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PAUPERS IN ALMSHOUSES IN 1890, CLASSIFIED BY AGE AND SEX.

DEPARTMENT OF THE INTERIOR,

CENSUS OFFICE,

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The number of paupers in almshouses and the number of each sex have been shown in a previous bulletin. The present bulletin shows their distribution by individual ages and by quinquennial periods.

The average age of an almshouse pauper in the United States is 51 years, which is 6 years more than it was 10 years ago.

The number of male paupers under 30 years of age and of female paupers under 40 years of age is actually less than the numbers returned in the census of 1880. Relatively to the total population it must be very much less.

In spite of the persistent efforts constantly made to get children out of almshouses, the number in these establishments who were under 10 years old is 4,338. In 1880 it was 6,902. Children constitute a much larger percentage of the total almshouse population in the southern than in the northern states.

In the far west one-half of all the almshouse paupers are between 60 and 80 years of age.

From 20 to 50 years the number of female paupers exceeds that of males. At all other ages the number of male paupers is in excess, except after passing 100 years. The figures for ages over 100 are not trustworthy.

The ratio of male to female paupers is, on the whole, slightly greater than it was 10 years ago. The excess of females in the middle decades of life is decidedly less marked than then.


Superintendent of Census.

PAUPERS IN ALMSHOUSES IN 1890, CLASSIFIED BY AGE AND SEX.

BY FREDERICK HOWARD WINES.

The three tables published in this bulletin show the ages of paupers in almshouses in 1890, in the aggregate and for each sex separately, by states and geographical divisions. The outdoor poor (of whom but a small percentage is reported by the enumerators) are not included.

The number of paupers here given is 73,045, the same as reported in Census Bulletin No. 90. This number is obtained by including in almshouses all establishments maintained by counties, cities, or towns, for the support and care of paupers, other than hospitals for the sick or for the insane or children's homes, which are listed by the Census Office with benevolent institutions. The insane departments of almshouses are included with them, except where they occupy a separate site and are under separate management and control. The classification of institutions for the purposes of the census is not always the same as that adopted by the state authorities of the states in which they are found. For example, the state board of charities of New York includes in its annual return of paupers the inmates of the hospitals for the sick and for the insane maintained by the New York city commissioners of public charities and correction, and by the commissioners of charities and correction of Kings county, who are not included in this bulletin. The number of inmates of these institutions is about 10,000. On the other hand, the pauper insane in the county insane asylums of Wisconsin are included in this bulletin, but are not classed as paupers by the Wisconsin state board. The question of pauper insane in institutions for the insane is one of some difficulty, but this will be treated in a separate bulletin hereafter. Another illustration of difference in classification may be cited from the state of Massachusetts, where the state commissioners of charities class as paupers the children in the Marcella Street Home, who are not included in this bulletin at all, but will be counted for census purposes with the inmates of benevolent institutions.

The number of male paupers here given is 40,741; female, 32,304. This excess of male paupers is a permanent condition. It was equally observable in the census of 1880, when the number of male paupers reported was 35,564, and of females 30,639. The ratio of male to female paupers is now slightly greater than it was 10 years ago. In 1880 the male paupers constituted 53.72 per cent of the total almshouse population, but in 1890 they constituted 55.77 per cent—an increase of over 2 per cent.

The following statement exhibits the number of paupers of each sex in each decade of life (omitting those whose ages are not known) and the percentage of each sex in each decade:

DECADES.	PAUPERS IN 1890.		PERCENTAGE OF EACH SEX.		Excess of males.	Excess of females.
	Male.	Female.	Male.	Female.		
Under 10 years.....	2,422	1,916	55.83	44.17	11.66	.....
10 to 19 years.....	1,537	1,375	52.78	47.22	5.56	.....
20 to 29 years.....	2,995	3,190	48.42	51.58	.....	3.16
30 to 39 years.....	4,335	4,400	49.63	50.37	.....	0.74
40 to 49 years.....	4,881	4,984	49.48	50.52	.....	1.04
50 to 59 years.....	5,600	4,489	55.51	44.49	11.02	.....
60 to 69 years.....	7,755	4,888	61.34	38.66	22.68	.....
70 to 79 years.....	7,103	4,045	63.72	36.28	27.44	.....
80 to 89 years.....	2,905	1,956	59.76	40.24	19.52	.....
90 to 99 years.....	425	346	55.12	44.88	10.24	.....
100 years and over....	68	88	43.59	56.41	.....	12.82

From the above table it appears that there are only 4 decades in which the number of women in almshouses exceeds that of men, and those are, with one exception, subsequent to infancy, but in the earlier portion of life. The exception is probably of no value, since there are not in fact so many centenarians as returned, if indeed there are any. Most of those reported are ignorant negroes, who have guessed their age and exaggerated it. It may here be mentioned, however, that what seems to

be a genuine case was reported by the keeper of a Georgia almshouse, who wrote the Superintendent of Census, calling his attention to a white man, an inmate of the establishment, who, he said, had a letter in his possession which was addressed to him and dated more than a hundred years ago. This man was in good physical condition and still able to plow.

For purposes of comparison a similar table is given for 1880:

DECADES.	PAUPERS IN 1880.		PERCENTAGE OF EACH SEX.		Excess of males.	Excess of females.
	Male.	Female.	Male.	Female.		
Under 10 years	3,951	2,951	57.24	42.76	14.48	.....
10 to 19 years	2,172	1,614	56.92	43.08	13.84	.....
20 to 29 years	3,080	3,954	43.79	56.21	.....	12.42
30 to 39 years	3,942	4,939	44.30	55.61	.....	11.22
40 to 49 years	4,354	4,820	47.46	52.54	.....	5.08
50 to 59 years	4,660	3,830	54.89	45.11	9.78	.....
60 to 69 years	5,935	3,699	61.60	38.40	23.20	.....
70 to 79 years	5,257	2,995	63.71	36.29	27.42	.....
80 to 89 years	1,912	1,445	56.96	43.04	13.92	.....
90 to 99 years	238	273	46.58	53.42	.....	6.84
100 years and over..	63	89	41.45	58.55	.....	17.10

The general correspondence between these two tables is striking.

Another table has been prepared which shows the distribution of ages, for both sexes taken together, by geographical divisions, as follows:

DECADES.	Aggregate.	GEOGRAPHICAL DIVISIONS.				
		North Atlantic.	South Atlantic.	North Central.	South Central.	Western.
Total	71,703	30,705	7,992	25,081	4,850	3,075
Under 10 years	4,338	1,654	779	1,375	492	38
10 to 19 years	2,912	957	452	1,160	297	46
20 to 29 years	6,185	2,303	729	2,512	500	141
30 to 39 years	8,735	3,414	898	3,617	557	249
40 to 49 years	9,865	4,267	993	3,651	622	332
50 to 59 years	10,089	4,595	956	3,453	577	508
60 to 69 years	12,643	5,842	1,209	4,026	698	863
70 to 79 years	11,148	5,148	1,148	3,588	606	658
80 to 89 years	4,861	2,197	631	1,467	361	205
90 to 99 years	771	299	150	200	100	22
100 years and over..	156	29	47	32	40	8

From this table the paupers whose ages are not known have been omitted.

The similar table for 1880 is as follows:

DECADES.	Aggregate.	GEOGRAPHICAL DIVISIONS.				
		North Atlantic.	South Atlantic.	North Central.	South Central.	Western.
Total	66,203	33,933	6,975	19,811	3,676	1,808
Under 10 years	6,902	3,021	933	2,358	517	73
10 to 19 years	3,816	1,767	309	1,450	230	60
20 to 29 years	7,034	3,302	709	2,419	337	127
30 to 39 years	8,881	4,798	839	2,563	451	230
40 to 49 years	9,174	4,911	844	2,670	452	297
50 to 59 years	8,490	4,471	781	2,404	429	405
60 to 69 years	9,634	5,183	961	2,639	491	360
70 to 79 years	8,252	4,429	964	2,224	438	197
80 to 89 years	3,357	1,727	463	912	198	62
90 to 99 years	511	208	107	142	47	7
100 years and over..	152	26	60	30	36	.....

A diminution is observable during the 10 years in the number of almshouse paupers under 40 years of age and an increase thereafter. The diminution is most marked in the first decade, in which it amounts to 2,564. This is a gratifying fact, but will disappoint many friends of destitute and helpless children, who no doubt have imagined the decrease much greater, owing to the multiplication of children's homes and the strenuous efforts made in a number of states to take pauper children out of the almshouses.

The tendency to greater age among paupers is still more apparent when the numbers given in the last two tables are reduced to percentages for each group and for the whole country separately. This has been done in the two tables which follow. The figures are the number in the million.

DECADES.	The United States.	GEOGRAPHICAL DIVISIONS.				
		North Atlantic.	South Atlantic.	North Central.	South Central.	Western.
Total	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Under 10 years	60,499	53,867	97,472	54,822	101,443	12,338
10 to 19 years	40,612	31,168	56,557	46,250	61,237	14,959
20 to 29 years	86,259	75,004	91,216	100,156	103,093	45,834
30 to 39 years	121,822	111,187	112,362	144,213	114,845	80,976
40 to 49 years	137,581	138,968	124,249	145,568	128,247	107,967
50 to 59 years	140,705	149,650	119,620	137,674	118,969	165,203
60 to 69 years	176,325	190,262	151,276	160,520	143,918	282,276
70 to 79 years	155,475	167,660	143,644	143,057	124,949	213,984
80 to 89 years	67,793	71,552	78,954	53,490	74,433	66,667
90 to 99 years	10,758	9,738	18,769	7,974	20,619	7,154
100 years and over....	2,176	944	5,881	1,276	8,247	2,602

This mode of showing results has the further advantage of enabling the student to make comparisons between geographical sections of the country on a uniform basis. The smallest relative ratio of child paupers is in the extreme west, the largest in the south.

To complete this view of the question the percentages are also given from the Tenth Census :

DECADES.	The United States.	GEOGRAPHICAL DIVISIONS.				
		North Atlantic.	South Atlantic.	North Central.	South Central.	Western.
Total	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Under 10 years	104,255	89,023	133,763	119,025	140,642	40,376
10 to 19 years	57,641	52,073	44,301	73,192	62,568	33,186
20 to 29 years	106,249	99,962	101,649	122,104	105,277	70,243
30 to 39 years	124,148	141,396	120,287	129,372	122,638	127,212
40 to 49 years	138,574	144,726	121,004	134,773	122,960	164,270
50 to 59 years	128,242	131,760	111,971	121,347	116,703	224,005
60 to 69 years	145,522	152,742	137,778	133,209	133,569	199,115
70 to 79 years	124,647	130,522	138,208	112,261	119,151	108,960
80 to 89 years	50,707	50,895	67,097	46,035	53,863	28,761
90 to 99 years	7,719	6,130	15,340	7,168	12,786	3,872
100 years and over....	2,296	766	8,602	1,514	9,793	.....

The average ages of paupers in 1890 in the United States and in the several geographical groups of states were as follows for both sexes taken together :

	YEARS.
The United States.....	51.03
North Atlantic division.....	52.47
South Atlantic division.....	46.07
North Central division.....	49.38
South Central division.....	47.62
Western division.....	58.81

The average age for the United States in 1880 was 45.1 years. The average age, therefore, has increased by 6 years within the decade.

TABLE I.—PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, SHOWING THE AGES OF PAUPERS BY SINGLE AGES AND BY QUINQUENNIAL PERIODS, IN THE AGGREGATE, AND BY GEOGRAPHICAL DIVISIONS.

STATES AND TERRITORIES.	AGGREGATE.	UNDER 5 YEARS.					5 TO 9 YEARS.						
		Total.	Under 1 year.	1	2	3	4	Total.	5	6	7	8	9
Total	71,045	2,755	733	589	521	454	407	1,783	395	391	371	323	303
North Atlantic division	31,743	1,000	370	154	181	160	135	654	129	131	150	123	121
Maine	1,191	43	7	6	12	11	7	48	8	11	9	18	7
New Hampshire	1,145	74	17	9	16	16	20	83	23	13	23	8	16
Vermont	545	23	8	1	5	5	4	40	5	10	7	12	6
Massachusetts	4,725	149	43	21	24	32	20	118	14	24	25	34	21
Rhode Island	499	39	19	6	8	5	1	17	4	2	3	6	2
Connecticut	1,438	49	20	6	15	5	3	12	3	4	1	4	4
New York	10,272	225	117	59	26	22	13	58	8	8	16	10	16
New Jersey	2,718	120	22	16	26	27	29	142	28	30	36	25	23
Pennsylvania	7,633	289	126	39	49	37	38	136	36	29	30	15	26
South Atlantic division	8,100	455	163	61	102	107	82	324	98	83	52	58	33
Delaware	299	20	10	3	3	2	2	3	2	1	1	1	1
Maryland	1,766	24	6	5	4	8	5	17	7	2	3	3	2
District of Columbia	221	4	1	1	1	2	1	3	1	1	1	1	1
Virginia	2,196	146	41	27	40	50	28	134	43	43	25	11	12
West Virginia	792	64	29	15	16	22	21	74	22	18	6	18	10
North Carolina	1,493	79	14	5	26	22	12	58	17	13	7	14	7
South Carolina	574	18	5	4	4	1	4	12	3	1	4	3	1
Georgia	301	26	6	2	8	2	8	23	4	5	5	8	1
Florida	24												
North-Central division	25,615	778	239	122	168	117	132	597	116	128	126	110	117
Ohio	7,490	260	95	37	53	36	39	200	33	47	34	35	52
Indiana	2,927	153	32	17	42	29	33	122	21	34	27	21	19
Illinois	5,395	119	30	25	26	15	23	109	20	20	29	28	12
Michigan	1,305	42	16	8	9	2	7	35	9	6	3	10	7
Wisconsin	2,641	39	13	2	9	7	6	21	5	2	6	3	5
Minnesota	365	15	6	3	4	2	2	4	2	1	1	1	1
Iowa	1,621	25	10	3	3	3	6	20	6	4	5	1	4
Missouri	2,378	67	21	13	11	15	7	48	15	7	11	3	12
North Dakota	35	3	1			1	1	1				1	
South Dakota	51	4		2	1		1	4		2		2	
Nebraska	291	16	2	9	2	1	2	7	1		5		1
Kansas	593	36	13	2	8	8	5	26	5	5	5	6	5
South-Central division	5,929	300	73	39	67	64	57	192	49	46	39	30	28
Kentucky	1,578	150	30	25	30	32	33	111	24	27	22	18	20
Tennessee	1,545	94	24	8	26	24	12	50	15	13	11	7	4
Alabama	623	23	5	3	6	3	6	11	4	3	2	1	1
Mississippi	394	6	3		1	1	1	5	1	1		3	
Louisiana	122												
Texas	664	17	7	2	4	2	2	12	4	2	2	1	3
Arkansas	223	10	4	1		2	3	3	1		2		
Western division	3,128	22	8	4	3	6	1	16	3	3	4	2	4
Montana	132	4	2		1	1		4	1		1		2
Wyoming	61												
Idaho	97	4		1	1	1	1	2	1		1		
New Mexico	1												
Arizona	23												
Utah	62												
Nevada	43							2			1		1
Idaho	21												
Washington	71												
Oregon	39							1			1		
California	2,600	14	6	3	1	4		7	1	3		2	1

a No paupers in almshouses in Wyoming.

TABLE I.—PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	10 TO 14 YEARS.						15 TO 19 YEARS.					
	Total.	10	11	12	13	14	Total.	15	16	17	18	19
Total	1,289	314	228	274	232	241	1,023	244	289	332	307	361
North Atlantic division.....	470	110	97	103	77	83	487	68	80	102	111	126
Maine.....	43	7	9	11	7	9	27	3	2	9	4	9
New Hampshire.....	41	9	8	6	8	10	26	6	2	4	6	8
Vermont.....	19	7	3	4	4	1	16	6	3	2	4	1
Massachusetts.....	118	24	25	30	19	20	78	17	16	10	26	9
Rhode Island.....	10	3	2	1	4	1	12	1	6	2	2	1
Connecticut.....	6	2	1	1	2	2	13	1	2	5	1	4
New York.....	46	6	9	15	8	8	84	2	13	22	23	24
New Jersey.....	91	25	19	17	15	15	44	9	10	5	8	12
Pennsylvania.....	96	27	21	19	12	17	187	23	26	43	37	58
South Atlantic division.....	188	48	33	38	28	41	264	42	41	46	79	56
Delaware.....	1	1	1	1	1	1	14	1	2	1	7	3
Maryland.....	12	1	1	8	1	1	45	8	4	12	8	13
District of Columbia.....	8	1	1	1	4	1	6	1	1	1	1	4
Virginia.....	57	15	13	10	7	12	68	5	11	10	28	14
West Virginia.....	46	13	10	6	7	10	37	9	15	3	3	7
North Carolina.....	28	10	1	6	4	7	52	9	5	10	19	9
South Carolina.....	13	1	4	4	2	3	20	6	4	7	6	1
Georgia.....	23	9	2	3	2	7	22	4	4	2	7	5
Florida.....												
North Central division.....	490	113	79	106	100	92	670	97	132	136	159	146
Ohio.....	152	38	17	39	32	26	204	30	35	47	49	43
Indiana.....	83	21	15	15	16	16	94	11	20	14	24	25
Illinois.....	102	21	16	24	22	19	118	20	24	23	29	22
Michigan.....	50	7	8	8	14	13	76	11	22	19	13	11
Wisconsin.....	12	3	3	2	1	3	25	1	5	6	9	4
Minnesota.....	8	3	2	2	1	1	4	6	3	3	1	1
Iowa.....	18	4	5	4	3	2	34	6	6	9	8	11
Missouri.....	37	12	8	5	7	5	78	12	16	15	19	16
North Dakota.....	1	1	1	1	1	1	4	1	1	1	2	2
South Dakota.....	1	1	1	1	1	1	7	1	1	1	2	3
Nebraska.....	6	2	1	2	1	1	7	1	1	1	2	3
Kansas.....	20	2	5	4	8	6	26	6	9	5	5	9
South Central division.....	126	38	17	25	25	21	171	31	30	44	39	27
Kentucky.....	58	21	5	16	6	10	55	12	10	15	10	8
Tennessee.....	31	6	7	4	9	5	53	6	8	15	12	12
Alabama.....	12	4	2	2	2	2	11	1	3	3	4	4
Mississippi.....	7	2	1	1	2	3	12	2	4	2	3	1
Louisiana.....												
Texas.....	8	3	1	1	2	1	23	5	2	4	8	4
Arkansas.....	10	2	2	2	4	1	17	5	3	5	2	2
Western division.....	15	5	2	2	2	4	31	6	6	4	9	6
Montana.....	4	1	1	1	1	1	3	2				1
Wyoming.....												
Colorado.....							3		2			1
New Mexico.....												
Arizona.....												
Utah.....	1					1						
Nevada.....												
Idaho.....							1				1	
Washington.....												
Oregon.....	1					1	1				1	
California.....	9	4	1	1	2	1	23	4	4	4	7	4

TABLE I.—PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	20 TO 24 YEARS.						25 TO 29 YEARS.					
	Total.	20	21	22	23	24	Total.	25	26	27	28	29
Total.....	2,759	548	505	523	568	610	3,426	785	643	600	784	614
North Atlantic division.....	1,027	190	192	189	214	242	1,276	239	249	236	304	248
Maine.....	38	10	4	7	9	8	36	7	5	5	13	6
New Hampshire.....	45	8	7	8	11	11	62	9	14	17	16	6
Vermont.....	4	1	.....	2	.....	1	10	3	3	1	.....	3
Massachusetts.....	161	30	18	30	36	47	205	31	31	42	44	57
Rhode Island.....	13	3	3	1	3	3	18	3	3	6	5	1
Connecticut.....	50	11	10	8	7	14	50	18	7	7	11	7
New York.....	256	41	48	46	65	56	310	51	64	53	67	75
New Jersey.....	69	11	11	14	18	15	110	21	23	20	31	15
Pennsylvania.....	391	75	91	73	65	87	475	96	99	85	117	78
South Atlantic division.....	332	82	57	58	59	76	397	151	58	54	85	49
Delaware.....	15	5	2	2	4	2	9	2	2	4	1	.....
Maryland.....	67	12	9	14	14	18	108	21	14	18	32	23
District of Columbia.....	6	2	1	2	.....	1	9	2	.....	1	3	3
Virginia.....	96	27	17	14	17	21	101	53	14	12	17	5
West Virginia.....	40	7	5	7	9	12	41	10	6	8	9	8
North Carolina.....	61	16	10	14	8	13	72	33	15	1	14	9
South Carolina.....	16	5	3	3	3	2	25	16	.....	5	3	1
Georgia.....	29	8	8	2	4	7	29	13	5	5	6	.....
Florida.....	2	.....	2	.....	.....	.....	3	1	2	.....	.....	.....
North Central division.....	1,100	211	201	231	226	231	1,412	309	269	247	315	272
Ohio.....	304	65	56	66	59	58	315	68	62	53	69	63
Indiana.....	154	25	31	35	35	28	186	48	32	24	32	20
Illinois.....	202	48	30	39	41	44	368	86	79	51	84	68
Michigan.....	102	14	26	19	21	22	104	17	13	36	16	22
Wisconsin.....	88	13	11	21	20	23	153	20	22	22	54	85
Minnesota.....	5	1	.....	1	1	2	14	1	2	4	5	2
Iowa.....	65	9	13	20	10	13	68	14	15	11	9	19
Missouri.....	124	25	21	21	30	27	179	41	38	32	34	34
North Dakota.....	2	1	.....	.....	.....	1	3	1	.....	1	1	.....
South Dakota.....	2	1	1	.....	.....	.....	4	.....	1	.....	1	2
Nebraska.....	12	2	2	3	2	3	16	2	3	4	3	4
Kansas.....	40	8	9	6	7	10	32	11	2	9	7	3
South Central division.....	249	57	44	41	55	52	251	74	49	41	56	31
Kentucky.....	79	19	8	14	15	23	68	15	9	11	21	12
Tennessee.....	73	12	19	9	22	11	97	35	24	18	10	10
Alabama.....	24	8	5	5	5	1	31	9	7	2	10	8
Mississippi.....	24	6	3	3	5	7	17	7	2	2	4	2
Louisiana.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Texas.....	33	9	4	8	3	9	19	6	2	3	6	2
Arkansas.....	16	3	5	2	5	1	19	2	5	5	5	2
Western division.....	51	8	11	9	14	9	90	12	18	22	24	14
Montana.....	10	2	1	2	1	4	10	1	1	1	4	3
Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado.....	5	.....	1	.....	3	1	12	2	1	3	5	1
New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....
Utah.....	3	.....	1	1	1	.....	3	.....	1	1	.....	.....
Nevada.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
Idaho.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
Washington.....	3	1	1	.....	1	.....	5	1	2	2	.....	.....
Oregon.....	2	2	.....	.....	.....	.....	5	1	1	1	1	1
California.....	28	3	7	6	8	4	52	7	12	14	12	7

