 cent for the use of a washing board.

In Glasgow it appears that the weather does not materially affect the patronage of the washhouse department, but the attendance of the bathers is great or small according to the temperature of the outside air. For instance, in 1891 the weekly receipts from the swimming ponds in June, when the temperature averaged 70° F., were £135 (\$657), and in November, when it averaged 47° F., the receipts were only £13 (\$63).

MANCHESTER.

The Manchester Corporation Public Baths are open daily from April 1 to September 30, from 6 a. m. to 9 p. m.; during the month of October from 7 a. m. to 8 p. m.; from November 1 to March 30, from 8 a. m. to 7.30 p. m.; on Sundays, April 5 to September 27, from 6 to 9.30 a. m. At all baths except the Red Bank baths prices in 1896 were as follows:

First-class plunge.....	\$0.08
Second-class plunge, except Wednesdays .....	.04
Second-class plunge, Wednesdays .....	.02
Special warm bath.....	.16
First-class warm bath .....	.08
Second-class warm bath, except Wednesdays .....	.04
Second-class warm bath, Wednesdays .....	.02
Turkish baths	\$0.24½ to .36½
Vapor baths.....	.12 to .24½
Persons between 12 and 15 years of age:	
First-class plunge.....	.04
Second-class plunge, only available up to 2 p. m. each week day.....	.02

Special terms for scholars.

The swimming baths are reserved on certain days for women's use, in some cases at reduced rates.

Prices for Red Bank baths were:

Men's swimming bath.....	\$0.04
Boys' swimming bath .....	.02
Men's and women's warm bath .....	.04
Men's and women's warm pan bath (a form of shower bath).....	.02

Half prices at Red Bank baths on Wednesdays and Fridays only.

On Thursdays the men's swimming bath of this establishment is open to women and girls only.

LONDON.

At the Roman Road baths of St. Mary Stratford Bow, London, the charges are as follows:

First-class swimming bath	\$0.12
Second-class swimming bath.....	.04
First-class private baths for men, warm.....	.12
First-class private baths for men, cold.....	.06
Second-class private baths for men, warm.....	.04
Second class private baths for men, cold.....	.02
First-class swimming or private baths, 12 admissions.....	.97½
Washers, for the use of stall, drying room, and a plentiful supply of hot and cold water, per hour.....	.03

The charges are the same for women.

First-class bathers are allowed two towels; second-class bathers, one.

The first-class swimming bath is reserved for women on Thursdays from 10 a. m. to 6 p. m., and lessons in swimming are given by a teacher at moderate charge.

The public laundry has 40 washing troughs and 40 drying horses, together with steam-driven wringers and mangles, ironing stoves, tables, and other conveniences.

It is rather remarkable that so little has been accomplished in Great Britain in the way of developing shower-bath facilities in public

baths. Even where it is the rule that bathers must take a more or less complete preliminary cleansing bath before entering the swimming pool, rain or shower baths are seldom provided.

In the Red Bank baths of Manchester, opened in March, 1896, 11 pan baths, so called, have been placed. These constitute a new departure in British public bath houses, being in reality shower or spray baths. They are modeled after a bath constructed in connection with iron works at Donnington, near Newport, Shropshire, in 1888 or 1889, by Mr. Charles Clement Walker, for the benefit of the workmen connected with the works in question. Mr. Walker's bath house contained, in addition to one ordinary tub bathroom, six chambers, each 8 feet long by 4 feet wide, in which were placed circular cast-iron pans, 2 feet 6 inches in diameter and 8½ inches deep, the pans being set 5 inches above the floor. Over the center of each bath pan a rose nozzle, worked by chains, was placed, the nozzle being fed by hot and cold water pipes so fitted that the bather could roughly regulate the temperature of the spray at will. The heating of the water was effected by conducting steam—usually waste steam—through pipes placed in a cistern containing water. The entire cost of constructing the Donnington workmen's bath was £220 (\$1,071).

In 1879 Mr. Vacher, medical officer of health for Birkenhead, urged the construction of small and inexpensive bath houses, with the idea of having them multiplied so as to reach many groups of people in crowded towns, but the suggested form of bath house was essentially a miniature edition of the large and costly bath houses which he criticised; that is to say, he advocated (*a*) bath houses which should contain plunge baths and bathrooms provided with tubs, or, to use the English term, warm slipper baths; but concerning separate shower baths, as such, nothing was said.

The following extracts from Mr. Vacher's pamphlet, alluded to above, are introduced because of their bearing upon the question of simple versus monumental public baths:

Now that a bath is a necessary part of every well-appointed house, and most of the large centers of population are provided at the public cost with great stone bath houses that might be mistaken for fine art galleries, it is difficult to form any conception of a state of society when baths were rarely used, except as remedial agents, and then not very highly esteemed. I should hesitate to say that the desire for bathing is always an acquired one, but it is certain that till people have made some progress in sanitary education the desire, if it exists, produces no appreciable results. The upper and middle classes for generations were without the means of bathing, and did not miss what they had not learned to want; it is only reasonable, therefore, to conclude that as long as any considerable portion of the lower classes are left without the means of bathing they will not feel the want of it. The upper and middle classes have had to be educated up to a bathing point—that is, till a healthy desire for bathing was awakened, and this they were able

a Public Baths and Cheap Baths for the People. London, 1879.

to gratify. For the lower classes it is not enough to educate them till such a desire is aroused; the means of gratifying it must be provided for them. In truth, it is impossible to prove to individuals of this class that they want baths by mere process of reasoning. We must bring the baths to their doors and induce them to bathe and experience the comfort of clean skins. Now, this is what the framers of the act (9 and 10 Vict., c. 74) under which boroughs, cities, ports, towns, etc., are empowered to erect public baths sought to promote—the creation of a healthy appetite for bathing among those in whom it was absent. “Whereas it is desirable,” the act opens, “for the health, comfort, and welfare of the inhabitants of towns and populous districts to encourage the establishment therein of public baths and washhouses, and open bathing places, be it enacted,” etc. Again, clause 36 runs, “And be it enacted, that the number of baths for the laboring classes in any building or buildings under the management of the same council or commissioners (i. e., commissioners appointed in accordance with this act) shall not be less than twice the number of the baths of any higher class, if but one, or of all the baths of any higher classes, if more than one, in the same building or buildings.”

Virtually it says: Baths are for the public benefit; they may, therefore, be constructed out of public money. Erect extensive buildings if you can afford it, with ample accommodation for two or three classes, if you think the locality requires it, but do not forget laborers and their wives and families have the prior claim on your attention; at any rate, let there be good, cheap baths for them. And to secure to such the full benefit of the contemplated institutions the following scale of charges appears in a schedule:

“Maximum charges during the first seven years after the establishments are opened for public use, and after such seven years, except only so long after such seven years as higher charges may be necessary for defraying the current expenses of the establishments:

“Baths for the laboring classes, supplied with clean water for every bather, or for several children bathing together:

“For one person above 8 years old, including the use of one clean towel: Cold bath, 1 penny (2 cents); warm bath, 2 pence (4 cents).

“For several children, not exceeding four, including the use of one clean towel for every child: Cold bath, 2 pence (4 cents); warm bath, 4 pence (8 cents).

“Open bathing places where several persons bathe in the same water, for one person 1 halfpenny (1 cent).”

How have the provisions of this most estimable act of Parliament been carried out? In many towns absolutely nothing has been done. They, by their councils, with whom the decision rests, have not seen fit to determine that the act shall be adopted. In others the obvious aim of the legislature in passing the measure seems to have been disregarded. Huge handsome edifices with turrets and wings and plate-glass windows and carved stone dressings vie with one another which shall provide the amplest accommodation for all classes, which shall exhibit the most striking façade to admiring town councilors. Such magnificent piles would be quite lost in out-of-the-way neighborhoods surrounded by the squalid dwellings of the poor. So the adoption of a costly design has, in many cases, involved the purchase of a costly site, and the grand building has found a place among other grand buildings in a wide and fashionable street. It is for all classes. The special wants of any particular class are not unduly considered, but when the erection of public baths in a town is being discussed there is always

someone to point out that it would be gross neglect to fail to meet the requirements of the upper classes, who, as large rate payers, are entitled to at least an equal consideration with others.

Briefly, then, my complaint is this: The enabling powers granted by the act just quoted from authorized local authorities to provide a serviceable sanitary appliance mainly for those who had not such an appliance before, yet in probably not less than nine out of every ten towns where these enabling powers have been used they have been made to sanction an outlay mainly for supplying the appliance to those who already have the thing supplied at their own homes. In other towns—there are many such (towns with populations ranging from 20,000 to 50,000 and upward)—no steps at all have been taken to give effect to the provisions of the act.

* * * * *

I have nothing to urge against the erection of handsome bath houses pleasing to the eye externally and replete with all modern appliances for luxurious bathing within. On the contrary, I regard the increase of such institutions in the great towns of the Kingdom as one of the most hopeful signs of our times. My contention is merely that work of this sort was not intended to be encouraged by the public-baths act, and should be paid for always, as it often is, with private capital. Baths erected out of public money should be for the poor, among the poor, and in the form of what I may style cottage bath houses.

Since 1879, when Mr. Vacher wrote, public baths have greatly increased in number, but the policy urged by him of constructing bath houses at a cost of from £300 to £2,500 (\$1,460 to \$12,166) has made very little headway in England. As we shall see later on, the general policy advocated by Mr. Vacher has been widely adopted during the last ten years in Germany, where baths of the monumental type are also fairly common.

Mr. Robert Owen Allsop, an architect, is the author of the most recent English work on the subject of public baths that has come to the writer's notice. The work, which is entitled *Public Baths and Wash-houses*, deals chiefly with questions relating to the best manner of planning, constructing, and managing such establishments. English readers interested in the subject will find it helpful and suggestive. To readers of German, Osthoff's *Die Bäder und Bade-Austalten der Neuzeit*, published in Leipsic in 1887, may be recommended. Osthoff treats his subject more comprehensively than does Allsop, and gives very many more plans, not only of Continental but even of British bath houses.

Mr. Allsop, who advocates the introduction of hot-air baths and douche or shower rooms into public baths, makes some pertinent criticisms on the conventional arrangements of British bath houses. He says:

The object of the public baths and washhouses act is to promote health among the people by means of cleanliness. The most effective means should therefore be employed. As at present arranged, the value of the several baths as cleansing agents included under the act

may be stated as follows: Vapor bath, warm slipper bath, (a) warm shower bath, cold slipper bath, swimming bath, and cold shower bath.

The warm slipper bath is the most generally useful of this list, the vapor bath being little used, unappreciated, and apparently unpopular. People who use the cold slipper bath for cleansing purposes—as distinct from a refreshing tonic, as in hot weather—can really get very little cleansing. The cleansing value of such baths and the swimming bath and shower bath, is to be found not so much in the immersion in the water as in the subsequent vigorous toweling.

* * * * *

Practically the only cleansing baths in the schedule of the baths and washhouses act are the warm slipper baths. The swimming bath is a species of gymnastic exercise with a certain slight cleansing power. It would be much more reasonable to say of the swimming bath that it is a mere luxury, and that cleansing of the body could be far better accomplished by ordinary warm baths, than to cast reflection on the hot-air baths.

* * * * *

From a financial point of view the swimming bath is found to be a gratifying success, and it is therefore impossible and undesirable to unfavorably criticise it on the score of its small value as a cleansing bath. * * * Unfortunately, the attendance at swimming baths falls off regularly at all establishments toward the winter months. * * * For this reason most of the London establishments close their swimming baths at the end of October, or thereabouts—or, at least, they close the larger baths, and use throughout the winter months only one of the smaller swimming basins.

* * * * *

Altogether the arrangements for any baths, except swimming and slipper baths, hitherto made in our public bathing establishments are of a rough-and-ready description. Fine swimming baths are provided, and the slipper-bath establishments are usually complete; but should the bather have a mind for a vapor bath or a hot or cold shower, the only preparations made—and that only in a few out of the many bath houses—are of the most meager description. There is the shower, truly, but it is only a rose inconveniently placed above the slipper bath; and here, perhaps, is the vapor box, but so cramped in the narrow space of an ordinary slipper-bath room that it can not be effectively worked.

All points to the need for a proper douche room in the public bath house—a chamber where the vapor box may be placed and good shower baths fixed.

* * * * *

In most first-class baths a cold shower bath is required for the use of swimmers. A warm, or hot one, would be more reasonable, seeing that the majority of bathers unadvisedly prolong their stay in the water until they are blue with cold.

In many of the newer English baths the so-called foot baths have been introduced, in which the bather, particularly if he is a patron of a second-class bath, is required to wash himself before entering the swimming pool.

a Slipper bath, i. e., tub bath.

But shower baths of any description outside of the slipper-bath rooms are comparatively rare. English usage in this respect is in striking contrast to that of most continental public bath houses, as has already been noted.

Mr. Allsop presents a plan (a) for supplying cheap warm baths at a penny (2 cents) each. The plan corresponds in a general way with that of the Lassar-Grove type of people's bath, which has become very common in Germany in the last dozen years and which will be considered further on. Touching certain structural details, Allsop's plan illustrates the indubitable fact that German shower-bath devices are technically superior to the British, or to those generally in use in America, for that matter.

The writer's study of bath houses and of the literature relating to them has convinced him that European experience emphatically teaches the impolicy of lavish outlay of public money on imposing buildings occupying costly sites. Baths for the people should be centrally located in populous districts, where they are easily accessible. Numerous relatively small and comparatively inexpensive self-contained bath houses are vastly more desirable and useful than are structures of the costly monumental type for which architects and municipal councilors have too often shown so marked a predilection. Moreover, the writer has found that these opinions are held by the more intelligent and experienced of the officials who are charged with the practical care and oversight of public baths, both in Great Britain and on the Continent.

The report of Mr. William Thomson, general superintendent of the Glasgow Corporation Baths and Washhouses, printed in 1892, supports the thesis that, "in order to obtain results in keeping with the sanitary aims of the department, experience suggests that baths and washhouses (but not swimming ponds) require to be close to the houses of the people, and that we therefore need a large number of additional but small establishments, each having perfect washing and drying appliances, as well as a few hot baths."

The following extracts from Mr. Thomson's report seem appropriate and instructive in this connection:

Experience proves that a supply of public facilities for washing clothes creates a demand even in localities where every tenement has its own washhouse and drying court.

* * * * *

* * * Women prefer to carry their washings some distance to properly equipped places—where they can at once tackle to without waiting—rather than do the work in a private washhouse, where they have to wait on the boiling of the water; where there may be no tubs; where the coal they burn costs almost as much as all the conveniences at a public establishment; where it may be draughty and dingy, and where they can not always get their small washings dried without

using their kitchens as drying stoves, and forcing their husbands and sons to dislike their own homes.

The artificial drying apparatus in our establishments is a standing attraction at all seasons; and the hot water and everything else being always ready, women can go at any hour or day that suits them best, instead of waiting for a fortnight to five weeks till their fixed day for their own washhouse arrives.

* * * * *

One important fact regarding our present facilities for washing clothes is that they are taken advantage of by no more than about 3,000 families. The names and addresses were taken of all the women who used the five public washhouses during a month. * * * At the end of the month it was found that all who used the establishments had given their addresses during one of the preceding days. In this way the total number of regular attenders at each washhouse was found to be as follows, viz: Greenhead, 370; Woodside, 791; Cranstonhill, 796; Townhead, 494; Gorbals, 546; total, 2,997.

These 2,997 persons throughout the year ending May, 1891, washed 155,221 times, or each on an average of about once every week. For the use of the washhouses for that year the 2,997 women paid £2,483 8s. 4d. (\$12,085.55). This is equal to about 16s. 6d. (\$4.01) per woman per annum, less than 4 pence (3 cents) each per week, and two hours per woman per week.

The present total number of washing stalls in Glasgow is 316, so that each stall accommodates between nine and ten householders per week—between nine and ten of the 2,997 families mentioned. That from nine to ten women use each of our stalls weekly; that the poorest householders prefer to pay 16s. 6d. a year for the use of perfect washhouses rather than use their own, or their dwelling houses as such, leads to the belief that the people but await facilities in order to bring about a realization of the aims of the baths and health committees.

* * * * *

The number of hot baths taken during the year ending May, 1892, was * * * males, 119,038; females, 11,971; total, 131,009.

It is believed that the 131,009 hot baths were taken by only about 5,038 persons, for almost all those who took hot baths are well known to the attendants, who are of the opinion that each of the 5,038 visited the baths on an average of about once every fortnight.

It might be remarked that an indication of the good that would be derived from placing the hot baths close to the homes of the people is in the fact that only about 1,000 women (at one visit per month) used our hot baths in the year, as against ten times that number of males.

During the same year (1891-92) the numbers of tickets issued in connection with the ten swimming ponds were, for males, 366,303, and for females 16,408, or a total of 382,711. But it is believed that those who use the swimming ponds enter about once every four days, so that they are maintained by probably no more than 4,303 persons.

It may therefore be said that large establishments do not fulfill expectations, inasmuch as the facilities created by an expenditure of £123,000 (\$598,580) for ground, buildings, and plant seem to be taken advantage of by, we may say in round numbers, only 3,000 washers, 5,000 hot bathers, and 5,000 swimmers.

The ideal position for a washhouse as well as for hot baths, to meet the requirements of a family or a number of families residing in a city, is probably that occupied by the existing back-court washhouse, and

the proper kind of establishment should have as good a supply of hot as of cold water, boiling, hand-wringing, and drying facilities, and be always ready for use, as are our present public establishments.

Against the proposal to have hot baths in connection with the washhouse it may be argued that many householders who would use perfect washhouses if they had them are provided with baths in their own houses. That is true, but probably the great majority of those so-called baths are out of use except for storing coal, soiled linen, and lumber.

Most of them are fitted with cold water only, and Glasgow corporation, at the old London Road Baths, proved that cold water with which to wash the body is not at all wanted by city people. A few private cold-water baths were fitted up at the establishments named and offered to the public at a very low charge, but they stood idle while the hot baths were busy. Again, in our present public baths we can give water at any desired temperature, but among tens of thousands taken it is questionable if one cold bath is asked for.

* * * * *

In order to acquire habits of cleanliness, the toiling housewife, the tired husband, sons, and daughters, and thoughtless children require not only the removal of every obstacle, but the introduction of facilities that will give encouragement. Such facilities would be washhouses in which to wash the clothes, and baths, or rooms with basins, in connection, with which to wash the body, forming small outhouses, always ready and easy of access as any other domestic convenience. In no other way than having these conveniences within easy reach of the householders does it seem possible to carry out the requirements of those acts of Parliament which resulted from agitations extending over a long period, and pressure from the highest medical authorities, in times when sanitary systems were no further behind those of the present day than present-day systems are behind perfection.

* * * * *

* * * Perfect self-contained establishments can be erected at a cost for each of from about £300 (\$1,460) upwards—the price depending upon the number of families each has to accommodate. A good and cheap experiment would be to equip one back court with “always-ready” facilities for bathing and washing clothes. Statistics gathered from its working in a few months would enable the committee to decide as to whether a scheme on the same lines should be formulated for the greater part of the city. The annual expenditure connected with one establishment would be the interest on the small outlay, fuel (perhaps breeze), gas, and wages to one of the tenants for attendance (towels and soap being supplied by the bathers and washers themselves). Whatever this expenditure might amount to, it would probably be easily met at first by small charges.

Bath houses on the Continent were at first pretty closely modeled on the British types which we have described, as the establishment of public bath houses, particularly in Germany, was due to the example set by Liverpool and London and other English towns between 1842 and 1850. In France, at any rate in Paris, bath houses of the British type are not very numerous, and have chiefly been erected within recent years; though it should be said that Metz, while still a French city, established two public washhouses and cleansing baths, whose net surplus in the period 1868–1885 amounted to over \$40,000.

Floating swimming baths in the Seine, belonging to private parties,

are fairly numerous in Paris. Latterly several bathing establishments termed "piscines" have been erected in different parts of the city at public expense. Their principal feature is the swimming pool, though shower baths both for the use of swimmers before they enter the water and for those who desire to take a cleanliness bath only, are provided in considerable numbers. The success of these piscines is likely to lead to their multiplication by the municipality in the near future. In 1893 about a quarter of a million bathers made use of three piscines. The city of Bordeaux erected a people's shower bath with 12 cabins in 1893, at a cost of 14,000 francs (\$2,702). The cost of a single bath is estimated at 15 centimes (3 cents).

One of the oldest of semipublic baths in Europe is the Diana Bath in Vienna, which was opened by a stock company in 1804. It was enlarged in 1842 by the addition of a swimming bath, capable of being used throughout the year. A similar establishment, also the property of a stock company, was erected in 1845, having a swimming bath 13 by 41 meters (42 feet 8 inches by 134 feet 6 inches). Vienna is provided with an unusual number of commodious and elaborate bathing establishments belonging to private companies. As late as 1881, out of 16 such, only 4 had covered swimming pools.

In 1876 the city of Vienna erected at great expense a public bath house on the right bank of the Danube, containing five large swimming basins, besides private baths, supplied with water from the Danube by a special canal. This establishment, which can accommodate 1,270 bathers at a time, is valued as an asset worth 1,213,000 florins (\$584,969). Since 1887 Vienna has established no less than ten people's baths in different quarters of the city, and it is proposed to increase their number until every one of the nineteen wards of the city is provided with a people's bath house, containing accommodations for both males and females. It is to be noted that these people's bath houses in Vienna not only contain no plunge baths whatever, large or small, but that they consist solely of shower baths which enable the bather to use hot or cold water at will. These baths are so popular and so useful that the authorities of Vienna do not propose in the people's bath houses which remain to be built to add tub baths to the shower baths such as are now in use.

The first public bath and wash house erected in Germany after the British model was opened in Hamburg in 1855. It was built by a stock company for the common good, at a cost of about \$50,000. But the city gave the site and free water, on condition that on the extinction of the share capital by redemption the establishment should become the property of the city. The establishment was provided with 32 washing stalls, 54 tub baths, and 2 rain baths, one for each sex, but it had no swimming bath. It proved a profitable venture. In 1875, for instance, its net surplus amounted to more than \$7,000. It took the net surplus of but 25 years' operation to redeem the share capital.

A public bath and wash house, the property of a private company, was erected in 1855 in Berlin, at a cost of 209,000 marks (\$49,742). It was enlarged in 1874-75, when a swimming basin was added at a cost of 300,000 marks (\$71,400). It was patronized by 75,042 bathers in 1859 and by 118,123 in 1873. In 1874 it yielded a net surplus of 27,700 marks (\$6,593).

The Magdeburg bath and wash house was opened in 1860, and is the property of a company. It cost 383,000 marks (\$91,154), the building alone costing 289,000 marks (\$68,782). It contains a swimming bath.

In Basel, in Switzerland, a bath and wash house was opened in 1866. Its total cost was 112,000 marks (\$26,656). In the year 1878-79 the running expenses were 14,500 marks (\$3,451) and the ordinary income 34,600 marks (\$8,235).

As a class, the German washhouses appear to have more than paid expenses, but the greater number of public bath houses are without washhouses. The writer recalls the name of but one German bath and wash house built since 1870, that at Augsburg.

A public bathing establishment, the property of a company, was opened in 1867 in Hanover, at a cost of 225,000 marks (\$53,550). The site was leased from the city for a nominal rent for 100 years. In the period from 1872 to 1877 the Hanover bath yielded annual dividends of from $4\frac{1}{2}$ to 7 per cent. At first it was furnished with a single swimming pool for men; later a women's swimming bath, tub baths, Roman-Irish bath, steam bath, and douches were added. This establishment has been characterized as the first in Germany "that attempted to provide all kinds of baths for all classes of the population," but it was not able to use its swimming bath in the winter.

An era of bath building began in 1870, from which year the Diana in Leipsic dates. The City Vierordt-Bath in Carlsruhe, which cost 221,742 marks (\$52,775) and is named for its donor, was opened in 1873. The Admiral's Garden Bath, a joint stock enterprise, was opened in Berlin in 1874. In 1875 new swimming baths were built at Badenweiler, in the Black Forest, upon the remains of the Roman Thermae, discovered in 1774. The Grand Ducal Frederick Bath, one of the finest medical bath establishments in Europe, with a capital of 3,000,000 marks (\$714,000), was opened at Baden-Baden in 1877. The public baths of Bremen date from 1877 and the city bath of Dortmund from 1878.

The Bremen public baths were planned and constructed with so much regard to the requirements of modern technological and sanitary science that they have served as a model for the combined swimming and cleanliness type of German bath houses almost if not quite to the present time. The aim of the Bremen Public Bath Society, to whose activity the erection of these baths was due, was to provide the most generous bathing facilities for the poor, in connection with an imposing and attractive establishment calculated to meet the requirements of the

well-to-do. The provision of first-class accommodations with a relatively high rate of charges has proved to be a wise measure, as the revenue thence accruing has enabled the management to furnish good second-class baths of all sorts at comparatively low rates.

Vetter, in his *Moderne Bäder*, sets the capital of the Bremen baths at 643,500 marks (\$153,153). The original cost of the building, with fixtures and furniture, was 484,205 marks (\$115,241). The Bremen Savings Bank (German municipalities maintain savings banks for the common good) contributed 320,000 marks (\$76,160) toward the building fund. The city also gave free use of the ground on which the building stands. The establishment includes two large swimming baths, one for men and one for women, 85 tub baths, shower baths, cleansing baths, a Roman-Irish bath, and baths for medical purposes.

The Bremen public baths embodied several noteworthy structural features, namely, the introduction of a corridor in the rear of the dressing cabins on either side of the swimming hall; the extensive use of cement-covered masonry in the construction of tub baths and the partitions between the private bath rooms; the provision of a considerable number of shower-bath cabins, and a special cleansing room containing spray and foot baths. The ventilating and heating appliances are thoroughly modern in character, so that the water in the swimming pools can be maintained at a temperature of 72° F.

In the first thirteen months after the establishment was opened 209,215 baths were taken, yielding an income of 89,043 marks (\$21,192), an excess of 20,000 marks (\$4,760) over operating expenses. In 1892 the number of baths taken was 243,306.

The provision of floating swimming baths on lakes or rivers for use in the summer months, and not infrequently at public expense, is more common, apparently, on the Continent than in Great Britain. Such baths are to be found in the larger towns of Norway and Sweden, Germany, Switzerland, and Austria-Hungary. Public floating baths are maintained in considerable numbers by cities as far apart as Berlin and Budapest.

Within the last ten years an active movement for the establishment of people's baths, so called, has been carried on in Germany. Dr. O. Lassar, professor of skin diseases at the University of Berlin, made a statistical inquiry in 1885-86 as to the number of bathing establishments in Germany which afforded the public means of obtaining warm baths. He discovered as the result of his inquiry that there were only 1,131 (*a*) bathing establishments affording warm baths in localities representing a total population of more than thirty-two and two-thirds millions, and he published a statement that, taking Germany as a whole, there was only one public warm bath establishment for every 29,000 individuals. As a result of his efforts the Berlin Society for Public Baths, established in 1872, was revived, and, thanks to its

a Of this number 49 were in connection with sanitariums and hospitals.

activity and that of similar associations elsewhere, the situation has since been greatly improved. In Berlin and elsewhere since 1886 the people's bath, as a rule, consists of a simple, inexpensive, one-story building, provided for the most part, or even exclusively, with shower baths. The utility and cheapness of shower baths as a means of securing cleanliness is now generally recognized among German sanitarians and public officials, and it is noteworthy that the newer public bath establishments which contain swimming and tub baths are also generously supplied with shower baths, or, as the Germans usually term them, *douche* and rain baths. This is the case in the new people's baths in Berlin and in the so-called swimming baths in Stuttgart, Cologne, and Frankfort, all of which have been built since 1884.

As a rule, also, the school baths, which have become numerous and popular in Germany, Switzerland, and Scandinavia within the last ten years, consist solely of some form of shower bath; and in workmen's baths, which are frequently found in mines, foundries, and factories over large portions of Germany, shower baths greatly outnumber the tub baths.

The following is a partial list of the German cities in which public baths, belonging to the combination swimming and cleanliness type, have been built since 1886, the date of Dr. Lassar's paper upon People's Baths, read before the German Public Health Association: *Berlin*, *Brandenburg*, *Bremerhaven*, *Orefeld*, *Dusseldorf*, *Elberfeld*, *Frankfort*, *Gladbach-Hagen*, *Heilbronn*, *Hildesheim*, *Lennepe*, *Münster*, *Offenbach*, *Paderborn*, and *Stuttgart*. The cities whose names are printed in italics maintain strictly municipal bath houses that have been paid for out of public funds. In the other cities the baths have been erected and are managed by associations organized to promote the common good, which associations have usually received substantial pecuniary aid from their respective city governments.

The capital outlay for municipal bath houses in the cities embraced in the above list amounted to nearly five and a quarter millions of marks (\$1,249,500) between 1886 and 1896. In the remaining cities in the list the aggregate outlay amounted to not quite two million marks (\$476,000). Between 1880 and 1886 Cologne, Dortmund, and Essen established new municipal bath houses or enlarged old ones; and in Aachen-Burscheid, Barmen, Oldenburg, and Osnabrück similar establishments were built through the efforts of specially organized associations. If the capital outlay for public baths of both classes in 1880-1885, viz, 1,720,000 marks (\$409,360), be added to that for the period from 1886 to 1896, the aggregate amounts to 8,844,000 marks (\$2,104,872).

It should be noted in this connection that the most highly developed specimens of the German type of public bath houses—the city Hohenstaufen Bath in Cologne, the Stuttgart Swimming Bath, so called, the two people's bath establishments in Berlin, and the city swimming bath, newly opened in Frankfort, which cost 850,000 marks

(\$202,300)—compare most favorably as to size, cost, and magnificence with the largest and best appointed of the newer monumental public bath houses in Great Britain, which, as has been stated, are situated in London. It is the writer's opinion, based upon personal observation, that the Germans have carried the art of bath building to a higher plane of excellence than have the Scotch or English in respect to (1) the arrangement of swimming pools and the dressing rooms connected with them, (2) the variety of forms of bath afforded, (3) the provision of special douche and cleansing rooms, and (4) the development of the spray or shower bath (Brausebad). It must also be admitted that the German form of shower bath, as employed in their people's and workmen's and school baths, is unrivaled as regards its simplicity, its economy in respect to installation and working, and its effectiveness.

Probably no one man has done more toward promoting the spread of people's baths in Germany than Dr. Oscar Lassar, of Berlin. Believing that Dr. Lassar's views on the subject with which he has been so prominently identified for more than a decade are entitled to even wider currency than they have gained hitherto, the writer presents the following extracts from Lassar's paper, Ueber Volksbäder (On People's Baths), originally read in 1886 at the thirteenth meeting of the German Public Health Association in Breslau:

The questions are asked, "Have not many newly erected houses fine bathrooms? Are there not in many towns adequate bathing establishments? Should we leave out of account the running streams and seacoast, the numberless ponds and inland lakes?"

These questions are assuredly justifiable. Their answer, however, is not difficult.

A glance at the tax list shows that only an insignificant minority are in position to rent premises with bath fixtures. Moreover, the density of the population, even where there is no lack of water service, makes an adequate supply of baths impossible. It is easy to estimate how slightly the number of independent household baths counts in the scale when it appears from the communications of Berthold and Wasserfuhr that in Berlin in 1886 more than 10,000 souls lived in rooms that could not be heated, and that only 43.8 per cent of the population possessed more than one room that could be heated.

Bathing in natural water is truly to a high degree common and commendable, but we should not forget that its dependence upon season, age, and accessibility renders it of but limited usefulness. Where it is possible we surely ought not to neglect to make natural bathing places useful, for they constitute the cheapest and pleasantest form of bath.

* * * In the last decade, to be sure, a series of bath buildings, splendid in some respects, have arisen, as in Bremen, Hamburg, Dortmund, Barmen, Hanover, Munich, and Cologne. But these are great and opulent places. So soon as one passes beyond the precincts of the chief cities the picture changes, and when the dusty traveler finds an opportunity to refresh his tired members in a warm bath he pronounces it, as a rule, both dear and bad. But for the most part the possibility of bathing is not to be had, and so the people have gradually learned to renounce entirely the bathing habit.

It is frequently said that houses in American cities are so generally furnished with bathrooms that the need of public facilities for bathing does not exist to an extent at all comparable with the need for better bathing facilities that exists in European cities. It is interesting to know that in 1887, the same year in which the second edition of Dr. Lassar's brochure appeared, Dr. Rohè, of Baltimore, Md., in an address delivered before the American Medical Association in Chicago, showed that, contrary to popular belief, a large proportion of the inhabitants of American cities were unprovided with adequate bathing facilities. His statistics concerning eighteen cities having no free public baths, among which were Baltimore, Md.; Cambridge, Mass.; Cincinnati, Ohio; Milwaukee, Wis.; Minneapolis, Minn.; Portland, Me., and St. Louis, Mo., showed that only about 23 per cent of residences were supplied with bath tubs. He concluded that "five-sixths of the inhabitants of these cities have no facilities for bathing, except such as are afforded by pail and sponge, or a river, lake, or other body of water which may be easily accessible, but in winter even such sources of cleanliness are cut off."

Dr. Rohè's general conclusions concerning the cities enumerated in his table have since been strikingly borne out in regard to Boston by the investigations of Mr. Horace G. Wadlin, Chief of the Bureau of Statistics of Labor of Massachusetts. With relation to the number of bathrooms contained in the city of Boston in the year 1892, the following facts are taken from his report, A Tenement-House Census of Boston (section 2, p. 116, et seq.):

The present investigation covers 71,665 families in a city which ranks sixth as to population among cities in the United States; a city which has for many years possessed a public water supply and general sewerage; the chief commercial city of the Commonwealth, in which, also, manufacturing has been developed to such a point that in respect to annual output its rank corresponds to its rank as to population; in short, a typical modern city of diversified interests.

* * * Out of 71,665 families, comprising 311,396 persons, the total number of families and population residing in rented tenements in the city, only 18,476 families, comprising 82,716 persons, have bathrooms; while 53,189 families, comprising 228,680 persons, do not have bathrooms. That is to say, 25.78 per cent of all the families, and 26.56 per cent of the total rented-tenement population are supplied with bathrooms, while 74.22 per cent of all the families and 73.44 per cent of the rented-tenement population do not have such conveniences. Therefore, for the city at large, it is at once seen that only about one-fourth the total number of families and persons living in hired premises are supplied with bathrooms.

Considerable variation is to be noticed in the wards. In ward 6, for instance, less than 1 per cent of the rented-tenement-house population has bathrooms, and in ward 13 only 1.99 per cent is supplied. On the other hand, in ward 11, which comprises the larger part of the Back Bay district, and contains some of the finest residences in the city, 72.15 per cent of the population living in rented tenements is supplied with bathrooms.

But to return to Dr. Lassar's paper. Dr. Lassar issued a circular letter of inquiry to district physicians throughout Germany. He says:

It appears from the answers of district physicians that in the great majority of cases the average price per bath, without soap, and for the most part without towels, is 50 pfennigs (12 cents)

* * * * *

The average price of 50 pfennigs for a warm bath for workmen must undoubtedly be considered exorbitant. * * * And here lies the objective point of attack in regard to the hitherto-existing condition of things. If the usual baths can not be furnished so cheaply that the workman can avail himself of them without disproportionate sacrifice, then the form of bath must be changed.

* * * * *

Certainly in many cases, and in the eyes of the majority of people, tub baths are considered superior. But if we proceed on this view, then will the cost of building and maintaining them prove an obstacle, and the most philanthropic efforts will be wrecked as heretofore upon essentially impracticable measures.

In short, only the simplest forms of bath possible are attainable. As such the tepid shower bath must serve. We must look upon it as the bath of the future.

In Vienna my point of view has already been taken, and in the Neubau District a shower bath with 70 bathing places (28 for women and 42 for men) has been established at the cost of the municipality. It is the intention in Vienna to furnish each of the districts of the city with such an establishment.

People's or workmen's baths call for no kind of luxury. If they are serviceable, clean, and inviting, they fulfill their purpose better than through the magnificence which is customarily displayed. Those who are forced or accustomed to conform their mode of life to the simplest scale will content themselves gladly with entirely undecorated rooms. The beauty inheres in the thing itself. This appears self-evident to many. But so soon as a plan for the building of baths is considered, an effort to produce something very magnificent and massive, and fulfilling every condition of beauty and of taste, enters the foreground. A striking facade has often brought many a good plan to nought. * * *

If we would in reality provide the working people with bathing facilities there is only one possible way of accomplishing it, namely, by the tepid shower bath (Brausebad). That presents the simplest, cheapest, and, so far as the demands for space and time are concerned, the most economical means of effective bodily cleansing, and satisfies all claims of comfort as well. The person who has soaped himself thoroughly in a closed cabin by himself and then been sprayed with some liters of tepid water, and at the end with cool water, is cleansed, refreshed, strengthened—in short, he has enjoyed the chief advantages of bathing. It may be that many prefer a tub bath; but we are concerned here not with partiality for this or that, but with the possibility of providing the most economical form of all. * * * The only question is, what is serviceable and at the same time the cheapest. If a rich community or a society of amateurs choose to put up great swimming halls or complicated bath houses with tubs, douches, etc., for various classes and with a great plant, certainly no one will object, for the advantages from them accrue to the common good. But if it is to be determined how

genuine people's baths are to be managed, then there is but one answer—as efficiently as possible compatible with the greatest cheapness.

* * * * *

Apart from its lower cost and economy of space the shower bath possesses the following general advantages for the bather himself: Its physiological influence upon the organism is a quickening and refreshing one; at every season it is pleasant and never weakening to spray the well-soaped body with warm water and then to finish off with the moderately cool or even a cold ablution; the cleansing is absolutely thorough, and is essentially promoted by the fact that all the dust and dirt with which the water becomes soiled is immediately carried away, and continually replaced by clean water. But in the case of the full bath one bathes finally in dirty water, especially the workman who leaves all the accretions of an entire week in the tub. Moreover, the individual using a public shower bath is better guarded than in the tub from infection and from contact with the vestiges of his predecessor, and without trouble can secure the cleansing of the bath place itself by simply rinsing it. In addition to this, the bath itself calls for but little time or personal service from the bather, and offers the possibility of a great number of persons bathing quickly one after another. We must also consider that it presents less danger of catching cold, at least in comparison with the warm full bath with its relaxing influence upon the vessels of the skin, and that the hardening effect of the bath can scarcely be obtained in a more rational way than through the successive warm and cool ablutions.

According to a report from Breslau, made at the thirteenth meeting of the Society for Public Hygiene, 1,000 liters (264 gallons) of water cost 15 pfennigs (3½ cents).

According to experiments made by me, the maximum amount of water necessary for a shower bath, even when it is lavishly used, is at the most 10 liters (10½ quarts). However, one can do very well with 5 liters. At that rate the water for a single shower bath costs not more than 0.0015 mark (\$0.000357). We need for a single tub bath 200 liters (53 gallons), equal to an outlay of 3 pfennigs (\$0.00714) for water. With water at 15 pfennigs (3½ cents) per cubic meter (264 gallons) one may have for a mark (24 cents) enough water for 666 shower baths, but only enough for 33 tub baths. The amount of water needed in a district of 30,000 inhabitants, if they should each take a weekly bath, would demand an outlay of 2,340 marks (\$557) for shower baths, but for an equal number of tub baths 46,800 marks (\$11,138) yearly. Reckoning for all Germany, this would mean an eventual saving of more than 66,000,000 marks (\$15,708,000) or 1.48 mark (35 cents) per head per year in favor of shower baths.

In 1889 a general exposition of devices for the prevention of accidents was held in Berlin. The German Association of Brewers offered a prize of 1,000 marks (\$238) for the workman's bath which should best commend itself to the judges for utility, solidity, practicability, simplicity, and inviting character, and be adapted for use in breweries and for general use as well. There were presented in competition five models, thirteen sets of plans, and four baths in running order. The prize was divided between Börner & Co., of Berlin, for a Lassar-Grove workman's shower bath, and the German Jute Spinning and Weaving Company, of Meissen, for a workman's shower bath, while four firms received honorable mention.

The judges unanimously recommended that certain principles be followed in the construction of workmen's baths, as follows: (a)

In general, the shower bath is to be characterized as the most practicable of all sorts of bath for the promotion of cleanliness and simultaneous refreshment. For certain kinds of industry it is necessary to provide washing facilities in addition, to enable the bather to free himself from adhesive dirt.

Regarding the construction of shower baths, all material is to be avoided that is porous or attractive to water, or permits dirt to accumulate in cracks and joints, or renders complete cleanliness of all appurtenances difficult or impossible. * * * Leaving slate out of the question as too costly, there is nothing better for the walls of the single cabins than corrugated sheet zinc. Next to be recommended are the so-called "Monier" walls, but only when their surface is well smoothed. The durability of oil paint is not satisfactory, owing to the continuous influence of warm water and soapsuds.

The partitions should be 2 meters (6 feet, 7 inches) high and about 10 centimeters (4 inches) raised above the floor for the sake of ventilation.

The floor should also be made impervious to water by the use of asphalt, cement, or terrazzo. The first has not only the advantage of cheapness, but also that it is least unpleasant to the naked feet. In order to prevent the splashing of water from the bath cabin to the dressing cabin, the latter should be placed at a higher level than the former; and in order to avoid a step the floor of the dressing room should slope sufficiently toward the bathroom. In the bath cabin itself there should be a recessed portion in the floor, like a trough, whose deepest part receives the principal stream from the shower, and, at the beginning of the bath should be so full that the water reaches to the ankles of the bather. This will permit the bather to soap himself thoroughly before using the spray and at the same time cleanse his feet. The rest of the floor of the shower cabin should slope toward the trough, whose edges should be rounded. At the deepest part an emptying valve is to be placed, and at the highest part an overflow pipe. * * * In almost all cases the use of such trough renders the provision of a special wash basin unnecessary. * * *

The use of wood is to be avoided as much as possible. * * * The shower spray should be placed obliquely, as the water streaming vertically from above is undesirable for weaker persons and those liable to "rush of blood to the head." The most appropriate place for the spray nozzle is on the partition wall between the dressing and the bath cabins, to be fed from a warm water reservoir having an exit temperature of 95° F. The limitation by a measuring device of the maximum amount of warm water, which is commendable in people's bath establishments, appears to be superfluous for workmen's baths in factories.

The spray should run only so long as the bather pulls the chain, but in order that he may have his hands free for washing during the action of the shower, it is desirable that a hook, to which the chain may be fastened, should be placed on the wall. The necessity for an unlimited supply of cold water seems to be self-evident.

The dressing room should be about the same size as the bath cabin, and should contain a seat, shelf, clothes-hooks, well separated from each other, and a pair of washable rubber sandals with straps over their middle, in order that the bather need not step directly on the stone

a Arbeiter-Badeeinrichtungen. Ansichten und Grundsätze des Preisgerichts über die vom deutschen Brauerbund ausgeschriebene Preisaufgabe. By B. Knoblauch.

floor. A looking-glass becomes dimmed in such a room, and is therefore better placed in the corridor. Combs and brushes had better not be furnished, since through their common use diseases of the scalp are easily incurred.

The heating of workmen's baths in factories is most serviceably accomplished by means of steam. It is desirable, if possible, that all the bath arrangements should be placed in a thoroughly heated room.

* * * * *

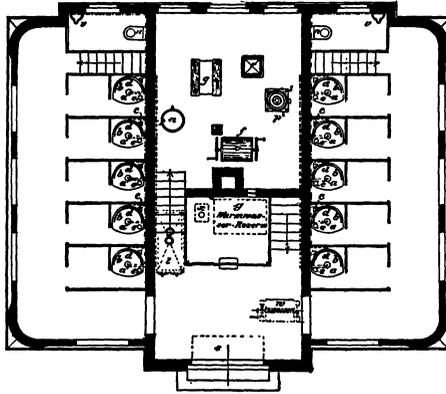
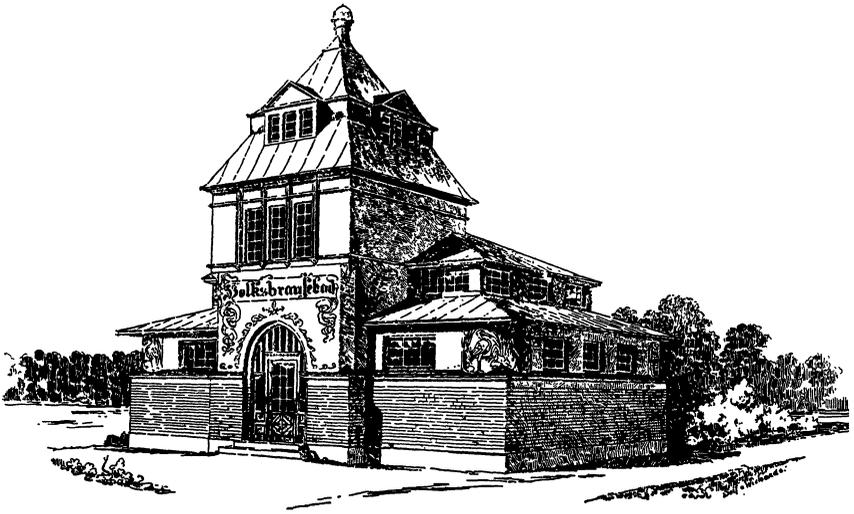
The following demands must be met in order to provide appropriate bath features for our workmen: The greatest possible utility in the least possible space; cheapness of plant and operation; easy and convenient cleansing of the bath and dressing rooms; avoidance of wood or of porous material; rational position of the shower nozzle (at an angle of 45°) out of regard for weakly persons; opportunity to remove adhesive dirt, particularly from the feet; protection against catching cold; avoidance, therefore, of drafts of cold air.

The principles enunciated by the judges chosen by the German Brewers' Association, in 1889, have been quite closely followed in most respects in constructing the model bath house which was exhibited at the Berlin Industrial Exhibition of 1896, by the Berlin Society for People's Baths, a description of which is given on pages 463 and 464.

The first German shower-bath establishment to attract wide attention was placed in the barracks of the Kaiser Franz Grenadier Regiment of the Guard in Berlin in 1878, at the instance of Dr. Munnich, a military surgeon. The bath was for the use of officers and soldiers, and was constructed at a cost of about 4,000 marks (\$952), so as to permit 300 men to bathe within an hour. It was devised by the firm of David Grove, sanitary engineers, in Berlin. Previous to its installation military barracks were without shower baths for the use of soldiers. It is said that they are now to be found in more than fifty barracks of the German army.

The same firm installed 11 shower baths of their peculiar pattern prior to 1883. Eight of the 11 were placed in garrison buildings for the benefit of soldiers. In the period from 1878 to 1894, inclusive, this firm installed shower baths in no less than 37 military barracks. Its baths have also been placed in various schools, prisons, factories, and people's baths.

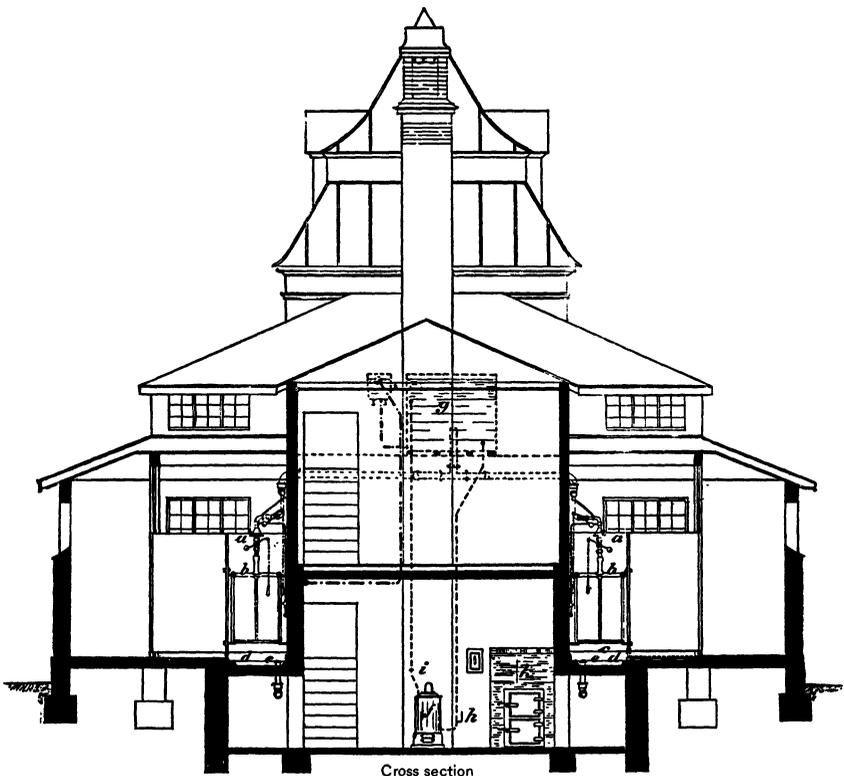
In 1883, at the Exposition of Hygiene in Berlin, Dr. O. Lassar exhibited a people's bath house, simply constructed, 11 meters (36 feet 1 inch) long and 5 meters (16 feet 5 inches) wide, built of corrugated iron, by David Grove, at a cost of 6,300 marks (\$1,499). It was divided by a middle partition into two sections, one for women and one for men, each section having its own separate entrance. The building was of one story, and contained, besides a ticket office, 2 water-closets, 2 corridors, a laundry, a drying room and a boiler room, and 10 shower-bath cabins (5 for men and 5 for women). Each shower cabin was 1½ meters (4 feet 11 inches) square, and one corner of the cabin could be closed off by a curtain. The bath house was used by upward of 10,000 persons



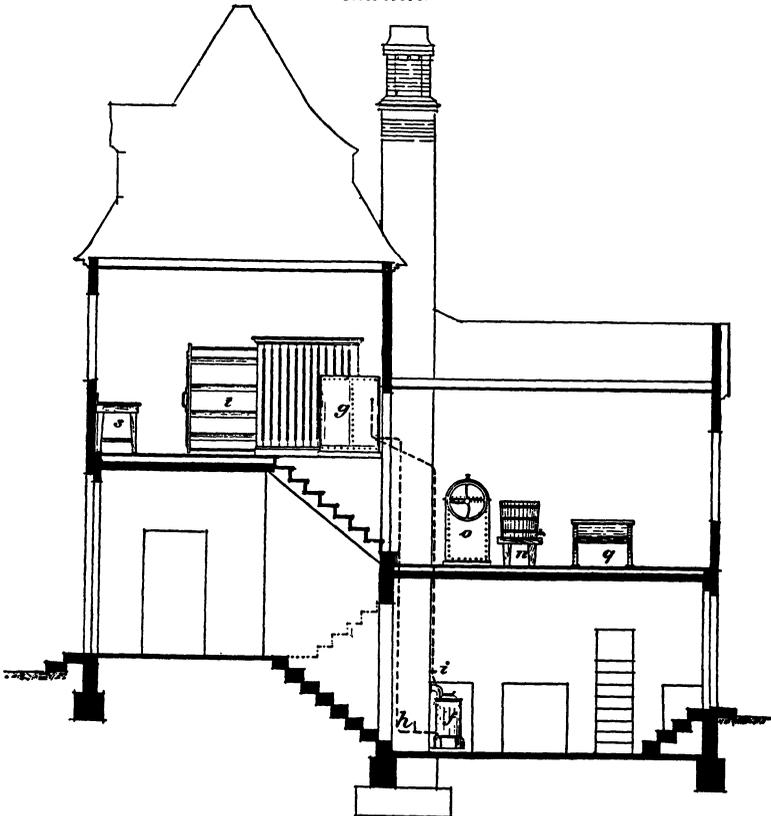
First floor.

MODEL BATH HOUSE OF THE BERLIN SOCIETY FOR PEOPLE'S BATHS, BERLIN INDUSTRIAL EXHIBITION, 1896.

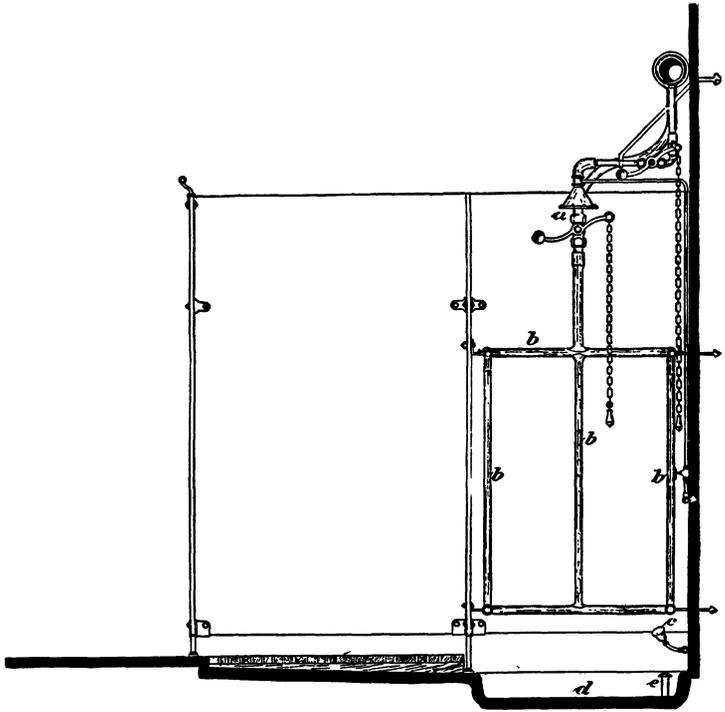
PLAN NO. 3 A.



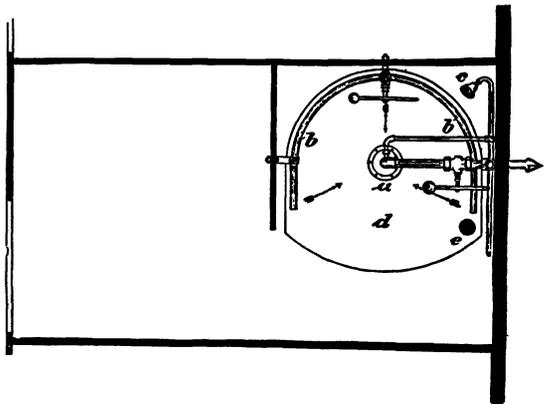
Cross section



Longitudinal section.



Longitudinal section of dressing and shower cabin.



Ground plan of dressing and shower cabin, showing fixtures.

MODEL BATH HOUSE OF THE BERLIN SOCIETY FOR PEOPLE'S BATHS, BERLIN INDUSTRIAL EXHIBITION, 1896.
 PLAN No. 3 c.

during the three months of the exposition. This particular bath house was afterward purchased by a manufacturer and set up for the use of his workmen.

People's baths similar to this, and known as the Lassar-Grove form of people's baths, have since been built in a number of German cities, as, for instance, Munich, Magdeburg, Hanover, and Frankfort. In these, as well as in the city people's baths in Vienna, the bath cabins are furnished with shower baths exclusively. The usual price for shower baths in this class of people's bath is 10 pfennigs ($2\frac{1}{2}$ cents).

The Frankfort Bath, a people's bath, which is situated on the Meriansplatz, a square at the junction of several streets, was presented to the city in 1888. It is a pavilion, octagonal in shape, and contains 14 bath cabins, 10 for men and 4 for women. The building cost 20,000 marks (\$4,760) and its fixtures 1,400 marks (\$333). The entire building, including the partitions between the cabins, is constructed according to the so-called Monier system—that is to say, of cement upon an iron framework and wire lathing. Each cabin is divided by a curtain of waterproof linen into two parts, namely, a dressing room and a smaller room behind it, which constitutes the bathroom proper. The city furnishes the water for the bath house free of charge. For each shower bath 40 liters (42 quarts) of warm water are furnished by an automatic device from a small iron reservoir above the cabin. The cold water can be had by each bather *ad libitum*. The price per bath, including towel and soap, is 10 pfennigs ($2\frac{1}{2}$ cents). The writer tested this bath practically during the past summer, and found it satisfactory and much frequented.

In 1890–91 the bath was used by 38,852 persons. Its income was 3,885 marks (\$925), and its expenses amounted to 4,692 marks (\$1,117). The monthly number of bathers varied from 1,962 in January to 4,731 in May. In the year 1895 the Frankfort Bath was patronized by 45,756 persons.

The Berlin Society for People's Baths, of which Dr. O. Lassar is president, exhibited a model people's bath house (plans Nos. 3A, 3B, and 3C) in working order at the Berlin Industrial Exhibition during the summer of 1896. The model, with its fixtures, cost 20,000 marks (\$4,760), and the following is a description of it:

The establishment comprises ten shower cabins. Five cabins and a water-closet are placed on each of the corridors, which open to the left and right, respectively, from the waiting room. By extending the corridors and adding further cabins it would be easy to enlarge the bath, and by putting a partition through the waiting room, to establish separate sections for men and women.

Cabins, corridors, and waiting room are on the same level, which is raised two steps above the ground level. On the other hand, the boiler room is sunk 1.60 meters (5 feet 3 inches) below that level, while the floor of the laundry, which is above the boiler room, is 1.60 meters above the same level. Two advantages arise from this: First, the short distance of half a stairway from the boiler room to the waiting room and the corridors on one hand, and from the laundry to the waiting

room on the other; second, if a cellar be placed under the shower-cabin section, adjoining the boiler room, then a room accessible in all its parts at all times and free from frost would be provided for the installation of the plumbing.

Again, entrance might be had through the laundry by means of a half stairway into a room situated above the waiting room, in which room a reservoir for serving shower baths is placed. This room in certain cases might be used as the living room of the attendant. The reservoir would then be placed in the attic above the laundry.

* * * * *

The cabins are inclosed by walls of first-class Carrara marble, which is placed upon brass supports and fastened together by cramp irons. The floor consists of a layer of cement, over which a light latticework is placed in the dressing rooms and bath cabins. The dressing rooms are shut off from the corridor by washable curtains.

* * * * *

Shower baths hitherto have involved an inconvenience in that they supplied water to the bather only from above, on which account a thorough cleansing of all parts of the bather's body was rendered difficult. The shower bath exhibited here has on that account been constructed upon another principle, which renders it possible for the bather not only to supply himself with water from overhead, but also, by means of the three side pipes (marked *b* in the plan) of the so-called "mantel" shower (needle) bath, and by means of an obliquely placed undershower, to spray himself from both sides and from below. Each of these three devices is placed under the control of the bather by a special contrivance. The bather stands in a depression in the floor, which forms a foot tub, *d*, which, when the showers are opened, fills with water that covers his feet as high as the ankles. The surplus water runs off through the overflow pipe, *e*. After the bath the overflow pipe is taken out, whereupon the foot tub completely empties itself.

The overhead shower, *a*, has a cold water supply with a separate cock, by means of which the bather can lower the temperature of the water at will.

The heating of the water is effected through a hot-water circulation boiler, *f*, which is connected with the reservoir, *g*, by circulation pipes. The heating of the water may proceed as high as 95° F. The temperature of the water is made clear to the fireman in the boiler room by means of a thermometer. If the desired temperature is attained, then he closes the throttle valve, *i*, placed in the perpendicular leading pipe.

The heating of the building is provided for by means of a hot-air apparatus, *k*, that stands in the boiler room. The building is also provided with a small laundry, sufficient to meet the demand for the washing and drying of towels. The drying apparatus receives its heat through circulation tubes from the hot-water boiler.

With ten cabins, the bath is equal to providing from 30 to 40 shower baths per hour. (*a*)

This model workmen's or people's bath house not only embodies the requirements laid down by the judges chosen by the Association of German Brewers in 1889 to award a prize of 1,000 marks (\$238) for the best plan or model of a workman's bath, but in some respects it is an improvement on the specifications of the committee of award, viz, in the use of marble and of the mantel shower fixture.

a Die Thätigkeit des Berliner Vereins für Volksbäder, 1896.

To the writer, who had an opportunity to make careful inspection of the model people's bath house described, it seems to be extremely well planned and admirably adapted for its purpose. It is his opinion, however, that cost might possibly be reduced and the arrangement of fixtures considerably simplified if improved methods of heating water were made use of in baths modeled after it, at least when there is an independent supply of steam. The foot-bath feature has been employed elsewhere and is strongly to be commended. The use of marble for partition walls is a novelty in most people's baths. In the end its use will probably be justified by its superior durability and cleanliness. In the newest of the public baths in Paris, the Piscine, in the Place Hébert, the walls of the shower-bath cabins are of opaque glass, set in iron frames. Sheet glass inclosing woven wire is used for partitions in some bath houses, the people's bath near Schilling's bridge, in Berlin, for example. The partition walls in the shower rooms in the Vienna people's baths are of cement on wire lathing and are unpainted. In one of the newest and finest private bath houses in Berlin the walls of the shower cabins are painted with a peculiar Japan lacquer paint, so called, which is said to withstand heat, water, and soapsuds, and to be suitable for application to wood, stone, metals, or cement. A somewhat similar kind of paint has been used upon the wooden dressing-room doors in the swimming hall of the Pompeian Bath, belonging to the parish of St. Marylebone, in London. Enameled slate, as used for partitions and doors of private bathrooms, in the Whitworth baths, Manchester, and the baths belonging to the London parishes of St. Martins-in-the-Fields, St. Mary Stratford Bow, etc., is said to fleck and chip unless it is carefully treated.

People's shower baths, of the Lassar-Grove type, such as the one described at Frankfort, have been introduced by a number of German cities since 1888, but as Vienna, Austria, was the first city to establish a municipal public bath comprising shower baths only, a general description of the Vienna baths may appropriately be given in this connection.

The first of the people's baths in Vienna was an experimental one, opened in the seventh district of the city in 1887. The bath proved so much of a success that baths of the same type, but on a more generous scale, were opened in the fifth and tenth districts in 1890; in the third district in 1891; in the second, sixth, eighth, and ninth districts in 1892; and in the fourth district in 1893. A tenth bath has since been added in the fourteenth district, and it is the intention of the magistracy of Vienna, as opportunity offers, to further establish people's baths until each of the nineteen districts of the city is provided with one. Vienna's population was 1,364,548 in 1891.

From 1887 to 1893 Vienna expended upon its nine people's baths over \$160,000. The shower appliances vary in number in these baths from 46 to 70. The dressing rooms are provided with separate lockers and connect with the rooms in which the open bath cabins are placed;

generally the women's baths are on one floor and the men's on another. The baths are open in summer on working days from 7 to 9 a. m. and from 2 to 8 p. m. In winter they are open only from 2 to 8 p. m. On Sundays and holidays they are open only during the forenoon.

For a fee of 5 kreutzers (2 cents) each bather is entitled to a copious shower of warm or cold water, as he may choose. The use of two towels is included in the fee.

The general superintendence of the baths is in the hands of engineers belonging to the city building department. Each bath house is in charge of a bath master, who is furnished with a sufficient number of male and female attendants.

The total number of bathers in the nine Vienna people's baths (Volksbäder) for each of the five years, 1889 to 1893, was as follows:

NUMBER OF BATHERS IN VIENNA PEOPLE'S BATHS, 1889 TO 1893.

Year.	Men.	Women.	Total.
1889	70, 878	24, 841	95, 719
1890	110, 740	33, 310	144, 050
1891	201, 117	47, 759	248, 876
1892	277, 332	64, 902	342, 234
1893	414, 901	110, 914	525, 815

The largest total number of bathers in any one establishment in 1893 was 87,090 in the fifth district. The greatest number of bathers for all the establishments in any one month in 1893 was in July, 70,924 men and 24,872 women. The smallest number in any one month was in January, 12,378 men and 1,206 women. The ordinary receipts for the nine baths in 1893 were 26,376 florins (\$12,720), and the corresponding expenses were 54,704 florins (\$26,381). The deficit for the individual baths varied between 1,211 and 4,894 florins (\$584 and \$2,360).

Munich has four people's baths of the Lassar-Grove type. The first is an octagonal pavilion like the Frankfort bath and contains 10 cabins for men and 4 for women. It was used in 1890 by 74,221 persons. Its expenses amounted to 5,910 marks (\$1,407), and its income to 7,422 marks (\$1,766). The population of Munich was 407,000 in 1895.

Mannheim has two people's baths, erected at a cost of 25,000 marks (\$5,950) each. They contain 14 shower cells each. The ground plan of the Mannheim baths is rectangular. In 1892 the number of monthly bathers varied from 1,036 to 5,290. Although the city has a free swimming bath on the Rhine, June and July were the months in which the baths were most used. The total income from the two baths was 6,741 marks (\$1,604), and the total expenses 10,920 marks (\$2,599). Mannheim's population in 1895 was 90,677.

Magdeburg has, in connection with the city disinfection establishment, a people's bath, costing \$20,000 marks (\$4,760), containing 16 shower cabins for men and 4 for women. The price per bath is 10

pfennigs ($2\frac{1}{2}$ cents), except on Saturdays and Sundays, when it is only 5 pfennigs (1 cent). In 1891-92 there were 59,013 men bathers and 10,933 women bathers, or a total of 69,946. The total income was 7,189 marks (\$1,711) and the total expenses 7,686 marks (\$1,829), showing a deficit of only 497 marks (\$118). Magdeburg has built a second people's bath since 1892. The population of the city was 214,397 in 1895.

Hanover possesses two people's shower baths. The first, containing 10 cabins, was erected in 1889. It was found necessary to increase the number of cabins in 1890 to 19, 11 for men and 8 for women. The second Hanover shower bath is cruciform in shape and contains 26 cabins, 16 for men and 10 for women. Its total cost was 32,000 marks (\$7,616). For 10 pfennigs ($2\frac{1}{2}$ cents) a bath, with soap and towel, is provided; for 5 pfennigs (1 cent), simply a bath. In 1891-92, 32,000 baths at 10 pfennigs were taken and 19,000 at 5 pfennigs. The expense for the year was 5,780 marks (\$1,376) and the income 4,150 marks (\$988), showing a deficit of 1,630 marks (\$388). In 1895 Hanover had a population of 209,116.

Brunswick opened a people's bath in 1890, at a cost of 27,000 marks (\$6,426). It contains 19 shower baths and 4 tubs. As many as 674 baths have been taken in this establishment in one day, namely, 573 shower baths, 58 tub baths, and 43 sitz douche baths. The number of bathers is least from Monday until Wednesday; it then increases, reaching its highest point on Saturday and Sunday. Usually officials of railroads and tax and post offices bathe in the morning, teachers in the afternoon, and workmen in the evening. In the year ending August 15, 1891, there were given 5,710 tub baths at 30 pfennigs (7 cents), 1,682 sitz baths at 20 pfennigs (5 cents), and 45,374 shower baths at 10 pfennigs ($2\frac{1}{2}$ cents), making a total income of 6,587 marks (\$1,568). The total expenses were 5,040 marks (\$1,200), leaving a surplus, not counting interest on capital, of 1,547 marks (\$368). It is estimated that in each tub bath 180 liters (190 quarts) of water were used, but only 40 liters (42 quarts) in each shower bath.

The items of expense may be of interest here. They were as follows:

Wages.....	\$368.90
Gas	27.13
Soap	195.40
Printing.....	41.41
Fire insurance.....	23.80
Water	66.64
Coal and wood.....	404.60
Cleaning and disinfecting of towels	10.47
Advertising.....	25.47
Sundries.....	35.70
Total	1,199.52

Brunswick's population in 1895 was 115,129.

Mentz, with a population of 77,735 in 1895, possesses two people's baths, one built in 1890, at a cost of 41,225 marks (\$9,812), containing

15 cabins and 6 tubs, and the other, built later, at a cost of 42,850 marks (\$10,198), containing 17 showers and 7 tubs.

People's shower-bath houses are also to be found in Bielefeld, Breslau, Coblenz, Duisburg, Erfurt, Posen, Stettin, and other German cities.

Cologne, with a population in 1895 of 321,431, has baths of three sorts: First, the Hohenstaufen Bath; second, the people's bath, and third, the free swimming bath upon the Rhine.

The Hohenstaufen Bath is one of the finest public baths in Germany. It was built in 1885 at a cost of 480,000 marks (\$114,240), out of a capital of 660,000 marks (\$157,080). It is situated on one of the handsomest streets of the new town and is a massive and architecturally imposing building. It includes 43 tub and full baths furnished with rain sprays, two children's baths, a Roman-Irish bath, no less than 11 douche rooms containing 25 showers in all, and three swimming baths. The following table shows the number of bathers, income, and expenses for each of the last five years:

NUMBER OF BATHERS AND INCOME AND EXPENSES OF THE HOHENSTAUFEN BATH, 1891-92 TO 1895-96.

Year.	Total bathers.	Average bathers per day.	Income.	Ex-penses.	Surplus.
1891-92	279, 767	777	\$39, 883	\$35, 156	\$4, 727
1892-93	296, 073	822	40, 477	33, 775	6, 702
1893-94	314, 870	875	39, 710	34, 111	5, 599
1894-95	305, 531	849	30, 504	28, 503	2, 001
1895-96	365, 039	1, 020	34, 664	30, 553	4, 111

The income for each of the years 1891-92 and 1892-93 includes 50,000 marks (\$11,900) from the city, and the income for 1893-94 includes 35,000 marks (\$8,330) from the same source. In 1894-95 and 1895-96 no subvention was received from the city treasury.

The scale of charges in the Hohenstaufen Bath in 1895 was as follows:

Swimming bath, adults	\$0.09½
Swimming bath, adults, 10 tickets .....	. 71½
Swimming bath, adults, 25 tickets	1. 66½
Swimming bath, children under 14 .....	. 08½
Swimming bath, children under 14, 10 tickets .....	. 59½
Swimming bath, children under 14, 25 tickets	1. 31
Saloon bath .....	. 28½
Saloon bath, 10 tickets	2. 38
First-class tub bath .....	. 19
First-class tub bath, 10 tickets	1. 43
Second-class tub bath .....	. 12
Second-class tub bath, 10 tickets .....	. 83½
Roman-Irish and Russian steam baths .....	. 47½
Roman-Irish and Russian steam baths, 5 tickets	1. 90½
Roman-Irish and Russian steam baths, 10 tickets	3. 57
Roman-Irish or Russian steam baths .....	. 35½
Roman-Irish or Russian steam baths, 5 tickets	1. 43

Roman-Irish or Russian steam baths, 10 tickets.....	\$2. 38
Douche bath.....	. 24
Douche bath, 10 tickets.....	1. 43
Cold shower bath.....	. 69½
Shower treatment.....	. 24
People's bath, adults, till 6 p. m.....	. 05
People's bath, adults, after 6 p. m., and children under 14.....	. 02½
People's bath, subscription for 100 baths.....	1. 78½
People's bath, subscription for 300 baths.....	4. 76
People's bath, subscription for 100 baths for soldiers and institutions.....	1. 19

The people's bath establishment opened in 1892, at a cost of 107,937 marks (\$25,689). It contains 24 tub and 18 shower baths; 73,122 persons bathed in 1893-94, the income being 14,541 marks (\$3,461), and the expenses 12,833 marks (\$3,054), showing a surplus of 1,708 marks (\$407). For 1894-95 the total number of bathers was 77,158, or an average of 214 a day. The surplus for the year was 5,522 marks (\$1,314). In 1895-96 the total number of bathers was 89,469, or 242 daily on an average. The income amounted to 24,823 marks (\$5,908), there being an excess of expenditure of 7,535 marks (\$1,793).

The free swimming bath upon the Rhine, built in 1892, cost 12,500 marks (\$2,975). This establishment contains a swimming inclosure 50 by 75 meters (164 by 246 feet). It contains a floating dressing hall. In 1892 the number of bathers was 45,000, 25,000 being children and 20,000 adults.

The number of bathers in 1893-94 was 26,697; in 1894-95, 28,552; in 1895-96, 25,735; the cost of maintaining it as a free bath being for the same years, respectively, 717, 688, and 1,308 marks (\$171, \$164, and \$311).

The two bath establishments of the Society for People's Baths in Berlin, which are situated respectively in the city park Gartenstrasse and the city park Wallstrasse, were built in 1887-88. The city of Berlin gave the building sites for these establishments and contributed 108,000 marks (\$25,704) toward their construction. Each establishment contains 4 first-class tub baths, 12 second-class tub baths, 9 first-class shower baths, each provided with dressing cabin, and 5 shower baths of the second class with 15 dressing cabins, all told, for men; and for women, 4 first-class tub baths, 8 second-class tub baths, and 4 shower baths, each having its own dressing cabin. The cost of the two establishments was 225,000 marks (\$53,550).