TABLE I.—PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	30 TO 34 YEARS.						35 TO 39 YEARS.					
	Total.	30	31	32	33	34	Total.	35	36	37	38	39
Total	4,147	1,357	593	750	679	733	4,588	1,327	838	754	958	711
North Atlantic division.....	1,595	452	252	320	281	290	1,819	456	326	306	400	331
Maine.....	33	13	5	6	2	7	65	21	12	8	14	10
New Hampshire.....	63	12	20	13	10	8	81	18	8	21	17	17
Vermont.....	15	6	1	3	1	4	24	10	3	3	5	2
Massachusetts.....	263	68	49	45	54	47	279	63	53	62	54	47
Rhode Island.....	19	5	3	4	4	3	25	8	2	3	5	7
Connecticut.....	56	20	12	7	8	9	73	22	9	8	17	17
New York.....	433	119	55	97	73	89	543	128	95	84	127	109
New Jersey.....	153	49	20	40	26	18	165	42	26	23	45	29
Pennsylvania.....	560	160	87	105	103	105	564	144	118	94	116	92
South Atlantic division.....	421	202	45	67	61	46	477	208	74	61	87	47
Delaware.....	14	3	2	6	1	2	13	3	3		4	3
Maryland.....	122	45	11	26	21	19	134	40	26	24	28	16
District of Columbia.....	3	1	1		1		11	5	1		2	3
Virginia.....	87	43	7	15	14	8	97	46	11	12	17	11
West Virginia.....	40	18	3	6	8	5	41	16	7	7	6	5
North Carolina.....	90	57	6	10	10	7	92	51	11	9	17	4
South Carolina.....	18	11	4	2		1	29	18	5	3	1	2
Georgia.....	46	24	11	2	6	3	58	29	10	6	11	2
Florida.....	1					1	2				1	1
North Central division.....	1,743	546	252	313	286	346	1,874	501	364	321	407	281
Ohio.....	377	108	52	63	69	85	426	108	83	72	107	56
Indiana.....	191	58	27	34	37	35	181	50	31	30	43	27
Illinois.....	503	177	71	93	60	102	472	131	101	80	96	64
Michigan.....	102	27	16	25	11	23	115	19	20	30	20	25
Wisconsin.....	220	45	44	35	50	46	256	49	50	54	49	54
Minnesota.....	10	3	1	6			16	2	3	5	5	1
Iowa.....	99	39	17	14	14	15	101	33	22	13	24	9
Missouri.....	188	66	20	32	38	32	243	87	46	27	51	32
North Dakota.....	1	1		1	1		1				1	
South Dakota.....	3	1					3	1	1		1	
Nebraska.....	15	8	1	3		3	18	4	3	3	4	4
Kansas.....	84	13	3	7	6	5	42	17	4	7	6	8
South Central division.....	271	123	27	46	36	39	286	131	46	42	41	26
Kentucky.....	76	29	5	14	14	14	69	31	12	9	12	5
Tennessee.....	98	48	10	14	12	14	92	41	20	14	8	9
Alabama.....	25	13	3	4	2	3	45	23	4	5	6	7
Mississippi.....	28	15	2	5	4	2	28	14	1	5	3	3
Louisiana.....	4		1	1		2	4		2	2		
Texas.....	28	11	5	6	3	3	30	12	4	4	9	1
Arkansas.....	12	7	1	2	1	1	20	10	3	3	3	1
Western division.....	117	34	17	34	15	17	132	31	28	24	23	26
Montana.....	13	3	1	6	2	1	17	2	5	4	1	5
Wyoming.....												
Colorado.....	8	6	1			1	6		3	1	2	
New Mexico.....												
Arizona.....	2			1	1		4		1	1	2	
Utah.....	2	1			1							1
Nevada.....	1			1		1	3	1	1			1
Idaho.....	1											
Washington.....	6	3		1	1	1	8	1	3		2	2
Oregon.....	5	1		2	1	1	5		3	1	1	
California.....	78	20	15	22	9	12	89	27	12	17	15	18

TABLE I.—PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES	40 TO 44 YEARS.						45 TO 49 YEARS.					
	Total.	40	41	42	43	44	Total.	45	46	47	48	49
Total	4,916	1,823	763	860	741	729	4,949	1,497	895	814	948	795
North Atlantic division	2,076	654	355	374	342	351	2,191	596	393	399	418	385
Maine	71	29	11	8	12	11	61	21	4	7	20	9
New Hampshire	75	21	14	16	17	7	76	21	12	10	14	19
Vermont	35	13	9	5	4	4	22	8	2	4	2	6
Massachusetts	306	94	58	58	55	61	296	87	51	54	57	47
Rhode Island	33	10	7	8	3	5	29	4	9	7	7	2
Connecticut	77	30	10	13	10	14	115	46	14	22	12	21
New York	672	202	127	110	106	127	755	188	146	144	135	144
New Jersey	197	80	35	28	31	23	198	60	30	48	31	29
Pennsylvania	610	175	104	128	104	99	639	163	125	103	140	108
South Atlantic division	528	285	68	63	62	50	465	207	69	58	76	55
Delaware	13	6	1	1	4	1	14	2	3	5	3	1
Maryland	128	60	25	18	17	18	128	49	18	21	19	21
District of Columbia	13	2	3	2	4	2	7	3	3	1	3	1
Virginia	130	87	9	12	14	8	118	57	18	12	18	13
West Virginia	45	18	5	11	5	6	29	9	6	2	7	5
North Carolina	93	62	9	8	6	8	92	51	10	10	13	8
South Carolina	32	19	4	2	5	2	41	21	5	4	7	4
Georgia	63	31	11	9	7	5	33	16	6	3	5	3
Florida	1		1				3	2			1	
North Central division	1,837	662	294	345	273	263	1,814	507	368	288	361	290
Ohio	454	158	81	86	66	63	455	126	76	81	102	70
Indiana	196	88	22	25	18	33	195	62	39	23	45	26
Illinois	465	166	87	82	80	68	411	103	93	75	69	71
Michigan	112	44	15	20	14	19	121	30	30	14	26	21
Wisconsin	219	53	45	46	38	37	239	51	55	35	51	47
Minnesota	24	9	2	6	2	4	17	4	3	3	3	4
Iowa	28	41	14	17	13	13	121	42	23	15	25	16
Missouri	191	79	25	40	34	22	196	67	40	33	27	29
North Dakota							1		1			
South Dakota	1	1					3				1	2
Nebraska	24	10	3	5	5	1	19	8	3	4	3	1
Kansas	36	22		8	3	3	36	14	5	5	9	3
South Central division	225	173	25	49	40	38	297	138	38	42	53	26
Kentucky	77	45	5	14	8	5	73	35	8	9	17	4
Tennessee	103	50	10	13	16	14	105	39	14	21	23	8
Alabama	42	21	4	7	7	3	29	13	6	3	4	3
Mississippi	41	25	1	3	3	9	32	17	5	2	4	4
Louisiana	6	4		1	1		4	3			1	
Texas	49	22	5	7	3	3	26	14	2	2	3	5
Arkansas	16	6		4	2	4	23	17	3	5	1	2
Western division	150	49	21	29	24	27	182	49	27	27	40	39
Montana	8	2		2	1	3	15	3	2	3	4	3
Wyoming												
Colorado	5	3	2				5	4			1	
New Mexico							1			1		
Arizona	2	1		1			1					
Utah	2	2		3	2		2	2		1		
Nevada	3	2		1			5	2				
Idaho	1		1				2	3	1			
Washington	7	4		2		1	4				2	1
Oregon	6	3		2	1		2		1		2	1
California	111	32	18	18	20	23	145	37	23	21	30	34

TABLE I.—PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	50 TO 54 YEARS.						55 TO 59 YEARS.					
	Total.	50	51	52	53	54	Total.	55	56	57	58	59
Total	5,846	1,917	763	947	855	864	4,743	1,200	942	918	953	730
North Atlantic division.....	2,405	754	371	453	403	424	2,190	530	431	428	436	365
Maine.....	69	22	9	16	11	11	55	14	10	16	5	10
New Hampshire.....	90	20	18	18	16	18	64	19	14	14	6	11
Vermont.....	31	13	2	7	3	6	22	6	5	4	2	5
Massachusetts.....	324	82	57	65	53	67	312	85	51	57	65	54
Rhode Island.....	39	8	6	7	7	11	37	9	9	6	11	2
Connecticut.....	90	35	12	14	13	16	104	36	16	22	21	9
New York.....	892	269	138	175	158	152	818	192	102	158	166	140
New Jersey.....	215	95	33	28	28	31	195	56	37	39	40	23
Pennsylvania.....	655	210	96	123	114	112	583	113	127	112	120	111
South Atlantic division.....	498	244	56	69	63	66	458	133	86	88	94	57
Delaware.....	19	3	3	3	4	6	23	7	3	4	5	4
Maryland.....	114	39	17	21	18	19	101	23	17	24	23	17
District of Columbia.....	15	6	2	2	3	2	16	6	1	3	5	1
Virginia.....	120	65	11	11	15	18	125	39	20	28	27	11
West Virginia.....	42	21	6	3	8	4	34	5	10	9	3	7
North Carolina.....	101	67	10	11	6	7	70	29	15	7	13	6
South Carolina.....	31	16	3	6	3	3	41	13	8	8	7	5
Georgia.....	54	26	4	12	5	7	45	11	12	5	11	6
Florida.....	2	1			1	7						
North Central division.....	1,853	644	271	332	312	294	1,600	395	328	316	325	236
Ohio.....	492	156	83	92	79	82	462	110	88	87	102	75
Indiana.....	193	83	20	24	28	38	207	57	34	57	31	28
Illinois.....	439	158	65	78	69	69	341	85	75	55	73	53
Michigan.....	114	44	13	23	21	13	125	20	27	31	26	21
Wisconsin.....	225	66	39	46	42	32	153	35	45	26	30	22
Minnesota.....	23	3	5	6	4	10	25	6	4	5	6	4
Iowa.....	131	44	14	27	30	16	98	25	24	15	21	13
Missouri.....	181	66	25	25	36	29	131	41	17	26	29	18
North Dakota.....	1						1			1		
South Dakota.....	1				1		3	1			2	
Nebraska.....	16	8	2	4	1	1	20	7	4	5	3	1
Kansas.....	33	16	5	7	1	4	29	8	10	8	2	1
South Central division.....	357	208	29	50	37	33	220	84	45	27	40	24
Kentucky.....	81	41	7	17	7	9	63	25	8	7	15	8
Tennessee.....	132	82	10	11	15	14	71	27	21	8	7	8
Alabama.....	50	28	9	9	3	1	32	13	6	5	4	4
Mississippi.....	34	23		1	5	5	17	8	1	1	4	3
Louisiana.....	6	2	1	2	1	1	5	1	2	1	1	
Texas.....	35	21	1	6	5	2	26	7	7	4	7	1
Arkansas.....	19	11	1	4	2	1	6	3		1	2	
Western division.....	233	67	36	43	40	47	275	58	52	59	58	48
Montana.....	9	2		1	2	4	12	4	3	3	1	1
Wyoming.....												
Colorado.....	8	3			4	1	7	1		1	4	1
New Mexico.....												
Arizona.....	3	2				1	3		1			2
Utah.....	7	2	2			1	1		1			
Nevada.....	3	1		1	1	2	5	1	1		3	
Idaho.....							3		1			2
Washington.....	9	3	1	2	1	2	9	1	1	2	2	8
Oregon.....	4	1	1	2	1		9	2	1	3	2	1
California.....	190	54	32	37	31	36	226	49	43	50	46	38

TABLE I.—PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	60 TO 64 YEARS.						65 TO 69 YEARS.					
	Total.	60	61	62	63	64	Total.	65	66	67	68	69
Total.....	6,261	2,255	953	1,028	995	1,030	6,382	1,929	1,129	1,125	1,217	982
North Atlantic division.....	2,876	966	446	515	464	485	2,966	853	537	567	564	445
Maine.....	80	32	9	15	9	15	102	37	18	16	14	17
New Hampshire.....	66	13	14	14	9	16	81	18	21	21	10	11
Vermont.....	31	13	1	5	8	4	37	18	6	4	5	4
Massachusetts.....	411	125	57	80	78	71	466	144	76	95	87	64
Rhode Island.....	43	14	6	10	7	6	32	9	2	6	13	2
Connecticut.....	138	51	18	20	23	26	137	51	15	20	32	19
New York.....	1,163	400	185	199	195	184	1,123	308	212	207	221	180
New Jersey.....	223	91	30	39	24	39	211	71	35	43	33	29
Pennsylvania.....	721	227	126	133	111	124	772	197	152	155	149	119
South Atlantic division.....	595	295	70	81	79	70	614	279	75	71	105	84
Delaware.....	33	13	6	8	3	3	35	8	5	9	9	4
Maryland.....	134	50	21	20	22	21	135	59	18	15	24	19
District of Columbia.....	27	8	5	5	4	5	24	7	3	4	4	6
Virginia.....	133	76	13	11	18	15	140	69	17	13	25	16
West Virginia.....	45	14	6	9	12	4	37	14	9	6	3	5
North Carolina.....	108	73	8	9	9	9	109	62	8	7	17	15
South Carolina.....	44	26	2	7	7	2	57	32	3	7	10	5
Georgia.....	68	33	9	11	4	11	75	27	12	9	13	14
Florida.....	3	2		1			2	1		1		
North Central division.....	2,012	685	313	337	315	362	2,014	532	367	357	406	352
Ohio.....	625	202	104	102	98	119	682	152	123	127	138	142
Indiana.....	201	74	24	33	29	41	187	74	31	25	39	18
Illinois.....	434	153	56	82	70	73	382	122	59	55	76	70
Michigan.....	141	42	27	27	25	20	171	56	35	41	30	29
Wisconsin.....	222	62	39	45	37	39	199	38	37	34	53	37
Minnesota.....	40	7	11	6	4	12	30	2	9	6	7	6
Iowa.....	136	53	21	18	20	24	131	36	30	27	22	16
Missouri.....	152	69	23	16	18	26	143	48	27	30	27	16
North Dakota.....	3				1	1	4	1				2
South Dakota.....	3	1	1		1		3		1		1	1
Nebraska.....	17	6	1	3	5	2	30	7	9	5	4	5
Kansas.....	33	10	5	5	7	5	47	16	5	7	9	10
South Central division.....	365	210	43	27	56	29	333	162	45	43	52	31
Kentucky.....	124	72	12	13	17	10	121	55	13	20	24	9
Tennessee.....	83	48	15	4	15	6	83	40	14	11	10	8
Alabama.....	51	30	7	4	3	7	43	27	8	2	1	5
Mississippi.....	42	29	3	1	6	3	37	20	3	3	7	4
Louisiana.....	19	6	2	3	7	1	25	12	3	3	6	1
Texas.....	32	20	4		7	1	20	5	3	4	4	4
Arkansas.....	9	5		2	1	1	4	3	1			
Western division.....	413	99	81	68	81	84	455	103	105	87	90	70
Montana.....	6	3		1	2		8	3	1	1	1	2
Wyoming.....												
Colorado.....	4	1			2	1	6			3		3
New Mexico.....												
Arizona.....	4	2		1	1							
Utah.....	6	2			1	3	3					3
Nevada.....	5	1	2	1		1	3	2	1			
Idaho.....	1	1					3		2			
Washington.....	7	3		1	2	1	4	1		1	3	3
Oregon.....	9	1	3		1	4	11	1	2	2	3	3
California.....	371	85	76	64	72	74	417	96	99	78	85	59

TABLE I.—PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	70 TO 74 YEARS.						75 TO 79 YEARS.					
	Total.	70	71	72	73	74	Total.	75	76	77	78	79
Total.....	6,222	2,246	945	1,157	968	906	4,926	1,545	1,008	781	927	665
North Atlantic division.....	2,851	1,010	437	531	440	433	2,297	700	506	356	422	313
Maine.....	97	36	14	17	11	19	106	32	16	24	19	15
New Hampshire.....	74	18	11	13	13	19	64	21	12	12	9	10
Vermont.....	51	21	6	8	9	7	67	16	16	9	14	12
Massachusetts.....	401	147	55	79	54	66	382	103	98	50	80	51
Rhode Island.....	36	11	6	6	11	2	36	10	8	4	8	6
Connecticut.....	166	68	12	30	26	30	115	51	18	13	15	18
New York.....	1,075	371	195	193	167	149	805	228	195	141	131	110
New Jersey.....	224	92	27	44	31	30	143	61	30	14	24	14
Pennsylvania.....	727	246	111	141	118	111	579	178	113	89	122	77
South Atlantic division.....	639	296	71	104	92	76	509	222	95	73	71	48
Delaware.....	23	7	5	3	4	4	22	10	5	4	2	1
Maryland.....	110	49	13	20	20	8	93	41	13	21	11	7
District of Columbia.....	20	5	4	6	2	3	16	4	3	4	4	1
Virginia.....	156	68	18	28	24	18	138	53	34	19	18	14
West Virginia.....	51	21	8	6	7	9	46	19	9	5	9	4
North Carolina.....	127	67	11	17	21	11	88	49	12	7	12	8
South Carolina.....	61	39	3	11	4	4	42	21	10	4	4	3
Georgia.....	89	39	9	12	10	19	64	25	9	9	11	10
Florida.....	2	1		1								
North Central division.....	2,006	669	326	386	327	298	1,582	437	303	272	342	228
Ohio.....	687	207	124	132	114	110	559	139	103	100	129	88
Indiana.....	229	80	40	40	29	34	155	51	26	30	30	18
Illinois.....	350	149	49	53	53	43	216	70	41	29	50	26
Michigan.....	176	52	25	34	37	27	159	35	32	27	31	36
Wisconsin.....	193	49	31	44	34	35	163	49	31	39	32	21
Minnesota.....	44	14	6	9	9	6	34	6	5	5	11	7
Iowa.....	123	36	17	28	23	19	130	42	28	23	27	16
Missouri.....	126	55	16	29	16	10	98	39	25	10	19	5
North Dakota.....	1	1										
South Dakota.....	7	2	1	2	2	2	2	1	1			
Nebraska.....	23	6	3	7	2	5	24	7	7	3	5	2
Kansas.....	47	18	7	8	7	7	36	9	4	6	8	9
South Central division.....	331	158	34	55	42	42	275	121	55	27	43	29
Kentucky.....	103	47	12	17	7	20	97	47	15	11	12	12
Tennessee.....	79	37	6	15	15	6	57	25	12	4	14	2
Alabama.....	53	28	5	10	4	6	44	15	10	5	6	8
Mississippi.....	50	34	3	5	3	5	28	17	5	2	3	1
Louisiana.....	19	5	2	4	7	1	18	2	4	3	5	4
Texas.....	21	4	5	4	5	3	21	10	7	2	1	1
Arkansas.....	6	3	1		1	1	10	5	2		2	1
Western division.....	395	113	77	81	67	57	263	65	49	53	49	47
Montana.....	4	2	1			1	2	1				1
Wyoming.....												
Colorado.....	4		1	2		1	1	1				
New Mexico.....												
Arizona.....	2			1		1						
Utah.....	5	2			2	1	13	1	1	3	3	5
Nevada.....	5	3		1	1		3	1	2			
Idaho.....	3	1	1		1		2	2				
Washington.....	5	2	2	1			1		1			
Oregon.....	11	5	1	2	1	2	14	2	3	1	4	4
California.....	356	98	71	74	62	51	227	57	42	49	42	37