The charges for baths are:

First-class tub bath.....	\$0. 12
Second-class tub bath.....	. 06
First-class shower bath.....	. 06
Second-class shower bath, including soap and towel.....	. 02½

The following table shows the number of baths and receipts from baths for the Gartenstrasse people's bath for each year from 1888-89 to 1895-96:

NUMBER OF BATHS AND RECEIPTS FROM BATHS FOR THE PEOPLE'S BATH IN GARTENSTRASSE, BERLIN, 1888-89 TO 1895-96.

Year.	Baths.							Receipts from baths.						
	Men.			Women.			Total.	Men.			Women.			Total.
	Tub.	Show-er.	Total.	Tub.	Show-er.	Total.		Tub.	Show-er.	Total.	Tub.	Show-er.	Total.	
1888-89..	43,324	19,032	62,356	19,776	2,033	21,809	84,165	\$2,748	\$507	\$3,255	\$1,204	\$48	\$1,252	a\$4,739
1889-90..	53,769	23,233	77,002	24,498	1,961	26,450	103,461	3,400	598	3,998	1,496	47	1,543	a5,714
1890-91..	56,318	20,822	77,200	25,599	1,488	27,087	104,287	3,560	526	4,086	1,571	35	1,606	a5,818
1891-92..	55,711	21,433	77,144	24,581	953	25,534	102,678	3,512	532	4,044	1,517	23	1,540	a5,720
1892-93..	54,328	23,771	78,099	22,835	1,057	23,892	101,991	3,424	568	3,992	1,405	25	1,430	a5,556
1893-94..	58,500	29,129	87,629	24,463	1,122	25,585	113,214	3,720	720	4,440	1,512	27	1,539	a6,130
1894-95..	61,146	33,317	94,463	25,692	989	26,681	121,144	3,934	820	4,754	1,583	23	1,606	a6,556
1895-96..	60,936	35,043	95,979	26,722	1,159	27,881	123,860	.....	.....	.....	.....	.....	.....	.....

a Including receipts from subscription tickets and school children's shower baths, not shown in this table.

The total receipts for the years from 1888-89 to 1895-96, included in the above table, amounted to 169,171 marks (\$40,263). The expenditures for the Gartenstrasse people's bath in the same period amounted to 145,210 marks (\$34,560), showing a surplus of 23,961 marks (\$5,703). The total expenditures are classified as follows:

Salaries.....	\$3,839.35
Wages.....	2,066.37
Coal and wood.....	8,251.14
Water and drainage.....	6,026.94
Gas.....	1,400.14
Maintenance of boilers, etc.....	557.18
Repairs.....	812.16
Laundry and soap.....	1,118.99
Printing.....	271.40
Taxes.....	394.64
Insurance.....	280.00
General charges.....	689.49
Maintenance of building, fixtures, and furnishings.....	231.08
Total expenditures.....	25,938.88
Depreciation.....	8,621.21
Total.....	34,560.09

The greatest number of baths taken in any one day was 1,562, with receipts of 378 marks (\$90), on Saturday, May 24, 1890.

The total number of baths given in the Wallstrasse people's bath for each year in the period from 1888-89 to 1895-96 was as follows:

1888-89.....	91,821	1892-93.....	117,292
1889-90.....	118,432	1893-94.....	118,460
1890-91.....	120,415	1894-95.....	109,019
1891-92.....	120,636	1895-96.....	108,375

The preponderance of bathers in summer over winter is indicated by the following analysis of the baths taken in the Wallstrasse establishment for the years 1894-95 and 1895-96:

NUMBER OF BATHS, WALLSTRASSE PEOPLE'S BATH, 1894-95 AND 1895-96.

Date.	Men.			Women.			Total.
	Tub.	Shower.	Total.	Tub.	Shower.	Total.	
1894-95.							
Summer.....	30,471	17,974	48,445	15,169	536	15,705	64,150
Winter.....	24,247	11,985	36,232	8,557	80	8,637	44,869
Total.....	54,718	29,959	84,677	23,726	616	24,342	109,019
1895-96.							
Summer.....	29,987	18,599	48,586	16,499	423	16,922	65,508
Winter.....	22,964	11,336	34,300	8,353	214	8,567	42,867
Total.....	52,951	29,935	82,886	24,852	637	25,489	108,375

A similar preponderance of baths taken in summer is also shown by the returns from the people's bath in the Gartenstrasse from 1888-89 to 1895-96, inclusive.

The total income in 1895-96 of the Gartenstrasse establishment was 28,042 marks (\$6,674); running expenses of the year 15,621 marks (\$3,718); charged to profit and loss and interest account, 5,984 marks (\$1,424), leaving a net surplus of 6,437 marks (\$1,532).

The establishment in Wallstrasse for the same year had a total income from bathers amounting to 24,294 marks (\$5,732), against an expenditure for running expenses of 14,120 marks (\$3,360); charged to profit and loss and interest account, 6,604 marks (\$1,572), leaving a net surplus of 3,570 marks (\$850).

The city of Berlin maintains a system of floating swimming baths on the river Spree. The first of these was built in 1850, the second in 1855, and in 1858 the number was increased to five. The first city floating bath for women was built in 1863 and the second in 1865. In 1890 Berlin possessed thirteen floating river baths, two of which were double baths, so-called, affording separate swimming pools for men and women. In the year 1889 the number of male bathers in these establishments was 447,491, and of female, 185,683, making a total of 633,174, of whom 345,342 paid for their baths, while 287,832 had free tickets.

The income from the baths was 23,657 marks (\$5,630), against an expenditure of 29,084 marks (\$6,922.) In 1893 the swimming basins in the city river baths of Berlin numbered sixteen, and 952,778 persons bathed in them, 536,588 being pay bathers and 416,190 being free bathers. Instruction in swimming was given to 1,065 persons. The income from the river baths in 1893 amounted to 50,291 marks (\$11,969), against an expenditure of 50,602 marks (\$12,043), leaving a deficit of 311 marks (\$74).

During the fiscal year ending March 31, 1895, the number of free bathers in the seventeen city swimming basins of Berlin was 356,294;

of pay bathers, 448,911. The total expenditures for 1894-95 amounted to 52,297 marks (\$12,447), while the total income was 40,356 marks (\$9,605), showing a deficit of 11,941 marks (\$2,842). The smaller number of bathers in 1894 as compared with 1893 was attributed to the cooler summer in 1894.

The success and popularity achieved by the Society for People's Baths in the case of the institutions in the Gartenstrasse and Wallstrasse, already alluded to, led the city government of Berlin to establish two people's baths (Volksbadeanstalten) at the expense of the municipality. The first of these, in the Thurmstrasse, in the section known as Moabit, which is chiefly inhabited by working people, was opened November 1, 1892, and the second, near Schilling's bridge, was opened in June, 1893. The establishment in Moabit contains a large swimming hall, with a pool 18 meters (59 feet) long and 9 meters (29 feet 6 inches) broad, and also contains 15 first-class tub baths, 42 second-class tub baths, 7 first-class shower baths, and 22 second-class shower baths. In the swimming hall, on each of its long sides, are 16 dressing cabins, and in a gallery around the swimming hall are 80 dressing places, chiefly for children, consisting of fixed benches, with lockers above them to contain clothing. A special room opening out of the swimming hall is provided with cold and warm shower baths, wash basins, etc., and everyone using the swimming pool must take a bath in this room, which is called the douche and soaping room, before entering the pool. The total number of bathers was 188,739 during the year ending March 31, 1895, or a daily average of 517.

The total cost of the Thurm street establishment was 366,971 marks (\$87,339), and that of the establishment near Schilling's bridge 431,835 marks (\$102,777), in each case exclusive of site. The people's bath near Schilling's bridge, in ground plan and general arrangement, is similar to the one just described. It contains 120 dressing places in its swimming hall, a shower and soap room, divided into two sections for children and adults, respectively; 55 shower-bath cabins (9 first-class and 32 second-class for men, and 3 first-class and 11 second-class for women), and 57 tub-bath cabins (7 first-class and 25 second-class for men, and 5 first-class and 20 second-class for women). The number of bathers for the year ending March 31, 1895, was 326,463, being 894 daily on the average. About 43 per cent of the bathers used the swimming bath, although there are 9 river baths within 10 minutes' walk of the establishment, while about 39 per cent of those using the swimming bath, or about 300 a day, resorted to it during the winter months. Frequently the swimming bath was used by between 2,000 and 3,100 persons. On Saturday, May 12, 1894, there were 4,502 baths taken—1,599 tub baths, 1,238 shower baths, and 1,665 swimming baths. On the day before Christmas 2,711 persons used the baths.

The total income of the Moabit Bath for 1894-95 was 50,066 marks (\$11,915), or 0.265 mark (\$0.063) per bather. The total income for

1893-94 was 47,383 marks (\$11,277), or 0.253 mark (\$0.060) per bather. The expenditures for 1894-95 amounted to 48,825 marks (\$11,620), or 0.259 mark (\$0.062) per bather, showing a surplus of 1,241 marks (\$295), or a profit of 0.006 mark (\$0.0014) per bather. For 1893-94 the expenditures amounted to 46,220 marks (\$11,000), or 0.247 mark (\$0.059) per head, showing a surplus of 1,163 marks (\$277), or a profit of 0.006 mark (\$0.0014) per bather.

The establishment near Schilling's bridge had an average daily number of bathers of 738 between July 1, 1893, and March 31, 1894, against an average for the period from July 1, 1894, to March 31, 1895, of 844. In this establishment there was a profit per bather of 0.041 mark (\$0.0098) in 1893-94, and a profit of 0.056 mark (\$0.0133) per bather in 1894-95.

Certain of the swimming baths in Berlin have fallen under suspicion of sanitary uncleanliness within the last few years. Cases of illness have apparently been rightly traced to the swallowing of water during instruction or practice in swimming. Dr. Baginsky, of Berlin, in an address delivered on March 12, 1896, before the Society of Public Health in Berlin, details a number of cases which had come under his notice or been reported to him of serious illness of a febrile nature attributable to infection received in the water of certain Berlin swimming pools. Dr. Baginsky emphasizes the vital importance of having thoroughly well lighted and ventilated swimming halls; of requiring every bather to cleanse himself thoroughly before entering the swimming pool; of providing self-cleansing spittoon-troughs on the sides of the pool; of frequently and thoroughly cleaning the swimming bath and dressing rooms, and of frequently renewing the contents of the swimming bath completely. He urges that the construction and arrangement of swimming pools, and also their management, be under the continuous control of the sanitary police, in order that sources of infection may be minimized as much as possible.

The official scale of charges at Berlin may be illustrated by that established in 1895 for the large people's bath near Schilling's bridge:

Tub bath, first class.....	\$0.14½
Tub bath, second class.....	.07
Shower bath, first class.....	.06
Shower bath, second class.....	.02½
Swimming bath, including use of soaping room and shower (persons over 14 years).....	.06
Shower bath (persons under 14 years).....	.03½

In the Pochhammer Floating Bath in Berlin, a private establishment, which was established in 1825 and remodeled in 1892, 30 pfennigs (7 cents) is charged for the use of the swimming pool and shower bath and four tickets are sold for a mark (24 cents). Children under 10 years pay 20 pfennigs (5 cents) for a single bath; season tickets to children, 1st of October, cost 12 marks (\$2.85½). Family tickets, admitting 3 persons,

cost 30 marks (\$7.14). Instruction in swimming costs 6 marks (\$1.43) for men and 8 marks (\$1.90½) for women.

As an example of the bath charges in a small German city the following list of charges, established in 1892 in the city of Essen, is appended. Essen had a population of 96,000 in 1895.

The swimming bath is open for females on Tuesdays, Thursdays, and Saturdays from 9.30 a. m. to 1 p. m., and on Mondays, Wednesdays, and Fridays from 1.15 until 5.45 p. m.; for males on Tuesdays, Thursdays, and Saturdays from 6 until 9 a. m., and from 1.15 until 9 p. m.; and on Mondays, Wednesdays, and Fridays from 6 a. m. to 1 p. m., and from 6 to 9 in the evening. Every Tuesday and Saturday evening from 7 to 9 o'clock bath tickets are furnished at 10 pfennigs (2½ cents) a person, towels, etc., not included.

Tub baths may be used by males and females daily from 6 a. m. until 9 p. m.; on Sundays and holidays from 6 a. m. to noon only. Vapor baths are open (1) for females on Mondays from 6 a. m. until 12 m.; on other days, with the exception of Sundays and holidays, from 6 until 10 a. m.; (2) for males on Mondays from 3 to 9 p. m. and on other week days from 10 a. m. until 1 p. m., and from 3 to 9 p. m.; on Sundays and holidays, from 6 a. m. to noon.

In winter the establishment is opened at 7 a. m. and closed at 8 p. m. On Saturdays, however, it is kept open until 9 p. m., and only on those evenings are tickets for the swimming bath to be had at 10 pfennigs (2½ cents). The charges are as follows:

Swimming bath	\$0.12
Swimming bath, 12 tickets .....	.95
Swimming bath, one month's subscription in winter.....	.71½
Swimming bath, one month's subscription in summer.....	.95
Swimming bath, winter subscription.....	2.38
Swimming bath, summer subscription.....	2.85½
Swimming bath, a year's subscription.....	4.76
Swimming bath, school boys and girls, half price.	
Tuesday and Saturday evenings, from 7 to 9.....	.02½
Instruction in swimming, good for 6 months from date of purchase:	
Adults	2.38
Children	1.43
Tub baths, adults .....	.14½
Tub baths, adults, 12 tickets.....	1.43
Tub baths, children .....	.07
Tub baths, children, 12 tickets.....	.71½
Vapor baths (steam), complete vapor bath, including douches, etc .....	.28½
Vapor baths (steam), complete, 12 tickets.....	2.85½
Vapor baths (steam), single douche.....	.14½
Vapor baths (steam), douche, 12 tickets.....	1.43

If 50 dozen tickets are purchased at one time there is a discount of 10 per cent, or of 5 per cent for half that number. The establishment furnishes bathing trunks and a towel for use in the swimming bath and a towel for those using the tub baths, one towel and one bathing sheet in the vapor bath, and towel in douche bath. Extra towels are

furnished at 5 pfennigs (1 cent) each, and suits for women's bathing for 10 pfennigs (2½ cents) each.

The Stuttgart Swimming Bath was built by a stock company whose shares were taken by prominent citizens and toward whose capital considerable sums were contributed by the King and Queen of Württemberg, the city of Stuttgart, and the Society for the Welfare of the Working Classes. The capital outlay of the portion opened in 1889 was 415,000 marks (\$98,770). An extension of the establishment was opened in 1893, at the cost of 590,000 marks (\$140,420).

The Stuttgart bath house is the most extensive of its kind in south Germany, and one of the most elaborate on the Continent. It contains a swimming bath for men 24 meters (78 feet 9 inches) long by 13½ meters (44 feet 3 inches) wide, varying in depth from 0.8 meter (2 feet 7 inches) to 3.5 meters (11 feet 6 inches). Connected with it are 254 dressing cabins. There is a women's swimming bath 18.5 meters (60 feet 8 inches) long by 12 meters (39 feet 4 inches) wide, having the same varying depth as the men's swimming bath. Three hundred dressing cabins are connected with it. It contains tub baths of various descriptions, including, in addition to the first, second, and third class tub baths of the ordinary kind, 7 basin and 2 saloon baths, or 102 tub baths in all. It is also provided with a Russian-Roman bath for men and another for women, besides a cold-water-cure section for men, another for women, a sun bath, and a bath for dogs.

In the first six months after it was opened, in 1889, more than 115,554 baths were taken. In the year 1890 the number had been increased to about 296,000; in 1891 it had increased to 320,603, and in 1892 to 339,872, when the establishment contained but one swimming bath. Stuttgart's population in 1892 was about 147,000.

The consumption of water when it is fully in use amounts to 60 cubic meters (15,850 gallons) hourly, though when a renewal of water in the swimming basins is required 550 cubic meters (145,294 gallons) are needed for the large pool and 400 cubic meters (105,668 gallons) for the small one.

The establishment is furnished with a separate boiler house containing four Cornwall boilers, having a maximum tension of five atmospheres, which furnish steam for warming water, for heating the building, and for running the necessary machinery. The building is lighted by electricity. It is interesting to note that the Monier system of construction (cement upon iron framework and wire lathing) was employed in lining the swimming baths, the construction of arches and of partition walls. It is claimed that this method of construction has many advantages, particularly on account of its sanitary and fireproof qualities.

The water used in this bath is derived partly from a deep well belonging to the establishment and partly from the city service pipes. For running the pumps, etc., and the different machines in the laundry an engine of 12 horse power is used.

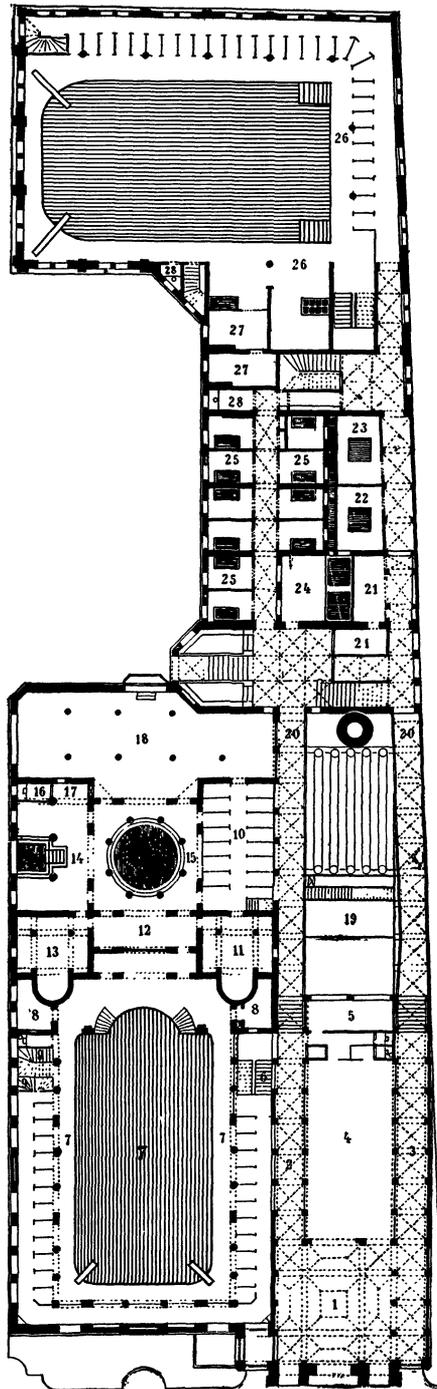
Reference to plan No. 4 shows the arrangement of baths on the ground floor:

(1) Principal entrance, with office; (2) corridor to women's bath; (3) corridor to men's bath; (4) restaurant; (5) hairdresser's room for women; (6) stairway from basement and into second story; (7) swimming bath for women; on the edge of the pool are two heavy cold douches, and the hall also contains 8 spray showers and 6 marble footbaths and dressing cabins; (8) two warm rooms, with 3 cleansing showers in each; (9) gallery stairway to second floor, where are dressing rooms and a Russian bath for women; (10) dressing cabins, 12 in number, first class; (11) hot-air room; (12) shampooing room, with shower bath; (13) steam room, with 3 marble footbaths and spray bath; (14) shower room, containing small cold plunge basin and variety of douches; (15) warm full-bath basin; (16) water-closet; (17) drying room; (18) first-class resting room, with 14 couches; (19) boiler house; (20) passageway into old bath house; (21) ticket office for second entrance; (22) barber shop for men; (23) general office; (24) saloon with marble basin baths for men; (25) 3 first-class and 8 second-class bathrooms for men; (26) men's swimming bath, 60 close and 194 open dressing cabins, 1 cold-stream spray, 12 ordinary shower sprays, and 8 footbaths; (27) warm room; (28) water-closet.

The newest of the public bath establishments in Germany is the City Swimming Bath of Frankfurt, begun in 1894 and finished in August, 1896. It cost 850,000 marks (\$202,300), and is said to contain the largest swimming bath for men as yet built in Germany. The dimensions of the swimming bath are 27.9 by 14.9 meters (91 feet 6 inches by 48 feet 11 inches). In its shallowest portion it is 0.8 meter (2 feet 7 inches) deep, and its greatest depth is 2.8 meters (9 feet 2 inches). The gangway surrounding the basin and the galleries of the first story contains 76 separate dressing cabins, besides which are two large rooms on the first floor used as common dressing rooms. Near to the entrance stairway, leading to the swimming pool, there is a douche and cleansing room, divided for the separate use of adults and boys, and every bather before entering the swimming bath is required to use the spray apparatus in the cleansing room. The temperature of air and water is generally kept at 72° F., though in the summer the temperature of the water is not so high. Water is kept flowing in and out from the basin continually and as need arises the pool is emptied, cleaned, and filled several times a week.

The women's swimming bath is 18.6 by 10.4 meters (61 feet by 34 feet 1 inch). It is provided with 60 separate dressing rooms, open dressing rooms for school girls in the gallery, while the cleansing rooms are divided into separate cabins for individual bathers.

There is a men's second-class swimming bath 12 meters (39 feet 4 inches) square. There are 40 tub baths in separate cabins. The cabins are spacious, light, and airy. The tubs are of masonry, lined with porcelain tiles, and furnished with cold and warm showers. Steam and air baths are also provided. In all there are six cleansing rooms generally provided with showers, besides a special shower room for the use of bathers resorting to the vapor and hot-air baths.



Ground floor.

STUTTART SWIMMING BATH, STUTTART, GERMANY.
PLAN No. 4.

The prices established are as follows:

First-class swimming bath	\$0. 12
First-class swimming bath, one month.....	1. 43
First-class swimming bath, summer half year.....	4. 76
First-class swimming bath, winter half year.....	3. 57
First-class swimming bath, year.....	7. 14
Second-class swimming bath .....	. 02½

A fund of 20,000 marks (\$4,760) has been established by a private donor, from the income of which free baths for persons without means will be furnished.

Allusion has already been made to the city swimming bath of Vienna, built in 1876, situated on the right bank of the Danube. The following table shows the number of baths taken in this establishment during the season from May 1 to the end of September in each of the years 1889 to 1893, inclusive:

BATHS TAKEN IN THE CITY SWIMMING BATH, VIENNA, 1889 TO 1893.

Year.	Males.	Females.	Total.
1889	39, 321	20, 132	59, 453
1890	35, 298	18, 692	53, 990
1891	40, 513	19, 605	60, 118
1892	46, 055	23, 155	69, 210
1893	39, 985	20, 466	60, 451

It should be said that the Danube baths are quite distant from the center of population.

On the left bank of the Danube there is a free bath, belonging to the city of Vienna, which consists of dressing, wash, office, and attendants' cabins upon the bank and two basins in the stream, separated from each other by a floating fence. The whole arrangement has to be carried at the end of each season out of the reach of freshets.

This free bath was used in 1889 by 64,385 persons, in 1890 by 43,910, in 1891 by 48,476, in 1892 by 51,660, and in 1893 by 38,178. The proportion of female bathers using the free bath was markedly less than the proportion using the city bath on the right bank of the Danube.

The city also acquired, when the suburbs were annexed, the Theresien Bath, originally the property of the suburb Untermeidling. It is open throughout the entire year and consists of two sections, one containing vapor and the other tub baths.

In 1893 the charges in this establishment were—

Tub bath, first class	\$0. 29
Tub bath, second class .....	. 24
Tub bath, third class .....	. 19½
Vapor bath, first class .....	. 29
Vapor bath, second class .....	. 19½

The number of bathers in each of the following five years is herewith shown:

1889	39, 302
1890	40, 244
1891	39, 831
1892	35, 376
1893	39, 021

The Hütteldorf city bath formerly belonged to the suburb Hütteldorf, but is now the property of Vienna. It is valued at 30,000 florins (\$14,468) and contains two swimming pools and 10 tub-bath cabins. It is leased to a private manager at 1,400 florins (\$675) annual rent. It is operated in the summer only. It cost the city 1,230 florins (\$593) in 1893.

The income and expenditure of the Vienna baths for the year 1893 were as follows: The city bath on the right bank of the Danube, income, 13,131 florins (\$6,332), ordinary expenses, 30,561 florins (\$14,738); free bath on the left bank of the Danube, no income, expenditures, 2,634 florins (\$1,270); Theresien bath, income 14,284 florins (\$6,889), expenditures, 11,388 florins (\$5,492); people's shower baths, nine in number, ordinary income, 26,376 florins (\$12,720), expenditures, 54,704 florins (\$26,381). The total income from all baths, including the Hütteldorf city bath, was 55,191 florins (\$26,616); total expenditures, 100,517 florins (\$48,474); deficit, 45,326 florins (\$21,858).

The baths of Budapest present the interesting peculiarity of being, for the most part, fed by thermal springs. They also, for the most part, remind one, in respect to their plan and arrangement, of the genuine Turkish bath. Indeed, in certain cases, baths originally built by the Turks are included in the present establishment and are still used.

There are five private floating baths upon the Danube open during the summer, in addition to which the city maintains three municipal floating baths on the river. In 1894 the aggregate number of bathers in the three municipal baths on the river was 128,449.

In the so-called Kaiser Bath, 108,066 bathers used the swimming pool in 1894, and in the St. Lucas Bath there were 39,820 swimmers. These establishments belong to stock companies which own water-cure establishments, hotels, etc., in connection with their baths. The St. Lucas Bath operates a people's bath, where only 5 kreutzers (2 cents) are charged for a Turkish pool bath.

Budapest maintains two city bath establishments, the so-called Bruck Bath and the Artesian Bath, each of which includes 3 buildings. There are 12 private bath establishments in the city, comprising 46 buildings of various kinds. The total number of separate bathrooms in these 52 buildings is 463, of which 80 are contained in the two city bath establishments. In these establishments are found 448 tubs, 81 of which belong to the city; also 66 shallow-plunge pools of varying size, but not of the kind usually called swimming pools.

Ten of these plunge basins are found in the city baths. Of swimming pools, properly so called, the city owns one; and the two baths already mentioned, the Kaiser Bath and the St. Lucas Bath, contain two each.

Each of the city baths is under the control of a physician, and there are connected with the whole list of baths 11 physicians, 33 other officials, 186 attendants, and 128 other employees, making a total personnel of 358.

The total number of bathers in the private and municipal establishments of Budapest during each year from 1890 to 1894 is shown in the following table:

1890	1,364,210
1891	1,395,510
1892	1,463,034
1893	1,627,098
1894	1,709,398

The patronage, income, and expenditures of the Bruck and Artesian baths are shown below for each year from 1890 to 1894:

NUMBER OF BATHERS AND INCOME AND EXPENDITURES OF THE BUDAPEST CITY BATHS, 1890 TO 1894.

Year.	Bathers.	Income.	Expenditures.	Surplus.
1890	232,431	\$53,884	\$21,144	\$32,740
1891	271,334	51,111	27,006	24,105
1892	234,815	53,428	33,847	19,581
1893	293,039	54,402	25,057	29,345
1894	294,045	57,592	25,433	32,159

The adoption of shower baths for the use of soldiers in barracks by the German military authorities has led not only to the development of the Grove-Lassar type of people's bath house, of which we have given some account, but also to the development of two other interesting and useful forms of bath establishment, namely, the workmen's bath and the school bath. Both of these forms of bath have become popular and numerous on the Continent, more particularly in Germany, during the last ten years.

In the original Grove bath house, constructed in 1878, the bathrooms were placed in the center, and consisted of two rows of 9 shower cabins each, placed back to back, and provided with overhead spray fixtures placed obliquely to prevent the water from falling vertically upon the bather. The rooms adjoining the bathrooms were used as open dressing rooms, the number of seats and clothes hooks in them being 54, so that while a squad of 18 men were bathing a second squad of 18 could be undressing and a third squad of the same number be dressing. In workmen's baths of the new type, which vary greatly as to the number of showers they contain, the open dressing room is used in many instances, while in many others greater privacy is secured by providing each bather with a double cabin, the front part of which

is used as a dressing room and the rear section as the bath cabin proper. Both forms of dressing room are found among school baths, but since, as a rule, the school children bathe by detachments during school hours, the school baths usually have the dressing places or cabins separate from the shower cabins and twice or three times as many in number.

The first public school bath in Germany was placed in a common school in Göttingen in 1883, the mayor of that city being prompted to utilize two basement rooms for the purpose, through the suggestion of a professor of hygiene that the provision of well-ventilated schoolrooms was likely to be futile if they were occupied by "dirty children having all sorts of infective germs on their bodies and in their clothing." The Göttingen school bath comprised two rooms, each 8 feet 3 inches by 16 feet 10 inches in area. One was set apart as a dressing room and the other was furnished with three sprays (fed from a hot-water tank) placed over as many shallow pans of zinc. The bath pans were 39½ inches in diameter and permitted three bathers to stand under the spray at once. The cost of fixtures, tank, and boiler was 780 marks (\$186). The bath proved an eminent, not to say a startling, success. The example of Göttingen was followed by other cities, till it is now possible to name some forty German, Swiss, and Scandinavian cities that have introduced warm shower baths into their common schools. Certain cities, as Munich, Berlin, Frankfort, and Cologne, have adopted the policy of placing such baths in all new schoolhouses of the class named. The testimony of officials, teachers, parents, pupils, and sanitarians is of one tenor, and leaves no doubt as to the practicability, economy, usefulness, and popularity of the school baths.

There is a school bath placed in a basement room of one of the common schools of Charlottenburg, near Berlin, which cost only 1,500 marks (\$357). It comprises a boiler, tank, etc., 10 showers, and 20 dressing cabins. It is equal to the requirements of 50 to 60 children per hour.

The town of Govan, near Glasgow, and Liverpool and Bristol, in England, have introduced plunge or small swimming baths in certain of their schoolhouses. The writer is convinced that the German type of school bath, besides being less expensive, is better adapted to its purpose than is the British type.

Though the demonstration of the efficiency and cheapness of the Grove-Lassar warm shower bath has conduced to the spread of baths, both shower and tub, for the use of workmen in factories, mines, railroad shops, etc., the introduction of workmen's baths in Germany considerably antedates the invention of barrack, school, and people's baths.

Though the German literature concerning the several forms of baths thus far considered is quite voluminous and fairly exhaustive, it is singularly lacking in comprehensive studies of the development

and spread of the workmen's bath, which must be considered one of the most important of recent improvements in industrial hygiene. The following statements regarding this form of bath are based upon the writer's own observations and upon data gleaned from scattered and inconspicuous though reliable sources of information.

It should be noted that the institution of the workmen's bath is to be credited to the enterprise and good will of the employers of labor, who have not been required by public law or police regulations to place it at the disposal of their employees.

It would appear that bath houses designed to meet the special needs of factory operatives have existed in Mülhausen, in Alsace, since early in the fifties, when Mülhausen was, of course, a French city. The first establishment was a bath and wash house, erected in 1851 at the instance of Mr. J. Dollfus, the moving spirit and president of the Mülhausen Workingmen's Dwellings Company, whose success in providing model dwellings for workmen at low cost has made Mülhausen famous. Mr. Dollfus bore one-third of the expense of constructing the establishment, the remaining two-thirds being borne equally by the State and the city. The establishment was used by 8,000 to 9,000 bathers and 40,000 washers annually. Its fees were low, but in the course of thirteen years it yielded a surplus of nearly \$1,000. In 1855 the association built a similar establishment, which contained 10 tub baths, in the middle of its new workingmen's quarter. The fee for a bath was 12 pfennigs (3 cents). This bath house was enlarged in 1886 and again in 1888.

In 1864 a third bath and wash house, supplied with warm water from a neighboring factory, was built. The bath was a basin or pool bath, and bathers were charged 4 pfennigs (1 cent) for the use of it. Mention is made in the report of the Industrielle Gesellschaft of Mülhausen for 1891 of the bath and wash houses maintained by the firm of Dollfus, Mieg & Co., for the free use of its operatives and their families. The locomotive shops at Mülhausen contain a bath house in which are 15 shower baths and 9 combined tub and shower baths of the most approved modern pattern.

In 1873 the firm of Friedrich Krupp erected a central bath house in its well-known steel works in Essen, containing 7 bathrooms and a steam bath capable of accommodating 6 persons at once. The bathrooms are furnished with tubs, hot and cold water, and shower appliances. The bath house was intended primarily for the use of sick workmen not inmates of the hospital, under advice of a physician. The fees are 15 pfennigs (3½ cents) for a tub bath, and 1 mark (24 cents) for a steam bath. When not needed for patients, the baths may be used by other employees. Free shower baths are provided in various parts of the Essen works for particular classes of workmen, as furnace men. In the Bessemer works, for instance, there is a bathroom which dates from 1893, containing shower appliances. The firm has also built

a commodious and attractive casino for the use of its officials and foremen, which is liberally supplied with baths.

At the Krupp mines near Hanover is a bath house containing 28 shower cabins, which cost 20,000 marks (\$4,760). It is said to be used by 1,100 persons daily. Another bath house, having 16 shower cabins and 1 combined shower and tub bath, has been erected at the smelting works near Duisburg at a cost of 10,000 marks (\$2,380). In 1890 nearly 25 per cent of the employees, some 490 in number, made daily free use of these baths. The Hermann and the Mulhofen smelting works near Neuwied each have a bath house containing 15 shower baths and 1 combined tub and shower bath. Most of the shower baths provided for Krupp's workmen have been installed since 1889.

The writer has compiled a list of nearly 200 workmen's baths said to have been established in Germany prior to 1896. By far the greater number of these were chiefly furnished with fixtures for furnishing hot or cold shower baths at the bather's pleasure. The most striking feature of the list, perhaps, is the variety of industries it represents, viz, government shops under the control of the military and naval authorities, respectively; shops and stations belonging to railroads under State control; city gas and water works; mines; furnaces and smelting works; breweries; paper mills; manufactories of chemicals and dyestuffs; cotton mills; potteries; machine shops; shipping companies, etc. Like the barrack, people's, and school baths, the workmen's baths are scattered all over Germany.

In the case of school baths the average cost of a warm shower bath in Germany is said to be 1 pfennig (about a quarter of a cent) per bather; and it is probably safe to say that, leaving the interest on plant out of account, the cost per bath in the case of workmen's baths is about the same. In some cases it is less. Very generally no charge is made to workmen using the baths provided for them in shops and factories. In some instances they are allowed to bathe during working hours.

As has been intimated, full and satisfactory accounts of the size, cost, and working of the workmen's baths in Germany, taken as a whole, are not to be had; but the variety and increasing number of the industrial works in which they are to be found would seem to warrant the conclusion that they are both popular and useful. The following statement of facts regarding some of these establishments may be interesting in this connection.

Lassar's original 10-celled shower-bath house, which was exhibited and used at the Berlin Hygiene Exposition in 1883, was purchased by the proprietor of a factory in Neusalz for the benefit of his workmen. It appears to have been still in use in 1896. Heyl Brothers & Co., of Charlottenburg, near Berlin, shortly after 1883 erected a shower-bath house with 10 cabins, after the Lassar model, for the use of the workmen in their dyestuffs factory. No fee was charged to workmen and their

children for water, soap, or towels. The bath proved extremely popular and excited a sensibly favorable influence upon the health of those who frequented it. In 1884 a bath, costing 3,000 marks (\$714), containing 8 cabins with basins or troughs sunk in the floor, and 4 tub baths was opened in the Hospelt white-lead and color factory at Ehrenfeld, and the men in the white-lead works, some 80 in number, were required to bathe every Saturday, while of the hands who had nothing to do with white lead—those engaged in particularly dusty work—were allowed to bathe oftener, even daily if necessary. After the institution of the bath house the per cent of illness decreased and the frequency of cases of lead colic was very much diminished. In 1884 the cases of illness were less by 20 per cent than formerly, and in 1885 they were 50 per cent less.

In the Leipsic Wool Combing Establishment, which maintained 12 tub baths for its workmen and work women, the daily cost for water, steam, and service was reckoned at 65 pfennigs ($15\frac{1}{2}$ cents) per cabin.