TABLE I.—PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	80 TO 84 YEARS.						85 TO 89 YEARS.					
	Total.	80	81	82	83	84	Total.	85	86	87	88	89
Total.....	3,428	1,398	576	546	462	451	1,433	440	330	272	215	176
North Atlantic division.....	1,556	597	267	259	216	217	641	170	161	136	99	75
Maine.....	97	37	9	19	17	15	51	15	17	11	5	3
New Hampshire.....	40	7	10	9	8	6	21	3	6	6	4	2
Vermont.....	50	21	4	6	11	8	27	5	8	7	4	3
Massachusetts.....	281	89	50	56	51	35	106	30	23	19	16	18
Rhode Island.....	39	15	6	8	5	5	11	1	4	4	2	2
Connecticut.....	92	39	10	11	16	16	38	12	7	6	8	5
New York.....	488	183	104	82	55	64	200	53	53	39	32	23
New Jersey.....	103	58	14	10	12	9	49	21	7	6	7	8
Pennsylvania.....	366	148	60	53	41	59	138	30	36	38	21	13
South Atlantic division.....	465	251	48	64	55	47	166	71	25	29	22	19
Delaware.....	15	10	3	1	1	1	5	2	1	1	1	3
Maryland.....	66	36	8	12	5	5	18	4	4	5	2	3
District of Columbia.....	12	5	2	1	2	2	5	4	1	1	1	1
Virginia.....	131	71	14	18	14	14	55	25	10	10	6	4
West Virginia.....	82	10	6	3	8	5	7	4	1	1	1	1
North Carolina.....	89	50	7	16	13	3	31	12	5	6	5	3
South Carolina.....	43	32	2	4	2	3	17	6	2	3	3	3
Georgia.....	75	36	6	10	8	15	28	14	3	4	4	3
Florida.....	2	1	1	1	1	1	1	1	1	1	1	1
North Central division.....	1,015	363	200	168	142	142	452	128	107	74	76	67
Ohio.....	370	140	67	64	50	49	144	35	32	24	28	25
Indiana.....	109	43	20	16	21	9	45	16	11	7	6	5
Illinois.....	145	37	33	30	16	29	65	20	13	12	10	10
Michigan.....	99	36	17	8	22	16	50	11	14	8	10	7
Wisconsin.....	102	41	23	16	8	14	50	14	11	6	10	9
Minnesota.....	31	7	6	8	5	5	6	3	2	1	1	1
Iowa.....	75	21	18	14	12	10	53	18	16	6	5	8
Missouri.....	54	28	9	8	3	6	19	6	3	7	2	1
North Dakota.....	2	1	1	1	1	1	1	1	1	1	1	1
South Dakota.....	1	1	1	1	1	1	1	1	1	1	1	1
Nebraska.....	12	4	2	3	3	3	3	1	1	1	1	1
Kansas.....	15	5	4	1	2	3	14	4	4	3	2	1
South Central division.....	241	129	27	31	33	21	120	54	27	19	12	8
Kentucky.....	85	45	11	12	9	8	38	15	13	4	5	1
Tennessee.....	50	20	6	9	8	7	32	11	4	7	4	6
Alabama.....	39	26	2	4	6	1	17	9	4	1	2	1
Mississippi.....	39	26	4	2	5	2	16	11	1	3	1	1
Louisiana.....	6	2	3	1	1	1	2	2	2	1	1	1
Texas.....	16	9	1	3	3	1	12	6	3	3	1	1
Arkansas.....	6	1	1	1	2	1	3	2	1	1	1	1
Western division.....	151	53	34	24	16	24	54	17	10	14	6	7
Montana.....	3	1	1	1	1	2	1	1	1	1	1	1
Wyoming.....	1	1	1	1	1	1	1	1	1	1	1	1
Colorado.....	5	1	2	1	1	1	1	1	1	1	1	1
New Mexico.....	1	1	1	1	1	1	1	1	1	1	1	1
Arizona.....	3	2	1	1	1	1	3	2	1	1	1	1
Utah.....	4	2	1	1	1	1	1	1	1	1	1	1
Nevada.....	2	2	1	1	1	1	1	1	1	1	1	1
Idaho.....	2	2	1	1	1	1	1	1	1	1	1	1
Washington.....	2	1	1	1	1	1	1	1	1	1	1	1
Oregon.....	8	6	1	1	1	1	4	2	1	1	1	1
California.....	123	39	29	21	13	21	46	13	9	12	6	6

TABLE I.—PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	90 TO 94 YEARS.						95 TO 99 YEARS.					
	Total.	90	91	92	93	94	Total.	95	96	97	98	99
Total.....	616	321	97	63	56	79	155	56	39	17	30	13
North Atlantic division.....	254	127	49	26	24	28	45	13	14	6	7	5
Maine.....	18	9	3	1	1	4	2		2			
New Hampshire.....	3	1			2							
Vermont.....	11	5	2	1	2	1	1					1
Massachusetts.....	34	18	8	2	3	3	6	3		1	2	
Rhode Island.....	6	2	1	2	1		1					
Connecticut.....	15	7	3		4	1	6	2	2		2	
New York.....	103	50	18	11	9	15	17	6	5	3	2	1
New Jersey.....	15	8	5	2			4		3	1		
Pennsylvania.....	49	27	9	7	2	4	8	2	2		1	3
South Atlantic division.....	107	64	10	11	10	12	43	15	11	4	8	5
Delaware.....	6	4		1		1	1				1	
Maryland.....	13	6	4		2	1	3	3				
District of Columbia.....	2	2										
Virginia.....	33	17	3	5	3	5	19	4	7	2	4	2
West Virginia.....	4	2		1		1	1			1		
North Carolina.....	23	16	1	2	2	2	5	1	2			2
South Carolina.....	6	4			1	1	5	2	1	1	1	
Georgia.....	20	13	2	2	2	1	9	5	1		2	1
Florida.....												
North Central division.....	157	75	29	19	14	20	43	22	8	4	7	2
Ohio.....	65	32	12	6	4	11	17	8	4	2	2	1
Indiana.....	15	7	5	1		2	6	3	1	1	1	
Illinois.....	18	10	3	1	2	2	5	2		1	1	1
Michigan.....	12	7		1	3	1	2	1			1	
Wisconsin.....	15	5	4	4	1	1	6	3	2		1	
Minnesota.....	5	2	1	2			3	2	1			
Iowa.....	13	4	3	1	3	2	4	3			1	
Missouri.....	10	5	1	2	1	1	4					
North Dakota.....												
South Dakota.....												
Nebraska.....												
Kansas.....	4	3		1								
South Central division.....	78	45	5	5	6	17	22	6	5	3	7	1
Kentucky.....	10	7	1	1		1	11	3	3	1	3	1
Tennessee.....	17	13	1		2	1	6	2		1	3	
Alabama.....	31	14	1	2	1	13						
Mississippi.....	9	7		1		1						
Louisiana.....	4	1	1		2							
Texas.....	6	2	1	1	1	1	5	1	2	1	1	
Arkansas.....	1	1										
Western division.....	20	10	4	2	2	2	2		1		1	
Montana.....												
Wyoming.....												
Colorado.....												
New Mexico.....												
Arizona.....												
Utah.....	1		1									
Nevada.....												
Idaho.....												
Washington.....												
Oregon.....	1		1									
California.....	18	10	2	2	2	2	2		1		1	

TABLE I.—PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	115 TO 119 YEARS.						120 TO 124 YEARS.					125 TO 129 YEARS.					Not stated.		
	Total.	115	116	117	118	119	Total.	120	121	122	123	124	Total.	125	126	127		128	129
Total.....	11	5	1	2	3		3			1	2		2	1			1		1,34
North Atlantic division.....	3		1	1	1														438
Maine.....																			17
New Hampshire.....																			9
Vermont.....																			7
Massachusetts.....																			36
Rhode Island.....																			4
Connecticut.....																			31
New York.....	2		1		1														186
New Jersey.....	1			1															43
Pennsylvania.....																			165
South Atlantic division.....	2	1		1			2				2								108
Delaware.....																			1
Maryland.....																			8
District of Columbia.....																			14
Virginia.....				1															61
West Virginia.....	1																		4
North Carolina.....																			8
South Carolina.....	1	1					1				1								8
Georgia.....							1				1								12
Florida.....																			
North Central division.....	2	1			1		1			1									534
Ohio.....																			138
Indiana.....																			52
Illinois.....	1	1																	108
Michigan.....																			5
Wisconsin.....	1				1														35
Minnesota.....																			3
Iowa.....																			7
Missouri.....							1			1									102
North Dakota.....																			11
South Dakota.....																			1
Nebraska.....																			5
Kansas.....																			2
South Central division.....	4	3			1								2	1			1		199
Kentucky.....	2	2																	20
Tennessee.....													1				1		123
Alabama.....																			9
Mississippi.....	2	1			1														8
Louisiana.....																			9
Texas.....																			33
Arkansas.....													1	1					6
Western division.....																			65
Montana.....																			
Wyoming.....																			
Colorado.....																			1
New Mexico.....																			
Arizona.....																			
Utah.....																			
Nevada.....																			
Idaho.....																			
Washington.....																			
Oregon.....																			
California.....																			62

TABLE II.—MALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, SHOWING THE AGES OF PAUPERS BY SINGLE AGES AND BY QUINQUENNIAL PERIODS, IN THE AGGREGATE, AND BY GEOGRAPHICAL DIVISIONS.

STATES AND TERRITORIES.	Aggregate.	UNDER 5 YEARS.						5 TO 9 YEARS.					
		Total.	Under 1 year.	1	2	3	4	Total.	5	6	7	8	9
Total.....	40,741	1,325	390	189	279	238	229	1,097	239	241	223	209	185
North Atlantic division.....	16,893	534	196	75	95	92	76	417	80	87	88	86	76
Maine.....	611	19	4	3	6	3	3	32	6	9	5	7	5
New Hampshire.....	555	39	9	4	10	7	9	55	16	10	12	6	11
New York.....	279	13	4	1	3	3	2	30	4	6	6	10	4
Vermont.....	2,343	69	21	8	10	19	11	73	10	12	19	23	9
Massachusetts.....	258	17	5	4	4	3	1	11	3	3	3	3	2
Rhode Island.....	818	29	15	3	6	3	2	10	3	4	3	3	3
Connecticut.....	5,496	116	61	20	16	11	8	40	7	5	7	9	12
New Jersey.....	1,385	61	9	7	11	17	17	81	13	20	18	18	12
Pennsylvania.....	5,148	171	68	25	29	26	23	85	18	21	18	10	18
South Atlantic division.....	3,873	202	45	29	44	43	41	186	55	52	30	35	14
Delaware.....	155	12	6	2	1	1	2	2	1	1	1	1	1
Maryland.....	922	12	2	2	2	3	3	9	5	1	1	2	1
District of Columbia.....	121	2	1	1	1	1	1	8	1	1	1	1	1
Virginia.....	970	80	19	14	21	13	13	74	24	26	15	4	5
West Virginia.....	393	42	7	5	7	12	11	45	13	12	4	12	4
North Carolina.....	653	34	3	3	9	13	6	31	8	8	4	9	2
South Carolina.....	245	10	4	3	2	1	1	8	2	1	2	2	1
Georgia.....	398	10	3	2	1	1	4	14	2	3	3	5	1
Florida.....	16												
North Central division.....	14,832	438	119	67	108	64	80	875	74	75	80	72	74
Ohio.....	4,152	136	48	15	35	16	22	148	20	31	29	29	39
Indiana.....	1,706	96	12	13	31	19	21	68	15	19	18	11	5
Illinois.....	2,131	72	16	12	18	10	16	71	13	15	16	18	9
Michigan.....	1,168	23	7	6	7	4	3	21	5	3	2	7	4
Wisconsin.....	1,517	19	5	2	4	3	5	10	3	1	1	2	3
Minnesota.....	263	5	2	1	2	2	5	2	1	1	1	1	4
Iowa.....	964	18	7	3	1	2	2	12	4	2	2	1	4
Missouri.....	1,312	36	11	9	5	9	2	26	9	2	6	1	8
North Dakota.....	24	3	1	1	1	1	1						
South Dakota.....	36	2	1	1	1	1	1						
Nebraska.....	180	8	1	5	1	4	3	4	1	3	2	4	2
Kansas.....	359	20	9	4	4	4	3	13	3	2	2	4	2
South Central division.....	2,381	139	26	15	31	36	31	107	29	24	22	15	17
Kentucky.....	778	71	13	11	14	15	18	61	13	12	14	8	14
Tennessee.....	685	45	7	2	12	17	7	28	9	8	5	5	1
Alabama.....	276	12	3	2	4	1	2	8	3	3	1	1	
Mississippi.....	235	3	1	1	1	1	1	1	1				
Louisiana.....	50												
Texas.....	257	6	2		2	2	2	7	3	1		1	2
Arkansas.....	190	2			1	1	1	2			2		
Western division.....	2,762	12	4	3	1	3	1	12	1	3	3	1	4
Montana.....	118	4	2		1	1		3	1				2
Wyoming.....	(a)												
Colorado.....	76	1					1	1			1		
New Mexico.....	1												
Arizona.....	23												
Utah.....	47							2			1		1
Nevada.....	37												
Idaho.....	19												
Washington.....	68							1			1		
Oregon.....	86												
California.....	2,287	7	2	3		2		5		3		1	1

a No paupers in almshouses in Wyoming.

TABLE II.—MALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	10 TO 14 YEARS.						15 TO 19 YEARS.					
	Total.	10	11	12	13	14	Total.	15	16	17	18	19
Total	766	205	127	169	180	185	771	129	136	156	181	169
North Atlantic division	308	78	63	72	48	47	246	37	40	56	51	62
Maine	26	4	3	9	3	7	18	2	1	5	4	6
New Hampshire	23	5	6	4	3	5	6	2	1	1	2	2
Vermont	15	6	1	3	4	1	6	2	2	2	2	1
Massachusetts	77	17	15	20	14	11	39	10	9	5	11	4
Rhode Island	3	2	1			2	3	1	1	2	1	1
Connecticut	5	2	1			2	4	2	2	2	2	1
New York	33	5	8	10	7	3	47	5	5	16	12	14
New Jersey	63	17	13	13	11	9	24	7	7	3	2	5
Pennsylvania	63	20	15	13	6	9	99	13	12	24	18	32
South Atlantic division	90	27	12	20	13	18	125	26	20	17	37	25
Delaware							6	1			3	2
Maryland	9	1		6	1	1	27	6	2	5	6	8
District of Columbia							2				1	1
Virginia	24	8	7	2	3	4	30	3	8	3	12	4
West Virginia	21	7	3	4	2	5	14	4	7	1		2
North Carolina	19	6	1	4	3	5	24	5	1	4	8	6
South Carolina	7		1	3	2	1	12	5		4	3	
Georgia	10	5		1	2	2	10	2	2		4	2
Florida												
North Central division	292	73	42	69	55	53	294	46	57	58	67	66
Ohio	93	23	12	24	19	15	77	16	11	15	17	18
Indiana	50	17	10	6	9	8	39	4	11	4	10	10
Illinois	61	12	7	18	11	13	61	11	18	11	12	9
Michigan	32	5	3	7	11	6	36	7	8	10	7	4
Wisconsin	4	2	1			1	14	1	3	3	5	2
Minnesota	1			1								
Iowa	10	3	3	3	1		14	2		2	3	7
Missouri	23	7	4	5	3	4	36	4	6	9	9	8
North Dakota												
South Dakota	1			1			3				2	1
Nebraska	3	2				1						
Kansas	14	2	2	4	1	5	14	1		4	2	7
South Central division	66	24	8	8	13	13	79	16	13	21	19	10
Kentucky	27	11	3	5	3	5	20	6	5	4	3	2
Tennessee	18	4	4	2	5	3	29	4	4	9	7	5
Alabama	6	3			1	2	7	1		3	3	
Mississippi	5	1			1	3	9	2	2	2	2	1
Louisiana												
Texas	4	3		1			11	3	1	2	3	2
Arkansas	6	2	1		3		3		1	1	1	
Western division	10	3	2		1	4	27	4	6	4	7	6
Montana	2		1			1	2	1				1
Wyoming												
Colorado							3		2			1
New Mexico												
Arizona												
Utah	1					1						
Nevada												
Idaho							1				1	
Washington												
Oregon	1					1						
California	6	3	1		1	1	21	3	4	4	6	4

TABLE II.—MALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	20 TO 24 YEARS.						25 TO 29 YEARS.					
	Total.	20	21	22	23	24	Total.	25	26	27	28	29
Total.....	1,338	242	266	235	300	295	1,637	362	306	293	382	309
North Atlantic division.....	496	85	96	81	118	116	619	113	108	117	151	130
Maine.....	17	4	1	2	6	4	15	2	3	2	7	1
New Hampshire.....	18	4	3	2	6	3	25	5	4	6	0	4
Vermont.....	2			1		1	6	3	2			1
Massachusetts.....	69	10	8	11	20	20	76	7	9	17	11	32
Rhode Island.....	6	2	2		1	1	8		2	3	2	1
Connecticut.....	22	6	3	2	5	6	31	12	4	3	8	4
New York.....	128	20	24	17	38	29	166	29	32	31	35	39
New Jersey.....	38	4	7	9	8	10	45	7	5	10	13	10
Pennsylvania.....	196	35	48	37	34	42	247	48	47	45	69	38
South Atlantic division.....	157	41	37	20	28	31	176	62	28	26	36	24
Delaware.....	6	2	1		2	1	4		1	2	1	
Maryland.....	30	2	6	6	9	7	57	11	6	10	17	13
District of Columbia.....	3	2	1				4				1	3
Virginia.....	39	11	10	3	5	10	37	22	5	4	5	1
West Virginia.....	17	4	1	2	4	6	16	3	4	6	3	
North Carolina.....	30	11	7	5	3	4	35	15	8		6	6
South Carolina.....	11	3	3	2	2	1	8	5		1	1	1
Georgia.....	19	6	6	2	3	2	13	5	3	3	2	
Florida.....	2		2				2	1	1			
North Central division.....	534	89	100	108	120	117	694	148	138	121	152	135
Ohio.....	136	26	26	29	29	26	135	33	25	25	19	33
Indiana.....	65	9	16	11	21	9	74	14	23	9	22	6
Illinois.....	102	17	17	19	22	27	139	50	38	29	39	38
Michigan.....	51	7	12	6	14	12	54	11	5	18	10	10
Wisconsin.....	52	8	6	12	11	15	76	12	9	10	30	15
Minnesota.....	3			1		2	10		1	4	4	1
Iowa.....	34	3	7	12	4	8	34	6	8	4	4	12
Missouri.....	61	14	9	12	15	11	90	15	25	15	16	19
North Dakota.....							3	1		1	1	
South Dakota.....	1	1					2				1	1
Nebraska.....	3			1		2	11		3	2	8	3
Kansas.....	25	4	7	5	4	5	16	6	1	4	3	2
South Central division.....	114	22	23	21	23	25	96	31	16	15	24	10
Kentucky.....	30	7	5	4	5	9	17	5	2	3	6	1
Tennessee.....	39	5	8	3	8	6	34	14	6	6	4	4
Alabama.....	16	5	3	4	3	1	18	4	5	1	6	2
Mississippi.....	16	2	2	3	3	6	5	3			2	
Louisiana.....												
Texas.....	15	2	3	5	2	3	12	5	1	2	3	1
Arkansas.....	7	1	2	2	2		10		2	3	3	2
Western division.....	37	5	10	5	11	6	72	8	16	19	19	10
Montana.....	8	1	1	2	1	3	7	1	1		3	2
Wyoming.....												
Colorado.....	5		1		3	1	10	1	1	3	4	1
New Mexico.....												
Arizona.....							1				1	
Utah.....	3		1	1	1		3		1	1	1	
Nevada.....							1					1
Idaho.....							1					1
Washington.....	3	1	1		1		5	1	2	2		
Oregon.....							4	1	1	1	1	
California.....	18	3	6	2	5	2	40	4	10	12	9	5

TABLE II.—MALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED

STATES AND TERRITORIES.	30 TO 34 YEARS.						35 TO 39 YEARS.					
	Total.	30	31	32	33	34	Total.	35	36	37	38	39
Total	2,100	657	321	404	348	370	2,235	616	406	393	466	354
North Atlantic division.....	808	232	144	157	136	139	850	218	158	167	191	156
Maine.....	18	7	4	3	1	3	31	14	6	3	6	2
New Hampshire.....	28	7	11	5	4	1	31	7	3	9	5	7
Vermont.....	9	5	.....	2	.....	2	10	5	1	1	2	1
Massachusetts.....	111	29	25	18	20	19	133	26	22	36	26	23
Rhode Island.....	4	2	.....	.....	.....	2	8	1	2	2	2	1
Connecticut.....	35	12	7	4	6	6	42	10	4	5	12	11
New York.....	236	68	32	47	42	47	280	67	46	51	64	52
New Jersey.....	60	21	8	16	14	7	63	11	9	12	18	13
Pennsylvania.....	301	81	57	62	49	52	292	77	65	48	56	46
South Atlantic division.....	192	95	18	31	26	22	174	72	25	26	37	14
Delaware.....	5	.....	1	2	.....	2	6	2	.....	.....	3	1
Maryland.....	74	29	7	17	9	12	62	19	12	13	13	5
District of Columbia.....	1	.....	.....	.....	1	.....	6	4	.....	.....	1	.....
Virginia.....	33	19	2	4	6	2	27	12	3	5	3	4
West Virginia.....	12	7	.....	2	3	.....	9	5	1	1	1	1
North Carolina.....	37	26	1	4	3	3	34	18	4	2	9	1
South Carolina.....	10	6	1	2	.....	1	11	5	2	2	1	1
Georgia.....	20	8	6	.....	4	2	18	7	3	3	5	.....
Florida.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....
North Central division.....	949	268	133	165	158	185	949	252	180	159	206	152
Ohio.....	181	46	25	30	42	38	194	50	39	34	44	27
Indiana.....	92	29	16	16	15	16	96	22	20	18	24	12
Illinois.....	256	80	36	51	31	58	242	67	48	42	43	36
Michigan.....	53	11	8	14	7	13	59	10	9	14	13	13
Wisconsin.....	124	31	19	21	23	30	123	22	23	24	26	28
Minnesota.....	5	2	.....	3	.....	.....	13	1	3	.....	5	1
Iowa.....	59	19	15	5	13	7	52	18	11	7	10	6
Missouri.....	103	33	11	18	22	19	129	45	22	13	23	21
North Dakota.....	1	1	.....	.....	.....	.....	1	.....	.....	.....	1	.....
South Dakota.....	2	1	.....	.....	1	.....	12	3	2	2	3	2
Nebraska.....	11	8	1	2	.....	.....	26	13	3	2	2	6
Kansas.....	22	7	2	5	4	4	.....	.....	.....	.....	.....	.....
South Central division.....	92	35	11	20	14	12	111	51	16	19	14	11
Kentucky.....	27	9	3	5	5	5	23	10	5	2	3	3
Tennessee.....	33	14	3	7	5	4	32	16	8	5	1	2
Alabama.....	6	2	1	2	.....	1	17	8	1	3	3	2
Mississippi.....	10	6	1	.....	2	1	17	9	.....	3	3	2
Louisiana.....	1	1	.....	1	.....	.....	3	.....	1	2	.....	.....
Texas.....	12	3	3	4	1	1	13	5	1	2	4	1
Arkansas.....	3	1	.....	1	1	.....	6	3	.....	2	.....	1
Western division.....	99	27	15	31	14	12	111	23	27	22	18	21
Montana.....	12	3	1	6	2	.....	15	2	5	3	1	4
Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado.....	7	6	.....	.....	.....	1	5	.....	3	1	1	.....
New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona.....	2	.....	.....	1	1	.....	4	.....	1	1	2	.....
Utah.....	2	1	.....	.....	1	.....	.....	.....	.....	.....	.....	1
Nevada.....	2	.....	.....	1	.....	1	3	1	1	.....	.....	1
Idaho.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
Washington.....	5	3	.....	1	1	.....	7	.....	3	.....	2	2
Oregon.....	5	1	.....	2	1	1	4	.....	3	1	.....	.....
California.....	63	13	14	19	8	9	73	20	11	16	12	14