In a factory at Dalken, in the Dusseldorf district, there is a shower bath with 12 cabins, which, together with 170 towels and bath caps, cost only 1,430 marks (\$340). It is capable of affording 100 warm baths in an hour and as many as 84 children have bathed in it in that time. The cost of running it for two successive hours is reckoned at 1.15 marks ($27\frac{1}{2}$ cents), or 0.7 pfennig (\$0.00167) per bath. The shower bath belonging to the Tremonia mine, near Dortmund, is said to have been used daily in 1894 by 540 men, on the average, out of 600 miners. The annual expense of maintaining the bath, including interest and sinking fund charges, amounted to 2,200 marks (\$524). The cost of a single bath was reckoned at 1.412 pfennigs (\$0.00336). The largest workmen's bath in the writer's list is that at the "Anna" pit, belonging to the Eschweil Mining Company. It is furnished with 50 shower baths, 2 tub baths, and 12 washbowls.

For a one-story bath house, capable of containing 32 shower cabins, each $4\frac{1}{2}$ by $3\frac{1}{2}$ feet in area, with dressing-bench accommodations for 96 men, a space of 48 feet 1 inch by 45 feet 8 inches is sufficient. Allowing fifteen to eighteen minutes per man for undressing, bathing, and dressing, such a bath house is capable of affording 320 to 380 baths in an hour. A generous allowance of water for a workman's shower bath would be 10 gallons per head, with a shower nozzle supplying 2 gallons per minute.

In the foregoing pages the writer has endeavored to bring out the salient facts with regard to the manner in which public bath houses are constructed and managed in Europe. It has been seen that the movement to provide baths and washhouse facilities which originated in England in 1842 has spread widely in Great Britain and on the Continent, and has not yet spent its force. It is to be noted that the establishment of public washhouses in connection with bath houses of the combined swimming and cleanliness type is not so common as in the

early years of the movement. The experience of Glasgow, as brought out in the report of Mr. William Thomson, at least suggests the advisability, where public washhouses are provided, of making them numerous, small, self-contained, and of locating them in the heart of thickly settled districts. The success of the movement in Germany for establishing people's and workmen's baths of the shower-bath type suggests that the multiplication of the simpler and less expensive forms of bath establishment is the wisest policy to be pursued by American cities in their first attempts to provide the working classes who have not bathing facilities in their own homes with adequate baths for cleansing and refreshment.

The writer is inclined to lay special emphasis upon the fact that in the great industrial centers of Germany diversified forms of public baths have been developed, and that in such cities as Berlin, Cologne, and Frankfort, which possess monumental bath houses provided with swimming, tub, and other forms of bath, the necessity of also having the simpler form of people's shower baths has been recognized. Furthermore, it is to be noted that the adoption of school shower baths has been quite as general in towns and cities already comparatively well provided with swimming baths, and even with people's baths in addition. At the present juncture it is believed that the various forms of people's baths to be found in Germany and Austria will best repay careful study by American sanitarians, philanthropists, and architects since the resources of modern technology appear to have been more completely employed in those countries than elsewhere in the construction and management of such establishments. Through recent improvements in the method of supplying the tubs and showers with hot water quickly and at small expense, the installation of cleansing baths for workmen in mines, foundries, factories, etc., has been rendered a comparatively easy matter, and the writer confidently believes that the lessons of German experience in regard to workmen's baths will be fully recognized and ultimately acted upon by the friends and employers of American artisans.

BIBLIOGRAPHY.

The following list contains the titles of the most important books and pamphlets relating to the construction and administration of baths. It makes, however, no pretensions to completeness:

Arbeiter-Badeeinrichtungen. Ansichten und Grundsätze des Preisgerichts über die vom deutschen Brauerbund ausgeschriebene Preisaufgabe. By B. Knoblauch. Carl Heymann, Berlin; 1889. Pt. II, 15 pp.

Arbeiter-Brausebad, Das. Eine Abhandlung über den Bau und die innere Einrichtung von Brausebädern nach eigenem System mittelst Gegenstromapparate. Mit 7 Illustrationen und 8 Tafeln. By H. Schaffstädt. Selbstverlag des Verfassers, Giessen, 1895. 14 pp.

- Badeanstalt, Die. Ein Hilfsbuch zum Entwurfe der technischen Einrichtung grösserer öffentlicher Badeanstalten. By J. H. Klinger. A. Hartleben, Vienna, Pesth, Leipsic, 1891. 86 pp. and 17 illustrations.
- Badeeinrichtungen innerhalb der Schulen. By Friedrich Bartels. Hermann Haacke, Leipsic. 22 pp.
- Bäder und Bade-Anstalten der Neuzeit, Die. Mit 135 Abbildungen. By Georg Osthoff. Karl Scholtze, Leipsic, 1887. 302 pp.
- Bau und Betrieb von Volksbadeanstalten. Mit 45 Abbildungen im Text. By Rudolph Schultze. Emil Strauss, Bonn, 1893. 68 pp.
- Beschreibung einer Badeeinrichtung "Grove'sches System" für Militärinstitute, Schulen, Arbeitshäuser und dergleichen ähnliche öffentliche sowie privat Anstalten passend. E. S. Mittler & Son, Berlin, 1880. 11 pp.
- Directiven für die Anlage von Douchebädern in Militär-Gebäuden. Mit 11 Stück Plänen. Wien, aus der kaiserlich-königlichen Hof- und Staatsdruckerei, 1892. 21 pp.
- l'Économiste pratique. Construction et organisation des crèches, salles d'asile, écoles, etc. By Émile Cacheux. Baudry & Co., Paris, 1885. 814 pp. and atlas. (Chapitre II, Troisième Partie, pp. 415-470, is entitled "Bains et lavoirs.")
- Glasgow Corporation Baths and Washhouses. Report by William Thomson, General Superintendent. John Crawford, Glasgow, 1892. 18 pp.
- Grundriss-Vorbilder von Gebäuden aller Art. Abtheilung IV. Gebäude für Gesundheitspflege und Heilanstalten. Mit 139 Textfiguren und 16 Tafeln. I. Bade- und Waschanstalten, pp. 273-310. By L. Klasen. Baumgärtner's Buchhandlung, Leipsic.
- Moderne Bäder erläutert am Stuttgarter Schwimmbad. Mit 5 Plänen, 1 Abbildung, und 2 Tabellen. By Leo Vetter. G. J. Göschen'sche Verlagshandlung, Stuttgart, 1894. 143 pp.
- On Bathing and Different Forms of Baths. By Wm. Paul Gerhard. Wm. T. Comstock, New York, 1895. 31 pp.
- Public Baths and Cheap Baths for the People. Illustrated. By Francis Vacher. Knight & Co., London, 1879. 22 pp.
- Public Baths and Public Comfort Stations, Report on. By the Mayor's Committee of New York City. Illustrated. New York, 1897. 195 pp.
- Public Baths and Washhouses. Illustrated with plans and sections. By R. Owen Allsop. E. & F. N. Spon, London, and Spon & Chamberlain, New York, 1894. 98 pp.
- Rain Bath at the Utica State Hospital, The. Illustrated. By Wm. Paul Gerhard. Privately printed, New York, 1894. 24 pp.
- Stuttgarter Schwimmbad, Das. Seine Geschichte, Einrichtung und Bestimmung. Mit einer Abbildung und zwei Plänen. By Leo Vetter. J. B. Metzler, Stuttgart, 1889. 61 pp.
- Thätigkeit des Berliner Vereins für Volksbäder, Die. (Veröffentlicht bei Gelegenheit der Berliner Gewerbe-Ausstellung 1896.) Mit 4 Tafeln. Julius Springer, Berlin, 1896. 72 pp.

Turkish Bath, The, its Design and Construction. Illustrated with plans and sections. By R. Owen Allsop. E. & F. N. Spon, London, and Spon & Chamberlain, New York, 1890. 152 pp.

Ueber Brausebad-Einrichtungen verbunden mit öffentlichen Schulanstalten. By Paul Voigt. Friedrich Hückstedt, Charlottenburg, 1896. 50 pp.

Ueber Volksbäder. Zweite vermehrte Auflage, mit vier Abbildungen. By Oscar Lassar. Fr. Vieweg & Son, Brunswick, 1888. 45 pp.

RECENT REPORTS OF STATE BUREAUS OF LABOR STATISTICS.

INDIANA.

Sixth Biennial Report of the Department of Statistics of the State of Indiana, for 1895-96. Simeon J. Thompson, Chief of Bureau. 503 pp.

The following statistics are presented in this report: Industrial statistics, 240 pages; social statistics, 27 pages; judicial circuits, 19 pages; real estate transfers, 10 pages; mortgages and satisfactions, 14 pages; county expenditures and indebtedness, 25 pages; railroad statistics, 34 pages; farm products, 71 pages; miscellaneous, 44 pages.

INDUSTRIAL STATISTICS.—These were compiled from returns received from 968 establishments located in 128 towns and cities, and representing 40 distinctive manufacturing industries. Returns were received both from proprietors of establishments and from employees. A set of tables, with analysis, is given for each industry, followed by a general summary of manufacturing industries and an analysis relating to women wage earners.

The introduction to the report states that returns received from the 968 establishments show a capital of \$42,507,737 invested in buildings, grounds, and machinery. The cost of material used the past year was \$83,202,319, the gross value of the goods manufactured \$132,788,421, and the amount paid for wages \$28,062,083. The establishments employed 80,184 persons, of whom 61,555 were men, 9,735 boys, and 8,894 women and girls. The plants were in operation during an average of ten and a half months.

In addition to the statements of the proprietors of the 968 establishments, agents of the bureau personally visited and received statements from 10,275 male and 867 female employees. These statements were used as bases for determining the probable conditions for all male and female employees respectively. The figures, therefore, which are represented as employees' statements are not the actual returns, but are simply estimates based upon a much smaller number of actual returns.

The following tables present for 40 industries some of the more important of the statistics brought out in the report. While the figures in the introduction relate to 968 establishments, but 967 are reported in the tables. The reason for the difference is not known.

NUMBER AND WAGES OF EMPLOYEES AND VALUE OF PRODUCT IN FORTY
MANUFACTURING INDUSTRIES.

Industries.	Estab-lish-ments.	Average months in operation.	Value of man-ufactured product.	Employees.	Wages paid.
Iron.....	166	10.4	\$17,794,252	16,073	\$5,435,895
Glass.....	62	9.2	8,742,784	9,728	4,263,051
Farm machinery.....	36	10.9	5,740,610	3,622	1,469,196
Flour-mill machinery.....	4	12.0	725,000	526	262,000
Furniture.....	116	9.9	6,600,818	6,503	2,033,300
Bicycles.....	17	10.8	3,085,377	2,419	636,094
Woolen mills.....	14	10.0	1,415,298	1,220	298,546
Cotton mills.....	6	11.3	1,392,980	1,413	328,440
Wearing apparel.....	35	11.3	3,880,874	4,824	975,850
Wagons and buggies.....	98	9.1	9,277,677	6,481	2,149,125
Tin plate.....	6	10.0	2,810,566	2,435	782,676
Car shops and shipyards.....	11	10.0	3,925,125	4,248	1,593,531
Paper and strawboard mills.....	27	10.9	2,199,020	1,585	507,332
Pulleys and shafting.....	7	11.3	505,275	523	176,975
Pump factories.....	11	12.0	365,592	200	80,029
Planing mills.....	77	10.0	3,276,120	2,003	731,754
Cooperage.....	56	9.2	1,921,570	2,056	604,415
Specialties in wood.....	9	11.0	1,926,653	1,916	544,411
Boxes and packages.....	16	11.0	595,457	497	159,668
Handles.....	24	10.6	585,200	601	193,020
Coffins and caskets.....	8	11.1	632,800	388	151,975
Washing machines.....	13	9.5	528,500	337	172,440
Ceramic and hominy.....	9	9.0	3,269,521	305	157,708
Packing companies.....	7	12.0	29,790,000	8,043	1,132,000
Basket and fruit packages.....	4	10.2	161,539	201	57,070
Bread and candies.....	12	11.9	1,253,869	563	267,458
Encaustic tile, pottery, and terra cotta.....	9	10.2	498,700	501	222,490
Musical instruments.....	5	12.0	586,000	570	232,440
Hames and saddle trees.....	6	10.0	75,000	95	32,800
Glue, paint, and varnish.....	6	9.1	237,170	98	54,313
Cement factories.....	4	7.0	200,000	241	65,117
Oils.....	4	10.0	10,553,000	1,139	780,400
Beer.....	28	11.7	3,073,627	1,754	543,029
Tanneries.....	10	10.5	926,805	364	138,548
Brass.....	6	10.8	865,720	787	212,346
Zinc works.....	3	9.0	307,000	116	44,000
Hats and caps.....	3	11.0	318,000	300	79,000
Boots and shoes.....	5	8.0	366,500	313	34,872
Soap.....	5	12.0	264,427	65	31,800
Miscellaneous.....	22	10.5	2,037,995	956	420,869
Total.....	967	10.3	132,713,421	79,984	28,052,083

EMPLOYEES, HOURS CONSTITUTING A DAY'S WORK, AND ESTABLISHMENTS
REPORTING INCREASE OR DECREASE OF WAGES IN FORTY MANUFACTUR-
ING INDUSTRIES.

Industries.	Estab-lish-ments.	Employees.				Hours constituting a day's work.	Establishments reporting—	
		Men.	Boys.	Women.	Total.		Increase of wages.	Decrease of wages.
Iron.....	166	13,951	1,905	217	16,073	10.4	33	9
Glass.....	62	7,229	2,056	443	9,728	9.2	11	27
Farm machinery.....	36	3,228	356	38	3,622	10.0	3	2
Flour-mill machinery.....	4	470	45	11	526	10.0	.....	.....
Furniture.....	116	5,044	1,068	391	6,503	10.0	12	9
Bicycles.....	17	1,949	208	262	2,419	10.0	4	.....
Woolen mills.....	14	358	142	720	1,220	9.8	1	.....
Cotton mills.....	6	277	220	916	1,413	10.0	.....	.....
Wearing apparel.....	35	601	161	4,062	4,824	9.9	5	1
Wagons and buggies.....	98	5,682	638	161	6,481	10.0	20	7
Tin plate.....	6	2,075	255	105	2,435	9.5	.....	.....
Car shops and shipyards.....	11	4,052	190	6	4,248	10.0	.....	.....
Paper and strawboard mills.....	27	1,322	99	164	1,585	10.6	4	4
Pulleys and shafting.....	7	461	59	3	523	10.0	.....	2
Pump factories.....	11	183	15	2	200	10.0	.....	.....
Planing mills.....	77	1,818	181	4	2,003	10.0	6	4
Cooperage.....	56	1,700	356	.....	2,056	10.0	1	6
Specialties in wood.....	9	1,284	573	59	1,916	10.0	.....	.....
Boxes and packages.....	16	266	121	110	497	10.0	2	.....
Handles.....	24	496	97	8	601	10.0	2	2
Coffins and caskets.....	8	306	40	42	388	10.0	.....	.....

EMPLOYEES, HOURS CONSTITUTING A DAY'S WORK, AND ESTABLISHMENTS REPORTING INCREASE OR DECREASE OF WAGES IN FORTY MANUFACTURING INDUSTRIES—Concluded.

Industries.	Estab-lish-ments.	Employees.				Hours constituting a day's work.	Establishments reporting—	
		Men.	Boys.	Women.	Total.		Increase of wages.	Decrease of wages.
Washing machines	13	243	85	9	337	10.0	1	.....
Cerealine and hominy	9	294	.....	11	305	11.2	.....	.....
Packing companies	7	2,713	155	175	3,043	10.0	.....	.....
Basket and fruit packages	4	80	69	52	201	10.0	.....	.....
Bread and candies	12	337	65	161	563	10.0	2	.....
Encaustic tile, pottery, and terra cotta	9	363	30	108	501	9.6	1	2
Musical instruments	5	483	65	22	570	10.0	.....	.....
Hames and saddle trees	6	91	2	2	95	10.0	.....	.....
Glue, paint, and varnish	6	76	13	4	93	10.0	.....	.....
Cement factories	4	235	5	1	241	10.0	.....	.....
Oils	4	1,047	84	8	1,139	9.5	.....	.....
Beer	28	671	70	13	754	10.0	3	1
Tanneries	10	341	21	2	364	10.0	1	.....
Brass	6	716	50	1	767	10.0	.....	.....
Zinc works	3	115	1	.....	116	10.6	.....	.....
Hats and caps	3	110	14	176	300	10.0	.....	.....
Boots and shoes	5	189	30	94	313	9.8	.....	.....
Soap	5	50	15	.....	65	10.0	.....	.....
Miscellaneous	22	524	126	306	956	9.7	1	3
Total	967	61,430	9,685	8,869	79,984	10.0	113	79

Referring to the above tables, it will be seen that of the manufacturing industries iron had the largest number of employees and paid the greatest amount for wages. Ten hours constituted an average day's work. The average length of the working day varied from 9.2 hours in the glass industry to 11.2 hours in the cerealine and hominy industry. Of the 967 establishments, 113 reported an increase in wages during the year and 79 reported a decrease.

The report states that the average daily wages for men were \$1.79; for boys, \$0.67, and for women and girls, \$0.75. Strikes were reported in but three establishments, all of which were in the glass industry.

According to estimates made from the statements of about 14 per cent of the employees, 47,626 of the men were native and 13,676 were foreign born, 18,172 were single, and 43,130 were married, with an average family of 4.2 persons; and of the married men, 16,983 owned their homes, while 25,994 paid rent at an average monthly rental of \$7.73. Reports regarding 153 others were indefinite on this point. It was estimated that building and loan association stock was owned by 8,577 men, holding on an average 5.7 shares each; houses had been built by 2,952 of the shareholders, and life insurance was carried by 17,388 men to the average amount of \$1,214 per person insured. The estimated population directly depending upon these industries, namely, employees and their families, was 218,065 persons.

Reports received from female employees showed that 20 per cent received 50 cents or less per day; 42 per cent, from 50 to 75 cents; 31 per cent, from 75 cents to \$1, and 7 per cent more than \$1 per day. The average age of the female employees reporting was 19.5 years, and

the average length of time at work 3.4 years. They were employed an average of 214 days during the past year, and the average length of the working day was 9.6 hours.

The estimates made for the total number of females employed in 967 establishments showed that of the 8,869 females 8,231 were single, 147 were widows, and 491 were married and had an average family of 2.2 persons each. Of the married women, 213 owned their homes and 278 paid rent at an average rate of \$7.41 per month. Building and loan association stock was owned by 515 female wage earners, and the average holding was 3.3 shares per member. Houses were built by 98 of the shareholders. Life insurance was carried by 1,120 female employees.

The statistics relating to the stone quarry, coal mining, and railroad industries are treated separately. Reports from 112 quarries showed a production of stone valued at \$1,958,376 during the year. The amount paid for wages was \$940,684. There were 3,519 men and 175 boys employed. The average daily wages were \$1.65 for the men and \$0.67 for the boys. An estimated population of 11,578 was dependent upon the stone quarries.

Reports from proprietors of 86 coal mines showed an investment of \$1,912,199 in that industry, a production of 2,737,686 tons of coal during the year, and a total of \$2,196,868 paid in wages. The number of employees was 8,669 persons. Strikes occurred in 54 of the 86 mines. The estimated population dependent upon the 86 mines was 38,418 persons.

MORTGAGES AND SATISFACTIONS.—Reports were received from 90 counties in 1895 and 89 counties in 1896 out of a total of 92 counties. Some of these, however, failed to report upon releases or satisfactions. Following is a summary of the reports received:

MORTGAGES AND SATISFACTIONS, 1895 AND 1896.

Kind of mortgage.	Mortgages.		Satisfactions.	
	Number.	Amount.	Number.	Amount.
1895.				
On farms	28,498	\$26,393,167	14,965	\$12,093,603
On lots	22,166	17,098,152	9,913	7,584,598
School fund.....	3,193	1,468,600	1,687	867,448
Chattel	19,237	5,403,873	4,948	1,393,069
Mechanics' lien.....	6,530	979,379	2,655	319,987
Total	79,624	51,338,171	34,168	22,258,705
1896.				
On farms	28,204	25,408,294	15,296	12,886,538
On lots	18,158	13,872,449	9,365	6,222,149
School fund.....	2,278	1,109,085	1,341	581,450
Chattel	17,264	5,191,694	4,045	1,087,115
Mechanics' lien.....	7,153	1,029,149	2,783	322,597
Total	73,057	46,610,671	32,820	21,101,849

RAILROAD STATISTICS.—This information is given for the years 1895 and 1896. The report for 1895 is incomplete, only 23 railroads having made returns. In 1896 returns were received from 28 railroads. In the latter year, these 28 railroads carried 38,750,309 passengers and 87,756,696 tons of freight. The receipts from all sources were \$123,642,999, and the expenditures were \$91,403,816. The fatalities and accidents during the year were 251 killed and 2,445 injured.

The following table shows the number of railroad employees, average wages, and hours of labor, by occupations, as reported for 1895 and 1896, respectively:

NUMBER AND AVERAGE WAGES AND HOURS OF LABOR OF RAILROAD EMPLOYEES, BY OCCUPATIONS, 1895 AND 1896.

Occupations.	1895.			1896.		
	Employees.	Average daily wages.	Average hours of labor.	Employees.	Average daily wages.	Average hours of labor.
General officers	350	\$10.06	.....	355	\$10.61	.....
Division superintendents.....	49	7.78	.....	57	7.75	.....
Civil engineers	59	4.61	9.9	62	5.14	9.2
Master mechanics	39	5.75	9.2	44	5.78	9.6
Roadmasters	104	3.36	9.9	102	3.63	9.6
Clerks	4,704	1.96	9.0	4,647	1.98	8.7
Conductors, passenger.....	438	3.78	.....	629	3.60	.....
Conductors, freight.....	1,470	3.12	.....	1,443	3.14	.....
Engineers, passenger.....	552	4.28	.....	768	4.26	.....
Engineers, freight.....	1,800	4.15	.....	1,737	3.99	.....
Firemen, passenger.....	558	2.28	.....	774	2.30	.....
Firemen, freight.....	1,799	2.24	.....	1,758	2.27	.....
Brakemen, passenger.....	615	2.06	.....	901	2.01	.....
Brakemen, freight.....	3,406	2.09	.....	3,205	2.15	.....
Baggagemen	631	1.87	.....	732	1.92	.....
Machinists	2,225	2.10	9.6	2,538	2.23	9.3
Yard employees:						
Conductors	643	2.67	.....	719	2.63	.....
Engineers	635	2.90	.....	726	3.14	.....
Firemen	659	1.78	.....	750	1.90	.....
Brakemen	1,429	2.35	.....	1,629	2.20	.....
Wipers	861	2.79	10.2	700	1.39	9.8
Station agents, not telegraph operators.	1,404	1.89	10.5	1,581	2.00	10.0
Station agents, also telegraph operators.	1,148	1.65	10.9	1,253	1.65	10.3
Telegraph operators, not station agents.	1,776	1.68	10.7	2,162	1.75	10.2
Carpenters	3,298	1.91	9.7	3,624	1.98	9.7
Section foremen	2,046	1.60	10.0	2,351	1.61	9.7
Section men	9,259	1.10	10.0	10,532	1.15	9.6
Watchmen	1,825	1.23	10.5	2,044	1.26	10.3
Bridge tenders and pumpmen	362	1.09	10.3	360	1.11	9.9
Soliciting agents	44	3.79	9.5	55	3.73	9.3
Traveling passenger agents	76	3.67	10.9	63	3.42	6.0
Contracting agents	46	4.58	9.2	52	4.44	9.0
Painters	596	1.91	10.0	657	1.91	9.5
Extra foremen	163	2.56	10.0	142	2.52	10.0
Other employees.....	18,965	1.49	10.0	21,219	1.57	9.3

MAINE.

Ninth Annual Report of the Bureau of Industrial and Labor Statistics for the State of Maine. 1895. Samuel W. Matthews, Commissioner. 237 pp.

The contents of this report may be grouped as follows: Condition of the working people, 68 pages; railroad employees, 4 pages; factories, mills, and shops built during 1895, 4 pages; butter, cheese, and condensed milk factories, 10 pages; Maine's industrial progress and the outlook for the future, 25 pages; short sketches of the woodworking, oilcloth, lime, slate, sardine, and blueberry industries, 37 pages; extracts from the proceedings of the eleventh annual convention of the National Association of Officials of Bureaus of Labor Statistics, 34 pages; the labor laws of Maine, 10 pages; report of the inspector of factories, workshops, mines, and quarries, 35 pages.

CONDITION OF THE WORKING PEOPLE.—In making this investigation uniform schedules of inquiry were used, and the facts were ascertained by special agents, who visited 556 workmen in 18 different lines of industry. The following tables contain the principal data collected by the agents:

CONDITION OF WORKINGMEN, BY OCCUPATIONS.

Occupations.	Work- ing- men.	Belong- ing to labor organi- zations.	Belong- ing to benefi- ciary organi- zations.	Having savings bank ac- counts.	Owning homes.	Average value of homes.	Average days lost during year.	Wages in- creased during year.	Wages de- creased during year.	Average annual earn- ings of head of family.
HEADS OF FAMILIES.										
Carpenters	67	19	17	34	42	\$1,300	58	2	8	\$401.89
Masons	34	12	11	19	20	1,445	56	.....	.....	601.00
Masons' tenders	15	2	2	5	2	2,950	54	1	.....	390.87
Painters	30	3	4	13	8	1,400	60	1	1	498.10
Blacksmiths	29	1	1	19	12	1,417	11	2	2	572.59
Laborers	31	4	9	12	4	1,113	48	.....	4	375.61
Hostlers	18	1	1	6	.....	.....	13	1	.....	432.94
House-finish makers	43	.....	9	31	15	1,707	5	.....	.....	644.23
Granite workers	8	6	3	6	6	833	34	.....	.....	641.87
Slate workers	31	.....	.....	4	12	853	84	.....	1	376.84
Lime workers	9	6	4	3	7	1,386	19	.....	.....	637.33
Sawmill hands	48	1	10	13	16	1,181	63	.....	2	429.29
Cotton-mill hands	61	5	26	16	14	1,430	32	2	25	371.43
Woolen-mill hands	17	2	6	7	3	1,033	24	2	.....	418.71
Shoemakers	20	3	8	8	7	2,114	27	4	3	605.30
Moccasin makers	21	.....	4	9	3	1,567	16	.....	.....	483.19
Shipbuilders	21	14	11	14	11	1,341	45	.....	1	547.67
Pulp makers	11	.....	.....	3	5	960	24	.....	7	431.91
WITHOUT FAMILIES.										
Carpenters	6	.....	.....	2	.....	.....	85	.....	.....	337.50
Masons	3	.....	.....	.....	.....	.....	101	.....	1	395.00
Painters	4	.....	.....	2	.....	.....	68	.....	.....	416.25
Blacksmiths	3	1	1	.....	.....	.....	18	1	.....	499.33
Laborers	3	.....	.....	.....	1	500	66	.....	.....	357.00
Sawmill hands	13	.....	.....	2	.....	.....	83	1	.....	334.85
Cotton-mill hands	5	2	4	.....	.....	.....	68	.....	1	326.20
Shoemakers	5	.....	.....	.....	.....	.....	43	2	.....	542.20

SIZE OF WORKINGMEN'S FAMILIES, AVERAGE EARNINGS, ETC., BY OCCUPATIONS.

Occupations.	Heads of families.			Average persons in family.	Number assisted by other members of family.	Average annual earnings of other members of family.	Average annual income of family.
	Number.	Average daily wages.	Average annual earnings.				
Carpenters.....	67	\$2.03	\$491.89	3.79	18	\$43.51	\$535.40
Masons.....	34	2.51	601.00	4.26	6	20.74	621.74
Masons' tenders.....	15	1.58	390.87	4.33	6	59.33	450.20
Painters.....	30	2.13	493.10	4.00	6	47.50	540.60
Blacksmiths.....	29	1.95	572.59	4.10	2	13.79	586.38
Laborers.....	31	1.47	375.61	4.32	16	128.13	503.74
Hostlers.....	18	1.25	432.94	4.28	4	51.39	484.33
House-finish makers.....	43	2.14	644.23	4.07	.....	51.16	695.39
Granite workers.....	8	2.41	641.87	5.12	3	67.50	709.37
Slate workers.....	31	1.75	376.84	4.16	8	45.00	421.84
Lime workers.....	9	2.25	637.33	4.11	2	24.44	681.77
Sawmill hands.....	48	1.88	429.29	4.10	12	49.31	478.60
Cotton-mill hands.....	61	1.35	371.43	4.64	27	136.08	507.51
Woolen-mill hands.....	17	1.49	418.71	4.29	7	63.82	482.53
Shoemakers.....	20	2.15	605.30	3.50	6	82.15	687.45
Moccasin makers.....	21	1.67	483.19	4.10	4	78.57	561.76
Shipbuilders.....	21	2.19	547.67	4.19	4	33.38	581.05
Pulp makers.....	11	1.52	431.91	4.82	3	151.82	583.73

AVERAGE EXPENDITURES OF WORKINGMEN'S FAMILIES, BY OCCUPATIONS.

[Each item in this table is an average based on the number of families reporting. As the number of families reporting differs for the various items, the sums of the items do not equal the average totals which are based on the total expenditures of all families.]

Occupations.	Rent.	Food.	Cloth- ing.	Fuel and light.	Society dues.	Life in- surance.	Other.	Total.	Sur- plus.
Carpenters.....	\$83.60	\$180.76	\$96.61	\$37.25	\$6.12	\$25.35	\$69.55	\$428.75	\$106.63
Masons.....	99.07	212.06	117.53	39.35	6.22	20.11	59.82	508.38	113.36
Masons' tenders.....	69.08	172.07	91.67	37.60	5.33	35.00	55.07	420.73	29.47
Painters.....	95.59	208.30	93.10	40.10	4.67	25.50	93.37	508.10	32.50
Blacksmiths.....	102.71	190.17	109.55	34.45	3.82	25.00	85.96	483.52	102.86
Laborers.....	70.08	194.35	90.35	33.48	6.36	9.25	60.19	441.23	62.51
Hostlers.....	78.17	191.50	71.56	41.67	3.25	12.00	63.56	448.94	35.39
House-finish makers.....	101.21	207.95	85.35	38.05	3.92	21.69	107.91	514.00	181.39
Granite workers.....	104.00	223.75	133.12	35.25	9.17	31.67	71.00	507.88	201.49
Slate workers.....	59.68	192.94	60.00	30.35	2.14	14.67	67.39	389.16	32.68
Lime workers.....	75.00	219.44	128.33	37.78	10.00	.....	51.67	460.55	101.22
Sawmill hands.....	78.47	194.46	75.06	35.40	3.88	17.33	78.67	441.08	37.52
Cotton-mill hands.....	85.00	225.20	99.49	33.93	6.96	16.63	49.00	481.36	26.15
Woolen-mill hands.....	86.00	201.59	77.88	30.65	5.82	10.00	44.70	430.00	52.53
Shoemakers.....	106.23	214.75	128.20	43.75	5.17	16.38	106.35	571.75	115.70
Moccasin makers.....	89.33	200.24	76.86	43.71	3.22	20.80	103.00	506.71	55.05
Shipbuilders.....	80.69	161.10	126.90	28.71	10.79	36.75	46.29	415.57	165.48
Pulp makers.....	89.67	231.55	83.18	32.09	3.75	.....	101.64	498.72	85.01

Of the returns made, 433 were for Americans and 123 were for persons of foreign birth. Of the 556 persons returned, 188 owned their homes, 327 were living in rented dwellings, and 41 did not report on this point. The average value of the homes owned was \$1,349.60. Forty-three of the homes were mortgaged, the average amount of the mortgage debt being \$413.95. Eighty-two persons were members of labor organizations, and 131 of beneficiary societies. Two hundred and twenty-eight had accounts in savings banks. Three hundred and thirty-two had been able to accumulate savings during the year, while 63 had run into debt.

The 514 heads of families returned show an average income per family of \$549.09, or \$131.52 per individual member, the average size of a

family being 4.18 persons. The total expenditure per family was \$466.64, leaving a net surplus of \$82.45 per family. The principal items of expenditure per family were: Rent, \$85.68; food, \$199.97; clothing, \$94.27; fuel and light, \$36.23; society dues, \$5.68; life insurance, \$20.55; sundries, \$74.96.

RAILROAD EMPLOYEES.—Returns for the year ending June 30, 1895, from 21 railroads in the State, show a total of 4,693 employees (exclusive of general officers), and a wage roll amounting to \$2,268,357.86. This was an increase, both as to employees and wage payments, over the preceding year.

FACTORIES, MILLS, AND SHOPS BUILT DURING 1895.—The returns for 1895 show a decided increase of activity in the building of factories, mills, and shops over the year 1894. There were 102 buildings constructed, repaired, or remodeled at a total cost of \$1,367,800, necessitating the employment of 2,797 persons. The items of total cost and persons employed were more than double those for 1894. The information is presented by industries, towns, and counties.

INDUSTRIAL PROGRESS, ETC.—In this chapter is given a brief account of some of the leading industries of the State, the natural advantages, and the opportunities offered for their development.

RECENT FOREIGN STATISTICAL PUBLICATIONS.

Travail du Dimanche. Volume V, Pays Étrangers (Allemagne, Autriche, Suisse, Angleterre). Rapports présentés à M. le Ministre de l'Industrie et du Travail. Office du Travail, Ministère de l'Industrie et du Travail, Royaume de Belgique. 1896. viii, 334 pp.

In Bulletin No. 7 an account was given of the investigation undertaken by the Belgian labor bureau concerning the extent of Sunday labor, and the contents of the first of a series of projected reports were briefly summarized. The present report, though numbered Volume V, is the second of this series to be published. It consists of separate reports by different special agents of the bureau concerning the laws relating to, and the extent of, Sunday work in Germany, Austria, Switzerland, and England. It being impracticable to conduct original investigations in these countries, the reports are general in character, giving the legal status of the question and the probable extent of Sunday work as shown by existing official or other publications. From these reports the extent to which Sunday labor is prohibited by law in each of these countries can be briefly summarized.

In Germany, prior to the year 1891, Sunday labor was regulated only by the labor laws of the individual States constituting the Empire. On June 1 of that year, however, there was enacted the imperial industrial law (*Reichsgewerbeordnung*), the object of which was to provide a uniform system of labor laws applicable to the whole country. The regulation of Sunday labor constitutes one of the important purposes of this law.

For this purpose a distinction is made between industrial and commercial work. As regards the former, the general principle is first laid down that employers of labor are forbidden to either compel or even to permit their employees to work on Sundays or legal holidays. The determination of which are legal holidays is left to the individual States. This prohibition relates only to factory work proper. It therefore does not apply to persons working alone or aided by members of their families only; to persons engaged in agriculture, fisheries, the professions, or liberal arts, etc.; to concert, theater, hotel, restaurant, or transportation employees; or to such persons as seamstresses who go to the houses of their clients to work. It should be remarked, however, that the labor of all of these persons may be regulated by the laws of the individual States.

To this general prohibition of factory work it was found necessary to make a number of exceptions. The federal council is in the first place

permitted to exempt from this prohibition those industries, such as blast furnaces, which must be carried on uninterruptedly and those which can be prosecuted only during certain seasons of the year. Secondly, exception is made in the case of all necessary work, such as guarding buildings, urgent repair work, and where the public interest demands that it should be prosecuted without intermission.

In commercial establishments all work is prohibited during the first days of the three holidays of Christmas, Easter, and Pentecost, and limited to five hours on all ordinary holidays and Sundays. Under commercial establishments are included wholesale as well as retail stores, banking, insurance, and similar institutions. The individual States can restrict these hours still further if they desire to do so. All peddling or soliciting of trade at the residences of the people is prohibited on Sundays and holidays.

Exceptions to these regulations are made in the case of those establishments which should continue work in order to satisfy the daily needs of the people. It is also permitted that the hours of labor on certain Sundays preceding holidays, when trade is particularly active, may be increased to a maximum of ten hours.

It had been provided that the law of June 1, 1891, should not go into operation until so ordered by an imperial ordinance. The preparation of the various regulations concerning the excepted industries, the manner in which the law should be enforced, etc., required a considerable preliminary consideration. The law, therefore, was not put into force until July 1, 1892, as regards commercial enterprises, and April 1, 1895, as regards industrial. The enforcement of the law is left to the local police of each State. There is naturally, therefore, a considerable variation in the strictness with which it is enforced. In general it may be said that it is enforced strictly in large cities and less so in smaller places. The Prussian Government has undertaken an investigation concerning the results of this law, but no report has as yet been published.