TABLE II.—MALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	40 TO 44 YEARS.						45 TO 49 YEARS.					
	Total.	40	41	42	43	44	Total.	45	46	47	48	49
Total.....	2,349	819	379	422	368	361	2,532	725	489	419	471	428
North Atlantic division.....	970	285	170	181	163	171	1,133	280	220	211	215	198
Maine.....	36	14	7	3	5	7	31	10	3	3	10	5
New Hampshire.....	33	11	4	11	6	1	39	12	5	7	4	11
Vermont.....	15	4	3	3	3	2	10	3	1	1	2	3
Massachusetts.....	128	36	19	26	22	25	140	45	22	21	26	26
Rhode Island.....	18	5	4	2	3	4	16	3	5	4	2	2
Connecticut.....	29	14	4	8	5	8	66	24	7	16	5	14
New York.....	297	82	52	54	51	58	355	70	71	78	73	63
New Jersey.....	71	31	13	10	10	7	88	24	15	21	12	16
Pennsylvania.....	333	88	64	64	58	59	388	98	91	60	81	58
South Atlantic division.....	204	102	29	23	23	22	190	84	20	26	27	24
Delaware.....	4	4					7	2	2	1	2	
Maryland.....	75	35	12	11	7	10	70	29	12	10	8	11
District of Columbia.....	8		2	2	3	1	6	2	2	1	3	
Virginia.....	32	19	2	6	3	2	34	15	4	5	3	7
West Virginia.....	25	11	3	4	2	5	5	1	2	1	1	
North Carolina.....	29	18	4	3	3	1	36	21	4	5	3	3
South Carolina.....	12	5	2	1	2	2	20	10	2	2	4	2
Georgia.....	19	10	4	1	3	1	9	4	1	1	2	1
Florida.....							3	2			1	
North Central division.....	938	334	156	171	147	180	911	251	196	137	169	158
Ohio.....	222	81	43	46	31	21	222	57	41	38	44	42
Indiana.....	96	41	14	15	10	16	102	31	25	13	20	13
Illinois.....	243	76	46	33	41	42	205	47	50	39	31	38
Michigan.....	60	20	8	13	9	10	69	19	15	6	16	13
Wisconsin.....	124	33	24	29	22	16	114	23	28	14	23	26
Minnesota.....	14	5	2	3	1	3	12	3	2	2	2	3
Iowa.....	44	19	5	6	7	7	65	26	15	5	11	8
Missouri.....	97	36	12	14	23	12	95	34	16	16	16	13
North Dakota.....							1		1			
South Dakota.....	1	1					2				1	1
Nebraska.....	15	7	2	3	2	1	11	4	1	3	3	
Kansas.....	22	15		4	1	2	13	7	2	1	2	1
South Central division.....	114	61	7	15	15	16	134	58	20	21	22	13
Kentucky.....	28	15	3	3	4	3	26	9	5	6	5	1
Tennessee.....	31	11	2	6	5	7	47	19	6	8	9	5
Alabama.....	9	8	1				14	6	2	2	3	1
Mississippi.....	13	8			2	3	15	6	4	1	2	2
Louisiana.....	4	3			1		2	2				
Texas.....	20	12	1	4	1	2	15	8	1	1	2	3
Arkansas.....	9	4		2	2	1	15	8	2	3	1	1
Western division.....	123	37	17	27	20	22	164	43	24	24	38	35
Montana.....	8	2		2	1	3	15	3	2	3	4	3
Wyoming.....												
Colorado.....	4	2	2				5	4			1	
New Mexico.....							1			1		
Arizona.....	2	1		1			1			1		
Utah.....	5			3	2		1	1				
Nevada.....	2	1		1			5	3	1		1	
Idaho.....	1		1				2				2	
Washington.....	7	4		2		1	4		1		2	1
Oregon.....	6	3		2	1		2			1		1
California.....	88	24	14	16	16	18	128	32	20	18	28	30

TABLE II.—MALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	50 TO 54 YEARS.						55 TO 59 YEARS.					
	Total.	50	51	52	53	54	Total.	55	56	57	58	59
Total.....	2,856	921	419	531	475	510	2,744	650	532	535	602	425
North Atlantic division.....	1,235	355	191	246	211	232	1,214	267	244	228	263	207
Maine.....	39	10	3	11	5	10	24	4	6	7	3	4
New Hampshire.....	43	10	9	6	6	12	30	10	8	6	2	4
Vermont.....	9	3	1	3		2	7	2	2		2	1
Massachusetts.....	147	37	26	28	19	37	146	38	18	34	29	27
Rhode Island.....	20	4	3	3	4	6	23	2	8	4	8	1
Connecticut.....	55	19	8	8	10	10	63	21	9	15	14	4
New York.....	438	115	67	95	89	72	446	93	84	83	102	84
New Jersey.....	100	44	15	13	9	19	106	29	24	19	25	9
Pennsylvania.....	384	113	59	79	69	64	369	68	85	69	83	73
South Atlantic division.....	229	95	32	36	32	34	223	71	34	33	48	32
Delaware.....	13	2	3	3	1	4	13	2		4	5	2
Maryland.....	66	17	13	12	12	12	58	15	7	11	14	11
District of Columbia.....	8	3		1	3	1	10	3		3	2	1
Virginia.....	48	25	6	3	8	6	66	23	11	9	14	9
West Virginia.....	25	11	4	3	4	3	19	2	3	6	3	5
North Carolina.....	31	23	1	4	1	2	27	13	7	2	3	2
South Carolina.....	14	4	3	5		2	15	7	3	3		
Georgia.....	22	9	2	5	2	4	15	6	3		4	2
Florida.....	2	1			1							
North Central division.....	1,026	336	154	189	167	180	953	222	184	205	215	127
Ohio.....	273	83	46	44	44	56	272	61	52	56	65	38
Indiana.....	110	40	13	18	14	25	121	33	18	33	21	16
Illinois.....	251	57	40	43	39	37	227	50	43	42	51	36
Michigan.....	66	23	9	14	13	7	80	12	15	21	19	13
Wisconsin.....	116	31	21	27	21	16	85	21	21	13	19	11
Minnesota.....	22	2	4	4	2	10	20	5	4	4	6	1
Iowa.....	67	20	8	15	12	12	40	10	10	9	11	
Missouri.....	92	35	10	12	20	15	75	21	8	17	19	10
North Dakota.....					1						1	
South Dakota.....	1						1					
Nebraska.....	9	4	2	2		1	16	5	3	5	2	1
Kansas.....	19	11	1	5	1	1	16	4	5	5	1	1
South Central division.....	162	78	11	24	27	22	111	37	27	14	20	13
Kentucky.....	43	21	3	6	6	7	32	13	5	4	7	3
Tennessee.....	51	26	3	6	7	9	40	14	12	3	5	6
Alabama.....	18	8	4	3	2	1	12	2	5	2	1	2
Mississippi.....	17	8		1	5	3	7	2		1	3	1
Louisiana.....	1			1			3	1	1	1		
Texas.....	23	10	1	5	5	2	14	5	4	2	2	1
Arkansas.....	9	5		2	2		3			1	2	
Western division.....	204	57	31	36	38	42	243	53	43	50	51	46
Montana.....	9	2		1	2	4	10	4	2	3		1
Wyoming.....												
Colorado.....	8	3			4	1	7	1		1	4	1
New Mexico.....												
Arizona.....	3	2				1	3		1			2
Utah.....	7	2	2	1	1	1	1		1			
Nevada.....	3	1				2	3	1			2	
Idaho.....							3		1			2
Washington.....	9	3	1	2	1	2	8	1	1	1	2	3
Oregon.....	3		1	1	1		9	2	1	3	2	1
California.....	162	44	27	31	29	31	199	44	36	42	41	36

TABLE II.—MALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	60 TO 64 YEARS.						65 TO 69 YEARS.					
	Total.	60	61	62	63	64	Total.	65	66	67	68	69
Total.....	3,097	1,214	571	625	637	650	4,058	1,104	743	734	812	665
North Atlantic division.....	1,594	494	240	290	280	290	1,750	447	317	342	354	290
Maine.....	46	20	6	7	5	8	57	19	9	8	8	13
New Hampshire.....	37	8	6	7	6	10	34	12	8	5	6	8
Vermont.....	12	3	1	1	4	3	18	7	1	3	4	3
Massachusetts.....	198	62	28	43	35	30	263	61	43	63	51	45
Rhode Island.....	28	7	4	9	5	3	20	6	1	3	9	1
Connecticut.....	90	34	8	12	17	19	80	29	6	14	19	12
New York.....	604	185	97	96	123	103	640	162	123	116	120	119
New Jersey.....	115	33	17	27	13	25	119	35	22	25	23	14
Pennsylvania.....	464	142	73	88	72	89	519	116	104	105	114	80
South Atlantic division.....	282	124	31	43	46	38	317	141	45	39	53	39
Delaware.....	17	4	4	5	2	2	21	4	3	4	7	3
Maryland.....	82	31	12	9	15	15	85	35	14	10	15	11
District of Columbia.....	17	4	3	5	2	3	16	5	3	3	3	2
Virginia.....	54	28	4	2	11	9	71	40	6	6	11	8
West Virginia.....	24	6	2	7	7	2	24	11	5	3	2	3
North Carolina.....	46	30	2	5	5	4	48	24	3	6	8	7
South Carolina.....	12	6	1	3	2	2	20	11	2	2	3	2
Georgia.....	28	14	3	6	2	3	31	10	9	5	4	3
Florida.....	2	1	.....	1	.....	.....	1	1	.....	.....	.....	.....
North Central division.....	1,271	407	202	219	207	236	1,399	342	259	251	291	256
Ohio.....	371	112	64	60	69	66	459	94	84	83	98	100
Indiana.....	141	41	18	24	21	37	132	51	22	18	29	12
Illinois.....	281	89	35	60	48	49	256	70	40	41	52	53
Michigan.....	88	26	17	16	15	14	127	30	21	34	22	20
Wisconsin.....	130	46	25	25	20	23	134	26	25	20	36	27
Minnesota.....	31	5	8	5	3	10	29	2	8	6	7	6
Iowa.....	93	37	14	13	14	15	100	28	24	19	15	14
Missouri.....	92	38	14	10	11	19	104	26	22	21	23	12
North Dakota.....	3	.....	1	.....	1	1	2	1	1	.....	.....	.....
South Dakota.....	2	1	1	.....	.....	.....	3	1	1	.....	1	1
Nebraska.....	9	4	1	2	2	.....	21	5	7	4	3	2
Kansas.....	21	8	4	4	3	2	32	9	4	5	5	9
South Central division.....	106	105	28	15	32	16	183	84	28	24	32	15
Kentucky.....	72	41	8	7	10	6	73	32	9	11	14	7
Tennessee.....	45	10	9	2	11	4	49	21	10	6	8	4
Alabama.....	23	11	4	3	1	4	16	12	3	.....	1	.....
Mississippi.....	10	15	2	.....	1	1	17	10	2	2	2	1
Louisiana.....	10	2	1	2	5	.....	12	5	2	1	4	.....
Texas.....	23	15	4	.....	4	.....	15	3	2	4	3	3
Arkansas.....	4	2	.....	1	.....	1	1	1	.....	.....	.....	.....
Western division.....	354	84	70	58	72	70	409	90	94	78	82	65
Montana.....	6	3	.....	1	2	.....	8	3	1	1	1	2
Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado.....	3	.....	.....	.....	2	1	6	.....	.....	3	.....	3
New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona.....	4	2	.....	1	1	.....	.....	.....	.....	.....	.....	.....
Utah.....	3	2	.....	.....	.....	1	3	.....	.....	.....	.....	3
Nevada.....	3	1	1	.....	.....	1	2	1	1	.....	.....	.....
Idaho.....	1	1	.....	.....	.....	.....	2	.....	2	.....	.....	.....
Washington.....	7	3	.....	1	2	1	4	1	.....	2	1	.....
Oregon.....	8	1	2	.....	1	4	9	1	1	2	2	3
California.....	319	71	67	55	64	62	375	84	89	70	78	54

TABLE II.—MALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	70 TO 74 YEARS.						75 TO 79 YEARS.					
	Total.	70	71	72	73	74	Total.	75	76	77	78	79
Total.....	3,916	1,312	639	759	622	584	3,187	914	643	502	655	443
North Atlantic division.....	1,646	542	274	314	255	261	1,405	416	306	205	286	192
Maine.....	48	19	8	10	3	8	55	15	10	14	10	6
New Hampshire.....	38	12	7	6	6	7	32	14	6	6	3	3
Vermont.....	30	12	4	5	5	4	34	8	9	1	10	6
Massachusetts.....	202	63	34	43	30	32	234	61	61	33	53	26
Rhode Island.....	16	5	3	3	5	.....	26	9	4	3	5	5
Connecticut.....	95	36	8	17	15	19	64	24	11	6	12	11
New York.....	603	182	114	108	102	97	496	135	113	82	95	71
New Jersey.....	134	51	16	26	19	22	83	36	21	8	13	10
Pennsylvania.....	480	162	80	96	70	72	376	114	71	52	85	54
North Atlantic division.....	350	157	45	61	54	33	281	125	47	41	44	24
Delaware.....	14	4	5	1	1	3	9	5	1	2	1	.....
Maryland.....	74	33	9	15	14	3	58	28	6	13	7	4
District of Columbia.....	15	4	4	3	2	2	8	1	2	.....	4	1
Virginia.....	89	38	11	15	19	6	80	34	16	10	11	9
West Virginia.....	34	14	5	6	3	6	30	11	7	4	7	1
North Carolina.....	62	31	7	10	9	5	40	21	5	4	6	4
South Carolina.....	19	13	1	4	1	.....	20	13	3	1	2	1
Georgia.....	41	19	3	6	5	8	35	12	7	7	6	4
Florida.....	2	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
North Central division.....	1,368	484	226	272	224	212	1,106	279	210	195	256	166
Ohio.....	440	135	78	84	68	75	364	79	63	67	89	66
Indiana.....	160	51	33	27	22	27	109	31	17	25	23	13
Illinois.....	230	85	35	35	42	33	165	52	29	25	40	19
Michigan.....	126	41	18	25	26	16	112	23	24	19	24	22
Wisconsin.....	136	27	25	36	25	23	117	27	23	25	24	18
Minnesota.....	36	12	6	5	8	5	26	5	5	4	8	4
Iowa.....	95	30	18	23	14	15	100	26	21	17	24	12
Missouri.....	85	33	10	22	12	8	64	25	17	5	14	3
North Dakota.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Dakota.....	7	2	1	2	.....	2	2	1	.....	.....	.....	.....
Nebraska.....	17	5	1	2	2	3	18	4	6	2	4	2
Kansas.....	35	12	6	7	5	5	29	6	4	6	6	7
North Central division.....	171	69	21	32	24	25	157	65	35	15	25	17
Kentucky.....	59	26	8	10	3	12	59	24	11	6	8	10
Tennessee.....	44	15	4	11	8	6	30	14	6	1	9	.....
Alabama.....	21	7	3	6	2	3	22	6	5	5	3	3
Mississippi.....	25	18	2	1	3	1	16	10	3	.....	2	1
Louisiana.....	5	.....	1	1	3	.....	6	1	1	1	1	2
Texas.....	13	1	2	3	4	3	18	7	7	2	1	1
Arkansas.....	4	2	1	.....	1	.....	6	3	2	.....	1	.....
South Central division.....	381	110	73	80	65	53	238	59	45	46	44	44
Montana.....	4	2	1	.....	.....	1	2	1	.....	.....	.....	1
Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado.....	4	.....	1	2	.....	1	1	1	.....	.....	.....	.....
New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona.....	2	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....
Idaho.....	2	1	.....	.....	1	.....	8	.....	1	1	2	4
Nevada.....	5	3	.....	1	1	.....	3	1	2	.....	.....	.....
Utah.....	3	1	1	.....	1	.....	2	2	.....	.....	.....	.....
Washington.....	5	2	2	1	.....	.....	1	.....	1	.....	.....	.....
Oregon.....	11	5	1	2	1	2	13	2	3	1	4	3
California.....	345	96	67	73	61	48	208	52	38	44	38	36

TABLE II.—MALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	80 TO 84 YEARS.						85 TO 89 YEARS.					
	Total.	80	81	82	83	84	Total.	85	86	87	88	89
Total	2,063	789	369	347	278	280	842	232	211	157	126	116
North Atlantic division.....	889	336	147	160	125	121	353	86	100	67	54	46
Maine.....	56	22	3	13	8	10	24	8	6	6	1	3
New Hampshire.....	28	4	6	6	8	4	9	1	3	3	1	1
Vermont.....	26	10	2	3	6	5	15	3	6	4	1	1
Massachusetts.....	149	46	22	31	30	20	60	15	17	7	10	11
Rhode Island.....	20	10	3	2	3	2	5	1	4	2	5	3
Connecticut.....	44	15	9	6	8	6	21	6	30	22	20	17
New York.....	286	106	61	53	29	37	116	27	5	2	2	4
New Jersey.....	59	33	9	5	9	3	23	10	5	2	14	6
Pennsylvania.....	221	90	32	41	24	34	80	15	24	21	9	15
South Atlantic division.....	245	122	28	34	32	29	91	33	16	18	9	15
Delaware.....	9	5	2	1	1	.....	3	1	.....	.....	.....	2
Maryland.....	49	26	7	7	4	5	12	1	3	5	1	2
District of Columbia.....	7	1	2	.....	2	2	1	1	.....	.....	.....	.....
Virginia.....	59	35	6	7	5	6	26	11	5	5	2	3
West Virginia.....	21	4	5	2	6	4	4	2	1	1	.....	.....
North Carolina.....	44	22	3	10	7	2	19	7	3	4	2	3
South Carolina.....	20	14	1	2	1	2	9	3	1	1	2	2
Georgia.....	35	15	2	5	5	8	17	7	3	2	2	3
Florida.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
North Central division.....	644	218	143	102	88	93	292	77	73	47	49	46
Ohio.....	231	82	48	37	28	36	83	25	17	10	14	17
Indiana.....	70	29	17	7	11	6	29	8	8	6	4	3
Illinois.....	87	22	18	19	13	15	46	14	8	9	8	7
Michigan.....	62	20	12	5	14	11	35	6	9	7	5	5
Wisconsin.....	68	26	17	10	6	9	27	4	9	2	5	7
Minnesota.....	23	4	6	6	4	3	4	1	2	.....	1	.....
Iowa.....	58	15	16	10	9	8	42	14	13	5	4	6
Missouri.....	20	15	3	5	2	4	12	3	2	5	2	.....
North Dakota.....	.....	.....	1	.....	.....	.....	2	.....	.....	.....	2	.....
South Dakota.....	1	.....	1	.....	.....	.....	2	.....	.....	.....	.....	.....
Nebraska.....	6	3	1	2	.....	.....	3	.....	1	1	.....	1
Kansas.....	9	2	4	1	1	1	9	2	4	2	1	.....
South Central division.....	144	67	18	27	18	14	61	21	14	14	9	3
Kentucky.....	60	26	9	10	7	8	22	6	7	4	5	.....
Tennessee.....	31	13	3	8	4	3	15	5	1	5	2	2
Alabama.....	21	13	1	4	2	1	12	5	3	1	2	1
Mississippi.....	18	12	2	2	2	.....	4	3	1	.....	.....	.....
Louisiana.....	2	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Texas.....	8	3	.....	2	2	1	8	2	3	3	.....	.....
Arkansas.....	4	.....	1	1	1	1	.....	.....	.....	.....	.....	.....
Western division.....	141	46	33	24	15	23	45	15	8	11	5	6
Montana.....	3	.....	.....	1	.....	2	.....	.....	.....	.....	.....	.....
Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado.....	5	1	2	1	1	.....	.....	.....	.....	.....	.....	.....
New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Utah.....	3	2	.....	.....	.....	1	2	2	.....	.....	.....	.....
Nevada.....	4	2	1	1	.....	.....	1	.....	.....	1	.....	.....
Idaho.....	2	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington.....	2	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....
Oregon.....	6	4	1	.....	1	.....	3	1	1	.....	.....	1
California.....	115	34	23	21	12	20	39	12	7	10	5	5

TABLE II.—MALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	90 TO 94 YEARS.						95 TO 99 YEARS.					
	Total.	90	91	92	93	94	Total.	95	96	97	98	99
Total.....	345	178	60	34	29	44	80	22	20	9	20	9
North Atlantic division.....	140	69	30	15	10	16	18	3	7	2	4	2
Maine.....	8	4	3			1	1		1			
New Hampshire.....	2	1			1							
Vermont.....	7	4			2	1	1					1
Massachusetts.....	16	7	6	1	1	1	1			1		
Rhode Island.....	4	1		2								
Connecticut.....	5	3	1				2		1			1
New York.....	63	31	10	6	5	11	10	3	4	1	2	
New Jersey.....	13	6	5	2			1		1			
Pennsylvania.....	22	12	4	4		2	2				1	1
South Atlantic division.....	55	30	7	4	6	8	27	6	6	4	6	5
Delaware.....	3	3										
Maryland.....	9	4	3		1	1	1	1				
District of Columbia.....	1	1										
Virginia.....	15	8	2	1	1	3	13	1	4	2	4	2
West Virginia.....	3	1		1			1			1		
North Carolina.....	11	6	1	1	1	2	4	1	1			2
South Carolina.....	1				1		3	1		1	1	
Georgia.....	12	7	1	1	2	1	5	2	1		1	1
Florida.....												
North Central division.....	94	46	18	12	8	10	23	11	6	1	4	1
Ohio.....	36	18	6	5	1	6	9	3	3	1	1	1
Indiana.....	9	5	3			1	2	1			1	
Illinois.....	14	8	3	1	1	1	3	2			1	
Michigan.....	7	4			2	1	2	1			1	
Wisconsin.....	9	2	3	2	1	1	4	2	2			
Minnesota.....	2	1	1				3	2	1			
Iowa.....	8	3	2	1	2							
Missouri.....	6	3		2	1							
North Dakota.....												
South Dakota.....												
Nebraska.....												
Kansas.....	3	2		1								
South Central division.....	39	24	1	1	4	9	11	2	1	2	5	1
Kentucky.....	4	3				1	7	2	1	1	2	1
Tennessee.....	10	8			2		2				2	
Alabama.....	13	6	1			6						
Mississippi.....	8	6		1		1						
Louisiana.....	1				1							
Texas.....	2				1	1	2			1	1	
Arkansas.....	1	1										
Western division.....	17	9	4	2	1	1	1				1	
Montana.....												
Wyoming.....												
Colorado.....												
New Mexico.....												
Arizona.....												
Utah.....	1		1									
Nevada.....												
Idaho.....												
Washington.....												
Oregon.....	1		1									
California.....	15	9	2	2	1	1	1				1	

TABLE III.—FEMALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, SHOWING THE AGES OF PAUPERS BY SINGLE AGES AND BY QUINQUENNIAL PERIODS, IN THE AGGREGATE, AND BY GEOGRAPHICAL DIVISIONS.