-In Austria the performance of labor on Sunday is now regulated by the law of June 21, 1894, which prohibits all but absolutely indispensable work in mines during twenty-four hours on Sunday, the law of April 28, 1895, prohibiting peddling on Sunday, and the law of January 16, 1895, relating to Sunday work in industrial and commercial establishments. It is this last law which constitutes the general code concerning Sunday work.

As in Germany, the principle is first enunciated that all labor on Sunday is prohibited except in certain cases. In all industrial work there is permitted such work on Sundays as can not well be deferred, or can not be done on week days during the regular operations of the establishments. The employers, however, must keep an accurate record of such work, showing its necessity, etc., which can be inspected at any time by the factory inspectors. In the second place, the power is given

to the Government to except by special order from the operation of the law those industries which from their nature should be carried on without interruption. In all such cases, however, only such work as is actually necessary can be done, all collateral work not profiting from the exception. Finally, the regulation of all such industries as the handling of perishable food products, etc., is left to the individual states or provinces.

In all commercial establishments work is permitted on Sundays during six hours, which can be extended to ten hours for those Sundays preceding holidays. Transportation work is left practically unregulated.

In Switzerland Sunday work has long been regulated by numerous enactments on the part of the confederation, the cantons, and the municipalities. Of these the most important is the federal law of 1877. Prior to this date there was no general law relating to the whole country, though all but three of the twenty-one cantons and four half cantons had regulated Sunday work in some way.

The law of 1877 was a general factory act relating to a great many points other than that of Sunday work. Its provisions were made applicable only to those establishments employing more than 25 persons; to those presenting the manifest character of factories; to those offering exceptional dangers to the life or health of their employees, and to those employing persons under 18 years of age, or using mechanical motors, or presenting conditions especially dangerous to life or health, provided they employ five or more persons. Although an amendment, passed in 1891, subjected all industrial establishments in which 10 persons were employed to the provisions of this law, it will be seen, nevertheless, that all employees of small shops and those working at home do not come within the scope of the law.

The articles relating to Sunday work provide (1) that the work of all women, no matter what their age, is prohibited on Sundays; (2) that the work of minors under 18 years of age is prohibited on Sundays, except in certain specified industries, and (3) that the work of adults is prohibited on Sundays, except in certain industries and in certain cases of emergency in all industries.

It will thus be seen that for women of all ages the prohibition of Sunday work is absolute. It should be remembered, however, that the large class of women working in small shops or at home is not reached by this law. In the case of minors the exceptions provided for relate to those industries requiring uninterrupted work. For adults the exceptions are the same as for minors, and in addition certain work demanded by public necessity or the nature of the industry. In all these cases it is required that it should be clearly demonstrated that such work is necessary; that those employed shall work only every other Sunday; that the duration of work shall not exceed eleven hours, and that the employed shall work of their own free will.

There is no federal law regulating Sunday work in commercial establishments. As regards the transportation industry, the law of June 27, 1890, requires that the railroad companies shall give to all of their employees fifty-two free days, of which seventeen at least must fall upon Sunday, and that no deduction from wages shall be made for the days not worked. The transportation of all freight, with the exception of that requiring immediate transport, is forbidden.

In England the regulation of Sunday labor constitutes a part of the general factory legislation as expressed in the acts of 1878, 1883, 1891, and 1895. As in all British factory legislation, a clear distinction is made between the labor of adult males and that of women, young persons, and children. "A 'child' means a person between 11 and 14 years of age; a 'young person' means a person between 14 and 18 years of age; a 'woman' means a woman 18 years of age and upward." The right of adult males to work on Sunday is left practically unabridged, while the labor of the latter class is subjected to a considerable degree of regulation.

It is provided that no woman, young person, or child can be employed on Sunday in any factory or workshop except in certain special cases provided for by law. These exceptions relate to necessary repair work, the caring for fish on their arrival, and to the Jews, who are permitted to work on Sunday, provided they observe Saturday as a day of rest.

In addition to the prohibition of Sunday work, the law provides for the general observance of a half holiday on Saturday, on certain fête days, and on four days designated as bank holidays. There are various exceptions to this general rule.

Vierteljahrshefte zur Statistik des Deutschen Reichs. Ergänzung zum Vierten Heft. Die beschäftigungslosen Arbeitnehmer im Deutschen Reich am 14. Juni und 2. Dezember 1895. Jahrgang 1896. Herausgegeben vom kaiserlichen statistischen Amt. 26, 89 pp.*

This is a census of the unemployed in the German Empire, published as a supplement to the quarterly bulletin of the imperial statistical bureau. On the occasion of the census enumeration of occupations, June 14, 1895, and again when the population census was taken on December 2, 1895, the enumeration schedules contained inquiries in which persons of the employee class were asked to state whether or not they were, at the time, employed; if unemployed, how long, and whether or not their present idleness was due to temporary disability. The inquiry covered all males and females of the employee class. It did not include housewives without any other special calling, persons in the civil or military service who were pensioned or the widows of such persons, or the recipients of accident and invalidity pensions who were totally and permanently disabled.

The results of the enumeration showed that there were 299,352 persons out of work on June 14, and 771,005 on December 2, 1895. There were,

therefore, 471,653, or 157.56 per cent, more persons unemployed in the winter than in the summer time. Comparing these figures with the total population on the two dates named, it was found that 0.58 per cent of the entire population were out of employment in the summer and 1.48 per cent in the winter time.

The following table shows the number of persons, by industries, who at the time of the enumeration of June 14, 1895, belonged to the employee class, and the per cent that the number of unemployed at that time and on December 2, 1895, was of this total. Persons engaged in domestic and personal service, and those employed in the State, communal, and church service are not included in this table.

NUMBER AND PER CENT OF PERSONS OF THE EMPLOYEE CLASS OUT OF EMPLOYMENT JUNE 14 AND DECEMBER 2, 1895, BY INDUSTRIES.

Industries.	Persons in the employee class. June 14, 1895.	Persons out of employment.			
		June 14, 1895.		December 2, 1895.	
		Number.	Per cent of total employees.	Number.	Per cent of total employees.
Agriculture, gardening, and live stock.....	5,607,313	37,144	0.66	203,246	3.62
Forestry and fisheries.....	116,713	1,394	1.19	5,551	4.76
Mining, smelting, and salt and peat extraction..	564,922	8,312	1.47	11,487	2.03
Stonework and earthenware.....	468,489	6,872	1.47	26,964	5.76
Metal work.....	719,775	20,834	2.80	27,015	3.75
Machinery, tools, instruments, etc.....	304,463	7,828	2.57	10,485	3.44
Chemicals.....	92,582	1,797	1.94	2,118	2.29
Forestry products, lighting materials, grease, oils, and varnishes.....	38,116	796	2.09	1,045	2.74
Textiles.....	878,494	14,424	1.64	16,833	1.92
Paper.....	121,526	3,158	2.60	3,475	2.86
Leather.....	123,914	4,292	3.46	7,480	6.04
Woodenware and carved goods.....	456,229	13,363	2.93	18,257	4.00
Food products.....	656,970	21,465	3.27	28,553	4.35
Clothing.....	775,671	24,817	3.13	42,078	5.42
Building trades.....	1,151,851	33,008	2.87	179,797	15.61
Printing and publishing.....	106,536	4,454	4.18	4,667	4.38
Painting, sculpture, decoration, and artistic work of all kinds.....	18,765	674	3.50	1,034	5.51
Factory hands, artisans, etc., of whom the industry can not be classified.....	28,542	1,415	4.96	10,177	35.66
Commercial pursuits.....	626,637	22,048	3.52	28,384	4.20
Insurance.....	18,216	274	1.50	315	1.73
Transportation.....	533,150	6,927	1.30	16,230	3.04
Hotels, restaurants, etc.....	316,951	3,061	2.54	15,603	4.92
Total.....	13,725,825	242,857	1.77	658,750	4.80

The table shows that the total number of unemployed June 14, 1895, was 1.77 per cent of the total number of persons belonging to the employee class, while on December 2, 1895, it was 4.80 per cent. The largest percentage of unemployed on each of these dates, namely, 4.96 and 35.66 per cent, respectively, was among factory hands, artisans, etc. Aside from this class of unemployed, the percentages were largest in the printing and publishing, the painting and decorating, the commercial, and the leather industries in the summer time, and in the building trades, the leather, the stonework and earthenware, and the painting and decorating industries in the winter time. The percentages of unemployed were smallest in the agricultural, gardening, and

live stock, the forestry and fisheries, and the transportation industries in the summer, and in the insurance, the textile, and the mining and smelting industries in the winter time.

With respect to the cause of nonemployment, but two divisions were made, namely, those who were idle on account of temporary disability, such as illness, and those out of employment for other reasons. The returns showed that of the 299,352 unemployed on June 14, 1895, 120,348, or 40.20 per cent, were idle on account of disability, while 179,004, or 59.80 per cent, were unemployed for other reasons. The December returns showed a much greater difference. Out of a total of 771,005 unemployed on December 2, 1895, 217,365, or only 28.19 per cent, owed their idleness to temporary disability, while 553,640, or 71.81 per cent, were out of employment on account of other causes. The following table shows this division with respect to causes for each industry:

NUMBER AND PER CENT OF PERSONS OUT OF EMPLOYMENT JUNE 14 AND DECEMBER 2, 1895, BY INDUSTRIES AND CAUSE OF NONEMPLOYMENT.

Industries.	June 14, 1895.				December 2, 1895.				Persons unemployed in December per 100 unemployed in June.	
	Temporary disability.		Other causes.		Temporary disability.		Other causes.		Temporary disability.	Other causes.
	Num-ber.	Per-cent.	Num-ber.	Per-cent.	Num-ber.	Per-cent.	Num-ber.	Per-cent.		
Agriculture, gardening, and live stock.....	18,702	50.35	18,442	49.65	44,906	22.09	158,340	77.91	240.11	858.58
Forestry and fisheries.....	632	45.34	762	54.66	1,419	25.56	4,132	74.44	224.53	542.26
Mining, smelting, etc.....	5,090	68.46	2,622	31.54	8,065	70.21	3,422	29.79	141.74	130.51
Stonework and earthenware.....	3,814	55.50	3,058	44.50	6,349	23.55	20,615	76.45	166.47	674.13
Metal work.....	8,115	38.95	12,719	61.05	10,917	40.41	16,098	59.59	134.53	126.57
Machinery, tools, etc.....	3,201	40.89	4,627	59.11	4,212	40.17	6,273	59.83	131.58	135.57
Chemicals.....	897	49.92	900	50.08	1,062	50.14	1,056	49.86	118.39	117.33
Forestry products, etc.....	393	49.37	403	50.63	551	52.73	494	47.27	140.20	122.58
Textiles.....	7,887	54.68	6,537	45.32	9,110	54.12	7,723	45.88	115.51	118.14
Paper.....	1,383	43.79	1,775	56.21	1,702	48.98	1,773	51.62	123.07	99.89
Leather.....	1,437	33.48	2,855	66.52	2,164	28.91	5,322	71.09	150.59	186.41
Woodenware and carved goods.....	5,295	36.62	8,068	60.38	7,224	39.57	11,033	60.43	136.43	136.75
Food products.....	7,161	33.36	14,304	66.64	9,607	33.85	18,946	66.35	134.16	132.45
Clothing.....	7,851	32.29	16,466	67.71	14,096	33.50	27,982	66.50	179.54	169.94
Building trades.....	13,600	41.20	19,408	58.80	34,676	19.29	145,121	80.71	254.97	747.74
Printing and publishing.....	1,607	36.08	2,847	63.92	1,803	38.63	2,864	61.37	112.20	100.60
Painting, artistic work, etc.....	208	30.86	466	69.14	322	31.14	712	68.86	154.81	152.79
Factory hands, artisans, etc., not classified.....	688	48.62	727	51.38	4,986	48.99	5,191	51.01	724.71	714.03
Commercial pursuits.....	6,182	28.04	15,866	71.96	8,008	30.41	18,326	69.59	129.54	115.50
Insurance.....	71	25.81	203	74.09	88	27.94	227	72.06	123.94	111.82
Transportation.....	2,764	39.30	4,163	60.10	4,627	28.51	11,603	71.49	167.40	278.72
Hotels, restaurants, etc.....	2,113	26.21	5,948	73.79	3,765	24.13	11,838	75.87	178.18	199.02
Domestic and personal service.....	18,914	37.96	30,907	62.04	35,495	34.16	68,423	65.84	187.67	221.38
Employees in State, communal, and church service.....	1,743	26.12	4,931	73.88	2,211	26.52	6,126	73.48	126.85	124.23
Total.....	120,348	40.20	179,004	59.80	217,365	28.19	553,640	71.81	180.61	309.29

The largest percentage of unemployed on account of temporary disability, both in the summer and in the winter time, was found in the mining and smelting industries, namely, 68.46 per cent and 70.21 per

cent, respectively. In the stonework and earthenware, the textile, and the agricultural, gardening, and live-stock industries in June, and in the textile, the forestry, and the chemical industries in December, over one-half of the unemployed also owed their idleness to temporary disability. The cases where causes other than temporary disability were responsible for nonemployment were found to be most prevalent among employees in the insurance, the hotel and restaurant industries, the State, communal, and church service, and the commercial pursuits in the summer, and among those engaged in the building trades, the agricultural, gardening, and live-stock, and the stonework and earthenware industries in the winter time.

The duration of nonemployment at the time of the enumeration was found to be over two weeks in the greater number of ascertained cases both in June and in December. The proportion of those unemployed over two weeks was slightly greater in the summer than in the winter time. The following table shows, by groups of industries, the number of days persons out of employment for causes other than temporary disability had been unemployed at the time the enumerations were taken:

NUMBER AND PER CENT OF PERSONS OUT OF EMPLOYMENT FOR CAUSES OTHER THAN TEMPORARY DISABILITY JUNE 14 AND DECEMBER 2, 1895, BY NUMBER OF DAYS UNEMPLOYED.

Days unemployed at time of enumeration.	Agriculture, gardening, live stock, forestry, and fisheries.		Mining, smelting, manufactures, and building trades.		Commerce and transportation.		Domestic and personal service.		State, communal, and church service.		Total.	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
JUNE 14.												
1 or under	322	1.68	1,078	1.10	277	1.06	401	1.30	26	0.53	2,104	1.17
2 to 7	2,007	10.45	10,119	10.35	2,208	8.43	2,906	9.40	231	4.68	17,471	9.76
8 to 14	3,235	16.84	23,060	23.58	5,265	20.11	7,291	23.59	808	16.39	39,659	22.16
15 to 28	1,492	7.77	12,192	12.47	2,522	9.63	3,179	10.29	397	8.05	19,782	11.05
29 to 90	2,638	13.74	21,116	21.60	7,295	27.87	6,865	22.21	1,484	30.09	39,398	22.01
91 or over	2,171	11.30	13,572	13.88	5,196	19.85	3,360	10.87	957	19.41	25,256	14.11
Unknown	7,339	38.22	16,645	17.02	3,417	13.05	6,905	22.34	1,028	20.85	35,334	19.74
Total	19,204	106.00	97,782	100.00	26,180	100.00	30,907	100.00	4,931	100.00	179,004	100.00
DECEMBER 2.												
1 or under	3,969	2.44	8,145	2.97	1,275	3.04	2,243	3.28	159	2.59	15,791	2.85
2 to 7	16,804	10.34	40,320	14.68	4,662	11.10	3,352	12.21	451	7.36	70,589	12.75
8 to 14	45,068	28.29	93,993	30.58	8,219	19.57	16,192	23.66	834	13.61	155,206	28.03
15 to 28	36,077	22.21	45,296	16.49	5,313	12.65	10,797	15.78	697	11.38	98,180	17.74
29 to 90	38,813	21.89	61,219	22.30	13,633	32.46	16,915	24.72	2,210	36.08	132,810	23.99
91 or over	6,868	4.23	18,200	6.63	6,679	15.91	6,052	8.85	1,252	20.44	39,051	7.05
Unknown	13,973	8.60	17,432	6.35	2,213	5.27	7,872	11.50	523	8.54	42,013	7.59
Total	162,472	100.00	274,625	100.00	41,994	100.00	68,423	100.00	6,126	100.00	553,640	100.00

The duration of nonemployment is greatest in the case of employees in the State, communal, and church service and those engaged in the commercial and transportation industries, both in winter and summer, and least among those engaged in the mining, manufacturing, and

building industries in the winter, and the agricultural, gardening, live stock, forestry, and fisheries industries in the summer time.

As regards the ages of the unemployed, it was found there was an excess of younger over older persons. This is due chiefly to the fact that young persons are more numerous in the employec class. It may also be in part due to the fact that young, inexperienced workers are more liable to dismissal than those of maturer age. In the summer over one-half and in the winter only a little less than one-half of the unemployed were from 14 to 30 years of age. The following table shows the ages of the unemployed by sexes:

NUMBER AND PER CENT OF PERSONS OUT OF EMPLOYMENT JUNE 14 AND DECEMBER 2, 1895, BY AGE AND SEX.

Age.	Males.	Per cent.	Females.	Per cent.	Total.	Per cent.
JUNE 14.						
14 to 20 years.....	40,513	18.53	20,268	25.10	60,781	20.30
20 to 30 years.....	67,081	31.10	31,494	39.00	99,475	33.23
30 to 50 years.....	69,621	31.85	17,139	21.23	86,760	28.98
50 to 70 years.....	35,658	16.31	10,410	12.89	46,068	15.39
70 years or over.....	4,830	2.21	1,438	1.78	6,268	2.10
Total.....	218,603	100.00	80,749	100.00	299,352	100.00
DECEMBER 2.						
14 to 20 years.....	95,653	17.28	49,145	22.60	144,798	18.78
20 to 30 years.....	159,304	28.78	72,695	33.43	231,999	30.09
30 to 50 years.....	184,499	33.33	53,608	24.66	238,107	30.88
50 to 70 years.....	103,390	18.67	38,523	17.72	141,913	18.41
70 years or over.....	10,732	1.94	3,456	1.59	14,188	1.84
Total.....	553,578	100.00	217,427	100.00	771,005	100.00

Of the whole number of unemployed 104,520, or 34.92 per cent, were heads of families at the time of the June enumeration. In December the number of heads of families was proportionately greater, namely, 317,282, or 41.15 per cent of the unemployed.

The following table shows the number of heads of families and their dependents for each group of industries:

HEADS OF FAMILIES OUT OF EMPLOYMENT AND THEIR DEPENDENTS, JUNE 14
AND DECEMBER 2, 1895, BY GROUPS OF INDUSTRIES.

Industries.	Heads of families out of employment.			Their dependents.			
	Males.	Females.	Total.	Wives.	Children under 14 years of age.	Others.	Total.
JUNE 14.							
Agriculture, gardening, live stock, forestry, and fisheries	13,349	4,954	18,303	9,345	17,012	3,645	30,002
Mining, smelting, manufactures, and building trades	54,693	5,568	60,261	42,718	81,336	11,054	135,108
Commerce and transportation	9,699	468	10,167	7,789	13,229	1,704	22,722
Domestic and personal service	9,059	4,965	14,054	6,799	13,601	2,063	22,463
State, communal, and church service.	1,310	425	1,735	974	1,572	350	2,896
Total	88,110	16,410	104,520	67,625	126,750	18,816	213,191
DECEMBER 2.							
Agriculture, gardening, live stock, forestry, and fisheries	59,913	27,292	87,205	45,225	96,235	15,732	157,192
Mining, smelting, manufactures, and building trades	160,752	10,801	171,553	134,985	260,672	34,407	430,064
Commerce and transportation	17,345	778	18,123	14,608	24,612	3,151	42,371
Domestic and personal service	26,861	11,363	38,224	21,605	42,718	5,577	69,900
State, communal, and church service.	1,681	496	2,177	1,304	2,043	372	3,719
Total	266,552	50,730	317,282	217,727	426,280	59,239	703,246

The table shows that the number of dependents was 213,191, or 2.04 for each head, in the summer, and 703,246, or 2.22 per head of family, in the winter time. Of the former, 67,625 were wives, 126,750 were children under 14 years of age, and 18,816 were otherwise dependent. Of the latter, 217,727 were wives, 426,280 were children under 14 years of age, and 59,239 were otherwise dependent. It appears from these figures that, in general, where heads of families were found to be out of employment, the number of dependent children was comparatively small, which seems to indicate that employees with large families exercise greater care in securing and retaining steady employment. There were 16,410 female heads of families out of employment in the summer, and 50,730 in the winter time.

DECISIONS OF COURTS AFFECTING LABOR.

"This subject, begun in Bulletin No. 2, will be continued in successive issues, dealing with the decisions as they occur. All material parts of the decisions are reproduced in the words of the courts, indicated when short by quotation marks, and when long by being printed solid. In order to save space, immaterial matter, needed simply by way of explanation, is given in the words of the editorial reviser.]

DECISIONS UNDER STATUTORY LAW.

CONSTITUTIONALITY OF STATUTE—ATTORNEYS' FEES IN SUITS FOR WAGES, ETC.—*Gulf, C. and Santa Fé Ry. Co. v. Ellis*, 17 *Supreme Court Reporter*, page 255.—This case was brought up from the supreme court of Texas to the United States Supreme Court on writ of error.

On April 5, 1889, the legislature of the State of Texas passed an act containing the following language:

"Section 1. Be it enacted by the legislature of the State of Texas, that after the time this act shall take effect, any person in this State having a valid bona fide claim for personal services rendered or labor done, or for damages, or for overcharges on freight, or claims for stock killed or injured by the train of any railway company, * * * and the amount of such claim does not exceed \$50, may present the same, verified by his affidavit, for payment to such corporation, * * * and if, at the expiration of thirty days after such presentation, such claim has not been paid or satisfied, he may immediately institute suit thereon in the proper court; and if he shall finally establish his claim, and obtain judgment for the full amount thereof, * * * he shall be entitled to recover the amount of such claim and all costs of suit, and in addition thereto all reasonable attorney's fees, provided he has an attorney employed in his case, not to exceed \$10, to be assessed and awarded by the court or jury trying the issue." Supp. Sayles' Rev. Civ. St., p. 768, art. 4266 a.

On October 9, 1890, defendant in error (Ellis) commenced this action before a justice of the peace to recover \$50 for a colt killed by the railway company. The complaint alleged presentation and nonpayment, as required by the act, and demanded \$10 attorney fee. The company answered, admitting everything except the claim for the attorney fee. The case passed, after judgment in favor of the plaintiff for the amount claimed and an attorney fee of \$10, through the district court and the court of civil appeals, to the supreme court of the State, by which, on May 10, 1894, the judgment against the railway company was affirmed. To reverse said judgment the company sued out a writ of error before the United States Supreme Court,

which rendered its decision January 18, 1897, and reversed the judgment of the State court.

The opinion of the Supreme Court was delivered by Mr. Justice Brewer, and it is given below in part:

The single question in this case is the constitutionality of the act allowing attorney fees. The contention is that it operates to deprive the railroad companies of property without due process of law, and denies to them the equal protection of the law, in that it singles them out of all citizens and corporations, and requires them to pay in certain cases attorney fees to the parties successfully suing them, while it gives to them no like or corresponding benefit. Only against railroad companies is such exaction made, and only in certain cases.

The supreme court of the State considered this statute as a whole, and held it valid, and as such it is presented to us for consideration. Considered as such, it is simply a statute imposing a penalty upon railroad corporations for a failure to pay certain debts. No individuals are thus punished, and no other corporations. The act singles out a certain class of debtors, and punishes them when, for like delinquencies, it punishes no others. They are not treated as other debtors, or equally with other debtors. They can not appeal to the courts, as other litigants, under like conditions, and with like protection. If litigation terminates adversely to them, they are mulcted in the attorney's fees of the successful plaintiff; if it terminates in their favor, they recover no attorney's fees. It is no sufficient answer to say that they are punished only when adjudged to be in the wrong. They do not enter the courts upon equal terms. They must pay attorney's fees if wrong. They do not recover any if right; while their adversaries recover if right, and pay nothing if wrong. In the suits, therefore, to which they are parties, they are discriminated against, and are not treated as others. They do not stand equal before the law. They do not receive its equal protection. All this is obvious from a mere inspection of the statute.

It is true, the amount of the attorney's fee which may be charged is small, but, if the State has the power to thus mulct them in a small amount, it has equal power to do so in a larger sum. The matter of amount does not determine the question of right, and the party who has a legal right may insist upon it, if only a shilling be involved.

While good faith and a knowledge of existing conditions on the part of a legislature are to be presumed, yet to carry that presumption to the extent of always holding that there must be some undisclosed and unknown reason for subjecting certain individuals or corporations to hostile and discriminating legislation is to make the protecting clauses of the fourteenth amendment a mere rope of sand, in no manner restraining State action.

It is well settled that corporations are persons within the provisions of the fourteenth amendment of the Constitution of the United States. The rights and securities guaranteed to persons by that instrument can not be disregarded in respect to those artificial entities called "corporations" any more than they can be in respect to the individuals who are equitable owners of the property belonging to such corporations. A State has no more power to deny to corporations the equal protection of the law than it has to individual citizens. But it is said that it is not within the scope of the fourteenth amendment to withhold from States the power of classification, and that, if the law deals alike with all of a certain class, it is not obnoxious to the charge of a denial of equal protection. While, as a general proposition, this is undeniably

true, yet it is equally true that such classification can not be made arbitrarily. The State may not say that all white men may be subjected to the payment of the attorney's fees of parties successfully suing them, and all black men not. It may not say that all men beyond a certain age shall be alone thus subjected, or all men possessed of a certain wealth. These are distinctions which do not furnish any proper basis for the attempted classification. That must always rest upon some difference which bears a reasonable and just relation to the act in respect to which the classification is proposed, and can never be made arbitrarily, and without any such basis.

If it be said that this penalty is cast only upon corporations, that to them special privileges are granted, and therefore upon them special burdens may be imposed, it is a sufficient answer to say that the penalty is not imposed upon all corporations. The burden does not go with the privilege. Only railroads of all corporations are selected to bear this penalty. The rule of equality is ignored.

It may be said that certain corporations are chartered for charitable, educational, or religious purposes, and abundant reason for not visiting them with a penalty for the nonpayment of debts is found in the fact that their chartered privileges are not given for pecuniary profit. But the penalty is not imposed upon all business corporations, all chartered for the purpose of private gain. The banking corporations, the manufacturing corporations, and others like them are exempt. Further, the penalty is imposed, not upon all corporations charged with the quasi public duty of transportation, but only upon those charged with a particular form of that duty. So the classification is not based on any idea of special privileges by way of incorporation, nor of special privileges given thereby for the purposes of private gain, nor even of such privileges granted for the discharge of one general class of public duties.

A mere statute to compel the payment of indebtedness does not come within the scope of police regulations. The hazardous business of railroading carries with it no special necessity for the prompt payment of debts. That is a duty resting upon all debtors, and while, in certain cases, there may be a peculiar obligation which may be enforced with penalties, yet nothing of that kind springs from the mere work of railroad transportation. Statutes have been sustained giving special protection to the claims of laborers and mechanics, but no such idea underlies this legislation. It does not aim to protect the laborer or mechanic alone, for its benefits are conferred upon every individual in the State, rich or poor, high or low, who has a claim of the character described. It is not a statute for the protection of particular classes of individuals supposed to need protection, but for the punishment of certain corporations on account of their delinquency.

Neither can it be sustained as a proper means of enforcing the payment of small debts, and preventing any unnecessary litigation in respect to them, because it does not impose the penalty in all cases where the amount in controversy is within the limit named in the statute. Indeed, the statute arbitrarily singles out one class of debtors, and punishes it for a failure to perform certain duties,—duties which are equally obligatory upon all debtors; a punishment not visited by reason of the failure to comply with any proper police regulations, or for the protection of the laboring classes, or to prevent litigation about trifling matters, or in consequence of any special corporate privileges bestowed by the State. Unless the legislature may arbitrarily select one corporation or one class of corporations, one individual or one class

of individuals, and visit a penalty upon them which is not imposed upon others guilty of like delinquency, this statute can not be sustained.

But arbitrary selection can never be justified by calling it classification. The equal protection demanded by the fourteenth amendment forbids this.

It is apparent that the mere fact of classification is not sufficient to relieve a statute from the reach of the equality clause of the fourteenth amendment, and that in all cases it must appear not only that a classification has been made, but also that it is one based upon some reasonable ground,—some difference which bears a just and proper relation to the attempted classification,—and is not a mere arbitrary selection. Tested by these principles, the statute in controversy can not be sustained. The judgment of the supreme court of Texas is therefore reversed.

The decision in this case was made by a divided court and Mr. Justice Gray, for himself and others, delivered a strong dissenting opinion from which the following is taken:

The Chief Justice, Mr. Justice White, and myself are unable to concur in this judgment. The grounds of our dissent may be briefly stated.

Costs in civil actions at law are the creature of statute. From early times, there have been statutes making rules as to costs, according to the nature of the issue, and the amount involved; and sometimes allowing costs to the prevailing party when plaintiff, and not when defendant. The whole matter of costs, including the party to or against whom they may be given, the items or sums to be allowed, and the right to costs as depending upon the nature of the suit, upon the amount or value of the thing sued for or recovered, or upon other circumstances, is, and always has been, within the regulation and control of the legislature, exercising its discretionary power, not oppressively to either party, but as the best interests of the litigants and of the public may appear to it to demand.

The statute of the State of Texas, now in question, does but enact that any person having a valid bona fide claim, not exceeding \$50, against a railroad corporation, for personal services or damages, or for overcharges on freight, or for destruction or injury of stock by its trains, and presenting the claim, verified by his affidavit, to the corporation, and, if it is not paid within thirty days, suing thereon in the proper court, and finally obtaining judgment for the full amount thereof in that court, or in any court to which the suit may be appealed, shall be entitled to recover, in addition to other costs, a reasonable attorney's fee (if he has employed an attorney) not exceeding \$10, to be assessed and awarded by the court or jury trying the issue. In other words, if an honest claim, of not more than \$50, and coming within one of those classes of small claims which most commonly arise between individuals and railroad corporations, is not promptly paid when presented under oath, and the claimant is thereby compelled to resort to a suit, the corporation, if ultimately cast in the suit, must pay to the successful plaintiff a very moderate attorney's fee as part of the costs of the litigation.

The legislature of a State must be presumed to have acted from lawful motives, unless the contrary appears upon the face of the statute. If, for instance, the legislature of Texas was satisfied, from observation and experience, that railroad corporations within the State were accustomed, beyond other corporations or persons, to unconscionably resist

the payment of such petty claims, with the object of exhausting the patience and the means of the claimants, by prolonged litigation, and perhaps repeated appeals, railroad corporations alone might well be required, when ultimately defeated in a suit upon such a claim, to pay a moderate attorney's fee, as a just, though often inadequate, contribution to the expenses to which they had put the plaintiff in establishing a rightful demand. Whether such a state of things as above supposed did in fact exist, and whether, for that or other reasons, sound policy required the allowance of such a fee to either party, or to the plaintiff only, were questions to be determined by the legislature, when dealing with the subject of costs, except in so far as it saw fit to commit the matter to the decision of the courts.

CONSTITUTIONALITY OF STATUTE—HOURS OF LABOR—*State v. Holden*, 46 *Pacific Reporter*, page 1105.—Albert F. Holden was convicted in the district court of Salt Lake County, Utah, of violating the act regulating the hours of employment in mines, and, upon said conviction, appealed to the supreme court of the State, raising the question of the constitutionality of the law. The supreme court rendered its decision November 11, 1896, upheld the constitutionality of the act, and affirmed the conviction of the appellant.

The opinion of the court was delivered by Chief Justice Zane, and the following language was used by him therein:

The defendant was convicted of a violation of section 2 of "An act regulating the hours of employment in underground mines, and in smelters and ore reduction works," as follows:

"SECTION 1. The period of employment of workmen in all underground mines or workings shall be eight (8) hours per day, except in cases of emergency, where life or property is in imminent danger.

"SEC. 2. The period of employment of workmen in smelters and all other institutions for the reduction or refining of ores or metals shall be eight (8) hours per day, except in cases of emergency, where life or property is in imminent danger.

"SEC. 3. Any person, body corporate, agent, manager or employer, who shall violate any of the provisions of sections 1 and 2 of this act, shall be deemed guilty of a misdemeanor."

(Sess. Laws Utah 1896, p. 219.)

This case is analogous to the case of *Holden v. Hardy* (decided at this term), 46 *Pac.*, p. 756 [see page 387, *Bulletin of the Department of Labor*, No. 10], except that the defendant in that case was convicted of a violation of the first section of the above act, in employing a workman in underground mining more than eight hours per day, and the conviction in this one was for the employment of one William Hooley, in his concentrating mill, for the reduction of ores, more than eight hours per day. The conditions with respect to health of laborers in underground mines doubtless differ from those in which they labor in smelters and other reduction works on the surface. Unquestionably, the atmospheric and other conditions in mines and reduction works differ. Poisonous gases, dust, and insubstantial substances arise and float in the air in stamp mills, smelters, and other works in which ores containing metals, combined with arsenic or other

poisonous elements or agencies, are treated, reduced, and refined; and there can be no doubt that prolonged effort day after day, subject to such conditions and agencies, will produce morbid, noxious, and often deadly effects in the human system. Some organisms and systems will resist and endure such conditions and effects longer than others. It may be said that labor in such conditions must be performed. Granting that, the period of labor each day should be of a reasonable length. Twelve hours per day would be less injurious than fourteen, ten than twelve, and eight than ten. The legislature has named eight. Such a period was deemed reasonable.

The people of the State, in their constitution, made it mandatory upon the legislature to "pass laws to provide for the health and the safety of the employees in factories, smelters and mines." Const. Utah, art. 16, sec. 6. We do not feel authorized to hold that the statute quoted was not designed, calculated, and adapted to promote the health of the class of men who labor in smelters and other works for the reduction and treatment of ores. Nor can we say that the law conflicts with any provision of the Constitution of the United States. Nor do we wish to be understood as intimating that the power to pass the law does not exist in the police powers of the State. The authority to pass laws calculated and adapted to the promotion of the health, safety, or comfort of the people, and to secure the good order of society, and the general welfare, undoubtedly is found in such police powers. The law in question is confined to the protection of that class of people engaged in labor in underground mines, and in smelters and other works wherein ores are reduced and refined. This law applies only to the classes subjected by their employment to the peculiar conditions and effects attending underground mining and work in smelters, and other works for the reduction and refining of ores. Therefore it is not necessary to discuss or decide whether the legislature can fix the hours of labor in other employments. Though reasonable doubts may exist as to the power of the legislature to pass a law, or as to whether the law is calculated or adapted to promote the health, safety, or comfort of the people, or to secure good order, or promote the general welfare, we must resolve them in favor of the right of that department of government. That case [*Holden v. Hardy*, referred to above] we now reaffirm as governing this one. The application for the discharge of the defendant is denied, and he is remanded to the custody of the sheriff, until released in pursuance of law.

CONSTITUTIONALITY OF STATUTE—INVOLUNTARY SERVITUDE—
SAILORS IN THE MERCHANT SERVICE—*Robertson et al. v. Baldwin*,
17 *Supreme Court Reporter*, page 326.—Robert Robertson, P. H. Olson,
John Bradley, and Morris Hanson shipped on board the *Arago* at San
Francisco, Cal., for a voyage to Knappton, in the State of Washington;
thence to Valparaiso, and thence to such other foreign ports as the
master might direct, and return to a port of discharge in the United
States. They had each signed shipping articles to perform the duties
of seamen during the course of the voyage, but, becoming dissatisfied
with their employment, they left the vessel at Astoria, in the State of
Oregon, and were subsequently arrested, under the provisions of Rev.
St. sects. 4596-4599, taken before a justice of the peace, and by him

committed to jail until the *Arago* was ready for sea (some 16 days), when they were taken from the jail by the marshal and placed on board the *Arago* against their will. They refused to "turn to" in obedience to the orders of the master, were arrested at San Francisco, charged with refusing to work, in violation of Rev. St., sect. 4596, were subsequently examined before a commissioner of the circuit court, and by him held to answer the charge before the district court for the northern district of California. Shortly thereafter they sued out a writ of habeas corpus, alleging that they were unlawfully restrained of their liberty by Barry Baldwin, marshal of the northern district of California, which, upon a hearing before the district court, was dismissed, and an order made remanding the prisoners to the custody of the marshal. The petitioners then appealed the case to the Supreme Court of the United States, which rendered its decision January 25, 1897, and sustained the action of the district court, but only by a divided court.