STATES AND TERRITORIES.	Aggregate.	UNDER 5 YEARS.						5 TO 9 YEARS.					
		Total.	Under 1 year.	1	2	3	4	Total.	5	6	7	8	9
Total.....	32,304	1,230	403	191	242	216	178	686	156	150	148	114	118
North Atlantic division.....	14,250	466	174	79	86	68	59	237	49	44	62	37	45
Maine.....	559	24	3	3	6	8	4	16	2	2	4	6	2
New Hampshire.....	588	39	8	5	6	9	11	28	7	3	11	2	5
Vermont.....	264	10	4		2	2	2	10	1	4	1	2	2
Massachusetts.....	2,382	71	22	13	14	13	9	45	4	12	6	11	12
Rhode Island.....	232	13	5	2	4	2		6	1	2		3	
Connecticut.....	620	20	5	3	9	2	1	2			1		1
New York.....	4,776	112	56	30	10	11	5	18	1	3	9	1	4
New Jersey.....	1,333	59	13	9	15	10	12	61	15	10	18	7	11
Pennsylvania.....	3,505	118	58	14	20	11	15	51	18	8	12	5	8
South Atlantic division.....	4,227	253	58	32	58	64	41	138	43	31	22	23	19
Delaware.....	144	8	4	1	2	1		1	1				
Maryland.....	677	16	4	3	2	5	2	8	2	1	3	1	1
District of Columbia.....	100	2			1		1						
Virginia.....	1,223	106	22	13	19	37	15	60	19	17	10	7	7
West Virginia.....	399	52	13	10	9	10	10	29	9	6	2	6	6
North Carolina.....	840	45	11	2	17	9	6	27	9	5	3	5	5
South Carolina.....	333	8	1	1	2	1	3	4	1		2	1	
Georgia.....	503	16	3	2	6	1	4	9	2	2	2	3	
Florida.....	8												
North Central division.....	10,783	340	120	55	60	53	52	222	42	53	46	38	43
Ohio.....	3,248	124	47	22	18	20	17	52	12	16	5	6	13
Indiana.....	1,221	57	20	4	11	10	12	54	6	15	9	10	14
Illinois.....	2,264	47	14	13	8	5	7	38	7	5	13	10	3
Michigan.....	748	19	9	2	2	2	4	14	4	3	1	3	3
Wisconsin.....	1,124	19	8	1	5	4	1	11	2	1	5	1	2
Minnesota.....	102	10	4	2	2		2	2	1	1			
Iowa.....	637	7	3		2		1	8	2	2	3	1	
Missouri.....	1,066	31	10	4	6	6	5	22	6	5	5	2	4
North Dakota.....	11	2		1	1			1				1	
South Dakota.....	17			1				4		2		2	
Nebraska.....	111	8	1	4	1	1	1	3			2	2	1
Kansas.....	234	16	4	2	4	4	2	13	2	3	3	2	3
South Central division.....	2,668	161	47	24	36	28	26	85	20	22	17	15	11
Kentucky.....	800	79	17	14	16	17	15	50	11	15	8	10	6
Tennessee.....	860	49	17	6	14	7	5	22	6	5	6	2	3
Alabama.....	347	11	2	1	2	2	4	3	1		1		1
Mississippi.....	259	3	2			1		4		1		3	
Louisiana.....	72												
Texas.....	207	11	5	2	4			5	1	1	2		1
Arkansas.....	123	8	4	1		1	2	1	1				
Western division.....	376	10	4	1	2	3		4	2		1	1	
Montana.....	14							1			1		
Wyoming.....	(a)												
Colorado.....	11	3		1	1	1		1	1				
New Mexico.....													
Arizona.....													
Utah.....	15												
Nevada.....	6												
Idaho.....	1												
Washington.....	3												
Oregon.....	13												
California.....	313	7	4		1	2		2	1			1	

a No paupers in almshouses in Wyoming.

TABLE III.—FEMALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	10 TO 14 YEARS.						15 TO 19 YEARS.					
	Total.	10	11	12	13	14	Total.	16	16	17	18	19
Total.....	523	199	191	195	192	196	852	115	153	176	216	192
North Atlantic division.....	162	32	31	31	29	36	241	31	40	46	60	64
Maine.....	17	3	6	2	4	2	9	1	1	4		3
New Hampshire.....	19	4	2	2	5	5	20	4	1	3	4	8
Vermont.....	4	1	2	1			10	4	1	2	2	1
Massachusetts.....	41	7	10	10	5	9	39	7	7	6	15	5
Rhode Island.....	7	1	1		4	1	9		5	2	2	
Connecticut.....	1			1			9	1		3	1	4
New York.....	13	1	1	5	1	5	37	2	8	6	11	10
New Jersey.....	28	8	6	4	4	6	20	2	3	2	6	7
Pennsylvania.....	33	7	6	6	6	8	88	10	14	19	19	26
South Atlantic division.....	98	21	21	18	15	23	130	16	21	29	42	31
Delaware.....	1				1		8		2	1	4	1
Maryland.....	3		2	2			18	2	2	7	2	5
District of Columbia.....	4		1	1	4	1	4			1		3
Virginia.....	33	7	6	8	4	8	38	2	3	7	16	10
West Virginia.....	23	6	7	2	5	6	23	5	8	2	3	5
North Carolina.....	9	4	2	2	1	2	28	4	4	6	11	3
South Carolina.....	6		3	1		2	8	1		3	3	1
Georgia.....	13	4	2	2		6	12	2	2	2	3	3
Florida.....										2		
North Central division.....	198	40	37	37	45	39	370	51	75	78	92	80
Ohio.....	59	13	5	15	13	11	127	14	24	32	32	25
Indiana.....	33	4	6	9	7	8	55	7	9	10	14	15
Illinois.....	41	9	9	11	6	6	57	9	6	12	17	13
Michigan.....	18	2	5	1	3	7	40	4	14	9	6	7
Wisconsin.....	8	1	2	2	1	2	11		2	3	4	2
Minnesota.....	7	3	2	1		1	4			3	1	4
Iowa.....	8	1	2	1	2	2	20			1	5	4
Missouri.....	14	5	4		4	1	42	4	10	6	10	8
North Dakota.....	1				1							1
South Dakota.....							1					1
Nebraska.....	3			2	1		7		3	1		3
Kansas.....	6		3		2	1	12	5	1	1	3	2
South Central division.....	60	14	9	17	12	8	92	15	17	28	20	17
Kentucky.....	31	10	2	11	3	5	35	6	5	11	7	6
Tennessee.....	13	3	3	3	4	2	24	2	4	6	5	7
Alabama.....	6	1	2	2	1		4		3		1	
Mississippi.....	2	1		1			3		2		1	
Louisiana.....			1		2	1	12	2	1	2	5	2
Texas.....	4		1	3	1		14	5	2	4	1	2
Arkansas.....	4		1		1		4				2	
Western division.....	5	2		3	1		4	2			2	
Montana.....	2	1		1			1	1				
Wyoming.....												
Colorado.....												
New Mexico.....												
Arizona.....												
Utah.....												
Nevada.....												
Idaho.....												
Washington.....							1				1	
Oregon.....					1	1					1	
California.....	3	1					2	1				

TABLE III.—FEMALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	20 TO 24 YEARS.						25 TO 29 YEARS.					
	Total.	20	21	22	23	24	Total.	25	26	27	28	29
Total	1,421	306	239	293	268	315	1,769	423	337	302	402	305
North Atlantic division.....	531	105	96	108	96	126	637	126	141	119	153	118
Maine.....	21	6	3	5	3	4	21	5	2	3	6	5
New Hampshire.....	27	4	4	6	5	8	37	4	10	11	10	2
Vermont.....	2	1		1			4		1	1		2
Massachusetts.....	92	20	10	19	16	27	129	24	22	25	33	25
Rhode Island.....	7	1	1	1	2	2	10	3	1	3	3	
Connecticut.....	28	5	7	6	2	8	19	6	3	4	3	3
New York.....	128	21	24	29	27	27	144	22	32	22	32	36
New Jersey.....	31	7	4	5	10	5	65	14	18	10	18	5
Pennsylvania.....	195	40	43	36	31	45	228	48	52	40	48	40
South Atlantic division.....	175	41	20	38	31	45	221	89	30	28	49	25
Delaware.....	9	3	1	2	2	1	5	2	1	2		
Maryland.....	37	10	3	8	5	11	51	10	8	8	15	10
District of Columbia.....	3			2		1	5	2		1	2	
Virginia.....	57	16	7	11	12	11	64	31	9	8	12	4
West Virginia.....	23	3	4	5	5	6	25	7	2	2	6	8
North Carolina.....	31	5	3	9	5	9	37	18	7	1	8	3
South Carolina.....	5	2		1	1	1	17	11		4	2	
Georgia.....	10	2	2		1	5	16	8	2	2	4	
Florida.....							1		1			
North Central division.....	566	122	101	123	106	114	718	161	131	126	163	137
Ohio.....	168	39	30	37	30	32	180	35	37	28	50	30
Indiana.....	88	16	15	24	14	19	82	34	9	15	10	14
Illinois.....	100	31	13	20	19	17	179	36	41	22	45	35
Michigan.....	51	7	14	13	7	10	50	6	8	18	6	12
Wisconsin.....	36	5	5	9	9	8	77	8	13	12	24	20
Minnesota.....	2	1		1			4	1	1		1	1
Iowa.....	31	6	6	8	6	5	34	8	7	7	5	7
Missouri.....	63	11	12	9	15	16	89	26	13	17	18	15
North Dakota.....	2					1						
South Dakota.....	1		1				2		1			1
Nebraska.....	9	2	2	2	2	1	5	2		2		1
Kansas.....	15	4	2	1	3	5	16	5	1	5	4	1
South Central division.....	135	35	21	20	32	27	155	43	33	26	32	21
Kentucky.....	49	12	3	10	10	14	51	10	7	8	15	11
Tennessee.....	43	7	11	6	14	5	63	21	18	12	6	6
Alabama.....	8	3	2	1	2		13	5	2	1	4	1
Mississippi.....	8	4	1		2	1	12	4	2	2	2	2
Louisiana.....												
Texas.....	18	7	1	3	1	6	7	1	1	1	3	1
Arkansas.....	9	2	3		3	1	9	2	3	2	2	
Western division.....	14	3	1	4	3	3	18	4	2	3	5	4
Montana.....	2	1				1	3			1	1	1
Wyoming.....												
Colorado.....							2	1			1	
New Mexico.....												
Arizona.....												
Utah.....												
Nevada.....												
Idaho.....												
Washington.....												1
Oregon.....	2	2					1					1
California.....	10		1	4	3	2	12	3	2	2	3	2

TABLE III.—FEMALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	30 TO 34 YEARS.						35 TO 39 YEARS.					
	Total.	30	31	32	33	34	Total.	35	36	37	38	39
Total.....	2,047	700	272	376	331	368	2,353	711	482	361	492	357
North Atlantic division.....	787	220	108	163	145	151	929	238	168	139	209	175
Maine.....	15	6	1	3	1	4	34	7	6	5	8	8
New Hampshire.....	35	5	9	8	6	7	50	11	5	12	12	10
Vermont.....	6	1	1	1	1	2	14	5	2	2	3	2
Massachusetts.....	152	39	24	27	34	28	146	37	31	26	28	24
Rhode Island.....	15	3	3	4	4	1	17	7	.....	1	3	6
Connecticut.....	21	8	5	3	2	3	31	12	5	3	5	6
New York.....	197	51	23	50	31	42	263	61	49	33	63	57
New Jersey.....	87	28	12	24	12	11	102	31	17	11	27	16
Pennsylvania.....	259	79	30	43	54	53	272	67	53	46	60	46
South Atlantic division.....	229	107	27	36	35	24	303	136	49	35	50	33
Delaware.....	9	3	1	4	1	.....	7	1	3	.....	1	2
Maryland.....	48	16	4	9	12	7	72	21	14	11	15	11
District of Columbia.....	2	1	1	.....	.....	.....	5	1	1	.....	1	2
Virginia.....	54	24	5	11	8	6	70	34	8	7	14	7
West Virginia.....	28	11	3	4	5	5	32	11	6	6	5	4
North Carolina.....	53	31	5	6	7	4	58	33	7	7	8	3
South Carolina.....	8	5	3	.....	.....	.....	18	13	3	1	.....	1
Georgia.....	26	16	5	2	2	1	40	22	7	3	6	2
Florida.....	1	.....	.....	.....	.....	1	1	.....	.....	.....	.....	1
North Central division.....	834	278	119	148	128	161	925	249	184	162	201	129
Ohio.....	196	62	27	33	27	47	232	58	44	38	63	29
Indiana.....	99	29	11	18	22	19	85	28	11	12	19	15
Illinois.....	247	97	35	42	29	44	230	64	53	38	47	28
Michigan.....	49	16	8	11	4	10	56	9	11	16	7	13
Wisconsin.....	96	14	25	14	27	16	133	27	27	30	23	26
Minnesota.....	5	1	1	3	.....	.....	3	1	.....	2	.....	.....
Iowa.....	40	20	2	9	1	8	49	15	11	6	14	3
Missouri.....	85	33	9	14	16	13	114	42	24	14	23	11
North Dakota.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Dakota.....	1	.....	.....	1	.....	.....	1	.....	1	.....	.....	.....
Nebraska.....	4	.....	.....	1	.....	3	6	1	1	1	1	2
Kansas.....	12	6	1	2	2	1	16	4	1	5	4	2
South Central division.....	179	88	16	26	22	27	175	80	30	23	27	15
Kentucky.....	49	20	2	9	9	9	46	21	7	7	9	2
Tennessee.....	65	34	7	7	7	10	60	25	12	9	7	7
Alabama.....	19	11	2	2	2	2	28	15	3	2	3	5
Mississippi.....	18	9	1	5	2	1	9	5	1	2	.....	1
Louisiana.....	3	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....
Texas.....	16	8	2	2	2	2	17	7	3	2	5	.....
Arkansas.....	9	6	1	1	.....	1	14	7	3	1	3	.....
Western division.....	18	7	2	3	1	5	21	8	1	2	5	5
Montana.....	1	.....	.....	.....	.....	1	2	.....	.....	1	.....	1
Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado.....	1	.....	1	.....	.....	.....	1	.....	.....	.....	1	.....
New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Utah.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nevada.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Idaho.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington.....	1	.....	.....	.....	.....	1	1	1	.....	.....	.....	.....
Oregon.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....
California.....	15	7	1	3	1	3	16	7	1	1	3	4

TABLE III.—FEMALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	40 TO 44 YEARS.						45 TO 49 YEARS.					
	Total.	40	41	42	43	44	Total.	45	46	47	48	49
Total.....	2,567	1,004	384	438	373	368	2,417	772	406	395	477	367
North Atlantic division.....	1,105	389	185	193	179	180	1,058	307	173	188	203	187
Maine.....	35	15	4	5	7	4	30	11	1	4	10	4
New Hampshire.....	42	19	10	5	11	6	37	9	7	3	10	8
Vermont.....	29	9	6	2	1	2	12	5	1	3	.....	3
Massachusetts.....	175	68	19	32	33	36	156	42	29	33	31	21
Rhode Island.....	15	5	3	6	.....	1	13	1	4	3	5	.....
Connecticut.....	38	16	6	6	5	6	49	22	7	6	7	7
New York.....	375	120	75	56	55	69	400	116	75	66	62	81
New Jersey.....	126	49	22	18	21	16	110	38	15	27	19	13
Pennsylvania.....	277	87	40	64	46	40	251	65	34	43	59	50
South Atlantic division.....	324	183	39	35	39	28	275	123	40	32	49	31
Delaware.....	9	2	1	1	4	1	7	.....	1	4	1	1
Maryland.....	63	25	13	7	10	8	58	20	6	11	11	10
District of Columbia.....	5	2	1	.....	1	1	1	.....	1	.....	.....	.....
Virginia.....	98	68	7	6	11	6	84	42	14	7	15	6
West Virginia.....	29	7	2	7	3	1	24	8	4	1	6	5
North Carolina.....	64	44	5	5	3	7	56	30	6	5	10	5
South Carolina.....	29	14	2	1	3	.....	21	11	3	2	3	2
Georgia.....	44	21	7	8	4	4	24	12	5	2	3	2
Florida.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Central division.....	899	328	138	174	126	133	903	256	172	151	192	132
Ohio.....	232	77	38	40	35	42	233	69	35	48	58	28
Indiana.....	190	47	8	20	8	17	93	31	14	10	25	13
Illinois.....	249	90	41	44	39	26	206	56	43	36	38	33
Michigan.....	52	24	7	7	5	9	52	11	15	8	10	8
Wisconsin.....	95	20	21	17	16	21	125	28	27	21	28	21
Minnesota.....	9	4	.....	3	1	1	5	1	1	1	1	1
Iowa.....	54	22	9	11	6	6	56	16	8	10	14	8
Missouri.....	94	34	13	26	11	10	101	33	24	17	11	16
North Dakota.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
South Dakota.....	9	3	1	2	3	.....	8	4	2	1	.....	1
Nebraska.....	14	7	.....	4	2	1	23	7	3	4	7	2
Kansas.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Central division.....	211	112	18	34	25	22	163	80	18	21	31	18
Kentucky.....	49	30	2	11	4	2	47	26	3	3	12	3
Tennessee.....	72	39	8	7	11	7	58	20	8	13	14	3
Alabama.....	33	13	3	7	7	3	15	7	4	1	1	2
Mississippi.....	28	17	1	3	1	6	17	11	1	1	2	2
Louisiana.....	2	1	.....	1	.....	.....	2	1	.....	.....	1	.....
Texas.....	20	10	4	3	2	1	11	6	1	1	1	2
Arkansas.....	7	2	.....	2	.....	3	13	9	1	2	.....	1
Western division.....	27	12	4	2	4	5	18	6	3	3	2	4
Montana.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Utah.....	2	2	.....	.....	.....	.....	1	1	.....	.....	.....	.....
Nevada.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Idaho.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oregon.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
California.....	23	8	4	2	4	5	17	5	3	3	2	4