The opinion of the majority of the Supreme Court was delivered by Mr. Justice Brown, and the following, showing the reasons for their decision, is quoted therefrom:

The record raises two questions of some importance: First, as to the constitutionality of Rev. St. sects. 4598, 4599, in so far as they confer jurisdiction upon justices of the peace to apprehend deserting seamen, and return them to their vessel; second, as to the conflict of the same sections, and also section 4596, with the thirteenth amendment to the Constitution, abolishing slavery and involuntary servitude.

Section 4598, which was taken from section 7 of the act of July 20, 1790, reads as follows:

"SEC. 4598. If any seaman who shall have signed a contract to perform a voyage shall, at any port or place desert, or shall absent himself from such vessel, without leave of the master, or officer commanding in the absence of the master, it shall be lawful for any justice of the peace within the United States, upon the complaint of the master, to issue his warrant to apprehend such deserter, and bring him before such justice; and if it then appears that he has signed a contract within the intent and meaning of this title, and that the voyage agreed for is not finished, or altered, or the contract otherwise dissolved, and that such seaman has deserted the vessel, or absented himself without leave, the justice shall commit him to the house of correction or common jail of the city, town or place, to remain there until the vessel shall be ready to proceed on her voyage, or till the master shall require his discharge, and then to be delivered to the master, he paying all the cost of such commitment, and deducting the same out of the wages due to such seaman."

Section 4599, which was taken from section 53 of the shipping commissioners' act of June 7, 1872, authorizes the apprehension of deserting seamen, with or without the assistance of the local public officers or constables, and without a warrant, and their conveyance before any court of justice or magistrate of the State, to be dealt with according to law.

Section 4596, which is also taken from the same act, provides punishment by imprisonment for desertion, refusal to join the vessel, or absence without leave.

1. The first proposition, that Congress has no authority under the

Constitution to vest judicial power in the courts or judicial officers of the several States, originated in an observation of Mr. Justice Storey, in *Martin v. Hunter's Lessees*, 1 Wheat. 304, 330, to the effect that "Congress can not vest any portion of the judicial power of the United States, except in courts ordained and established by itself." This was repeated in *Houston v. Moore*, 5 Wheat. 1, 27; and the same general doctrine has received the approval of the courts of several of the States.

The general principle announced by these cases is derived from the third article of the Constitution, the first section of which declares that "the judicial power of the United States shall be vested in one Supreme Court, and in such inferior courts as the Congress may from time to time ordain and establish," the judges of which courts "shall hold their offices during good behavior," etc., and by the second section, "the judicial power shall extend to all cases, in law and equity, arising under this Constitution, the laws of the United States, and treaties made, or which shall be made, under their authority; to all cases affecting ambassadors, other public ministers and consuls; to all cases of admiralty and maritime jurisdiction; to controversies to which the United States shall be a party; to controversies between two or more States; between a State and citizens of another State; between citizens of different States; between citizens of the same State claiming lands under grants of different States, and between a State or the citizens thereof, and foreign States, citizens or subjects."

The better opinion is that the second section was intended as a constitutional definition of the judicial power (*Chisholm v. Georgia*, 2 Dall. 419, 475), which the Constitution intended to confine to courts created by Congress; in other words, that such power extends only to the trial and determination of "cases" in courts of record, and that Congress is still at liberty to authorize the judicial officers of the several States to exercise such power as is ordinarily given to officers of courts not of record; such, for instance, as the power to take affidavits, to arrest and commit for trial offenders against the laws of the United States, to naturalize aliens, and to perform such other duties as may be regarded as incidental to the judicial power rather than a part of the judicial power itself.

We think the power of justices of the peace to arrest deserting seamen and deliver them on board their vessel is not within the definition of the "judicial power" as defined by the Constitution, and may be lawfully conferred upon State officers. That the authority is a most convenient one to intrust to such officers can not be denied, as seamen frequently leave their vessels in small places, where there are no federal judicial officers, and where a justice of the peace may usually be found, with authority to issue warrants under the State laws.

2. The question whether sections 4598 and 4599 conflict with the thirteenth amendment, forbidding slavery and involuntary servitude, depends upon the construction to be given to the term "involuntary servitude." Does the epithet "involuntary" attach to the word "servitude" continuously, and make illegal any service which becomes involuntary at any time during its existence? or does it attach only at the inception of the servitude, and characterize it as unlawful because unlawfully entered into? If the former be the true construction, then no one, not even a soldier, sailor, or apprentice, can surrender his liberty, even for a day; and the soldier may desert his regiment upon the eve of battle, or the sailor abandon his ship at any intermediate port or landing, or even in a storm at sea, provided, only, he can find means of escaping to another vessel. If the latter, then an individual may for

a valuable consideration, contract for the surrender of his personal liberty for a definite time and for a recognized purpose, and subordinate his going and coming to the will of another during the continuance of the contract; not that all such contracts would be lawful, but that a servitude which was knowingly and willingly entered into could not be termed "involuntary." Thus, if one should agree for a yearly wage, to serve another in a particular capacity during his life, and never to leave his estate without his consent, the contract might not be enforceable for the want of a legal remedy, or might be void upon grounds of public policy; but the servitude could not be properly termed "involuntary."

We are also of the opinion that, even if the contract of a seaman could be considered within the letter of the thirteenth amendment, it is not, within its spirit, a case of involuntary servitude. The law is perfectly well settled that the first ten amendments to the Constitution, commonly known as the "Bill of Rights," were not intended to lay down any novel principles of government, but simply to embody certain guarantees and immunities which we had inherited from our English ancestors, and which had, from time immemorial, been subject to certain well recognized exceptions, arising from the necessities of the case. In incorporating these principles into the fundamental law, there was no intention of disregarding the exceptions, which continued to be recognized as if they had been formally expressed.

The prohibition of slavery, in the thirteenth amendment, is well known to have been adopted with reference to a state of affairs which had existed in certain States of the Union since the foundation of the government, while the addition of the words "involuntary servitude" were said, in the Slaughter-house Cases, 16 Wall. 36, to have been intended to cover the system of Mexican peonage and the Chinese coolie trade, the practical operation of which might have been a revival of the institution of slavery under a different and less offensive name. It is clear, however, that the amendment was not intended to introduce any novel doctrine with respect to certain descriptions of service which have always been treated as exceptional.

From the earliest historical period the contract of the sailor has been treated as an exceptional one, and involving, to a certain extent, the surrender of his personal liberty during the life of the contract. Indeed, the business of navigation could scarcely be carried on without some guaranty, beyond the ordinary civil remedies upon contracts, that the sailor will not desert the ship at some critical moment, or leave her at some place where seamen are impossible to be obtained,—as Molloy forcibly expresses it, "to rot in her neglected brine."

Hence, the laws of nearly all maritime nations have made provision for securing the personal attendance of the crew on board, and for their criminal punishment for desertion, or absence without leave, during the life of the shipping articles.

Here the opinion refers to the maritime laws of the ancient Rhodians, the Rules of Oleron, the laws of the towns belonging to the Hanseatic League, the Marine Ordinance of Louis XIV, the mercantile law of Germany, the Dutch Code, early English law, and some of the modern English acts to show that they contained similar provisions to those referred to in the last clause of the opinion above, and then continues as follows:

The earliest American legislation which we have been able to find is

an act of the colonial general court of Massachusetts, passed about 1668, wherein it was enacted that any mariner who departs and leaves a voyage upon which he has entered shall forfeit all his wages, and shall be further punished by imprisonment or otherwise, as the case may be circumstanced; and if he shall have received any considerable part of his wages, and shall run away, he shall be pursued as a disobedient runaway servant.

The provision of Rev. St. sect. 4598, under which the proceedings were taken, was first enacted by Congress in 1790 (1 Stat. 131, section 7). This act provided for the apprehension of deserters and their delivery on board the vessel, but apparently made no provision for imprisonment as a punishment for desertion; but by the shipping commissioner's act of 1872 (17 Stat. 243, sect. 51), now incorporated into the Revised Statutes as section 4596, the court is authorized to add to forfeiture of wages for desertion imprisonment for a period of not more than three months, and for absence without leave imprisonment for not more than one month. In this act and the amendments thereto very careful provisions are made for the protection of seamen against the frauds and cruelty of masters, the devices of boarding-house keepers, and, as far as possible, against the consequences of their own ignorance and improvidence. At the same time discipline is more stringently enforced by additional punishments for desertion, absences without leave, disobedience, insubordination, and barratry. Indeed, seamen are treated by Congress, as well as by the Parliament of Great Britain, as deficient in that full and intelligent responsibility for their acts which is accredited to ordinary adults, and as needing the protection of the law in the same sense which minors and wards are entitled to the protection of their parents and guardians. The ancient characterization of seamen as "wards of admiralty" is even more accurate now than it was formerly.

In the face of this legislation upon the subject of desertion and absence without leave, which was in force in this country for more than 60 years before the thirteenth amendment was adopted, and similar legislation abroad from time immemorial, it can not be open to doubt that the provision against involuntary servitude was never intended to apply to their contracts. The judgment of the court below is, therefore, affirmed.

Mr. Justice Harlan dissented from the conclusion of the majority of the court and delivered an interesting opinion in support of his contention, from which the following quotation is made:

If the placing of the appellants on board the *Arago* at Astoria against their will was illegal, then their refusal to work while thus forcibly held on the vessel could not be a criminal offense, and their detention and subsequent arrest for refusing to work while the vessel was going from Astoria to San Francisco were without authority of law. The question, therefore, is whether the appellants, having left the vessel at Astoria, no matter for what cause, could lawfully be required, against their will, to return to it, and to render personal services for the master. The government justifies the proceedings taken against the appellants at Astoria by sections 4596, 4598 and 4599 of the Revised Statutes of the United States.

Here the justice quotes at length the above-named sections and then continues as follows:

The decision just made proceeds upon the broad ground that one

who voluntarily engages to serve upon a private vessel in the capacity of a seaman for a given term, but who, without the consent of the master, leaves the vessel when in port before the stipulated term is ended, and refuses to return to it, may be arrested and held in custody until the vessel is ready to proceed on its voyage, and then delivered against his will, and if need be by actual force, on the vessel to the master.

The thirteenth amendment of the Constitution of the United States declares that "neither slavery nor involuntary servitude except as punishment for crime, whereof the party shall have been duly convicted, shall exist within the United States, or any place subject to their jurisdiction."

Slavery exists wherever the law recognizes a right of property in a human being, but slavery can not exist in any form within the United States. The thirteenth amendment uprooted slavery as it once existed in this country, and destroyed all of its badges and incidents. It established freedom for all. "By its own unaided force and effect it abolished slavery and established freedom." The amendment, this court has also said, "is not a mere prohibition of State laws establishing or upholding slavery or involuntary servitude, but an absolute declaration that slavery or involuntary servitude shall not exist in any part of the United States." Civil Rights Cases, 109 U. S. 1, 20, 3 Sup. Ct. 18.

As to involuntary servitude, it may exist in the United States; but it can only exist lawfully as a punishment for crime of which the party shall have been duly convicted. Such is the plain reading of the Constitution. A condition of enforced service, even for a limited period, in the private business of another, is a condition of involuntary servitude.

If it be said that government may make it a criminal offense, punishable by fine and imprisonment, or both, for anyone to violate his private contract voluntarily made, or to refuse without sufficient reason to perform it,—a proposition which can not, I think, be sustained at this day, in this land of freedom,—it would by no means follow that government could, by force applied in advance of due conviction of some crime, compel a freeman to render personal services in respect of the private business of another. The placing of a person, by force, on a vessel about to sail, is putting him in a condition of involuntary servitude, if the purpose is to compel him against his will to give his personal services in the private business in which that vessel is engaged. The personal liberty of individuals, it has been well said, "consists in the power of locomotion, of changing situation, or moving one's person to whatsoever place one's own inclination may direct, without imprisonment or restraint, unless by due course of law." 1 Bl. Comm. p. 134, c. 1.

Can the decision of the court be sustained under the clause of the Constitution granting power to Congress to regulate commerce with foreign nations and among the several States? The power can not be exerted except with due regard to other provisions of the Constitution, particularly those embodying the fundamental guaranties of life, liberty, and property. While Congress may enact regulations for the conduct of commerce with foreign nations and among the States, and may, perhaps, prescribe punishment for the violation of such regulations, it may not, in so doing, ignore other clauses of the Constitution. For instance, a regulation of commerce can not be sustained which, in disregard of the express injunctions of the Constitution, imposes a cruel and unusual punishment for its violations, or compels a person to testify in a criminal case against himself, or authorizes him to be put twice in jeopardy of life and limb, or denies to the accused the privilege

of being confronted with the witnesses against him, or of being informed of the nature and cause of the accusation against him. And it is equally clear that no regulation of commerce established by Congress can stand if its necessary operation be either to establish slavery or to create a condition of involuntary servitude forbidden by the Constitution.

It is said that the statute in question is sanctioned by long usage among the nations of the earth as well as by the above act of July 20, 1790.

Reference has also been made to an act of the colonial general court of Massachusetts, passed in 1647, declaring that a seaman who left his vessel before its voyage was ended might be "pursued as a runaway servant." But the act referred to was passed when slavery was tolerated in Massachusetts, with the assent of the government of Great Britain. It antedated the famous declaration of rights, promulgated in 1780, in which Massachusetts declared, among other things, that "all men are born free and equal, and have certain natural, essential, and unalienable rights, among which may be reckoned the right of enjoying and defending their lives and liberties; that of acquiring, possessing, and protecting property; in fine, that of seeking and obtaining their safety and happiness."

Is the existing statute to be sustained because its essential provisions were embodied in the act of 1790? I think not, and for the reason, if there were no other, that the thirteenth amendment imposes restrictions upon the powers of Congress that did not exist when that act was passed. The supreme law of the land now declares that involuntary servitude, except as a punishment for crime, of which the party shall have been duly convicted, shall not exist anywhere within the United States.

I am unable to understand how the necessity for the protection of seamen against those who take advantage of them can be made the basis of legislation compelling them, against their will, and by force, to render personal service for others engaged in private business. Their supposed helpless condition is thus made the excuse for imposing upon them burdens that could not be imposed upon other classes without depriving them of rights that inhere in personal freedom. The Constitution* furnishes no authority for any such distinction between classes of persons in this country. If, prior to the adoption of the thirteenth amendment, the arrest of a seaman, and his forcible return, under any circumstances, to the vessel on which he had engaged to serve, could have been authorized by an act of Congress, such deprivation of the liberty of a freeman can not be justified under the Constitution as it now is. To give any other construction to the Constitution is to say that it is not made for all, and that all men in this land are not free and equal before the law, but that one class may be so far subjected to involuntary servitude as to be compelled by force to render personal services in a purely private business, with which the public has no concern whatever.

The voluntary contracts of individuals for personal services in private business can not justify the existence anywhere or at any time, in this country, of a condition of involuntary servitude not imposed as a punishment for crime, any more than contracts creating the relation of master and slave can justify the existence and recognition of a state of slavery anywhere, or with respect to any persons, within the jurisdiction of the United States. The condition of one who contracts to render personal services in connection with the private business of

another becomes a condition of involuntary servitude from the moment he is compelled, against his will to continue in such service. He may be liable in damages for the nonperformance of his agreement, but to require him, against his will, to continue in the personal service of his master, is to place him and keep him in a condition of involuntary servitude. It will not do to say that by "immemorial usage" seamen could be held in a condition of involuntary servitude, without being convicted of crime. The people of the United States, by an amendment of their fundamental law, have solemnly decreed that, "except as a punishment for crime, whereof the party shall have been duly convicted," involuntary servitude shall not exist in any form in this country. The adding another exception by interpretation simply, and without amending the Constitution, is, I submit, judicial legislation. It is a very serious matter when a judicial tribunal, by the construction of an act of Congress, defeats the expressed will of the legislative branch of the Government. It is a still more serious matter when the clear reading of a constitutional provision relating to the liberty of man is departed from in deference to what is called "usage", which has existed, for the most part, under monarchical and despotic governments.

If Congress, under its power to regulate commerce with foreign nations and among the several States, can authorize the arrest of a seaman who engaged to serve upon a private vessel, and compel him by force to return to the vessel, and remain during the term for which he engaged, a similar rule may be prescribed as to employees upon railroads and steamboats engaged in commerce among the States. Even if it were conceded—a concession only to be made for argument's sake—that it could be made a criminal offense, punishable by fine or imprisonment, or both, for such employees to quit their employment before the expiration of the term for which they agreed to serve, it would not follow that they could be compelled, against their will and in advance of trial and conviction, to continue in such service. But the decision to-day logically leads to the conclusion that such a power exists in Congress. Again, as the legislatures of the States have all legislative power not prohibited to them, while Congress can only exercise certain enumerated powers for accomplishing certain specified objects, why may not the States, under the principles this day announced, compel all employees of railroads engaged in domestic commerce, and all domestic servants, and all employees in private establishments, within their respective limits, to remain with their employers during the terms for which they were severally engaged, under the penalty of being arrested by some sheriff or constable, and forcibly returned to the service of their employers? The mere statement of these matters is sufficient to indicate the scope of the decision this day rendered.

In my judgment, the holding of any person in custody, whether in jail or by an officer of the law, against his will, for the purpose of compelling him to render personal service to another in a private business, places the person so held in custody in a condition of involuntary servitude, forbidden by the Constitution of the United States; consequently, that the statute as it now is, and under which the appellants were arrested at Astoria, and placed against their will on the barkentine *Arago*, is null and void, and their refusal to work on such vessel, after being forcibly returned to it, could not be made a public offense, authorizing their subsequent arrest at San Francisco.

I dissent from the opinion and judgment of the court.

CONSTITUTIONALITY OF STATUTE—LICENSING OF LAUNDRIES—*In re Yot Sang*, 75 *Federal Reporter*, page 983.—Section 4079 of the Political Code of Montana is as follows: "Every male person engaged in the laundry other than the steam laundry business must pay a license of ten dollars per quarter, provided that, where more than one person is engaged or employed or kept at work, such male person or persons shall pay a license of twenty-five dollars per quarter, which shall be the license for one place of business only."

Section 4080 of the Political Code of Montana reads as follows: "Every person who carries on a steam laundry must pay a license of fifteen dollars per quarter."

One Yot Sang was engaged in the laundry business in Helena, Mont., the same not being a steam laundry and more than one person was "engaged or employed or kept at work" therein. He refused to take out a license, as provided by section 4079 above quoted, and he was arrested and confined in jail by virtue of a writ issued by a justice of the peace charging him with a misdemeanor. He petitioned the United States district court for a writ of habeas corpus, which was granted after hearing in the decision of said court rendered August 29, 1896.

The opinion of said court, delivered by Judge Knowles, contains the following language:

In the fourteenth amendment to the Constitution of the United States it is provided that: "No State shall deny to any person within its jurisdiction the equal protection of the laws."

It is urged that the above statutes show that the State of Montana has not afforded to those carrying on a laundry business other than a steam laundry business the equal protection of the law; that, in fact, it discriminates against one class of laundrymen, and in favor of another class. Is it not apparent that a law which requires of one man conducting a laundry business, employing one or more persons, a license of \$25, and of another man conducting such a business a license of \$15, is subjecting the one to a burden not imposed upon the other? It seems to me that in this case it appears that an additional burden is cast upon those conducting the business of a laundry other than by steam, where one or more persons are employed, than is imposed upon those conducting a steam laundry, and that no conditions are presented which would justify the State in adding this additional burden. It is therefore held that the arresting of Yot Sang for the refusal to take out a license, and pay therefor \$25, before he could conduct a laundry business in which one or more persons were employed, the same being other than steam, was void, by virtue of the said fourteenth amendment to the Constitution.

CONSTITUTIONALITY OF STATUTE—MECHANICS' LIEN ACT—*Palmer et al. v. Tingle, and Young v. Lion Hardware Co.*, 45 *Northeastern Reporter*, page 313.—Separate actions were brought in the courts of common pleas of Ohio by Palmer and Crawford against William C. Tingle, and by the Lion Hardware Company against L. F. Young, to foreclose mechanic's

liens. In the former case there was a judgment for defendant on appeal to the circuit court of Putnam County, and in the latter case there was a judgment for plaintiff on appeal to the circuit court of Clark County. These cases were carried to the supreme court of the State on writs of error and were heard and determined together. Said court rendered its decision December 8, 1896, and affirmed the judgment in the former case and reversed the judgment in the latter. The decision hinged upon the constitutionality of section 3184 of the Revised Statutes as amended by an act passed April 13, 1894 (91 Ohio Laws, page 135), a mechanic's lien act, and said section was decided to be unconstitutional.

The opinion of the supreme court was delivered by Judge Burket, and the following, quoted therefrom, sufficiently states the facts in the cases and the reasons for the decision:

The constitutionality of the amendment of the mechanic's lien law, as passed April 13, 1894 (91 Ohio Laws, 135), is challenged in each of the cases. In the first case, payment was made under the contract in full before the work was done. In the second case, payment was made under the contract as the work progressed, and a final payment in full upon the completion and acceptance of the building, and before any mechanic's lien was filed, or notice given the owner. The section of the statute under which a right to a lien in these cases is claimed is as follows: "Sec. 3184. A person who performs labor, or furnishes machinery or material for constructing, altering or repairing a boat, vessel or other water-craft, or for erecting, altering, repairing or removing a house, mill, manufactory, or any furnace or furnace material therein, or other building, appurtenance, fixture, bridge or other structure, or for the digging, drilling, plumbing, boring, operating, completing or repairing of any gas-well, oil-well, or any other well, or performs labor of any kind whatsoever, in altering, repairing, or constructing any oil-derrick, oil-tank, oil or gas pipe-line, or furnishes tile for the drainage of any lot or land by virtue of a contract with, or at the instance of the owner thereof or his agent, trustee, contractor or subcontractor, shall have a lien to secure the payment of the same upon such boat, vessel, or other water-craft, or upon such house, mill, manufactory or other building or appurtenance, fixture, bridge or other structure, or upon such gas-well, oil-well, or any other well, or upon such oil-derrick, oil-tank, oil or gas pipe-line, and upon the material and machinery so furnished, and upon the interest, lease-hold or otherwise, of the owner in the lot for and on which the same may stand, or to which it may be removed."

The former statute on this subject provided that a lien might be taken by a person who should perform labor, or furnish machinery or material, by virtue of a contract with the owner or his authorized agent, while the statute here in question provides that such lien may be taken by any person who performs labor, or furnishes machinery or material, or tile for drainage, by virtue of a contract with, or at the instance of the owner, or his agent, trustee, contractor, or subcontractor. It is claimed by those opposing the statute that in so far as it undertakes to give a lien on the owner's property for labor, machinery, or tile not supplied under any contract with him or with his agent, and not at the instance of either, it is unconstitutional. On the part of those who are upholding the statute, it is claimed that the statute is constitutional, and that, by operation of law, its terms become woven into the contract between the owner

and the contractor, and that the owner, having thereby agreed to pay the debts made by the contractor in completing the building, has no cause for complaint. As to which claim is right must be determined by the constitution, aided by general rules of law.

The preamble to the constitution is as follows: "We, the people of the State of Ohio, grateful to Almighty God for our freedom, to secure its blessings and promote our common welfare do establish this constitution." It is worthy of notice that the constitution is established to secure the blessings of freedom, and to promote the common welfare. As the constitution must be regarded as consistent with itself throughout, it must be presumed that the laws to be passed by the general assembly under the powers conferred by that instrument are to be such as shall secure the blessings of freedom, and promote our common welfare. To make this more emphatic, the first section of the bill of rights provides that, "All men are, by nature, free and independent, and have certain inalienable rights, among which are those of enjoying and defending life and liberty, acquiring, possessing, and protecting property, and seeking and obtaining happiness and safety." And by the second section it is provided that: "All political power is inherent in the people. Government is instituted for their equal protection and benefit." The usual and most frequent means of acquiring property is by contract, and one of the most valuable and sacred rights is the right to make and enforce contracts. The obligation of a contract, when made and entered into, can not be impaired by act of the general assembly. Const. art. 2, sect. 28. The word "liberty" as used in the first section of the bill of rights, does not mean a mere freedom from physical restraint or state of slavery, but is deemed to embrace the right of man to be free in the enjoyment of faculties with which he has been endowed by his Creator, subject only to such restraints as are necessary for the common welfare.

Contracts and compacts have been entered into between men, tribes, and nations during all the time from the earliest dawn of history; and the right and liberty of contract is one of the inalienable rights of man, fully secured and protected by our Constitution, and it may be restrained only in so far as it is necessary for the common welfare and the equal protection and benefit of the people. That such restraint of the right and liberty of contract is for the common, public welfare, and equal protection and benefit of the people must appear, not only to the general assembly, in the face of popular clamor, or the pressure of the lobby, but also to the courts; and it must be so clear that a court of justice, in the calm deliberation of its judgment, may be able to see that such restraint is for the common welfare and equal protection and benefit of the people. The statute in restraint of the liberty of contract as to interest on money is valid for the reason that all can see that it is for the common welfare. Our exemption laws can be sustained only on the ground that while they, in a slight degree, limit the liberty of contract, such limitation is for the general welfare of the whole people, and does not interfere with their equal protection and benefit. In such cases courts can see that the slight restraint of the liberty of contract is for the common welfare of the people, but no court can see that it is for the common, public welfare that the liberty of contract should be taken away from the owner of a building, to enable the seller of materials to collect their value from a man who never purchased them, and has already fully paid the one with whom he contracted for all that he has received. There can be no public necessity for making the contractor the agent of the owner, to enable the seller

of materials to collect his pay from one who does not owe him, and with whom he has no contract. An agent can have no interest adverse to his master, but this statute attempts to create an agent for the owner out of the contractor, who is opposed to him in every interest. It is an attempt to make the contractor serve two masters—himself and the owner. This can not be done. The owner has the right to acquire his building upon the best terms possible, and if he can, by making a contract to pay, in advance, or by exchange of securities or other property, acquire his building cheaper than by contracting to pay after four months from its completion, he has the inalienable right to so acquire it, and to be protected in its enjoyment; and it is not within the power of the general assembly to compel him to pay a higher price for his building, for the protection of laborers and furnishers with whom he has no contractual relations. To enable the contractor, by force of this statute, to enlarge the price to be paid, by allowing liens to be taken on the property for labor and materials, would be as unjust as to authorize the owner, by statute, to enlarge the building, without a corresponding increase in payment.

But it is urged that the act is constitutional for the reason that the statute itself must be read into the contract, and that thereby the owner agrees that the contractor may obtain labor and materials for which a lien may be taken against the owner's property. This begs the question, and assumes the constitutionality of the statute. If the statute is valid, it must be read into the contract; but, if invalid, it binds neither party, and does not become a part of the contract.

The conclusion is that the statute in question, in so far as it attempts to give a lien for materials, machinery, tile or labor obtained by the contractors, is unconstitutional and void.

CONSTITUTIONALITY OF STATUTE—SUNDAY LABOR—BARBERS—*City of Tacoma v. Krech*, 46 *Pacific Reporter*, page 255.—Henry Krech was convicted in the superior court of Pierce County, Wash., for violating an ordinance of the city of Tacoma prohibiting barbers from pursuing their occupation on Sunday. He appealed to the supreme court of the State and said court rendered its decision September 28, 1896, and reversed the judgment of the lower court, on the ground that the city ordinance under which he was convicted was unconstitutional and void. From the opinion of the supreme court the following is quoted:

This judgment is attacked for various reasons by the appellant, but, with the view we take of his last contention, viz, that the law is special, and is obnoxious to the provisions of our constitution in relation to special legislation, a discussion of the other propositions will not be necessary. One class of people is singled out by this law, while other laboring people, in different characters of employment, are allowed to prosecute their work. Conceding, for the purpose of this case, the right of the legislature to pass a law restricting or forbidding manual labor on Sunday, yet, under the provisions of our constitution, the restriction must be imposed alike upon all residents of the State, or the effect of the law would be to work privileges and immunities upon one class of citizens which did not equally belong to all citizens. If this law is valid,

then the legislature would have the right to prohibit farm labor on Sunday, to prohibit working for printers on Sunday, to prohibit nine-tenths of the employments which citizens usually engage in in this country, and leave the other one-tenth of the people to pursue their vocations.

This would plainly be granting privileges and immunities to one class which did not belong equally to all citizens. The object of the constitution was to prohibit special legislation, and substitute in its place a general law, which bore on all alike. It seems to us that the ordinance in question is "special legislation," within the meaning of the constitution; and, of course, if the legislature had no right to pass such a law, it could not delegate such power to a city council. We therefore hold the ordinance to be unconstitutional. The judgment will be reversed, and the cause dismissed.

[For other recent decisions on the same point as the above, see the cases *Ex parte Jentzsch*, *State v. Grauneman*, and *People v. Havnor*, pages 670 to 678, Bulletin of the Department of Labor, No. 6.]

CONSTITUTIONALITY OF STATUTE—SUNDAY LABOR—RUNNING OF RAILROAD TRAINS—*State v. Southern Railway Co.*, 25 *Southeastern Reporter*, page 862.—The Southern Railway Company was convicted in the superior court of Guilford County, N. C., of a violation of the statute prohibiting the running of trains on Sunday, and appealed their case to the supreme court of the State. Said court rendered its decision November 10, 1896, and affirmed the judgment of the superior court. From the opinion of said court, which was delivered by Judge Avery, the following is quoted:

The statute (Code, sec. 1973) under which the indictment is drawn is not unconstitutional. Although it affects interstate commerce to some extent, there is nothing in its provisions which suggest a purpose on the part of the legislature to interfere with such traffic, or indicative of any other intent than to prescribe, in the honest exercise of the police power, a rule of civil conduct for persons within her territorial jurisdiction. Such a law is valid, and must be obeyed, unless and until Congress shall have passed some statute which supersedes that act by prescribing regulations for the running of trains on the Sabbath on all railway lines engaged in interstate commerce. While the State may not interfere with transportation into or through its territory "beyond what is absolutely necessary for its self-protection," it is authorized, in the exercise of the police power, to provide for maintaining domestic order, and for protecting the health, morals, and security of the people. Congress is unquestionably empowered, whenever it may see fit to do so, to supersede, by express enactment on this subject, all conflicting State legislation. But until its powers are asserted and exercised, the statute under which the indictment is drawn may be enforced, and will constitute one of the many illustrations of the principle that the States have the power, at least in the absence of any action of Congress, to pass laws necessary to preserve the health and morals of their people, though their enforcement may involve some slight delay or disturbance of the transportation of goods or persons through their borders.

CONTRACT OF EMPLOYMENT—STATUTE OF FRAUDS—*Moody et al. v. Jones*, 37 *Southwestern Reporter*, page 379.—Action was brought in the district court of Galveston County, Tex., by John E. Jones against W. L. Moody & Co. to recover damages for the alleged breach of a contract for personal services. He alleged, and introduced parol evidence (testimony of witnesses) to prove, that Moody & Co. had employed him on or about September 1, 1893, to serve them as cotton clerk in their business as cotton factors for a period of twelve months from January 1, 1894; that on said date he entered upon the discharge of his duties as such clerk and performed them until March 31, 1894, when he was discharged without cause, and that his salary had been paid up to the time of his discharge. Upon the trial the defendants objected to the introduction of parol evidence to prove the agreement or contract of employment upon the ground that it came within the statute of frauds requiring an agreement not to be performed within one year to be in writing, and that therefore the introduction of a written agreement would be the only evidence which could be admitted as proof of the alleged contract. This objection was overruled and judgment was rendered for the plaintiff. The defendants carried the case on writ of error to the court of civil appeals of the State, which rendered its decision October 22, 1896, sustaining the contention of the defendants and reversing the judgment of the lower court. In the opinion of said court, which was delivered by Chief Justice Garrett, the following language was used:

Under the statute of frauds (Rev. St. 1879, art. 2464): "No action shall be brought in any of the following cases, unless the promise or agreement upon which such action shall be brought, or some memorandum thereof, shall be in writing and signed by the party to be charged therewith, or by some person by him thereunto authorized, * * * (5) upon any agreement which is not to be performed within the space of one year from the making thereof." Since the contract of employment was to commence at a future date, and run for 12 months, it fell clearly within the statute, and, being a parol contract, no action could be maintained thereon. The fact that the plaintiff's salary was to be paid monthly does not take the agreement out of the statute of frauds. He has sued upon a contract of employment for a year, to commence at a future date, and in support thereof offers no writing. This brings the agreement clearly within the statute.

For the error of the court in admitting parol evidence to prove the contract sued on, and in charging the jury that plaintiff would be entitled to recover the balance of the stipulated salary for one year from the date of the agreement, the judgment of the court below will be reversed and the cause remanded.

EMPLOYERS' LIABILITY—COMPETENCY OF PHYSICIAN AS WITNESS—*Colorado Fuel and Iron Co. v. Cummings*, 46 *Pacific Reporter*, page 875.—Richard Cummings brought suit in the district court of Pueblo County, Colo., against the above-named company to recover

damages for personal injuries sustained while in the employ of said company. He recovered a judgment, and the defendant company appealed the case to the court of appeals of the State, which rendered its decision November 9, 1896, and reversed the decision of the lower court. There was but one point of particular interest decided by the court, which was as follows: The plaintiff claimed that while working in a rolling mill of the defendants he had occasion to step onto a part of the rolling machine called a "table" to turn a valve; that owing to the negligence of the defendants the electric light went out, and that owing to that fact he could not see where he had put his right foot, and the machinery starting at that moment his foot was caught in the cogs and badly injured. The theory of the defense was that the plaintiff did not step on the table, but that he was kicking scales out from under the table, and that when the table was lowered it caught his foot. In order to sustain this theory they offered the testimony of the hospital physician, by whom the plaintiff had been treated, to show how, in his opinion, the injury must have been sustained. The district court excluded his testimony on the trial, and the court of appeals sustained it in so doing, and its reasons therefor are stated by Judge Bissell, who delivered the opinion of the court in that part of the same, which is quoted below:

The C. C. and I. Co., as the appellant used to be known, and the D. and R. G. Ry. Co., established a hospital in Pueblo for the use of both companies. This hospital was supported by contributions, more or less voluntary or compulsory, from the employees of both corporations, out of whose monthly wages a certain sum was deducted for what was called a "hospital fund," and devoted to the maintenance of the building, the purchase of supplies for it, and the hire of physicians and nurses who were employed about it. The companies were apparently responsible for the hospital, and for all bills which were contracted in connection with it, whether for supplies, attendance, or medical service, though the funds which they used may all or partially or otherwise have come from these monthly contributions. Whatever the fact may be, the doctor who was employed by the company, and received his salary from them, under these circumstances, attended Cummings after he was hurt. He was put on the stand, and interrogated respecting his observation of the foot, and respecting his opinion about the manner in which it was hurt. This was evidently in support of the defendants' theory that Cummings was not hurt while climbing onto the table to turn the valve, but got his foot underneath the table in kicking out the scales, as one witness testified he had stated to him directly thereafter, and got his foot caught when the motorman was lowering the table. The importance of this evidence was quite apparent on any theory which the plaintiff had advanced, for if the doctor should testify that, according to his examination, the hurt came by a pressure from above, and not by the interlocking of cogs, it would support the contention that the injury was received while kicking scales. The testimony was excluded, and the appellant strenuously insists the ruling was erroneous. According to the better authorities, the testimony is inadmissible if the relation of physician and patient existed. Our statute (Gen. St. sec. 3649) prohibits the examination of a physician or

surgeon without the consent of his patient as to any information which he may have acquired by tending him. This provision is as broad as the statute of any State to which our attention has been called. As we view the case, and as we believe the law to be, the inhibition is broad enough to exclude an examination of the surgeon as to any information which he has acquired while attending a patient, whether this information is deduced from statements or gathered from his professional or surgical examination. The authorities hold that no matter how the information may be acquired, whether it comes to the surgeon in the shape of oral statements, or by reason of his examination, he can not be interrogated respecting it.

This leaves only the question whether the relation of physician and patient existed. It is a narrow inquiry, and one possibly a little difficult of satisfactory solution. We are, however, entirely satisfied that the circumstances under which the doctor was employed, and the relation existing between the company and its employees and the doctor, were such as to put the physician and the plaintiff directly in the relation of doctor and patient. The plaintiff's contributions may have been slight, but the circumstances of the situation were such as to lead him to put himself implicitly under the care of the surgeon, and to trust himself in his hands for care, to the same extent and under the same circumstances as though he had sent out for another physician, and put himself directly in his charge. Unless something more can be shown than the present case discloses, we are compelled to hold the evidence properly excluded.

EMPLOYERS' LIABILITY—CONSTRUCTION OF STATUTE—DISCONTINUANCE OF SUIT BY ADMINISTRATOR—*Miller et al. v. Coffin*, 36 *Atlantic Reporter*, page 6.—This suit was commenced by a bill filed in the supreme court of Rhode Island by Jennie L. Miller and others, the widow and next of kin of Alfred Miller, deceased, asking for an injunction against the respondent, Clarence U. Coffin, to restrain him from discontinuing an action brought by them in his name as administrator of the estate of the said Alfred Miller, against the Newport and Wickford Railroad and Steamboat Company and the Adams Express Company, for damages for the death of said Alfred Miller, alleged to have been caused by the negligence of said companies, Miller being in the employ of one of said companies at the time of the accident. The respondent, Coffin, demurred to the bill, and the supreme court sustained the demurrer. The complainants then amended their bill and the respondent filed a plea to the same, in which he set out the declaration in the suit for damages against the above-named companies. The supreme court rendered its decision September 16, 1895, in which it sustained the respondent's plea and refused to grant the injunction. In the course of said decision, sections 15 and 18 of chapter 204 of the Public Statutes of Rhode Island, which provide for a right of action against common carriers for the death of "any person, whether a passenger or not, in the care of" such common carriers, were construed.

The opinion of the supreme court was delivered by Judge Stiness, and the following, bearing on the construction of the statute above mentioned, is quoted therefrom:

If the declaration [in the suit for damages against the companies, above named] set out a good cause of action, the respondent ought to prosecute it; if the declaration does not set out a good cause of action, the respondent ought not to be required to prosecute a losing suit. We think it is clear that the declaration set up in the plea does not show a cause of action in favor of the complainants. It does not state which corporation was negligent, nor in what way, nor is the happening of the accident of such a character in itself as to amount to *prima facie* evidence of negligence.

So far as the steamboat company is concerned, it [the accident] might have been caused by the negligence of a fellow-servant, and this is the question which has been argued. Does the statute which gives a right of action against common carriers for the death of "any person, whether a passenger or not, in the care of" such common carrier cover the case of a servant whose death is caused by the negligence of a fellow-servant?

Two rules are firmly established in the law of master and servant: First, that a master is not liable for injuries to a servant through the negligence of a fellow-servant, and not through the negligence of the master; second, that a servant assumes the risks incident to his employment.

Our first statute, passed in October, 1853, which was limited to passengers, gave the right of action for the negligence of the common carrier, or its servants. In January, 1855, the law was extended. In the Revision of 1857, the law was put, substantially, into its present form, by extending it to the loss of life "of any person, whether a passenger or not, in the care of" a common carrier. Up to this point there was no provision at all for the loss of life of a servant, and the question comes whether this last change was intended to sweep away the limitations which had become ingrafted into similar laws by the decisions of the courts. We think it was not so intended for many reasons. It is a familiar rule that statutes are not to be construed in derogation of the common law, except so far as an intent to do so is plain; and, when a statute is adopted which has already received judicial construction, it is to be presumed that it was adopted in view of such construction. Even where the language of the statute, taken literally, is absolute, it may still be subject to exceptions.

The cautious procedure in adopting the limited provisions of the preceding acts leads us to believe that there was no intention in the Revision of 1857 to make a longer leap than had been made elsewhere. It meant, undoubtedly, to give a right of action even for the death of an employee when it should be caused by the negligence of common carriers by railroads or steamboats, in distinction from other persons who were to be liable only for a wrongful act. To this extent the act is appropriate and effective, and extends to many cases of negligence by servants or agents, who may be intrusted with duties which belong to the master. But it is not to be presumed that it meant to make a company liable to an employee for the negligence of a fellow-servant.

Adopting the construction insisted upon by the plaintiff, a servant injured by a fellow-servant while operating a locomotive or train of cars, although he may be maimed, mangled, and disfigured, and may suffer for an indefinite period of time the most excruciating tortures,

can have no action against a master or employer; yet, if he die, his representative may recover of his employer. This statement seems to be quite sufficient to show that it would be most absurd to construe this provision, relating to the death of a servant, by a different rule from that which would govern his own action if he had lived. In the latter case the simple question would be whether the employer had been at fault. If not he could not be made to pay for the wrong done by somebody else, because of greater ability to pay; and it would be just as wrong to compel him to pay for the fault of another if the servant should die as it would be if he lived. Certain duties devolve upon a master, whether a corporation or an individual, and for these he must be responsible; but for the carelessness of a fellow-servant, outside of such duties, the master can not be held responsible.

An analysis of the statute according to the complainant's construction would come to: "Any person, whether a passenger or not, in the care of" a railroad or steamboat company, includes an employee. The death of the employee by reason of the negligence of the carrier or its servants or agents is a sufficient basis for an action, without reference to his own negligence or that of his fellow-servants, or the ordinary risks of his employment. We can not think that this is so. On the contrary, we are constrained to hold that the statute was not intended to abrogate the rules of the common law in such cases, but to give a right of action in conformity to them; and so the provision for an action for the death of "any person, whether a passenger or not, in the care of" a railroad company, by reason of the negligence of its servants, does not allow such action, irrespective of the fact that the deceased was an employee, and injured by the negligence of a fellow-servant. We therefore decide that the plea is a sufficient answer to the bill, and it is sustained.

EXEMPTION FROM GARNISHMENT—WAGES—*Weaver et al. v. Hill, 37 Southwestern Reporter, page 142.*—Action was brought in the circuit court of Knox County, Tenn., by J. W. Hill against J. R. Weaver and the Southern Railway Company, garnishees. A judgment was rendered for the plaintiff and defendant Weaver appealed the case to the supreme court of the State, which rendered its decision October 10, 1896, and reversed the decision of the lower court.

The opinion of the supreme court, delivered by Judge Wilkes, and containing a statement of facts in the case, reads as follows:

This is a garnishment proceeding. The trial judge gave judgment for \$12.65, and the defendant Weaver appealed, and has assigned an error that the amount for which the judgment was rendered was not subject to garnishment, but was exempt, under the act of 1895, p. 388, c. 192. It appears that the garnishment was served upon the railway company February 20, 1896, returnable March 5, 1896. The company answered that, at the time the garnishment was served, it was indebted to Weaver, for wages as a laborer, in the sum of \$42.65, and that Weaver claimed an exemption of \$30 of such amount as laborer's wages. In the circuit court it appeared that it was the custom of the railroad company to pay wages to its employees on the 20th of each month for the previous month, and the wages were due at that time; that when the garnishment was served the company was owing Weaver

for January, 1896, \$28, and for February, 1896, \$14.65; that the amount owing for January, 1896, was then due and payable, but the amount earned and owing for February, 1896, was not due and payable until the 20th of March, 1896. The circuit judge, upon this proof, was of the opinion that \$30 of the entire amount owing was exempt, under the statute, and the remainder, or \$12.65, then earned but not due, could be reached by garnishment, and gave judgment accordingly.

Mill. and V. Code, sec. 2931, exempts \$30 of the wages of every mechanic or laboring man, and provides that, "the lien created by service of garnishment shall only affect that portion of a laborer's wages that may be due at the time service is made and not any future wages." It is said that this section of the Code was construed in *Van Vleet v. Stratton*, 91 Tenn. 476, 19 S. W. 428, to hold that wages which have been earned, but are not yet due, may be seized under garnishment, and language to that effect is used in considering that case. The real question involved in that case, however, was that an employer might pay his employee his wages in advance, and this would not be a fraudulent evasion of the garnishment law. After the decision in *Van Vleet v. Stratton* the act of May 13, 1895, was passed by the legislature. This act is entitled "An act to prevent the attachment or garnishment of the future wages or salary of any employee," and is in these words: "That hereafter no attachment or garnishment shall be issued to attach or garnishee the future salary or wages of any employee or other person, but any such attachment or garnishment shall only be for salary or wages due at the date of the service of the garnishment or attachment." It is evident that by this act the legislature intended that only salary and wages due at the time the garnishment notice is served can be seized if in excess of the \$30 exemption; and it, in express terms, takes away any right to attach or garnish any salary or wages not due when the notice is served, and we can give effect to the act in no other way than by such construction. It is true that Mill. and V. Code, sec. 3810, provides that choses in action, whether due or not, are subject to garnishment, under the terms "property, debts and effects," and section 4226 provides that "if the debt of the garnishee to the defendant is not due execution will be suspended until its maturity," indicating a clear legislative intent that ordinarily choses in action may be garnished, whether due or not; but it is equally clear that, as to wages and salaries of employees, both in Mill. and V. Code, sec. 2931, and the act of 1895, it is the legislative intent and provision that only such wages and salaries as are due at the time of the service of the garnishment are liable to it, and the inference is irresistible that the legislature intended to apply a different rule in cases of salaries and wages to that prevailing as to other choses in action. The judgment of the court below is reversed, and the garnishment proceedings dismissed, at the cost of the creditor Hill.

LABORERS' LIEN ON CROPS—ENFORCEABLE AGAINST PURCHASER WITHOUT NOTICE—*Powell v. Smith*, 20 *Southern Reporter*, page 872.—Action was brought by T. C. Smith against J. F. Powell in the circuit court of Yazoo County, Miss., to enforce a laborer's lien on a crop of cotton. Judgment was rendered for the plaintiff, Smith, and the defendant, Powell, appealed the case to the supreme court of the State, which rendered its decision November 16, 1896, and, while

reversing the judgment of the lower court, decided, among other points, that the lien given by statute to an employee "aiding by his labor to make, gather, or prepare for sale or market any crop" (Code of 1892, section 2682), is as broad as a landlord's lien, and may be enforced against a purchaser of the crop in open market, whether he bought with notice of the lien or not.

The opinion of the supreme court was delivered by Judge Whitfield, and in discussing the point above mentioned he used the following language:

This court has held that the landlord may recover the value of agricultural products on which he has the statutory lien, whether the purchaser thereof in open market has notice or not. It follows, inescapably, that the same rule must be applied to the lien of the employee or other person "aiding by his labor to make, gather or prepare for sale or market any crop," etc., and that this lien must be co-extensive and reciprocal with the lien of the landlord. The language of section 2682, defining the lien of the employee, is, "Such liens shall be paramount to all liens and incumbrances or rights of any kind created by or against the person so contracting for such assistance, except the lessor of the land * * * for rent or supplies;" and that of section 2495, defining the landlord's lien, is, "This lien shall be paramount to all other liens, claims, or demands upon such products." If there be any difference as to the extent of the two liens, it would seem that the employee's is the broader. Both are creatures of the statute, neither requiring record, but the statute charging, of itself, all the world with notice of the existence of the lien. Section 2683 provides that the employee's lien "shall exist by virtue of the relation of the parties, and without any writing," or record, if written.

In *Buck v. Payne*, 52 Miss., 277, it was said that "the policy of the statute is to make sure to the laborer his wages"; and in *Irwin v. Miller*, 72 Miss., at page 177, 16 South., 678, that "the primary and principal purpose of this section [2682] is to afford security to agricultural laborers," in which case the benefit of the lien was extended to a ginner. In view of the fact that our people are mainly agriculturists, and of this unbroken course of legislation and decision, it is impossible to hold that the lien of the employee or other person does not have equal scope with that of the landlord.

DECISIONS UNDER COMMON LAW.

BENEFICIAL ASSOCIATIONS—NOT PARTNERSHIPS—OWNERSHIP OF PROPERTY—*Local Union No. 1, Textile Workers v. Barrett*, 36 *Atlantic Reporter*, page 5.—This action was brought by the above named union of textile workers against Joseph Barrett to recover money had and received. A judgment was rendered dismissing the action and the plaintiff appealed the case to the supreme court of the State, Rhode Island, which court rendered its decision December 22, 1896, and reversed the judgment of the lower court.

The opinion of said court was delivered by Chief Justice Matteson, and in the course of the same he used the following language:

This is assumpsit for money had and received. The plaintiff is a beneficial association, unincorporated. The agreed statement of facts

shows that, while a member of the association, the defendant received of the funds belonging to it \$13.86, which he still retains, though he had ceased to be a member of the association before the bringing of the suit. The court below held that the action could not be maintained, because the association, not being incorporated, must be regarded as a partnership. We think this was error. The essential element of a partnership, as between its members, is the agreement to share profits and losses. This element is wanting in voluntary associations, such as the plaintiff, formed for social or charitable purposes and the like, and not for the purpose of trade or profit, and hence they do not stand on the footing of a partnership. The property of such an association is a mere incident to the purpose of the organization, and a member has no proprietary interest in it, nor right to any proportional part of it, either during his continuance in the partnership, or upon his withdrawal. He has merely the use and enjoyment of it while a member, the property belonging to and remaining with the society.

But, were the rule otherwise, section 3 of the by-laws of the plaintiff, made a part of the agreed statement of facts, provides that "none but members in good standing shall be eligible to hold * * * any ownership in any property belonging to the union." The defendant, on becoming a member of the association, assented to this by-law, and therefore it became a part of the contract between him and the association. On ceasing to be a member of the association in good standing, all his interest in its funds was terminated by the operation of this by-law. Judgment for plaintiff for \$13.86, with interest from the date of the writ, and costs.

CONTRACT COMPELLING EMPLOYEE TO JOIN LABOR UNION UNLAWFUL—*Curran v. Galen et al.*, 46 *Northeastern Reporter*, page 297.—Action was brought by Charles Curran against Leon Galen and others, in the general term of the supreme court of New York, fifth department, and the plaintiff obtained a judgment. The defendants appealed the case to the court of appeals of the State, which rendered its decision March 2, 1897, and affirmed the judgment of the supreme court. The facts of the case are as follows: The plaintiff, Curran, demanded damages against the defendants for having confederated and conspired together to injure him by taking away his means of earning a livelihood and preventing him from obtaining employment. He set out in his complaint that he was an engineer by trade, and that, previously to the acts mentioned, he was earning, by reason of his trade, a large income, and had constant employment at remunerative wages. He set forth the existence of an unincorporated association in the city of Rochester, where he was a resident, called the Brewery Workingmen's Local Assembly, 1796, Knights of Labor, which was composed of workingmen employed in the brewing business in that city, and was a branch of a national organization known as the Knights of Labor. He alleged that it assumed to control by its rules and regulations the acts of its members in relation to that trade and employment, and demanded and obtained from its members implicit obedience

in relation thereto. Plaintiff then alleged that the defendants, Grossberger and Watts, wrongfully and maliciously conspired and combined together, and with the said local assembly, for the purpose of injuring him and taking away his means of earning a livelihood, in the following manner, to wit: That in the month of November, 1890, Grossberger and Watts threatened the plaintiff that unless he would join said local assembly, pay the initiation fee, and subject himself to its rules and regulations, they and that association would obtain plaintiff's discharge from the employment in which he then was, and would make it impossible for him to obtain any employment in the city of Rochester or elsewhere, unless he became a member of said association. In pursuance of that conspiracy, upon plaintiff's refusing to become a member of said association, Grossberger and Watts and the association made complaint to the plaintiff's employers, and forced them to discharge him from their employ, and, by false and malicious reports in regard to him, sought to bring him into ill repute with members of his trade and employers, and to prevent him from prosecuting his trade and earning a livelihood. The defendants' answer admitted all that was alleged in respect to the organization of the local assembly. It denied, generally and specifically, each and every other allegation in the complaint, and as a separate answer and defense to the complaint the defendants set up the existence in the city of Rochester of the Ale Brewers' Association, and an agreement between that association and the local assembly described in the complaint, to the effect that all employees of the brewing companies belonging to the Ale Brewers' Association "shall be members of the Brewery Workingmen's Local Assembly, 1796, Knights of Labor; and that no employee should work for a longer period than four weeks without becoming a member." They alleged that the plaintiff was retained in the employment of the Miller Brewing Company "for more than four weeks after he was notified of the provisions of said agreement requiring him to become a member of the local assembly;" that defendants requested plaintiff to become a member, and, upon his refusal to comply, "Grossberger and Watts, as members of said assembly, and as a committee duly appointed for that purpose, notified the officers of the Miller Brewing Company that plaintiff, after repeated requests, had refused for more than four weeks to become a member of said assembly;" and that "defendants did so solely in pursuance of said agreement, and in accordance with the terms thereof, and without intent or purpose to injure plaintiff in any way." The plaintiff demurred to the matter set up as a separate defense to the complaint, upon the ground that it was insufficient, in law, upon the face thereof. The supreme court sustained the demurrer and the question upon which the case came to the court of appeals was whether the matter set up by way of special defense was sufficient to exonerate the defendants from the charge made in the complaint of a conspiracy to injure the plaintiff and to deprive him of the means of earning his livelihood.

As stated above, the court of appeals decided this question in the negative, and from its opinion the following, showing the reasons for said decision, is quoted:

In the decision of the question before us we have to consider whether the agreement upon which the defendants rely in defense of this action, and to justify their part in the dismissal of the plaintiff from his employment, was one which the law will regard with favor and uphold when compliance with its requirements is made a test of the individual's right to be employed. If such an agreement is lawful, then it must be conceded that the defendants are entitled to set it up as a defense to the action, forasmuch as they allege that what they did was in accordance with its terms. In the general consideration of this subject, it must be premised that the organization or the cooperation of workmen is not against any public policy. Indeed, it must be regarded as having the sanction of law when it is for such legitimate purposes as that of obtaining an advance in the rate of wages or compensation, or of maintaining such rate. Penal Code, sect. 170. It is proper and praiseworthy, and perhaps falls within that general view of human society which perceives an underlying law that men should unite to achieve that which each by himself can not achieve, or can achieve less readily. But the social principle which justifies such organizations is departed from when they are so extended in their operation as either to intend or to accomplish injury to others. Public policy and the interests of society favor the utmost freedom in the citizen to pursue his lawful trade or calling, and if the purpose of an organization or combination of workmen be to hamper or to restrict that freedom, and, through contracts or arrangements with employers, to coerce other workmen to become members of the organization and to come under its rules and conditions, under the penalty of the loss of their positions and of deprivation of employment, then that purpose seems clearly unlawful, and militates against the spirit of our Government and the nature of our institutions. The effectuation of such a purpose would conflict with that principle of public policy which prohibits monopolies and exclusive privileges. It would tend to deprive the public of the services of men in useful employments and capacities. It would, to use the language of Mr. Justice Barrett in *People v. Smith*, 5 N. Y. Cr. R. at page 513, "impoverish and crush a citizen for no reason connected in the slightest degree with the advancement of wages or the maintenance of the rate."

Every citizen is deeply interested in the strict maintenance of the constitutional right freely to pursue a lawful avocation under conditions equal as to all, and to enjoy the fruits of his labor, without the imposition of any conditions not required for the general welfare of the community. The candid mind should shrink from the operation of the principle contended for here; for there would certainly be a compulsion or fettering of the individual glaringly at variance with that freedom in the pursuit of happiness which is believed to be guaranteed to all by the provisions of the fundamental law of the State. The sympathies or the fellow feeling which, as a social principle, underlies the association of workmen for their common benefit, are not consistent with a purpose to oppress the individual who prefers by single effort to gain his livelihood. If organization of workmen is in line with good government, it is because it is intended as a legitimate instrumentality to promote the common good of its members. If it militates against the general public interest, if its powers are directed

towards the repression of individual freedom, upon what principle shall it be justified?

The organization of the local assembly in question by the workingmen in the breweries in the city of Rochester may have been perfectly lawful in its general purposes and method, and may otherwise wield its power and influence usefully and justly, for all that appears. It is not for us to say, nor do we intend to intimate, to the contrary; but so far as a purpose appears from the defense set up to the complaint that no employee of a brewing company shall be allowed to work for a longer period than four weeks without becoming a member of the Workingmen's Local Assembly, and that a contract between the local assembly and the Ale Brewers' Association shall be availed of to compel the discharge of the independent employee, it is, in effect, a threat to keep persons from working at the particular trade, and to procure their dismissal from employment. While it may be true, as argued, that the contract was entered into, on the part of the Ale Brewers' Association, with the object of avoiding disputes and conflicts with the workingmen's organization, that feature and such an intention can not aid the defense, nor legalize a plan of compelling workingmen not in affiliation with the organization to join it, at the peril of being deprived of their employment and of the means of making a livelihood. In our judgment, the defense pleaded was insufficient, in law, upon the face thereof, and therefore the demurrer thereto was properly sustained. Judgment affirmed.

JURISDICTION OF FEDERAL COURTS—INJUNCTION—CONTEMPT—*Ex parte Lennon*, 17 *Supreme Court Reporter*, page 658.—This case came up in the Supreme Court of the United States on writ of certiorari to the United States circuit court of appeals for the sixth circuit. The facts in the case and the circumstances connected with its start and progress in the courts are given below in the language of Mr. Justice Brown, who delivered the opinion of the Supreme Court.

This was a petition for a writ of habeas corpus originally filed in the circuit court for the northern district of Ohio.

The petitioner alleged that he was a citizen of the State of Ohio, and was unlawfully restrained of his liberty by the marshal, under an order of the circuit court of the United States, made in a case pending in that court, wherein the Toledo, Ann Arbor and North Michigan Railway Company, a corporation of the State of Michigan, was complainant, and several railway companies, citizens of Ohio, as well as the Michigan Central Railroad Company, a citizen of Michigan, were defendants.

The bill in that case, which was annexed to the petition as an exhibit, averred the complainant to be the owner of a line of railroad from Toledo, Ohio, northwesterly through the State of Michigan; that a large part of its business consisted in the transportation of freight cars from points in the States of Michigan, Minnesota, and Wisconsin to points in Ohio and other States east thereof, and that it was engaged as a common carrier in a large amount of interstate commerce, which was regulated and controlled by the interstate act of Congress. The bill further averred that defendant's lines of railroad connected with those of complainant at or near Toledo, and that a large and important part of its business consisted in the interchange of freight cars between the

defendant and complainant companies, and was subject to the provisions of the interstate-commerce act; that it was the duty of the defendant companies to afford reasonable and equal facilities for the interchange of traffic, and to receive, forward, and deliver freight cars in the ordinary transaction of business, without any discrimination; that the defendant companies and their employees had given out and threatened that they would refuse to receive from complainant cars billed over its road for transportation by complainant to their destination, for the reason that complainant had employed as locomotive engineers in its service men who were not members of the Brotherhood of Locomotive Engineers, "an irresponsible voluntary association," and that the locomotive engineers in the employ of the defendant companies had refused to handle cars to be interchanged with the complainant's road, notwithstanding that they continued to afford the other railroad companies full and free facilities for the interchange of traffic, while refusing to transact such business with the complainant, thereby illegally discriminating against it.

Upon the filing of this bill, and upon the application of the complainant, the circuit court issued an injunction against the defendants, their officers, agents, servants, and employees, enjoining them from refusing to afford and extend to the Toledo, Ann Arbor and North Michigan Railway Company the same facilities for an interchange of interstate business between the companies as were enjoyed by other railway companies, and from refusing to receive from the complainant company cars billed from points in one State to points in another State which might be offered to the defendant companies by the complainant.

The injunction was served upon the Lake Shore and Michigan Southern Railway Company, one of the defendants, one of whose employees was the appellant, James Lennon, a locomotive engineer, who had received notice of the injunction and still continuing in the service of the company had refused to obey it.

Thereupon the Lake Shore Company applied to the court for an attachment against Lennon, and certain others of its engineers and firemen, setting forth that, with full knowledge of the injunction theretofore made, they had refused to obey the order of the court, and deserted their locomotives and engines in the yard of the company, for the reason that Ann Arbor cars of freight were in the trains of such company, and that they had refused to haul such cars and perform their service for that reason.

The persons named, including the petitioner, Lennon, being served with an order to show cause, appeared in pursuance of such order in person and by counsel, and witnesses were examined as to their knowledge of, and as to their violation of, the order. The court found that Lennon was guilty of contempt in disobeying the order of injunction, and imposed a fine of \$50 and costs. Toledo, A. A. & N. M. Ry. Co. v. Pennsylvania Co., 54 Fed., 746.

Thereupon Lennon filed this petition setting forth the above facts, and alleging that the circuit court had no jurisdiction or lawful authority to arrest or proceed against him in manner as aforesaid, and that its order and judgment—whereby he was committed to the custody of the marshal—were without authority of law and void: (1) That such order was issued in a suit whereof the circuit court had no jurisdiction, because the complainant and one of the defendants, namely, the Michigan Central Railroad Company, were, at the time of the filing of the bill, and ever since have been, citizens of the same State, and that said suit did not arise under the Constitution and laws of the United States; (2)

that the circuit court had no jurisdiction of the person of the petitioner, because he was not a party to the suit, nor served with any subpoena notifying him of the same; had no notice of the application for the injunction, nor was served with a copy thereof, nor had any notice whatever of the issuing of such injunction, nor of its contents; (3) that the circuit court was also without jurisdiction to make the order, because it was beyond the jurisdiction of a court of equity to compel the performance of a personal contract for service, and to interfere, by mandatory injunction, with the contract between himself and the Lake Shore and Michigan Southern Railway Company.

Upon a hearing in the circuit court it was ordered that the petition be dismissed. Lennon, after appealing to this court, which held it had no jurisdiction and dismissed the appeal (150 U. S., 393, 14 Sup. Ct., 123), thereupon appealed to the circuit court of appeals for the sixth circuit, which affirmed the decree of the circuit court (*Lennon v. Railway Co.*, 22 U. S. App., 561, 12 C. C. A., 134, and 64 Fed., 320), whereupon petitioner applied for and obtained a writ of certiorari from this court.

The decision of the Supreme Court, affirming the judgment of the circuit court of appeals, was rendered April 19, 1897, and Mr. Justice Brown, after stating the facts in the language quoted above, delivered the opinion of the court, from which the following is taken:

The only question which can properly be raised upon this writ is whether the circuit court exceeded its jurisdiction in holding the petitioner for a contempt and imposing upon him a fine therefor. We are not at liberty to consider the testimony, or to inquire whether the facts as they appeared upon the hearing justified the action of the circuit court. It is only upon the theory that the proceedings and judgment of the court were nullities that we are authorized to reverse its action. It has been too frequently decided to be now open to question that a writ of habeas corpus can not be made use of to perform the functions of a writ of error or an appeal.

Acting upon this theory, the petitioner claims that the circuit court exceeded its jurisdiction in adjudging him guilty of contempt, for the reason that it had no jurisdiction of the original bill, because one of the defendants to such bill was a citizen of the same State with the complainant; because petitioner was not a party to the suit, and was never served with a subpoena or the injunction; and, finally, because it was beyond the jurisdiction of a court of equity to compel the performance of a personal contract for service.

1. The original bill averred the complainant, The Toledo, Ann Arbor and North Michigan Railway Company, to be a corporation and citizen of the State of Michigan, and the several railway companies defendant to be citizens either of Pennsylvania or Ohio; and there is nothing in the record of that case to show that this averment was not true. It only appears to be otherwise by an allegation in the petition for the habeas corpus; and the question at once arises whether, where the requisite citizenship arises upon the face of the bill, the jurisdiction of the court can be attacked by evidence dehors the record in a collateral proceeding by one who was not a party to the bill. We know of no authority for such action. The general rule is that parties to collateral proceedings are bound by the jurisdictional averments in the record, and will not be permitted to dispute them, except so far as they may have contained a false recital with respect to such parties. Doubtless the averments with regard to citizenship might have been directly

attacked by anyone who was a party to that suit. But this can not be done upon habeas corpus.

Irrespective of this, however, we think the bill exhibited a case arising under the Constitution and laws of the United States, as it appears to have been brought solely to enforce a compliance with the provisions of the interstate-commerce act of 1887, and to compel the defendants to comply with such act, by offering proper and reasonable facilities for the interchange of traffic with complainant, and enjoining them from refusing to receive from complainant, for transportation over their lines, any cars which might be tendered them. It has been frequently held by this court that a case arises under the Constitution and laws of the United States whenever the party plaintiff sets up a right to which he is entitled under such laws, which the parties defendant deny to him, and the correct decision of the case depends upon the construction of such laws. As was said in *Tennessee v. Davis*, 100 U. S., 257, 264: "Cases arising under the laws of the United States are such as grow out of the legislation of Congress, whether they constitute the right or privilege, or claim or protection, or defense of the party, in whole or in part, by whom they are asserted."

2. The facts that petitioner was not a party to such suit, nor served with process of subpoena, nor had notice of the application made by the complainant for the mandatory injunction, nor was served by the officers of the court with such injunction, are immaterial so long as it was made to appear that he had notice of the issuing of an injunction by the court. To render a person amenable to an injunction, it is neither necessary that he should have been a party to the suit in which the injunction was issued, nor to have been actually served with a copy of it, so long as he appears to have had actual notice.

Conceding the question whether he had such notice in this case to be open to review here, we are of opinion that upon the facts appearing in this record this question must be answered, as it was answered in the court below, in the affirmative. The testimony upon this point is fully set forth in the opinion of the circuit court (54 Fed., 746, 757), and it establishes beyond all controversy that Lennon had notice and knowledge of the injunction.

3. To the objection that it was beyond the jurisdiction of a court of equity to compel the performance of a personal contract for service, and to interfere by mandatory injunction with petitioner's contract with the railway company, it is sufficient to say that nothing of the kind was attempted. The petitioner, as one of the employees of the Lake Shore Railway, was enjoined from refusing to extend to the Ann Arbor Railway such facilities for the interchange of traffic on interstate-commerce business between such railways as were enjoyed by other companies, and from refusing to receive from the Ann Arbor Company cars billed from points in one State to points in other States. No attempt was made to interfere with the petitioner's contract with his own company or to compel a continuance of his service in such company. There could be no doubt of the power of the court to grant this injunction, which bore solely upon the relations of the railway companies to each other. It was alleged in the bill to have been a part of the regular business of the defendant roads to interchange traffic with the Ann Arbor road, and the injunction was sought to prevent an arbitrary discontinuance of this custom. Perhaps, to a certain extent, the injunction may be termed mandatory, although its object was to continue the existing state of things, and to prevent an arbitrary breaking off of the current business connections between the roads. But it was clearly not beyond

the power of a court of equity, which is not always limited to the restraint of a contemplated or threatened action, but may even require affirmative action where the circumstances of the case demand it.

It appears from the testimony in this case that Lennon was on his run as engineer from Detroit, Mich., to Air Line Junction, near Toledo, with a train of 45 cars. Having reached an intermediate station called "Alexis," he was ordered to take on an empty car from the Ann Arbor road. He refused to take the car into the train, and held the train there for five hours, and then proceeded on his run after receiving a dispatch from the chairman of a committee of the engineer brotherhood instructing him to "come along and handle Ann Arbor cars." When he first received the order at Alexis to take the Ann Arbor car, he refused, and said "I quit," but afterwards agreed with the superintendent of the division to take the train to its destination if the order to take the boycotted car was countermanded. Though he claimed to have quit Alexis at about 10 o'clock, he brought his train to its destination, and, when told what his next run would be, gave no notice of having quit or intending to quit.

It is not necessary for us to decide whether an engineer may suddenly and without notice quit the service of a railway company at an intermediate station or between stations, though cases may be easily imagined where a sudden abandonment of a train load of passengers in an unfrequented spot might imperil their safety and even their lives. It is sufficient, in the present case, to observe that the court found, upon the testimony, that the petitioner did not quit in good faith in the morning, but intended to continue in the company's service, and that his conduct was a trick and device to avoid obeying the order of the court. The finding of the court in this particular is not open to review, and hence the question whether the court has power to compel the performance of a personal contract for service does not arise. It was a question for the court to determine whether the petitioner's action in delaying the train five hours at Alexis was taken in pursuance of a determination to abandon the service of the company, or for the purpose of disobeying the lawful injunction of the court. The finding of the court was against the petitioner on that point.

There was no error in the judgment of the court of appeals, and it is therefore affirmed.

**LAWS OF VARIOUS STATES RELATING TO LABOR ENACTED SINCE
JANUARY 1, 1896.**

INDIANA.

ACTS OF 1897.

CHAPTER 65.—Factories and workshops—Employment of women and children, etc.

SECTION 1. No person under sixteen years of age and no woman under eighteen years of age, employed in any manufacturing establishment, shall be required, permitted or suffered to work therein more than sixty hours in any one week, or more than ten hours in any one day, unless for the purpose of making a shorter day on the last day of the week; nor more hours in any one week than will make an average of ten hours per day for the whole number of days in which such person or such woman shall so work during such week; and every person, firm, corporation or company employing any person under sixteen years of age or any woman under eighteen years of age in any manufacturing establishment shall post and keep posted in a conspicuous place in every room where such help is employed a printed notice stating the number of hours of labor per day required of such persons for each day of the week, and the number of hours of labor exacted or permitted to be performed by such persons shall not exceed the number of hours of labor so posted as being required. The time of beginning and ending the day's labor shall be the time stated in such notice: *Provided*, That such woman under eighteen and persons under sixteen years of age may begin after the time set for beginning and stop before the time set in such notice for the stopping of the day's labor, but they shall not be permitted or required to perform any labor before the time stated on the notices as the time for beginning the day's labor, nor after the time stated upon the notices as the hour for ending the day's labor.

SEC. 2. No child under fourteen years of age shall be employed in any manufacturing establishment within this State. It shall be the duty of every person employing children to keep a register, in which shall be recorded the name, birthplace, age and place of residence of every person employed by him under the age of sixteen years; and it shall be unlawful for any proprietor, agent, foreman or other person in or connected with a manufacturing establishment to hire or employ any child under the age of sixteen years to work therein without there is first provided and placed on file in the office an affidavit made by the parent or guardian, stating the age, date and place of birth of said child; if said child have no parent or guardian, then such affidavit shall be made by the child, which affidavit shall be kept on file by the employer, and said register and affidavit shall be produced for inspection on demand made by the inspector, appointed under this act. There shall be posted conspicuously in every room where children under sixteen years of age are employed, a list of their names, with their ages, respectively. (No child under the age of sixteen years shall be employed in any manufacturing establishment who can not read and write simple sentences in the English language, except during the vacation of the public schools in the city or town where such minor lives. The factory inspector shall have the power to demand a certificate of physical fitness from some regular physician in the case of children who may seem physically unable to perform the labor at which they may be employed, and shall have the power to prohibit the employment of any minor that can not obtain such a certificate.)

SEC. 3. No person, firm or corporation shall employ or permit any child under the age of fifteen years to have the care, custody, management of or to operate any elevator, or shall employ or permit any person under the age of eighteen years to have the care, custody, management or operation of any elevator running at a speed of over two hundred feet a minute.

SEC. 4. It shall be the duty of the owner or lessee of any manufacturing establishment where there is any elevator, hoisting shaft or well hole to cause the same to be properly and substantially enclosed or secured, if in the opinion of the factory

inspector it is necessary, to protect the lives or limbs of those employed in such establishment. It shall also be the duty of the owner, agent or lessee of each of such establishments to provide, or cause to be provided, if in the opinion of the inspector the safety of persons in or about the premises should require it, such proper trap or automatic doors so fastened in or at all elevator-ways as to form a substantial surface when closed, and so constructed as to open and close by the action of the elevator in its passage, either ascending or descending, but the requirements of this section shall not apply to passenger elevators that are closed on all sides. The factory inspector may inspect the cables, gearing or other apparatus of elevators in manufacturing establishments and require that the same be kept in safe condition.

SEC. 5. Proper and substantial hand rails shall be provided on all stairways in manufacturing establishments, and when in the opinion of the factory inspector it is necessary, the steps of said stairs in all such establishments shall be substantially covered with rubber, securely fastened thereon, for the better safety of persons employed in said establishments. The stairs shall be properly screened at the sides and bottom. All doors leading in or to such factory shall be so constructed as to open outwardly when practicable, and shall be neither locked, bolted nor fastened during working hours.