TABLE III.—FEMALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	50 TO 54 YEARS.						55 TO 59 YEARS.					
	Total.	50	51	52	53	54	Total.	55	56	57	58	59
Total.....	2,490	996	344	416	380	354	1,999	550	410	383	351	305
North Atlantic division.....	1,170	399	180	207	192	192	976	263	187	200	168	158
Maine.....	30	12	6	5	6	1	31	10	4	9	2	6
New Hampshire.....	47	10	9	12	10	6	34	9	6	8	4	7
Vermont.....	22	10	1	4	3	4	15	4	3	4	.....	4
Massachusetts.....	177	45	31	37	34	30	166	47	33	23	36	27
Rhode Island.....	19	4	3	4	3	5	14	7	1	2	3	1
Connecticut.....	35	16	4	6	3	6	41	15	7	7	7	5
New York.....	454	154	71	80	69	80	372	99	78	75	64	50
New Jersey.....	115	51	18	15	19	12	89	27	13	20	15	14
Pennsylvania.....	271	97	37	44	45	48	214	45	42	52	37	38
South Atlantic division.....	269	149	24	33	31	32	235	62	52	50	46	25
Delaware.....	6	1	.....	.....	3	2	10	5	3	.....	.....	2
Maryland.....	48	22	4	9	6	7	46	8	10	13	9	6
District of Columbia.....	7	3	2	1	.....	1	6	3	1	.....	.....	.....
Virginia.....	72	40	5	8	7	12	59	16	9	19	13	2
West Virginia.....	17	10	2	.....	4	1	15	3	7	3	.....	2
North Carolina.....	70	44	9	7	5	5	43	16	8	5	10	4
South Carolina.....	17	12	.....	1	3	1	26	6	5	5	5	5
Georgia.....	32	17	2	7	3	3	30	5	9	5	7	4
Florida.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Central division.....	827	308	117	143	145	114	647	173	144	111	110	109
Ohio.....	219	73	37	48	35	26	190	49	36	31	37	37
Indiana.....	83	43	7	6	14	13	86	24	16	24	10	12
Illinois.....	188	71	25	30	30	32	114	35	27	13	22	17
Michigan.....	48	21	4	9	8	6	45	8	12	10	7	8
Wisconsin.....	109	35	18	19	21	16	73	14	24	13	11	11
Minnesota.....	6	1	1	2	2	.....	5	1	.....	1	.....	3
Iowa.....	64	24	6	12	18	4	58	15	14	6	10	13
Missouri.....	89	31	15	13	16	14	56	20	9	9	10	8
North Dakota.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....	.....
South Dakota.....	.....	.....	.....	.....	.....	.....	2	1	.....	.....	1	.....
Nebraska.....	7	4	.....	2	1	.....	4	2	1	.....	1	.....
Kansas.....	14	5	4	2	.....	3	13	4	5	3	1	.....
South Central division.....	195	130	18	26	10	11	109	47	18	13	20	11
Kentucky.....	38	20	4	11	1	2	31	12	3	3	8	5
Tennessee.....	81	56	7	5	8	5	31	13	9	5	2	2
Alabama.....	32	20	5	6	1	.....	20	11	1	3	3	2
Mississippi.....	17	15	.....	.....	.....	2	10	6	1	.....	1	2
Louisiana.....	5	2	1	1	.....	1	2	.....	1	.....	1	.....
Texas.....	12	11	.....	1	.....	.....	12	2	3	2	5	.....
Arkansas.....	10	6	1	2	.....	1	3	3	.....	.....	.....	.....
Western division.....	29	10	5	7	2	5	32	5	9	9	7	2
Montana.....	.....	.....	.....	.....	.....	.....	2	.....	1	.....	1	.....
Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Utah.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nevada.....	.....	.....	.....	.....	.....	.....	2	.....	1	.....	1	.....
Idaho.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....	.....
Oregon.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
California.....	28	10	5	6	2	5	27	5	7	8	5	2

TABLE III.—FEMALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	60 TO 64 YEARS.						65 TO 69 YEARS.					
	Total.	60	61	62	63	64	Total.	65	66	67	68	69
Total	2,564	1,041	382	403	358	380	2,324	825	386	391	405	317
North Atlantic division	1,282	472	206	225	184	195	1,216	406	220	225	210	155
Maine	34	12	3	8	4	7	45	18	9	8	6	4
New Hampshire.....	29	5	8	7	3	6	47	6	13	16	4	8
Vermont.....	19	10	.....	4	4	1	19	11	5	1	1	1
Massachusetts.....	213	63	29	37	43	41	203	83	33	32	36	19
Rhode Island.....	15	7	2	1	2	3	12	3	1	3	4	1
Connecticut.....	48	17	10	8	6	7	57	22	9	6	13	7
New York.....	559	215	88	103	72	81	488	146	89	91	101	61
New Jersey.....	108	58	13	12	11	14	92	36	13	18	10	15
Pennsylvania.....	257	85	53	45	39	35	253	81	48	50	35	39
South Atlantic division	313	171	39	38	33	32	297	133	30	32	52	45
Delaware.....	16	9	2	3	1	1	14	4	2	5	2	1
Maryland.....	52	19	9	11	7	6	50	24	4	5	9	8
District of Columbia	10	4	2	.....	2	2	8	2	.....	1	1	4
Virginia.....	79	48	9	9	7	6	69	29	11	7	14	8
West Virginia.....	21	8	4	2	5	2	13	3	4	3	1	2
North Carolina.....	62	43	6	4	4	5	61	38	5	1	9	8
South Carolina.....	32	20	1	4	5	2	37	21	1	5	7	3
Georgia.....	40	19	6	5	2	8	44	17	3	4	9	11
Florida.....	1	1	.....	.....	.....	.....	1	.....	.....	1	.....	.....
North Central division.....	741	278	111	118	108	126	615	190	108	106	115	96
Ohio.....	254	90	40	42	29	53	223	58	39	44	40	42
Indiana.....	60	33	6	9	8	4	55	23	9	7	10	6
Illinois.....	153	64	21	22	22	24	126	52	19	14	24	17
Michigan.....	53	16	10	11	10	6	44	6	14	7	8	9
Wisconsin.....	83	16	14	20	17	16	65	12	12	14	17	10
Minnesota.....	9	2	3	1	1	2	1	.....	1	.....	.....	.....
Iowa.....	48	16	7	5	6	9	31	8	6	8	7	2
Missouri.....	60	31	9	6	7	7	44	22	5	9	4	4
North Dakota.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	2
South Dakota.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
Nebraska.....	8	2	.....	1	3	2	9	2	2	1	1	3
Kansas.....	17	8	1	1	4	3	15	7	1	2	4	1
South Central division.....	169	105	15	12	24	13	150	78	17	19	20	16
Kentucky.....	52	31	4	6	7	4	48	23	4	9	10	2
Tennessee.....	43	29	6	2	4	2	34	19	4	5	2	4
Alabama.....	28	19	3	1	2	3	27	15	5	2	.....	5
Mississippi.....	23	14	1	1	5	2	20	10	1	1	5	3
Louisiana.....	9	4	1	1	2	1	13	7	1	2	2	1
Texas.....	9	5	.....	3	1	.....	5	2	1	.....	1	1
Arkansas.....	5	3	.....	1	1	.....	3	2	1	.....	.....	.....
Western division	59	15	11	10	9	14	46	13	11	9	8	5
Montana.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Utah.....	3	.....	.....	.....	1	2	.....	.....	.....	.....	.....	.....
Nevada.....	2	.....	1	1	.....	.....	1	1	.....	.....	.....	.....
Idaho.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....
Washington.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oregon.....	1	.....	1	.....	.....	.....	2	.....	1	.....	1	.....
California.....	52	14	9	9	8	12	42	12	10	8	7	5

TABLE III.—FEMALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	70 TO 74 YEARS.						75 TO 79 YEARS.					
	Total.	70	71	72	73	74	Total.	75	76	77	78	79
Total.....	2,306	934	306	398	346	322	1,739	601	365	279	272	222
North Atlantic division.....	1,205	468	163	217	185	172	892	284	200	151	136	121
Maine.....	49	17	6	7	8	11	51	17	6	10	9	9
New Hampshire.....	36	6	4	7	7	12	32	7	6	6	6	7
Vermont.....	21	9	2	3	4	3	33	8	7	8	4	6
Massachusetts.....	199	84	21	36	24	34	148	42	37	17	27	25
Rhode Island.....	20	6	3	3	6	2	10	1	4	1	3	1
Connecticut.....	71	32	4	13	11	11	51	27	7	7	3	7
New York.....	472	189	81	85	65	52	309	93	82	59	36	39
New Jersey.....	90	41	11	18	12	8	55	25	9	6	11	4
Pennsylvania.....	247	84	31	45	48	39	203	64	42	37	37	23
South Atlantic division.....	289	139	26	43	38	43	228	97	48	32	27	24
Delaware.....	9	3	.....	2	3	1	13	5	4	2	1	1
Maryland.....	36	16	4	5	6	5	35	13	7	8	4	3
District of Columbia.....	5	1	.....	3	.....	1	8	3	1	4	.....	.....
Virginia.....	67	30	7	13	5	12	58	19	18	9	7	5
West Virginia.....	17	7	3	.....	4	3	16	8	2	1	2	3
North Carolina.....	65	36	4	7	12	6	48	28	7	3	6	4
South Carolina.....	42	26	2	7	3	4	22	8	7	8	2	2
Georgia.....	48	20	6	6	5	11	28	13	2	2	5	6
Florida.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Central division.....	638	235	100	114	103	86	476	158	93	77	86	62
Ohio.....	247	72	46	48	46	35	195	60	40	33	40	22
Indiana.....	69	29	13	13	7	7	46	20	9	5	7	5
Illinois.....	120	64	14	18	14	10	51	18	12	4	10	7
Michigan.....	50	11	8	9	11	11	47	10	8	8	7	14
Wisconsin.....	57	22	6	8	9	12	46	13	8	14	8	3
Minnesota.....	8	2	.....	4	1	1	8	1	.....	1	3	3
Iowa.....	28	6	4	5	9	4	36	16	7	6	3	4
Missouri.....	41	22	6	7	4	2	34	14	8	5	5	2
North Dakota.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Dakota.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nebraska.....	6	1	2	1	.....	.....	6	3	1	1	1	.....
Kansas.....	12	6	1	1	2	2	7	3	.....	.....	2	2
South Central division.....	160	89	13	23	18	17	118	56	20	12	18	12
Kentucky.....	44	21	4	7	4	8	38	23	4	5	4	2
Tennessee.....	35	22	2	4	7	.....	27	11	6	3	5	2
Alabama.....	32	21	2	4	2	3	22	9	5	.....	3	5
Mississippi.....	25	16	1	4	.....	4	12	7	2	2	1	.....
Louisiana.....	14	5	1	3	4	1	12	1	3	2	4	2
Texas.....	8	3	3	1	1	.....	3	3	.....	.....	.....	.....
Arkansas.....	2	1	.....	.....	.....	1	4	2	.....	.....	1	1
Western division.....	14	3	4	1	2	4	25	6	4	7	5	3
Montana.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Utah.....	3	1	.....	.....	1	1	5	1	.....	2	1	1
Nevada.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Idaho.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oregon.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
California.....	11	2	4	1	1	3	19	5	4	5	4	1

TABLE III.—FEMALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	80 TO 84 YEARS.						85 TO 89 YEARS.					
	Total.	80	81	82	83	84	Total.	85	86	87	88	89
Total.....	1,365	604	207	199	184	171	591	208	119	115	89	60
North Atlantic division.....	667	261	120	99	91	96	288	84	61	69	45	29
Maine.....	41	15	6	6	9	5	27	7	11	5	4	.....
New Hampshire.....	12	3	4	3	.....	2	12	2	3	3	3	1
Vermont.....	24	11	2	3	5	3	12	2	2	3	3	2
Massachusetts.....	132	43	28	25	21	15	46	15	6	12	6	7
Rhode Island.....	19	5	3	6	2	3	6	.....	.....	4	2	.....
Connecticut.....	48	24	1	5	8	10	17	6	2	4	3	2
New York.....	202	77	43	29	26	27	84	26	23	17	12	6
New Jersey.....	44	25	5	5	3	6	26	11	2	4	5	4
Pennsylvania.....	145	58	28	17	17	25	58	15	12	17	7	7
South Atlantic division.....	220	129	20	30	23	18	75	38	9	11	13	4
Delaware.....	6	5	1	.....	.....	.....	2	1	.....	.....	.....	1
Maryland.....	17	10	1	5	1	.....	6	3	1	.....	1	1
District of Columbia.....	5	4	.....	.....	1	.....	4	3	.....	.....	1	.....
Virginia.....	72	36	8	11	9	8	29	14	5	5	4	1
West Virginia.....	11	6	1	1	2	1	3	.....	.....	.....	1	.....
North Carolina.....	45	28	4	6	6	1	12	5	2	2	3	.....
South Carolina.....	23	18	1	2	1	1	8	3	1	2	1	1
Georgia.....	40	21	4	5	3	7	11	7	.....	2	2	.....
Florida.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Central division.....	371	145	57	66	54	49	160	51	34	27	27	21
Ohio.....	139	58	19	27	22	13	61	10	15	14	14	8
Indiana.....	39	14	3	9	10	3	16	8	3	1	2	2
Illinois.....	53	15	15	11	3	14	19	6	5	3	2	3
Michigan.....	37	16	5	3	8	5	15	5	5	1	2	2
Wisconsin.....	34	15	6	6	2	5	23	10	2	4	5	2
Minnesota.....	8	3	.....	1	2	.....	2	2	.....	.....	.....	.....
Iowa.....	17	6	2	4	3	2	11	4	3	1	1	2
Missouri.....	25	13	6	3	1	2	7	3	1	2	.....	1
North Dakota.....	2	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
South Dakota.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....
Nebraska.....	6	1	1	1	3	.....	.....	.....	.....	.....	.....	.....
Kansas.....	6	3	.....	.....	1	2	5	2	.....	1	1	1
South Central division.....	97	62	9	4	15	7	59	33	13	5	3	5
Kentucky.....	25	19	2	2	2	.....	16	9	6	.....	.....	1
Tennessee.....	19	7	3	1	4	4	17	6	3	2	2	4
Alabama.....	18	13	1	.....	4	.....	5	4	1	.....	.....	.....
Mississippi.....	21	14	2	.....	3	2	12	8	1	2	1	.....
Louisiana.....	4	2	1	.....	.....	1	2	.....	2	.....	.....	.....
Texas.....	8	6	.....	1	1	.....	4	4	.....	.....	.....	.....
Arkansas.....	2	1	.....	.....	1	.....	3	2	.....	1	.....	.....
Western division.....	10	7	1	.....	1	1	9	2	2	3	1	1
Montana.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Utah.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....	.....
Nevada.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Idaho.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oregon.....	2	2	.....	.....	.....	.....	1	1	.....	.....	.....	.....
California.....	8	5	1	.....	1	1	7	1	2	2	1	1

TABLE III.—FEMALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	90 TO 94 YEARS.						95 TO 99 YEARS.					
	Total.	90	91	92	93	94	Total.	95	96	97	98	99
Total	271	143	37	29	27	35	75	34	19	8	10	4
North Atlantic division	114	58	19	11	14	12	27	10	7	4	3	3
Maine	10	5		1	1	3	1		1			
New Hampshire.....	1				1							
Vermont.....	4	1	2	1								
Massachusetts.....	18	11	2	1	2	2	5	3			2	
Rhode Island.....	2	1		1			1			1		
Connecticut.....	10	4	2		3	1	4	2	1		1	
New York.....	40	19	8	5	4	4	7	3	1	2		1
New Jersey.....	2	2					3		2	1		
Pennsylvania.....	27	15	5	3	2	2	6	2	2			2
South Atlantic division.....	52	34	3	7	4	4	16	9	5		2	
Delaware.....	3	1		1		1	1				1	
Maryland.....	4	2	1		1		2	2				
District of Columbia.....	1	1										
Virginia.....	18	9	1	4	2	2	6	3	3			
West Virginia.....	1	1										
North Carolina.....	12	10		1	1		1		1			
South Carolina.....	5	4					2	1	1			
Georgia.....	8	6	1	1			4	3			1	
Florida.....												
North Central division.....	63	29	11	7	6	10	20	11	2	3	3	1
Ohio.....	29	14	6	1	3	5	8	5	1	1	1	
Indiana.....	6	2	2	1		1	4	2	1	1		
Illinois.....	4	2			1	1	2			1		1
Michigan.....	5	3		1	1							
Wisconsin.....	6	3	1	2			2	1			1	
Minnesota.....	3	1		2								
Iowa.....	5	1	1		1	2	4	3			1	
Missouri.....	4	2	1			1						
North Dakota.....												
South Dakota.....												
Nebraska.....												
Kansas.....	1	1										
South Central division.....	39	21	4	4	2	8	11	4	4	1	2	
Kentucky.....	6	4	1	1			4	1	2		1	
Tennessee.....	7	5	1			1	4	2		1	1	
Alabama.....	18	8		2	1	7						
Mississippi.....	1	1										
Louisiana.....	3	1	1		1							
Texas.....	4	2	1	1			3	1	2			
Arkansas.....												
Western division.....	3	1			1	1	1		1			
Montana.....												
Wyoming.....												
Colorado.....												
New Mexico.....												
Arizona.....												
Utah.....												
Nevada.....												
Idaho.....												
Washington.....												
Oregon.....												
California.....	3	1			1	1	1		1			

TABLE III.—FEMALE PAUPERS IN ALMSHOUSES OF THE UNITED STATES IN 1890, ETC.—CONTINUED.

STATES AND TERRITORIES.	115 TO 119 YEARS.					120 TO 124 YEARS.					125 TO 129 YEARS.					Not stated.			
	Total.	115	116	117	118	119	Total.	120	121	122	123	124	Total.	125	126		127	128	129
Total	6	4			2		2			1	1		2	1			1		627
North Atlantic division.....	1				1														221
Maine.....																			8
New Hampshire.....																			5
Vermont.....																			3
Massachusetts.....																			24
Rhode Island.....																			2
Connecticut.....																			16
New York.....	1				1														95
New Jersey.....																			18
Pennsylvania.....																			50
South Atlantic division.....	1	1					1				1								54
Delaware.....																			
Maryland.....																			5
District of Columbia.....																			11
Virginia.....																			26
West Virginia.....																			3
North Carolina.....																			3
South Carolina.....	1	1					1				1								
Georgia.....																			6
Florida.....																			
North Central division.....	2	1			1		1			1									223
Ohio.....																			72
Indiana.....																			10
Illinois.....	1	1																	41
Michigan.....																			2
Wisconsin.....	1				1														13
Minnesota.....																			1
Iowa.....																			33
Missouri.....							1			1									46
North Dakota.....																			2
South Dakota.....																			
Nebraska.....																			2
Kansas.....																			1
South Central division.....	2	2											2	1			1		123
Kentucky.....	1	1																	7
Tennessee.....													1				1		86
Alabama.....																			4
Mississippi.....	1	1																	7
Louisiana.....																			
Texas.....																			18
Arkansas.....													1	1					1
Western division.....																			6
Montana.....																			
Wyoming.....																			
Colorado.....																			
New Mexico.....																			4
Arizona.....																			10
Utah.....																			
Nevada.....																			
Idaho.....																			
Washington.....																			
Oregon.....																			
California.....																			

CENSUS BULLETIN.

No. 155.

WASHINGTON, D. C.

January 14, 1892.

TRANSPORTATION.—RAILWAY STATISTICS.

GROUP VI: ILLINOIS, NORTHERN PENINSULA OF MICHIGAN, MINNESOTA,
WISCONSIN, IOWA, NORTH DAKOTA, SOUTH DAKOTA, AND MISSOURI.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,

WASHINGTON, D. C., December 30, 1891.

The statistics in this bulletin furnish an exhibit of the operations of railways for the years 1880 to 1889, inclusive, for that portion of the territory of the United States designated as Group VI. This group embraces the states of Illinois, the northern peninsula of Michigan, Minnesota, Wisconsin, Iowa, North and South Dakota (east of the Missouri river), and Missouri (north of the Missouri river). These statistics were collected by Mr. W. W. MAYBERRY, special agent, under the direction of Mr. HENRY C. ADAMS, special agent in charge of the Division of Transportation of the Census Office.

A summary of several items of interest pertaining to the transportation business of that portion of territory covered by this bulletin for the years 1880 and 1889 is herewith presented:

ITEMS.	1880.	1889.
Number of passengers carried	61,726,854	22,824,192
Number of passengers carried 1 mile	1,985,231,495	970,700,482
Tons of freight moved	91,923,892	42,650,558
Tons of freight moved 1 mile	13,363,456,349	6,531,713,151
Earnings from passenger service	\$56,149,625.20	\$30,383,155.91
Earnings from freight service	\$138,517,533.11	\$92,140,792.84
Total earnings and income	\$206,286,979.84	\$126,710,326.26
Total expenditures	\$208,223,178.19	\$118,665,573.02
Length in miles of all lines operated	41,299.64	23,588.46
Total number of employés	139,530	84,413
Number of cars in passenger service	4,522	2,374
Number of cars in freight service	200,286	99,316
Number of locomotives	6,063	3,462
Number of stations on all lines	6,311	3,657
Receipts per mile per passenger (cents)	2.338	2.541
Receipts per mile per ton of freight (cents)	1.018	1.369

The seven tables appended to this bulletin embrace the mileage, equipment and stations, employés, business done, earnings and income, expenditures, and operating expenses.



Superintendent of Census.

TRANSPORTATION ON RAILWAYS IN GROUP VI.

STATISTICS FOR THE 10 YEARS ENDED 1889.

BY HENRY C. ADAMS.

This is the sixth of a series of 10 bulletins proposed to be issued, giving in statistical form the operations of railways in the United States for the years 1880 to 1889, inclusive. The first bulletin of the series, which contains certain information pertaining to them all, is Bulletin No. 46.

The territory covered by this bulletin embraces the states of Illinois, the northern peninsula of Michigan, Minnesota, Wisconsin, Iowa, North and South Dakota (east of the Missouri river), and Missouri (north of the Missouri river). Immediately following the text will be found 7 tables, from which the summaries are derived. The titles of these tables are:

Table I. Mileage.

Table II. Equipment and stations.

Table III. Employés.

Table IV. Business done.

Table V. Earnings and income.

Table VI. Expenditures.

Table VII. Operating expenses.

The railways whose operations are covered by this bulletin embrace all the roads which center in Chicago from the west, and their business may be characterized as business incident to the collection of food products for shipment to the seaboard. There is no group of roads in which the farmers of the northwest are more directly interested. This group embraces a larger mileage than any other of the groups treated by the Census Office, the total number of miles in 1889 being 40,400.20, or slightly more than one-quarter of the total mileage of the United States.