SEC. 6. If, in the opinion of the factory inspector, it is necessary to insure the safety of the persons employed in any manufacturing establishment, three or more stories in height, one or more fire escapes, as may be deemed by the factory inspector as necessary and sufficient therefor, shall be provided on the outside of such establishment, connected with each floor above the first, well fastened and secured, and of sufficient strength, each of which fire escapes shall have landings or balconies not less than six feet in length and three feet in width, guarded by iron railings not less than three feet in height, and embracing at least two windows at each story and connecting with the interior by easily accessible and unobstructed openings, and the balconies or landings shall be connected by iron stairs, not less than eighteen inches wide, the steps not be less than six inches tread, placed at a proper slant, and protected by a well-secured hand rail on both sides, with a twelve-inch wide drop-ladder from the lower platform reaching to the ground. Any other plan or style of fire escape shall be sufficient, if approved by the factory inspector, but if not so approved, the factory inspector may notify the owner, proprietor or lessee of such establishment, or of the building in which such establishment is conducted, or the agent or superintendent, or either of them, in writing, that any such other plan or style of fire escape is not sufficient, and may by an order in writing, served in like manner, require one or more fire escapes, as he shall deem necessary and sufficient, to be provided for such establishment at such location and such plan and style as shall be specified in such written order. Within twenty days after the service of such order, the number of fire escapes required in such order for such establishment shall be provided therefor, each of which shall be either of the plan and style and in accordance with the specifications in said order required, or of the plan and style in the section above described and declared to be sufficient. The windows or doors to each fire escape shall be of sufficient size and be located as far as possible consistent with accessibility from the stairways and elevator hatchways or openings, and the ladder thereof shall extend to the roof. Stationary stairs or ladders shall be provided on the inside of such establishment from the upper story to the roof, as a means of escape in case of fire.

SEC. 7. It shall be the duty of the owner, agent, superintendent or other person having charge of such manufacturing establishment, or of any floor or part thereof, to report in writing to the factory inspector all accidents or injury done to any person in such factory, within forty-eight hours of the time of the accident, stating as fully as possible the extent and cause of such injury and the place where the injured person is sent, with such other information relative thereto as may be required by the factory inspector. The factory inspector is hereby authorized and empowered to fully investigate the causes of such accidents, and to require such reasonable precautions to be taken as will in his judgment prevent the recurrence of similar accidents.

SEC. 8. It shall be the duty of the owner of any manufacturing establishment, or his agents, superintendent or other person in charge of the same, to furnish and supply, or cause to be furnished and supplied therein, in the discretion of the factory inspector, where machinery is used, belt shifters or other safe mechanical contrivances for the purpose of throwing on or off belts or pulleys; and wherever possible, machinery therein shall be provided with loose pulleys; all vats, pans, saws, planers, cogs, gearing, belting, shafting, set-screws and machinery of every description therein shall be properly guarded, and no person shall remove or make ineffective any safeguard around or attached to any planer, saw, belting, shafting or other machinery, or around any vat or pan, while the same is in use, unless for the purpose of immediately making repairs thereto, and all such safeguards shall be promptly replaced. By attaching thereto a notice to that effect, the use of any machinery

may be prohibited by the factory inspector, should such machinery be regarded as dangerous. Such notice must be signed by the inspector, and shall only be removed after the required safeguards are provided, and the unsafe or dangerous machine shall not be used in the meantime. Exhaust pans of sufficient power shall be provided for the purpose of carrying off dust from emery wheels and grindstones, and dust-creating machinery therein. No person under eighteen years of age, and no woman under twenty-one years of age, shall be allowed to clean machinery while in motion.

SEC. 9. A suitable and proper wash room and water-closets shall be provided in each manufacturing establishment, and such water-closets shall be properly screened, and ventilated and be kept at all times in a clean condition, and if women or girls are employed in any such establishment, the water-closets used by them shall have separate approaches and be separate and apart from those used by men. All water-closets shall be kept free of obscene writing and marking. A dressing room shall be provided for women and girls, when required by the factory inspector, in any manufacturing establishment in which women and girls are employed.

SEC. 10. Not less than sixty minutes shall be allowed for the noon-day meal in any manufacturing establishments in this State. The factory inspector shall have the power to issue written permits in special cases, allowing shorter meal time at noon, and such permit must be conspicuously posted in the main entrance of the establishment, and such permit may be revoked at any time the factory inspector deems necessary, and shall only be given where good cause can be shown.

SEC. 11. The walls and ceilings of each room in every manufacturing establishment shall be lime washed or painted, when in the opinion of the factory inspector it shall be conducive to the health or cleanliness of the persons working therein.

SEC. 12. The factory inspector, or other competent person designated for such purpose by the factory inspector, shall inspect any building used as a workshop or manufacturing establishment or anything attached thereto, located therein, or connected therewith, which has been represented to be unsafe or dangerous to life or limb. If it appears upon such inspection that the building or anything attached thereto, located therein, or connected therewith, is unsafe or dangerous to life or limb, the factory inspector shall order the same to be removed or rendered safe and secure, and if such notification be not complied with within a reasonable time, he shall prosecute whoever may be responsible for such delinquency.

SEC. 13. No room or rooms, apartment or apartments in any tenement or dwelling house shall be used for the manufacture of coats, vests, trousers, knee-pants, overalls, cloaks, furs, fur trimmings, fur garments, shirts, purses, feathers, artificial flowers, or cigars, excepting by the immediate members of the family living therein. No person, firm or corporation shall hire or employ any person to work in any one room or rooms, apartment or apartments, in any tenement or dwelling house, or building in the rear of a tenement or dwelling house, at making, in whole or in part, any coats, vests, trousers, knee-pants, fur, fur trimmings, shirts, purses, feathers, artificial flowers, or cigars, without obtaining first a written permit from the factory inspector, which permit may be revoked at any time the health of the community, or of those employed therein, may require it, and which permit shall not be granted until an inspection of such premises is made by the factory inspector, assistant factory inspector, or a deputy factory inspector, and the maximum number of persons allowed to be employed therein shall be stated in such permit. Such permit shall be framed and posted in a conspicuous place in the room, or in any one of the rooms to which it relates.

SEC. 14. No less than two hundred and fifty cubic feet of air space shall be allowed for each person in any workroom where persons are employed during the hours between six o'clock in the morning and six o'clock in the evening, and not less than four hundred cubic feet of air space shall be provided for each person in any one workroom where persons are employed between six o'clock in the evening and six [o'clock] in the morning. By a written permit the factory inspector may allow persons to be employed in a room where there are less than four hundred cubic feet of air space for each person employed between six o'clock in the evening and six o'clock in the morning: *Provided*, Such room is lighted by electricity at all times during such hours while persons are employed therein. There shall be sufficient means of ventilation provided in each workroom of every manufacturing establishment, and the factory inspector shall notify the owner in writing to provide, or cause to be provided, ample and proper means of ventilation for such workroom, and shall prosecute such owner, agent or lessee if such notification be not complied with within twenty days of the service of such notice.

SEC. 15. The governor shall, by and with the advice and consent of the senate, appoint a factory inspector; said factory inspector shall hold and continue in office, after the expiration of his term of office until his successor shall be appointed and qualified. The term of office of the factory inspector shall be two years. The annual salary of such inspector shall be one thousand five hundred dollars (\$1,500), payable

in monthly installments; said inspector shall, by and with the consent of the governor, appoint one assistant factory inspector whose salary shall be one thousand dollars (\$1,000) per year, and he shall hold his office subject to removal by said inspector or the governor; shall be paid monthly by the treasurer upon the warrant of the auditor, issued upon proper vouchers therefor.

SEC. 16. It shall be the duty of the factory inspector to cause this act to be enforced, and to cause all violators of this act to be prosecuted, and for that purpose he is empowered to visit and inspect at all reasonable hours, and as often as shall be practicable and necessary, all manufacturing establishments in this State. It shall be the duty of the factory inspector to examine into all violations of laws made for the benefit of labor and to prosecute all violations thereof. It shall be unlawful for any person to interfere with, obstruct or hinder said inspector while in the performance of his duties or to refuse to properly answer questions asked by him with reference to any of the provisions hereof. The factory inspector shall make an annual report of his doings as such inspector to the governor during the month of January of each year. Such inspector shall have the power as a notary public to administer oaths and take affidavits in matters connected with the enforcement of the provisions of this act.

SEC. 17. The prosecuting attorney of any county of this State is hereby authorized upon request of the factory inspector or of any other person of full age, to commence and prosecute to termination before any circuit or criminal court or police court, in the name of the State, actions or proceedings against any person or persons reported to him to have violated the provisions of this act.

SEC. 18. The words "manufacturing establishment," wherever used in this act, shall be construed to mean any mill, factory or workshop where ten or more persons are employed at labor.

SEC. 19. A copy of this act shall be conspicuously posted and kept posted in each workroom of every manufacturing establishment in this State.

SEC. 20. Any person who violates or omits to comply with any of the provisions, or who refuses to comply with the orders of the factory inspector, properly made under the provisions of this act, or who suffers or permits any child to be employed in violation of its provisions, shall be deemed guilty of a misdemeanor, and on conviction shall be punished by a fine of not more than fifty dollars for the first offense, and not more than one hundred dollars for the second offense, to which may be added imprisonment for not more than ten days, and for the third offense a fine of not less than two hundred and fifty dollars and not more than thirty days' imprisonment.

SEC. 21. All laws and parts of laws in conflict with the provisions of this act are hereby repealed.

Approved March 2, 1897.

CHAPTER 84.—*Coal mines—Examination of bosses and engineers.*

SECTION 1. After three months from the taking effect of this act it shall be unlawful for any person to serve in the capacity of mine boss, fire boss, or hoisting engineer at any coal mine in this State without having first received from the inspector of mines a certificate of service or of competency as hereinafter described and provided.

SEC. 2. Certificates of service shall be issued by the inspector of mines to any person who shall furnish satisfactory proof that he has been engaged as, and has successfully discharged the duties of, mine boss, fire boss, or hoisting engineer at coal mines in this State for three years preceding the granting of such certificate.

SEC. 3. Certificates of competency shall be issued by the inspector of mines to any person who shall prove satisfactorily upon examination, either written or oral, or both, as may be prescribed by such inspector, that he is qualified by experience and technical knowledge to perform the duties of either mine boss, fire boss, or hoisting engineer at the coal mines of the State. Examinations for certificates of service or competency shall be public and open to all citizens of the United States, and at least fifteen days' notice of such examination shall be given by publication in a newspaper published in the city where such examination is to be held. No certificate shall be issued to any person entitling him to serve in more than one of the capacities set out in this section, but two or more certificates may be issued to the same person on proper examination.

SEC. 4. It shall be the duty of the inspector of mines to hold examinations for certificates of service and competency within sixty days after this act takes effect in each of the cities of Brazil, Terre Haute, Washington and Evansville, and to publish notice of such examinations as provided in section three of this act, stating the time and place where examinations are to be held, and shall make and publish rules and regulations under which such examinations shall be conducted, previous to the first of such examinations.

SEC. 5. It shall be unlawful for any owner, operator or agent of any coal mine in

this State to employ in such capacity any person in the capacity of mine boss, fire boss, or hoisting engineer, unless such person has a certificate of service or competency as provided in sections one, two and three of this act, or to allow any person not having such certificate to continue in his employ in such capacity after three months from the time this act takes effect, unless he has procured such certificate.

SEC. 6. For the purpose of providing for the expense of holding the examinations and issuing the certificates herein provided for, each applicant, before entering upon examination, shall pay the inspector of mines one dollar, a receipt for which must be endorsed upon such certificate before it becomes effective.

SEC. 7. Any person violating any of the provisions of this act shall be guilty of a misdemeanor and upon conviction shall be fined in any sum not less than five dollars nor more than fifty dollars.

Approved March 4, 1897.

CHAPTER 88.—*Labor commission—Arbitration and investigation of labor troubles.*

SECTION 1. There shall be, and is hereby, created a commission to be composed of two electors of the State, which shall be designated the labor commission, and which shall be charged with the duties and vested with the powers hereinafter enumerated.

SEC. 2. The members of said commission shall be appointed by the governor, by and with the advice and consent of the senate, and shall hold office for two years and until their successors shall have been appointed and qualified. One of said commissioners shall have been for not less than ten years of his life an employee for wages in some department of industry in which it is usual to employ a number of persons under single direction and control, and shall be at the time of his appointment affiliated with the labor interest as distinguished from the capitalist or employing interest. The other of said commissioners shall have been for not less than ten years an employer of labor for wages in some department of industry in which it is usual to employ a number of persons under single direction and control, and shall be at the time of his appointment affiliated with the employing interest as distinguished from the labor interest. Neither of said commissioners shall be less than forty years of age; they shall not be members of the same political party, and neither of them shall hold any other State, county, or city office in Indiana during the term for which he shall be appointed. Each of said commissioners shall take and subscribe an oath, to be endorsed upon his commission, to the effect that he will punctually, honestly, and faithfully discharge his duties as such commissioner.

SEC. 3. Said commission shall have a seal and shall be provided with an office at Indianapolis, and may appoint a secretary who shall be a skillful stenographer and typewriter, and shall receive a salary of six hundred dollars per annum and his traveling expenses for every day spent by him in the discharge of duty away from Indianapolis.

SEC. 4. It shall be the duty of said commissioners upon receiving credible information in any manner of the existence of any strike, lockout, boycott, or other labor complication in this State affecting the labor or employment of fifty persons or more to go to the place where such complication exists, put themselves into communication with the parties to the controversy and offer their services as mediators between them. If they shall not succeed in effecting an amicable adjustment of the controversy in that way they shall endeavor to induce the parties to submit their differences to arbitration, either under the provisions of this act or otherwise, as they may elect.

SEC. 5. For the purpose of arbitration under this act, the labor commissioners and the judge of the circuit court, of the county in which the business in relation to which the controversy shall arise, shall have been carried on shall constitute a board of arbitrators, to which may be added, if the parties so agree, two other members, one to be named by the employer and the other by the employees in the arbitration agreement. If the parties to the controversy are a railroad company and employees of the company engaged in the running of trains, any terminal within this State, of the road, or of any division thereof, may be taken and treated as the location of the business within the terms of this section for the purpose of giving jurisdiction to the judge of the circuit court to act as a member of the board of arbitration.

SEC. 6. An agreement to enter into arbitration under this act shall be in writing and shall state the issue to be submitted and decided and shall have the effect of an agreement by the parties to abide by and perform the award. Such agreement may be signed by the employer as an individual, firm or corporation, as the case may be, and execution of the agreement in the name of the employer by any agent or representative of such employer then and theretofore in control or management of the business or department of business in relation to which the controversy shall have arisen shall bind the employer. On the part of the employees, the agreement may be signed by them in their own person, not less than two-thirds of those concerned in the

controversy signing, or it may be signed by a committee by them appointed. Such committee may be created by election at a meeting of the employees concerned in the controversy at which not less than two-thirds of all such employees shall be present, which election and the fact of the presence of the required number of employees at the meeting shall be evidenced by the affidavit of the chairman and secretary of such meeting attached to the arbitration agreement. If the employees concerned in the controversy, or any of them, shall be members of any labor union or workmen's society, they may be represented in the execution of said arbitration agreement by officers or committeemen of the union or society designated by it in any manner conformable to its usual methods of transacting business, and others of the employees represented by committee as hereinbefore provided.

SEC. 7. If upon any occasion calling for the presence and intervention of the labor commissioners under the provisions of this act, one of said commissioners shall be present and the other absent, the judge of the circuit court of the county in which the dispute shall have arisen, as defined in section 5, shall upon the application of the commissioners present, appoint a commissioner *pro tem.* in the place of the absent commissioner, and such commissioner *pro tem.* shall exercise all the powers of a commissioner under this act until the termination of the duties of the commission with respect to the particular controversy upon the occasion of which the appointment shall have been made, and shall receive the same pay and allowances provided by this act for the other commissioners. Such commissioner *pro tem.* shall represent and be affiliated with the same interests as the absent commissioner.

SEC. 8. Before entering upon their duties the arbitrators shall take and subscribe an oath or affirmation to the effect that they will honestly and impartially perform their duties as arbitrators and a just and fair award render to the best of their ability. The sittings of the arbitrators shall be in the court room of the circuit court, or such other place as shall be provided by the county commissioners of the county in which the hearing is had. The circuit judge shall be the presiding member of the board. He shall have power to issue subpoenas for witnesses who do not appear voluntarily, directed to the sheriff of the county, whose duty it shall be to serve the same without delay. He shall have power to administer oaths and affirmations to witnesses, enforce order, and direct and control the examinations. The proceedings shall be informal in character, but in general accordance with the practice governing the circuit courts in the trial of civil causes. All questions of practice, or questions relating to the admission of evidence shall be decided by the presiding member of the board summarily and without extended argument. The sittings shall be open and public, or with closed doors, as the board shall direct. If five members are sitting as such board three members of the board agreeing shall have power to make an award, otherwise, two. The secretary of the commission shall attend the sittings and make a record of the proceedings in shorthand, but shall transcribe so much thereof only as the commission shall direct.

SEC. 9. The arbitrators shall make their award in writing and deliver the same with the arbitration agreement and their oath as arbitrators to the clerk of the circuit court of the county in which the hearing was had, and deliver a copy of the award to the employer, and a copy to the first signer of the arbitration agreement on the part of the employees. A copy of all the papers shall also be preserved in the office of the commission at Indianapolis.

SEC. 10. The clerk of the circuit court shall record the papers delivered to him as directed in the last preceding section, in the order book of the circuit court. Any person who was a party to the arbitration proceedings may present to the circuit court of the county in which the hearing was had, or the judge thereof in vacation, a verified petition referring to the proceedings and the record of them in the order book and showing that said award has not been complied with, stating by whom and in what respect it has been disobeyed. And thereupon the court or judge thereof in vacation shall grant a rule against the party or parties so charged, to show cause within five days why said award has not been obeyed, which shall be served by the sheriff as other process. Upon return made to the rule the judge or court if in session, shall hear and determine the questions presented and make such order or orders directed to the parties before him *in personam*, as shall give just effect to the award. Disobedience by any party to such proceedings of any order so made shall be deemed a contempt of the court and may be punished accordingly. But such punishment shall not extend to imprisonment except in case of willful and contumacious disobedience. In all proceedings under this section the award shall be regarded as presumptively binding upon the employer and all employees who were parties to the controversy submitted to arbitration, which presumption shall be overcome only by proof of dissent from the submission delivered to the arbitrators, or one of them, in writing before the commencement of the hearing.

SEC. 11. The labor commission, with the advice and assistance of the attorney-general of the State, which he is hereby required to render, may make rules and regulations respecting proceedings in arbitrations under this act not inconsistent

with this act or the law, including forms, and cause the same to be printed and furnished to all persons applying therefor, and all arbitration proceedings under this act shall thereafter conform to such rules and regulations.

SEC. 12. Any employer and his employees, not less than twenty-five in number, between whom differences exist which have not resulted in any open rupture or strike, may of their own motion apply to the labor commission for arbitration of their differences, and upon the execution of an arbitration agreement as hereinbefore provided, a board of arbitrators shall be organized in the manner hereinbefore provided, and the arbitration shall take place and the award be rendered, recorded and enforced in the same manner as in arbitrations under the provisions found in the preceding sections of this act.

SEC. 13. In all cases arising under this act requiring the attendance of a judge of the circuit court as a member of an arbitration board, such duty shall have precedence over any other business pending in his court, and if necessary for the prompt transaction of such other business it shall be his duty to appoint some other circuit judge, or judge of a superior or the appellate or supreme court to sit in the circuit court in his place during the pendency of such arbitration, and such appointee shall receive the same compensation for his services as is now allowed by law to judges appointed to sit in case of change of judge in civil actions. In case the judge of the circuit court, whose duty it shall become under this act to sit upon any board of arbitrators, shall be at the time actually engaged in a trial which can not be interrupted without loss and injury to the parties, and which will in his opinion continue for more than three days to come, or is disabled from acting by sickness or otherwise, it shall be the duty of such judge to call in and appoint some other circuit judge, or some judge of a superior court, or the appellate or supreme court, to sit upon such board of arbitrators, and such appointed judge shall have the same power and perform the same duties as member of the board of arbitration as are by this act vested in and charged upon the circuit judge regularly sitting, and he shall receive the same compensation now provided by law to a judge sitting by appointment upon a change of judge in civil cases, to be paid in the same way.

SEC. 14. If the parties to any such labor controversy as is defined in section 4 of this act shall have failed at the end of five days after the first communication of said labor commission with them to adjust their differences amicably, or to agree to submit the same to arbitration, it shall be the duty of the labor commission to proceed at once to investigate the facts attending the disagreement. In this investigation the commission shall be entitled, upon request, to the presence and assistance of the attorney-general of the State, in person or by deputy, whose duty it is hereby made to attend without delay, upon request by letter or telegram from the commission. For the purpose of such investigation the commission shall have power to issue subpoenas, and each of the commissioners shall have power to administer oaths and affirmations. Such subpoena shall be under the seal of the commission and signed by the secretary of the commission, or a member of it, and shall command the attendance of the person or persons named in it at a time and place named, which subpoena may be served and returned as other process by any sheriff or constable in the State. In case of disobedience of any such subpoena, or the refusal of any witness to testify, the circuit court of the county within which the subpoena was issued, or the judge thereof in vacation, shall, upon the application of the labor commission, grant a rule against the disobeying person or persons, or the person refusing to testify, to show cause forthwith why he or they should not obey such subpoena, or testify as required by the commission, or be adjudged guilty of contempt, and in such proceedings such court, or the judge thereof in vacation, shall be empowered to compel obedience to such subpoena as in the case of subpoena issued under the order and by authority of the court, or to compel a witness to testify as witnesses in court are compelled to testify. But no person shall be required to attend as a witness at any place outside the county of his residence. Witnesses called by the labor commission under this section shall be paid \$1 per diem fees out of the expense fund provided by this act, if such payment is claimed at the time of their examination.

SEC. 15. Upon the completion of the investigation authorized by the last preceding section, the labor commission shall forthwith report the facts thereby disclosed affecting the merits of the controversy in succinct and condensed form to the governor, who, unless he shall perceive good reason to the contrary, shall at once authorize such report to be given out for publication. And as soon thereafter as practicable, such report shall be printed under the direction of the commission and a copy shall be supplied to anyone requesting the same.

SEC. 16. Any employer shall be entitled, in his response to the inquiries made of him by the commission in the investigation provided for in the two last preceding sections, to submit in writing to the commission, a statement of any facts material to the inquiry, the publication of which would be likely to be injurious to his business, and the facts so stated shall be taken and held as confidential, and shall not be disclosed in the report or otherwise.

SEC. 17. Said commissioners shall receive a compensation of ten dollars each per diem for the time actually expended, and actual and necessary traveling expenses while absent from home in the performance of duty, and each of the two members of a board of arbitration chosen by the parties under the provisions of this act shall receive the same compensation for the days occupied in service upon the board. The attorney-general, or his deputy, shall receive his necessary and actual traveling expenses while absent from home in the service of the commission. Such compensation and expenses shall be paid by the treasurer of state upon warrants drawn by the auditor upon itemized and verified accounts of time spent and expenses paid. All such accounts, except those of the commissioners, shall be certified as correct by the commissioners, or one of them, and the accounts of the commissioners shall be certified by the secretary of the commission. It is hereby declared to be the policy of this act that the arbitrations and investigations provided for in it shall be conducted with all reasonable promptness and dispatch, and no member of any board of arbitration shall be allowed payment for more than fifteen days' service in any one arbitration, and no commissioner shall be allowed payment for more than ten days' service in the making of the investigation provided for in section 14 and sections following.

SEC. 18. For the payment of the salary of the secretary of the commission, the compensation of the commissioners and other arbitrators, the traveling and hotel expenses herein authorized to be paid, and for witness fees, printing, stationery, postage, telegrams and office expenses there is hereby appropriated out of any money in the treasury not otherwise appropriated, the sum of five thousand dollars for the year 1897 and five thousand dollars for the year 1898.

Approved March 4, 1897.

CHAPTER 111.—*Coal mine regulations—Accidents, ventilation, etc.*

[Amending sections 12, 14, 17, and 24, of an act in force June 1, 1891, the same being sections 7472, 7474, 7477, and 7483 of the Annotated Statutes of 1894, and 5480 M, 5480 O, 5480 R, and 5480 Y of the Revised Statutes of 1896.]

SECTION 1. Section fourteen is hereby amended to read as follows:

Section 14. Whenever any accident whatsoever shall occur in any coal mine in this State which shall delay the ordinary and usual working of such mine for twenty-four consecutive hours, or shall result in such injuries to any person as to cause death or to require the attendance of a physician or surgeon, it shall be the duty of the person in charge of such mine to notify the inspector of mines of such accident without delay, and it shall be the duty of said inspector to investigate and ascertain the cause of such accident as soon as his official duties shall permit: *Provided*, That if loss of life shall occur by reason of any such accident said inspector shall immediately, with the coroner of the county in which such accident may have occurred, go to the scene of the accident. They shall investigate and ascertain the cause of such loss of life and have power to compel the attendance of witnesses and administer oaths or affirmations to them and the cost of such investigation shall be paid by the county in which the accident occurred, as costs of coroner's inquests are now paid.

SEC. 2. Section seventeen of said act, the same being section 5480 R, of the Revised Statutes of 1896, [shall] be amended to read as follows:

Section 17. The currents of air in mines shall be split so as to give separate currents to at least every fifty (50) persons at work, and the mine inspector shall have discretion to order a separate current for a smaller number of men if special conditions render it necessary. Whenever the mine inspector shall find men working without sufficient air, or under any unsafe condition, the mine inspector shall first give the owner, operator, agent or lessee a notice giving the facts and a reasonable time to rectify the same, and upon his or their failure to do so, the mine inspector may order the men out of said mine or portions of said mine, and at once order said coal mine, or part thereof stopped until such mine or part of mine be put in proper condition. And the mine inspector shall immediately bring suit against such owner, operator, agent or lessee for failure to comply with the provisions of this section, who, upon conviction, shall be fined in any sum not exceeding one hundred dollars (\$100) for each and every day or part of day that said mine was operated.

SEC. 3. Section twenty-four [shall] be amended to read as follows:

Section 24. For the violation of the provisions of any section of this act, where no special penalty is provided herein, the person or persons violating the same or any part thereof shall be held and deemed guilty of a misdemeanor, and shall upon conviction be fined in any sum not less than five dollars (\$5) nor to exceed two hundred dollars (\$200) in the discretion of the court trying the cause.

SEC. 4. Section twelve of said act, being section 5480 M, of the Revised Statutes of 1896, is hereby amended to read as follows:

Section 12. The mining boss shall visit and examine every working place in the mine, at least every alternate day while the miners of such place are, or should be

at work, and shall examine and see that each and every working place is properly secured by props and timber and that safety of the mine is assured.

He shall see that a sufficient supply of props and timber are always on hand at the miners' working places.

He shall also see that all loose coal, slate and rock overhead wherein miners have to travel to and from their work are carefully secured.

Whenever such mine boss shall have an unsafe place reported to him, he shall order and direct that the same be placed in a safe condition; and until such is done no person shall enter such unsafe place except for the purpose of making it safe. Whenever any miner working in said mine shall learn of such unsafe place he shall at once notify the mining boss thereof and it shall be the duty of said mining boss to give him, properly filled out, an acknowledgment of such notice of the following form:

I hereby acknowledge receipt of notice from of the unsafe condition of the mine as follows: dated this day of 18...

.....
Mining Boss.

The possession by the miner of such written acknowledgment shall be the proof of the receipt of such notice by said boss whenever such question shall arise; and upon receipt of such notice such mine boss shall at once inspect such place and proceed to put the same in good and safe condition. As soon as such unsafe place has been repaired to the approval of such boss, he shall then give permission for men to return to work therein, but no miner shall return to work therein until such repair has been made and permission given.

Approved March 6, 1897.

CHAPTER 145.—*Coal mine regulations—Outlets, approaches, hoisting apparatus, etc.*

SECTION 1. Section one of the above entitled act, the same being [section 7430 of the Annotated Statutes of 1894 and] section 5459 of Horner's Revised Statutes of 1896, [shall] be amended to read as follows:

Section 1. It shall be unlawful for any owner, agent or operator to allow more than ten persons to work in any shaft, slope or drift at any one time after five thousand square yards have been excavated until a second outlet shall have been made. The said outlet or manway, and all approaches thereto, shall be separated from the hoisting shaft and its approaches by at least one hundred feet in width of natural strata, and shall be available at all times to all employees engaged in such mine, and for every shaft used as a manway there shall be provided stairways at an angle of not more than sixty degrees, with landings at easy and convenient distances and with guard rails attached to each set of stairs from the top to the bottom of the same: *Provided*, That where such shaft shall be more than one hundred and fifty feet deep, the operator, owner or agent may elect to provide at such outlet or manway a hoisting apparatus which shall be at all times available to miners and other employees of the mine, the same signals to be used as provided by law for use at hoisting shafts. The traveling roads or gangways to said outlet shall not be less than the height of the vein worked and four feet wide, and shall be kept as free from water as the average hauling roads in such mines. All water coming from the surface or out of any strata in such shaft shall be conducted by rings, or otherwise to be prevented from falling down the shaft so as to wet persons who are ascending or descending the shaft.

Approved March 8, 1897.

CHAPTER 173.—*Coal mine regulations—Maps, reports to mine inspector, etc.*

SECTION 1. Within three months from the time this act takes effect, the owner, operator or agent of each coal mine shall make or cause to be made, an accurate map or plan of the workings of such mine on a scale of not less than one inch to one hundred feet, showing the area mined or excavated, the arrangement of the haulage roads, air-courses, breakthroughs, brattices, air-bridges and doors used in directing the air-currents in such mine, the location and connection with such excavation of the mine, of the lines of all adjoining lands, with the names of the owners of such lands, so far as known, marked on each tract of land. Said map shall show a complete working of the mine and, when completed, shall be certified to by the owner, agent, or engineer making the survey and map, to be a true and correct working map of said mine. The owner or agent shall deposit with the inspector of mines, a true copy of such map within thirty days after the completion of the survey for the same, the date of which shall be shown on such copy, the original map and survey to be kept at the office of such mine, open for inspection of all interested persons at all reasonable times. Such map shall be corrected each year between the first day of

May and the first day of September, and a new map and copy of the same shall be filed as required in the original survey, or the original map may be so amended as to show the exact workings of the mine at the date of the last survey.

SEC. 2. In case the owner, agent or operator of any coal mine shall fail or refuse to comply with the provisions of section one (1) of this act it shall be the duty of the inspector of mines to appoint a competent mining engineer to make the survey and maps, and file and deposit them as required by said section one (1), and for his services he shall be entitled to a reasonable fee to be paid by the party whose duty it was to make such survey and map, and shall be entitled to lien on the mine and machinery to the same extent as is now provided by law for other work and labor performed in and about the coal mines of this State.

SEC. 3. The owner, operator or agent, of every coal mine in this State shall be and is hereby required to report to the inspector of mines on or before the 15th day of each calendar month the name of the person in charge of such mine, the number of tons of coal produced at such mine during the preceding month, the amount of wages paid employees during such month, the amount of money expended for improvements during the said month, together with such other information as may be necessary to enable said inspector to prepare his annual report as is now required by law.

SEC. 4. Any person who shall fail, refuse or neglect to do or perform any act or duty required by this act shall be held guilty of a misdemeanor and upon conviction shall be fined in any sum not less than five nor more than twenty-five dollars.

SEC. 5. In order that maps, reports and other records pertaining to the office of inspector of mines may be properly preserved, a room in the state house shall be set aside and furnished in a suitable manner as an office for said officer.

SEC. 6. *Provided*, That the provisions of this act shall apply to all coal miners in this State except to those employing less than ten men.

Approved March 8, 1897.

CHAPTER 187.—*Convict labor—Contract system abolished, etc.*

SECTION 1. The contract prison labor in the State prisons and reformatories [shall] be abolished, and the boards of directors of the State penal and reformatory institutions are hereby authorized to establish as soon as practicable the public account system, to institute in said prisons an industrial and labor system by which the convicts shall be employed at such trades and vocations as will be required to supply said institutions as nearly as possible with all necessary articles of prison consumption, or as will in the judgment of the directors be expedient and wise. The regular hours for day work in said prisons shall not exceed eight hours, subject to temporary change under necessity, or to fit special cases to be sanctioned by the directors.

SEC. 2. In the event of more articles being produced than are needed to supply the said State penal and reformatory institutions, such surplus shall be furnished to such other State institutions as may need the same at the usual market price for which such articles are sold in the locality where such other institutions may be located.

SEC. 3. The warden shall appoint a superintendent, who shall be a competent and skillful person to have general supervision over all the buildings and work in the various industrial departments. The warden shall assign the convicts to such work as in his opinion they are particularly adapted to, and shall recommend to the board of directors from time to time such necessary materials, tools, apparatus or accommodations as are needful for the purpose of carrying on and conducting such industries as may be authorized under the provisions of this act. He shall make quarterly detailed statements of all materials or other property procured and the cost thereof and of the expenditures made during the last preceding quarter for such manufacturing purposes, together with a statement of all materials then in hand to be manufactured or in process of manufacture and the amount of all kinds of work done and the earnings realized during said quarter, and file same with the auditor of state.

SEC. 4. It shall be unlawful from and after the passage of this act to hire out under contract any of the convicts confined in the State penal and reformatory institutions, and the State and prison authorities are hereby forbidden to hereafter allow said convicts to perform any service whatever under contract or otherwise, for any one other than the State, under penalty of fine not to exceed one thousand dollars (\$1,000) and the forfeiture of office, to which may be added imprisonment in the county jail, not to exceed one hundred (100) days: *Provided*, That the operations of this act shall not affect any contracts for convict labor made previous to the passage of this act, and which contracts have not yet expired.

SEC. 5. It is the intent and purport of this act that all work done by inmates of any of the State penal or reformatory institutions shall, as far as practicable, be hand work.

SEC. 6. Any State benevolent or correctional institution in need of any of the products which may be manufactured in any of the State penal or reformatory institutions, shall give at least three months' notice of such demand to the auditor of state, who shall in turn notify the wardens of the penal or reformatory institutions, and no State institution shall purchase in the open market any product which can be furnished by the State penal and reformatory institutions: *Provided*, That nothing in this act shall be so construed as to compel State institutions to forego the purchase of goods in the open market, when such can not be furnished within a reasonable time by the State penal or reformatory institutions.

SEC. 7. It shall be the duty of the board of directors of the State penal and reformatory institutions to institute such instructions of an educational and technical character as in their judgment is to the best interest of the inmates.

SEC. 8. All laws and parts of laws relating to the employment of convict labor, in conflict with the provisions of this act are hereby repealed.

Approved March 8, 1897.

NORTH CAROLINA.

ACTS OF 1897.

Fellow-servant act—Railroad companies.

SECTION 1. Any servant or employee of any railroad company operating in this State, who shall suffer injury to his person, or the personal representative of any such servant or employee who shall have suffered death in the course of his services or employment with said company by the negligence, carelessness or incompetency of any other servant, employee or agent of the company, or by any defect in the machinery, ways or appliances of the company, shall be entitled to maintain an action against such company.

SEC. 2. Any contract or agreement, expressed or implied, made by any employee of said company to waive the benefit of the aforesaid section shall be null and void.

SEC. 3. This act shall be in force from and after its ratification.

Ratified February 23, 1897.

RECENT GOVERNMENT CONTRACTS.

[The Secretaries of the Treasury, War, and Navy Departments have consented to furnish statements of all contracts for constructions and repairs entered into by them. These, as received, will appear from time to time in the Bulletin.]

The following contracts have been made by the office of the Supervising Architect of the Treasury:

WILMINGTON, N. C.—April 22, 1897. Contract with D. Getaz & Co., Knoxville, Tenn., for erection and completion, except heating apparatus, of the new ward building for the marine hospital, \$6,887. Work to be completed within three months.

PORT TOWNSEND, WASH.—May 12, 1897. Contract with Oby & Co., Canton, Ohio, for low-pressure, return-circulation, steam-heating and ventilating apparatus for the marine hospital, \$4,100. Work to be completed within one hundred and twenty days.

FORT WORTH, TEX.—May 27, 1897. Contract with Smith & Bardon for new toilet room and other changes in post-office, \$3,361.55. Work to be completed within three months.