TABLE I.—MILEAGE.—This table shows the length of line (single track) operated, the length of operated line owned by the companies operating, the length of operated line leased by operating companies from subsidiary companies, and the length of line operated under trackage rights.

The length of line (single track) in 1880 was 22,962.75 miles; in 1889 it was 40,400.20 miles, being an increase of 17,437.45 miles, or 75.94 per cent during the decade. The year in which the greatest increase in mileage is observed is 1887, when 4,063.98 miles of line were added. There was also a large increase in mileage in the year 1882, but in 1885 only 199.14 miles of new line were brought into operation. The figures of mileage reflect very perfectly the commercial conditions of the years to which they refer.

TABLE II.—EQUIPMENT AND STATIONS.—This table shows the equipment of railways under the ordinarily accepted classification. The development of business appears from the fact that the number of locomotives has increased from 3,462 in 1880 to 6,093 in 1889. The cars in passenger service have increased from 2,374 in 1880 to 4,522 in 1889. The cars in freight service have increased from 99,316 in 1880 to 200,286 in 1889. These figures do not embrace the equipment which the railway companies use, but which is not their property in their corporate capacity.

TABLE III.—EMPLOYÉS.—This table shows the total number of men employed on the railways in the territory covered by the bulletin, and analyzes these totals so as to show the number of men engaged in maintenance of way and structure, in maintenance of equipment, in conducting transportation, and in general administration.

The interesting question suggested by the facts contained in the tables thus far referred to pertain to the economy and efficiency of railway administration and employment, and it is for the purpose of throwing light upon this question that the following summaries are inserted:

ASSIGNMENT OF EQUIPMENT TO LENGTH OF LINE OPERATED AND AMOUNT OF TRAFFIC CARRIED
FOR 10 YEARS, 1880 TO 1889, INCLUSIVE.

ASSIGNMENTS.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	For all roads in the United States for 1889.
Engines per 100 miles of line	15	15	16	16	16	16	16	15	15	15	19
Freight engines per 100 miles of line	9	9	9	10	10	10	9	9	9	9	10
Passenger engines per 100 miles of line	4	4	4	4	4	4	4	4	4	4	5
Cars in freight service per 100 miles of line.	422	473	473	472	486	484	479	458	481	486	557
Cars in passenger service per 100 miles of line.	19	19	11	11	12	12	11	11	11	11	17
Tons freight carried per freight engine.	20,417	21,687	22,030	20,979	20,896	21,466	22,806	25,951	24,783	25,792	35,043
Ton miles per freight engine	3,137,230	3,106,233	3,066,153	3,222,469	3,261,831	3,281,004	3,472,066	3,842,066	3,682,535	3,754,835	4,538,786
Passengers carried per passenger engine.	28,178	31,096	36,452	35,929	36,429	35,815	37,148	39,763	40,280	41,096	58,444
Passenger miles per passenger engine.	1,199,877	1,297,729	1,432,528	1,446,314	1,409,117	1,227,423	1,317,524	1,336,871	1,335,845	1,322,606	1,430,105
Freight cars per 1,000,000 tons freight carried.	2,267	2,383	2,279	2,300	2,359	2,241	2,227	2,034	2,197	2,141	1,583
Passenger cars per 1,000,000 passengers carried.	101	88	76	80	81	82	79	75	73	72	54

From the above summary it appears that railway economy in the territory under consideration has undergone no marked change since 1880. Thus, the number of engines per 100 miles of line and of cars per 100 miles of line is about the same in 1889 as in 1880; but the use of this equipment shows an increase in economy. For example, the number of tons of freight carried per freight engine in 1889 was 25,792, as against 20,417 in 1880, and the number of passengers carried per passenger engine was 41,096 in 1889, as against 28,178 in 1880. In both of these respects, however, the railways in Group VI show a degree of economy inferior to the average railways in the United States.

The summaries which immediately follow are designed to show the degree of economy in employment attained by the railways under consideration. This is done by assigning the number of employes to the length of operated line, and by showing the amount of freight and passenger traffic for which the employment of 1 man assigned to "conducting transportation" is necessary.

NUMBER OF EMPLOYÉS PER 100 MILES OF LINE OPERATED FOR 10 YEARS, 1880 TO 1889, INCLUSIVE.

CLASSIFICATION.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.
Total	362	432	429	407	400	380	360	369	372	338
Maintenance of way and structures	131	153	149	141	142	134	133	131	132	113
Maintenance of equipment	75	88	84	82	77	71	68	69	73	69
Conducting transportation	140	171	168	165	162	157	148	152	150	139
General administration	16	18	19	19	19	18	17	17	17	17

AMOUNT OF TRAFFIC FOR WHICH EMPLOYMENT OF 1 MAN ASSIGNED TO "CONDUCTING
TRANSPORTATION" IS NECESSARY.

NATURE OF TRAFFIC.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.
Tons of freight carried.....	1,331	1,148	1,232	1,242	1,271	1,373	1,454	1,483	1,465	1,633
Tons of freight carried 1 mile.....	204,493	169,061	171,394	191,361	198,537	209,696	221,362	219,585	217,670	237,078
Passengers carried.....	717	670	832	823	877	899	965	956	1,005	1,095
Passengers carried 1 mile.....	30,526	27,443	32,716	33,118	33,677	30,818	34,215	32,132	33,327	35,227

From the first of the foregoing summaries it will be noted that the number of employés per 100 miles of line has decreased during the decade from 362 to 338. The number of men engaged in conducting transportation per 100 miles of line has also decreased. This decrease in the number of employés indicates an increase in the economy of labor, because it has taken place concurrently with a marked increase in the amount of traffic, as may be seen by turning to Table IV, which follows this text.

TABLE IV—BUSINESS DONE.—This table, which shows the amount of business done in the railways in Group VI, exhibits the number of tons of freight moved, the number of tons of freight moved 1 mile, the number of passengers carried, the number of passengers carried 1 mile, freight train mileage, passenger train mileage, and all other mileage. An examination of the figures contained in this table shows certain marked changes in the nature of the business of transportation by the railways under consideration. In the first place, it appears that the number of tons of freight moved has increased from 42,650,558 in 1880 to 91,923,892 in 1889, being an increase of 115.53 per cent. The increase in the number of tons of freight moved 1 mile is from 6,531,713,151 in 1880 to 13,363,456,349 in 1889, being an increase of 6,831,743,198, or 104.59 per cent. The fact that the increase in the number of tons of freight moved is at a more rapid rate than the increase in the number of tons of freight moved 1 mile shows that local freight is relatively of more importance in 1889 than in 1880, a fact which indicates the growth of local prosperity.

The figures pertaining to passenger traffic are equally satisfactory. Thus, the number of passengers carried has increased from 22,824,192 in 1880 to 61,726,854 in 1889, being an increase of 38,902,662, or 170.44 per cent. The increase in the number of passengers carried 1 mile has been from 970,700,482 in 1880 to 1,985,231,495 in 1889, being an increase of 1,014,531,013, or 104.52 per cent. These figures also indicate an increase in the amount of local business done.

TABLE V—EARNINGS AND INCOME.—This table exhibits the earnings and income of operating railways, classified as earnings from freight traffic, earnings from passenger traffic, and income from fixed investments and other sources. It also shows the per cent of operating expenses to earnings from operation.

Under the head of "Earnings from passenger service" is included amounts received by railways for transportation of mail and express, which in the group under consideration amounts to 16 per cent of the total earnings from passenger traffic. The table further shows the movements year by year in earnings and income, stated by amounts and percentages.

In the summary which immediately follows there is given the earnings from freight and passenger service assigned to mileage of operated line. In this manner the small amount of mileage for which no reports of operation were received is eliminated, and the conclusions arrived at are brought into proper shape for comparison with the railways of other groups.

EARNINGS FROM FREIGHT AND PASSENGER SERVICE ASSIGNED TO MILEAGE OF OPERATED LINE.

EARNINGS.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.
From freight service per mile of line.....	\$3,918.97	\$4,050.69	\$3,957.23	\$4,084.12	\$4,860.44	\$3,888.80	\$3,634.18	\$3,589.70	\$3,186.28	\$3,362.59
From passenger service per mile of line.....	1,292.27	1,371.37	1,579.82	1,605.79	1,582.85	1,484.41	1,388.21	1,406.28	1,365.68	1,363.06
Gross earnings from operation per mile of line....	5,244.59	5,465.66	5,569.65	5,765.97	5,461.18	5,399.29	5,037.61	5,018.26	4,564.15	4,761.91

This summary shows a decrease in the amount of freight earnings per mile of line from \$3,918.97 in 1880 to \$3,362.59 in 1889, being a decrease of \$556.38. Earnings from passenger service,

on the other hand, have increased from \$1,292.27 per mile of line in 1880 to \$1,363.06 in 1889, being an increase of \$70.79 per mile of line.

The figures given in Table IV indicate a marked increase in the amount of business done, from which it appears that the railways must have received less for carrying a ton of freight 1 mile or a passenger 1 mile in 1889 than in 1880. This is, of course, an occasion of saving to those who make use of railways. The extent of saving is indicated by the following summary, which shows the receipts per ton per mile moved and the receipts per passenger per mile carried for each of the 10 years ending 1889. In making this item of receipts per passenger per mile 16 per cent has been deducted from passenger earnings as a proper allowance for the receipts for carrying mail and express.

RECEIPTS PER MILE FROM FREIGHT AND PASSENGERS.

YEARS.	Receipts per mile per ton moved.	Receipts per mile per passenger carried. (a)
	<i>Cents.</i>	<i>Cents.</i>
1880	1.369	2.541
1881	1.389	2.428
1882	1.371	2.409
1883	1.291	2.463
1884	1.199	2.435
1885	1.179	2.571
1886	1.111	2.306
1887	1.078	2.425
1888	0.979	2.302
1889	1.018	2.338

a 16 per cent has been deducted from earnings from passenger service as mail and express.

The figures in the above summary show the extent to which the railways in Group VI have been benefited by the increased economy of administration. This is not as marked as in certain other parts of the country, nor are the receipts received by the railways in Group VI so low as the average rates for all the railways in the United States. Thus, for the country at large the receipts per passenger per mile were in 1889 2.165 cents, while the receipts per ton per mile were 0.922 cents.

TABLE VI—EXPENDITURES.—This table shows the total expenditures incurred by operating companies, and classifies the same as operating expenses, interest on funded debt, rentals, taxes, and dividends. It also gives a statement of the surpluses and deficits as reported by operating companies.

TABLE VII—OPERATING EXPENSES.—This table gives an analysis of operating expenses, and classifies the same as maintenance of way and structure, maintenance of equipment, conducting transportation, and general expenses. As in the case of other bulletins making up this set, there is inserted below an income account of railways of Group VI for the 10 years ending 1889. The items in this account are the same as the corresponding items in the annual income accounts for each of the years in the decade. Thus, the gross earnings from operations for the 10 years ending 1889 were \$1,647,976,865.08, and other items are computed on the same basis.

INCOME ACCOUNT OF RAILROADS IN GROUP VI FOR THE 10 YEARS, 1880 TO 1889.

ITEMS.	Amount.	Total.	Per mile of line, reduced for comparison with annual earnings.
Gross earnings from operation.....	\$1,647,976,865.08		\$5,172.59
Less operating expenses.....	999,613,384.86		3,137.48
Income from operation.....		\$648,363,480.22	2,035.02
Income from other sources.....		62,359,911.62	195.73
Total income.....		710,723,391.84	2,230.75
Deductions from income:			
Interest on funded debt.....	328,842,646.15		1,032.14
Rentals.....	60,531,286.82		189.99
Taxes.....	48,349,146.25		154.89
Miscellaneous.....	37,458,372.25		117.57
Total deductions from income.....		476,181,451.47	1,494.59
Final net income.....		234,541,940.37	736.16
Dividends.....		221,728,025.18	695.94
Surplus from operations for the 10 years ended 1889.		12,813,915.19	40.22

The last column in the above exhibit shows the items in the body of the summary assigned on the basis of operated mileage.

The value of property considered as an investment is properly represented by a capitalization of the average earnings at the current rate of interest. The average earnings per mile of line, or the amount paid per mile of line to the proprietors of railway property, is \$1,918.07, which is the amount of interest paid on funded debt, rentals, and dividends. This sum capitalized at 5 per cent shows the value of railways per mile of line in Group VI to be \$38,361.40.

A comparison of the items in the above income sheet with the corresponding items derived from the operations of railways of the entire system in the United States shows that the railways in Group VI are fairly representative of the average railways in the United States. They stand in marked contrast with the railways of the New England and Middle states on the one hand and the railways of the southern and far western states on the other.

It may be interesting to assign the various items of expenditure to a mileage basis so as to note what changes have taken place in railway expenses during the last decade. This is done in the following summary:

EXPENDITURES ASSIGNED TO MILE OF OPERATED LINE.

ITEMS.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.
Operating expenses.....	\$2,814.27	\$3,170.06	\$3,215.49	\$3,397.92	\$3,299.25	\$3,204.19	\$2,994.13	\$3,064.58	\$3,152.67	\$3,062.70
Interest.....	866.64	945.83	991.87	1,004.09	1,052.31	1,077.24	1,066.23	1,072.40	1,057.36	1,139.75
Rentals.....	226.29	235.99	246.84	248.48	190.59	162.60	155.80	153.35	154.73	174.90
Taxes.....	127.88	138.84	149.64	149.63	161.59	163.68	157.68	153.30	163.18	167.86
Dividends.....	896.96	725.58	873.35	784.33	801.43	756.37	701.71	724.75	486.46	418.37
Total expenditures, including miscellaneous.	5,044.58	5,383.02	5,628.36	5,719.26	5,640.92	5,473.82	5,160.59	5,286.65	5,129.40	5,054.73

The above summary suggests two or three interesting facts. In the first place, it must be noticed that the interest paid on bonds has increased from \$866.64 per mile of line in 1880 to

\$1,139.75 per mile of line in 1889. Rentals, on the other hand, show a decrease from \$226.29 per mile of line in 1880 to \$174.90 per mile of line in 1889. This fact suggests that consolidation by means of leases is not a favorite method with the managers of railways in Group VI. Dividends, it will be observed, have decreased from \$896.96 in 1880 to \$418.37 in 1889.

Many other interesting summaries might be made from the facts contained in the tables, which will be considered at the final presentation of this investigation.

TABLE I.—MILEAGE.

ANALYSIS OF MILEAGE.	FOR 4 YEARS ENDING 1880.									
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.
LENGTH OF LINE (SINGLE TRACK):										
Total mileage.....	22,962.75	25,107.99	27,698.68	28,093.37	29,915.92	30,144.36	32,791.38	36,855.36	39,094.50	40,400.90
Increased mileage.....		2,145.24	2,590.59	1,294.79	951.85	193.14	2,611.02	4,043.98	2,233.14	1,363.70
Per cent of increase.....		3.54	10.32	4.61	3.28	0.67	8.18	12.39	6.08	3.34
Decreased mileage.....										
Per cent of decrease.....										
LINE OPERATED:										
Total mileage.....	23,588.46	25,732.99	28,329.51	29,739.38	30,592.66	30,719.10	33,476.41	37,520.79	39,883.79	41,299.64
Increased mileage.....		2,144.53	2,596.52	1,409.87	763.28	207.44	2,766.31	4,094.38	2,363.00	1,415.85
Per cent of increase.....		9.09	10.99	4.98	2.57	0.68	9.01	12.08	6.30	3.55
Decreased mileage.....										
Per cent of decrease.....										
OPERATED LINE OWNED BY OPERATING COMPANIES:										
Total mileage.....	16,756.65	18,714.28	20,390.06	21,804.43	23,269.35	23,651.68	25,909.86	27,942.91	30,234.79	31,344.34
Increased mileage.....		1,957.63	1,675.78	1,414.37	1,464.92	382.33	2,258.18	2,030.93	2,291.88	1,169.53
Per cent of increase.....		11.68	8.86	6.94	6.72	1.64	9.55	7.86	8.20	3.67
Decreased mileage.....										
Per cent of decrease.....										
OPERATED LINE LEASED OR OTHERWISE CONTROLLED BY OPERATING COMPANIES:										
Total mileage.....	6,206.10	6,393.71	7,308.62	7,188.94	6,675.87	6,492.68	6,881.52	8,912.45	8,659.71	9,055.86
Increased mileage.....		187.61	914.81	119.58	513.07	183.19	288.84	2,030.93	2,291.88	1,961.15
Per cent of increase.....		3.02	14.81	1.64	7.14	2.74	5.00	29.51	2.21	2.21
Decreased mileage.....										
Per cent of decrease.....										
LINE OPERATED UNDER TRACKAGE RIGHTS:										
Total mileage.....	624.71	625.00	630.93	746.01	557.44	565.74	685.03	665.43	789.29	869.44
Increased mileage.....			5.93	115.08	8.30	1.49	119.29	123.86	123.86	110.15
Per cent of increase.....			0.95	18.24	1.49	0.26	21.09	18.61	15.61	12.61
Decreased mileage.....		0.71		188.57				19.60		
Per cent of decrease.....		0.11		26.28				2.88		

TABLE II.—EQUIPMENT AND STATIONS.

ANALYSIS OF EQUIPMENT AND STATIONS.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	FOR 9 YEARS ENDING 1889.
LOCOMOTIVES	3,462	3,932	4,376	4,709	4,875	4,980	5,229	5,440	5,890	6,065	
Freight	2,146	2,413	2,664	2,895	2,977	3,045	3,147	3,241	3,509	3,627	
Passenger	838	937	1,084	1,190	1,177	1,196	1,263	1,282	1,481	1,526	
Switching	478	582	638	694	721	739	791	830	900	940	
Increase		470	444	333	166	105	230	230	450	203	2,631
Per cent of increase		13.56	11.29	7.61	3.53	2.15	4.82	4.21	8.27	3.45	76.00
Decrease											
Per cent of decrease											
CARS IN PASSENGER SERVICE.	2,374	2,617	3,030	3,238	3,480	3,504	3,777	4,055	4,384	4,522	
Ordinary	1,490	1,647	1,921	2,026	2,166	2,186	2,333	2,500	2,732	2,834	
Sleeping	82	101	116	129	144	157	163	174	223	211	
Parlor	17	22	34	34	43	44	58	64	73	71	
Dining	14	25	33	41	49	49	50	63	68	67	
Baggage	439	482	627	671	617	689	685	670	725	735	
Postal	169	166	194	223	213	216	228	235	256	272	
Express	164	174	200	224	246	253	281	289	306	308	
Increase		243	403	213	252	14	278	273	138	138	2,148
Per cent of increase		10.24	15.40	7.22	7.78	0.40	7.79	7.36	8.11	3.15	90.48
Decrease											
Per cent of decrease											
CARS IN FREIGHT SERVICE	99,316	121,295	133,219	139,684	146,671	146,604	159,814	171,124	191,038	200,286	
Box	68,080	69,293	73,009	76,874	80,707	81,098	89,888	93,764	106,253	110,854	
Flat	15,705	20,527	23,273	24,943	25,484	24,742	23,417	24,093	27,640	27,801	
Stock	9,717	11,997	13,769	14,389	14,667	14,368	15,385	15,178	17,263	17,537	
Coal	9,482	12,654	12,968	13,558	15,068	17,151	19,467	22,443	24,200	28,138	
Tank	85	137	415	779	833	863	1,052	1,664	1,906	2,087	
Refrigerator	6,897	6,897	8,896	9,171	9,910	10,319	11,217	12,655	13,906	15,887	
Other	21,979	21,979	11,924	6,465	6,987	10,319	11,210	12,316	10,911	9,244	109,670
Increase		22,13	9,83	4,85	5,40	67	9,01	7,08	11,64	4,84	101,67
Per cent of increase		22.13	9.83	4.85	5.40	0.67	9.01	7.08	11.64	4.84	101.67
Decrease											
Per cent of decrease											
CARS IN COMPANY'S SERVICE.	1,538	1,713	1,709	1,677	1,607	1,741	1,799	1,794	1,987	2,118	
Increase		175	4	32	20	58	58	5	133	131	680
Per cent of increase		11.38	0.23	1.87	1.19	2.59	3.33	0.28	10.76	6.39	37.71
Decrease											
Per cent of decrease											
CARS CONTRIBUTED TO FAST-FREIGHT SERVICE.	3,016	3,475	4,630	4,849	5,171	3,944	2,654	3,000	3,480	3,486	
Increase		459	1,155	219	322		46	46	400	470	470
Per cent of increase		15.22	33.21	4.73	6.64		1.56	1.56	16.33	15.58	15.58
Decrease											
Per cent of decrease											
STATIONS ON LINE	3,657	3,925	4,375	4,573	4,688	4,771	5,243	5,465	5,947	6,311	
Increase		268	450	198	115	83	472	482	364	364	2,654
Per cent of increase		7.33	11.46	4.53	2.51	1.77	9.89	8.82	6.12	6.12	72.77
Decrease											
Per cent of decrease											

MILEAGE OF OPERATED LINE FOR WHICH NO REPORT OF EQUIPMENT AND STATIONS WAS OBTAINABLE.

Mileage	64.50	91.63	130.30	173.00	330.30	427.50	78.00	116.70	184.00	214.63	
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TABLE III.—EMPLOYÉS.

ANALYSIS OF EMPLOYÉS.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	FOR 9 YEARS ENDING 1889.
EMPLOYÉS:											
Total	84,413	107,586	117,239	113,937	110,953	114,902	121,117	137,000	147,768	139,530	65,117
Increase		23,173	9,653	2,688	16	6,125	6,125	15,973	10,678	5,538	65,29
Per cent of increase		27.45	8.97	2.30	0.01	4.961	5.33	13.19	7.79	5.57	
Decrease						4.14					
Per cent of decrease											
MAINTENANCE OF WAY AND STRUCTURE:											
Total	30,560	38,177	41,513	41,575	42,516	40,374	44,161	48,810	52,504	46,865	10,295
Increase		7,617	3,336	62	941	40,374	3,787	4,649	3,784	5,739	53,32
Per cent of increase		24.92	8.74	0.15	2.26	2,142	9.38	10.53	7.75	10.91	
Decrease						5.04					
Per cent of decrease											
MAINTENANCE OF EQUIPMENT:											
Total	17,555	21,792	23,544	24,198	23,256	21,481	22,476	25,751	28,629	28,327	10,772
Increase		4,237	1,752	654	2,78	1,775	965	3,275	3,178	602	61.36
Per cent of increase		24.14	8.04	2.78	3.89	7.63	4.63	14.57	12.34	2.08	
Decrease											
Per cent of decrease											
CONSTRUCTING TRANSPORTATION:											
Total	32,600	43,656	47,032	48,682	45,610	47,629	48,854	58,387	59,302	57,302	24,712
Increase		10,456	3,976	1,650	3,51	1,225	1,225	7,533	2,975	2,000	75,77
Per cent of increase		32.07	9.23	3.51	7.2	2.02	2.57	15.42	5.28	3.47	
Decrease											
Per cent of decrease											
GENERAL ADMINISTRATION:											
Total	3,638	4,561	5,150	5,482	5,671	5,508	5,626	6,142	6,883	7,046	3,348
Increase		882	589	392	89	118	118	316	741	163	90.54
Per cent of increase		23.94	12.91	6.45	1.62	63	2.14	8.17	12.06	2.37	
Decrease						1.13					
Per cent of decrease											

MILEAGE OF OPERATED LINE FOR WHICH NO REPORT OF EMPLOYÉS WAS OBTAINABLE.

Mileage	292.85	827.50	402.49	302.22	530.75	430.90	415.60	327.00	184.00	74.63	
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TABLE IV.—BUSINESS DONE.

ANALYSIS OF BUSINESS DONE.	FOR 9 YEARS ENDING 1889.									
	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.
TONS OF FREIGHT MOVED:										
Total.....	42,559,558	48,897,695	56,965,794	59,769,153	61,090,474	63,963,323	69,672,510	82,961,189	87,577,582	91,923,892
Increase.....		6,337,137	8,066,899	2,805,359	1,321,321	2,873,347	5,708,189	13,178,679	2,286,393	6,640,310
Per cent of increase.....		14.51	16.52	5.04	2.21	4.50	8.92	19.12	2.55	7.79
Decrease.....										
Per cent of decrease.....										
TONS OF FREIGHT MOVED 1 MILE:										
Total.....	6,531,713,151	7,169,185,696	7,827,889,449	9,128,491,217	9,465,832,289	9,688,864,296	10,720,449,510	12,152,263,862	12,690,556,112	13,369,456,349
Increase.....		637,472,843	658,703,453	1,300,601,768	357,341,072	222,972,067	831,635,211	1,631,814,352	508,292,559	762,900,237
Per cent of increase.....		9.76	9.19	16.01	3.70	2.30	8.38	13.51	4.19	5.55
Decrease.....										
Per cent of decrease.....										
NUMBER OF PASSENGERS CARRIED:										
Total.....	22,824,192	28,473,542	38,383,880	39,557,809	42,004,585	41,796,088	46,175,325	52,500,375	58,607,447	61,726,854
Increase.....		5,650,350	9,910,347	1,173,929	2,441,776		4,379,537	7,385,000	5,047,092	3,119,407
Per cent of increase.....		24.98	35.00	3.00	6.18		10.18	18.99	9.42	5.32
Decrease.....										
Per cent of decrease.....										
NUMBER OF PASSENGERS CARRIED 1 MILE:										
Total.....	970,700,482	1,154,071,002	1,504,154,150	1,588,606,153	1,608,734,383	1,428,720,800	1,631,694,412	1,796,754,466	1,943,654,319	1,985,231,455
Increase.....		189,270,520	349,183,157	82,491,994	22,128,228		292,373,322	165,630,994	146,896,967	41,577,182
Per cent of increase.....		19.98	30.23	5.38	1.39		14.16	10.16	8.18	2.14
Decrease.....										
Per cent of decrease.....										
FREIGHT TRAIN MILEAGE:										
Total.....	49,189,006	55,917,207	61,624,795	70,879,864	71,393,704	71,578,790	75,198,549	88,336,115	92,633,466	92,633,466
Increase.....		6,727,511	5,717,598	9,245,169	429,500	469,066	3,419,369	11,157,366	6,311,258	286,093
Per cent of increase.....		13.68	10.22	18.00	0.61	0.66	4.76	13.81	7.31	0.31
Decrease.....										
Per cent of decrease.....										
PASSENGER TRAIN MILEAGE:										
Total.....	29,740,406	27,000,254	32,155,069	35,855,209	39,700,284	40,583,095	43,223,281	48,669,070	54,539,888	54,285,977
Increase.....		4,159,848	4,255,715	3,699,240	3,845,775	882,711	2,640,186	5,445,784	3,879,818	286,093
Per cent of increase.....		14.52	16.25	11.50	10.72	2.22	6.51	12.60	12.00	0.51
Decrease.....										
Per cent of decrease.....										
ALL OTHER MILEAGE:										
Total.....	10,769,091	14,791,720	19,426,491	21,548,310	19,842,299	18,968,445	19,695,690	21,006,192	22,958,600	20,872,596
Increase.....		4,008,629	4,634,771	2,121,819			77,245	1,984,592	1,252,308	
Per cent of increase.....		37.18	33.33	10.92			0.39	10.41	5.96	
Decrease.....										
Per cent of decrease.....										

MILEAGE OF OPERATED LINE FOR WHICH NO REPORT OF BUSINESS DONE WAS OBTAINABLE.

Tons of freight moved.....	690.45	1,125.48	895.23	646.99	858.10	1,106.42	1,053.42	617.97	951.52	794.05
Tons of freight moved 1 mile.....	703.93	1,203.38	1,210.60	894.25	1,345.68	1,314.61	1,314.61	1,016.26	984.92	849.35
Number of passengers carried.....	805.55	1,185.16	936.61	678.17	1,083.84	1,153.59	1,083.69	559.84	880.91	733.84
Number of passengers carried 1 mile.....	894.12	1,168.76	1,029.27	770.83	1,638.98	1,246.25	1,215.28	636.14	880.91	755.74
Freight train mileage.....	892.32	1,164.96	1,199.69	1,007.03	1,344.31	1,344.31	1,500.68	1,181.10	781.70	1,069.58
Passenger train mileage.....	892.32	1,164.96	1,197.87	890.37	1,169.84	1,309.51	1,465.88	1,146.30	746.90	1,034.78
All other mileage.....	892.32	1,164.96	1,197.87	890.37	1,169.84	1,309.51	1,465.88	1,146.30	746.90	1,034.78

TABLE V.—EARNINGS AND INCOME.

ANALYSIS OF EARNINGS AND INCOME.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	FOR 9 YEARS ENDING 1889.
EARNINGS FROM FREIGHT SERVICE:											
Total.....	\$82, 140, 792.84	\$103, 325, 204.85	\$111, 167, 381.63	\$120, 442, 144.82	\$116, 304, 004.70	\$117, 044, 462.86	\$121, 375, 920.19	\$134, 269, 553.91	\$120, 456, 776.96	\$138, 517, 533.11	\$46, 376, 740.27
Increase.....	11, 184, 412.01	7, 862, 176.78	7, 862, 176.78	9, 274, 763.19	3, 731, 467.23	1, 340, 458.26	3, 731, 467.23	12, 893, 683.72	12, 893, 683.72	12, 000, 756.15	546, 376, 740.27
Per cent of increase.....	12.14	7.59	7.59	8.34	3.44	1.15	3.17	10.62	10.62	9.36	50.33
Decrease.....											
Per cent of decrease.....											
EARNINGS FROM PASSENGER SERVICE:											
Total.....	30, 383, 156.91	34, 913, 749.22	44, 380, 741.84	47, 335, 203.97	47, 088, 715.57	44, 006, 373.73	46, 314, 114.53	52, 000, 679.71	54, 187, 980.51	56, 149, 625.20	25, 705, 403.29
Increase.....	4, 530, 693.31	9, 406, 992.62	9, 406, 992.62	2, 974, 562.13	331, 421.00	1, 457, 740.80	1, 457, 740.80	6, 236, 565.18	1, 587, 306.80	1, 061, 635.69	25, 705, 403.29
Per cent of increase.....	14.31	27.12	27.12	6.70	0.70	3.25	3.25	13.45	3.02	3.02	84.81
Decrease.....											
Per cent of decrease.....											
GROSS EARNINGS FROM OPERATION:											
Total.....	123, 306, 041.63	139, 129, 804.03	156, 463, 895.98	168, 271, 260.66	164, 529, 986.02	163, 064, 882.00	168, 248, 212.09	187, 703, 480.42	181, 098, 551.62	196, 160, 740.62	72, 854, 688.99
Increase.....	15, 823, 762.40	17, 334, 091.96	17, 334, 091.96	11, 807, 364.67	5, 183, 330.09	1, 465, 104.02	5, 183, 330.09	19, 455, 278.33	6, 604, 938.80	15, 062, 189.00	72, 854, 688.99
Per cent of increase.....	12.83	12.83	12.83	7.55	3.18	0.88	3.18	11.56	3.52	8.32	50.08
Decrease.....											
Per cent of decrease.....											
INCOME FROM ALL OTHER SOURCES:											
Total.....	3, 404, 284.63	5, 172, 592.88	4, 745, 211.17	4, 611, 080.58	5, 143, 083.54	5, 501, 025.81	6, 212, 116.86	10, 083, 021.81	7, 361, 245.02	10, 126, 239.22	6, 721, 054.59
Increase.....	1, 768, 308.35	1, 768, 308.35	427, 381.81	134, 130.59	531, 962.96	357, 942.27	711, 091.65	3, 870, 904.95	2, 721, 776.79	2, 764, 994.20	187.46
Per cent of increase.....	51.94	51.94	8.20	2.83	11.54	6.90	12.93	62.31	26.99	37.66	187.46
Decrease.....											
Per cent of decrease.....											
TOTAL EARNINGS AND INCOME:											
Total.....	120, 710, 326.26	144, 302, 397.01	161, 209, 107.16	172, 882, 351.24	169, 673, 069.56	168, 565, 907.81	174, 460, 328.95	197, 786, 512.23	188, 459, 796.64	206, 286, 979.84	79, 576, 653.88
Increase.....	17, 592, 070.75	17, 592, 070.75	16, 906, 710.15	11, 673, 244.08	6, 884, 421.14	3, 800	6, 884, 421.14	23, 326, 183.28	188, 459, 796.64	17, 527, 183.20	79, 576, 653.88
Per cent of increase.....	13.88	13.88	11.72	7.24	4.03	2.25	3.90	13.37	9.32	8.46	62.80
Decrease.....											
Per cent of decrease.....											
PER CENT OF OPERATING EXPENSES TO EARNINGS:											
Per cent.....	53.06	58.09	57.73	59.55	60.41	59.44	59.44	61.07	63.07	64.32	10.06
Increase.....		4.34	0.37	1.82	0.86			1.63	8.00	4.75	
Decrease.....											

MILEAGE OF OPERATED LINE FOR WHICH NO REPORT OF EARNINGS WAS OBTAINABLE.

Mileage.....	76.98	277.73	237.27	249.00	375.50	458.00	78.00	116.70	265.30	166.93	
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TABLE VI.—EXPENDITURES.

	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	FOR 9 YEARS ENDING 1889.
ANALYSIS OF EXPENDITURES.											
OPERATING EXPENSES:											
Total	\$66,167,569.15	\$80,694,666.16	\$90,330,215.92	\$100,205,977.29	\$99,397,079.95	\$96,938,394.19	\$99,999,293.45	\$114,627,906.88	\$125,093,399.54	\$129,164,009.33	\$69,896,440.18
Increase	14,527,037.01	9,655,549.76	9,685,549.76	3,875,761.37	808,897.34	2,463,686.76	3,067,852.26	14,628,680.43	10,464,432.66	1,070,669.79	91.86
Per cent of increase	21.96	11.94	11.94	10.93	8.81	2.48	3.16	14.63	9.13	0.86	
Decrease											
Per cent of decrease											
INTEREST ON FUNDED DEBT:											
Total	20,375,897.22	24,076,232.54	27,853,770.16	29,611,132.30	31,703,174.80	32,588,648.96	33,696,456.38	40,112,196.29	41,954,406.08	46,856,729.42	
Increase	3,700,335.32	3,787,537.62	3,787,537.62	1,747,362.14	2,092,042.14	885,474.16	1,017,807.42	6,505,738.91	1,842,213.79	3,896,329.34	26,574,832.20
Per cent of increase	18.10	15.73	15.73	6.27	7.07	2.79	3.12	19.36	4.59	11.91	
Decrease											
Per cent of decrease											
RENTALS:											
Total	5,320,382.85	6,007,206.78	6,634,417.58	7,327,758.67	5,739,234.26	4,918,969.77	5,203,324.20	5,735,812.28	6,139,441.18	7,204,715.25	
Increase	686,823.93	689,473.48	927,210.80	398,341.09	1,588,624.41	820,240.49	284,330.43	522,488.08	403,628.90	1,065,274.07	1,884,332.40
Per cent of increase	12.91	16.43	16.43	5.67	27.33	14.29	5.78	10.23	7.04	17.35	
Decrease											
Per cent of decrease											
TAXES:											
Total	3,005,621.25	3,534,324.22	4,203,797.70	4,412,687.16	4,808,379.98	4,633,636.79	5,266,124.47	5,734,103.64	6,474,806.33	6,914,654.72	
Increase	527,702.97	689,473.48	689,473.48	208,889.45	455,892.83	65,256.81	332,487.68	467,979.17	740,792.69	439,858.39	3,908,043.47
Per cent of increase	17.55	18.94	18.94	4.97	10.33	1.34	6.71	8.89	12.92	6.79	129.08
Decrease											
Per cent of decrease											
DIVIDENDS:											
Total	21,088,916.21	18,469,875.84	24,534,359.07	23,130,314.42	24,144,878.70	22,881,812.76	23,435,931.28	27,108,740.24	30,698,954.99	17,234,221.67	
Increase			6,064,483.23		1,014,664.28		564,136.32	3,672,788.96			
Per cent of increase			32.83		4.39		2.42	13.67			
Decrease											
Per cent of decrease											
TOTAL EXPENDITURES, INCLUDING MISCELLANEOUS:											
Total	118,605,573.62	137,026,006.83	158,113,970.77	168,397,613.68	169,045,046.95	165,594,556.18	170,348,550.63	167,742,906.92	203,526,690.34	268,229,178.19	
Increase	18,420,523.81	21,087,179.94	21,087,179.94	10,284,343.91	1,647,433.27	4,774,063.45	4,774,063.45	27,393,737.29	5,784,372.42	4,696,368.85	89,677,005.17
Per cent of increase	13.83	13.53	13.53	6.50	0.92	2.87	2.87	16.08	2.93	2.31	
Decrease											
Per cent of decrease											
Surplus	8,104,753.24	7,276,300.18	3,065,836.39	4,484,737.56	271,977.39	2,971,351.63	4,111,769.32	44,215.31	15,006,872.70	1,496,198.35	12,813,915.19
Deficit											

MILEAGE OF OPERATED LINE FOR WHICH NO REPORT OF EXPENDITURES WAS OBTAINABLE.

Mileage	76.98	277.73	297.27	294.00	375.30	458.00	78.60	116.70	265.30	165.93	
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TABLE VII.—OPERATING EXPENSES.

ANALYSIS OF OPERATING EXPENSES.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	FOR 9 YEARS ENDING 1889.
MAINTENANCE OF WAY AND STRUCTURE:											
Total	\$19,508,475.61	\$22,867,824.60	\$24,028,000.51	\$24,931,589.88	\$24,852,403.74	\$22,868,729.70	\$24,864,428.94	\$27,821,037.54	\$28,048,168.71	\$28,454,758.03	\$8,846,083.02
Increase		3,359,348.99	1,180,175.91	965,599.37			2,095,699.84	2,856,608.60	227,131.17	306,369.92	
Per cent of increase		17.22	5.07	3.76			9.16	11.44	0.82	1.09	
Decrease					1,079,193.14	983,674.64					
Per cent of decrease					4.33	4.12					
MAINTENANCE OF EQUIPMENT:											
Total	11,318,413.98	13,425,935.55	16,622,854.38	18,761,317.63	18,201,493.18	17,474,294.04	16,919,520.92	19,833,198.03	21,097,918.25	20,817,663.76	9,468,679.78
Increase		2,107,521.57	3,196,918.83	2,138,463.25				2,919,677.11	1,174,220.22	1,174,220.22	
Per cent of increase		18.62	23.81	12.86				17.26	5.92	5.92	
Decrease					530,824.45	727,289.14	560,683.12				
Per cent of decrease					2.98	4.00	3.21				
CONDUCTING TRANSPORTATION:											
Total	20,766,664.69	37,752,320.36	42,331,401.50	48,180,075.87	48,622,654.72	48,038,503.83	49,302,177.23	56,740,562.30	64,783,663.08	65,087,256.84	35,320,622.25
Increase		7,985,655.67	4,579,081.23	5,848,674.28	442,578.85		1,263,673.40	7,438,375.07	8,043,110.78	303,623.81	
Per cent of increase		26.83	12.13	13.82	0.92		2.63	15.00	14.18	0.47	
Decrease						584,150.80					
Per cent of decrease						1.20					
GENERAL EXPENSES:											
Total	5,574,014.87	5,648,585.65	7,347,650.44	8,332,983.91	8,720,528.31	8,451,657.24	8,819,090.36	10,253,119.01	11,253,580.50	11,905,490.60	6,331,075.13
Increase		1,074,570.78	699,573.79	985,024.47	387,544.40		267,142.14	1,414,019.65	1,029,470.49	651,500.50	
Per cent of increase		19.28	10.52	13.41	4.65		3.12	16.03	9.97	5.79	
Decrease						108,571.09					
Per cent of decrease						1.93					
TOTAL OPERATING EXPENSES:											
Total	66,167,569.15	80,694,666.16	90,330,215.02	100,245,977.29	100,367,079.95	98,653,394.19	99,609,236.45	114,627,906.88	125,093,329.54	126,164,609.33	59,906,449.18
Increase		14,627,097.01	9,825,649.79	9,875,761.37			3,065,882.28	14,628,680.43	10,465,482.65	1,070,639.79	
Per cent of increase		21.96	11.94	10.93			3.18	14.63	9.13	0.86	
Decrease					868,897.34	2,463,685.76					
Per cent of decrease					0.81	2.48					

MILEAGE OF OPERATED LINE FOR WHICH NO REPORT OF OPERATING EXPENSES WAS OBTAINABLE

Mileage	74.98	277.73	237.27	249.00	375.50	458.00	78.00	116.70	265.30	165.43	
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CENSUS BULLETIN.

No. 156.

WASHINGTON, D. C.

January 18, 1892.

MANUFACTURES.—IRON AND STEEL.

PRODUCTION OF THE NEW ENGLAND STATES.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,

WASHINGTON, D. C., December 31, 1891.

The following bulletin, relating to the manufacture of iron and steel in the New England states, has been prepared by Dr. WILLIAM M. SWEET, special agent, under the direction of Mr. FRANK R. WILLIAMS, special agent in charge of the Statistics of Manufactures, and is the first of a series to be issued upon this subject arranged with reference to geographical groups of states.

The bulletin shows that, although a decrease has taken place in the number of establishments engaged in the manufacture of iron and steel in 1890 as compared with 1880, due principally to local causes affecting the supply of raw materials, there has been an increase in the value of finished products. In this connection the fact must be noted that the statistics presented are confined to the operations of establishments manufacturing from the ore, forges and bloomaries, rolling mills, and manufactures of crude materials for the foundry, machinists', and other industries. The changes which have occurred in the condition of the industry in New England are clearly indicated in the tabular presentations and explanatory text of the report.

In 1870 there were 48 iron and steel establishments in New England, with an invested capital of \$5,909,000, which employed 3,815 hands, to whom \$2,168,719 in wages were paid, and which consumed materials costing \$7,338,150, producing manufactures valued at \$10,824,603.

In 1880 the number of establishments had increased to 61, with an invested capital of \$11,560,408, the workmen numbering 8,654, and receiving wages amounting to \$3,357,911, the cost of materials being \$9,518,570, and the value of products amounting to \$14,558,627.

In 1890 the number of establishments had decreased to 35, but the total capital invested had increased to \$13,415,450. The hands employed, excluding officers and clerks, numbered 6,645, receiving wages amounting to \$3,224,318. The cost of materials consumed was \$9,286,050, and the value of the products was \$15,105,441.

It should be considered that the values reported for 1870 are expressed in a currency which was at a great discount in gold, and for this reason they should be reduced one-fifth for purposes of comparison with the gold values of succeeding census years.



Superintendent of Census.

IRON AND STEEL INDUSTRIES OF THE NEW ENGLAND STATES.

BY DR. WILLIAM M. SWEET.

In the remarkable growth that has taken place in the iron and steel industries of this country during the decade from 1880 to 1890 New England has not contributed her share, and a careful examination of the statistics contained in this report will show that in some respects there has been a marked decline in these industries during that period. In 1880 each of the 6 New England states contained establishments engaged in the manufacture of iron and steel, but in 1890 this industry is reported in but 5 of these states, the 4 establishments in Vermont engaged therein in 1880 having been abandoned since that date.

The following table contains the leading statistics relating to the manufacture of iron and steel in New England during the census years 1890, 1880, and 1870. These statistics only include the operations of blast furnaces, iron and steel rolling mills, bessemer, open-hearth, and crucible steel works, and forges and bloomaries:

IRON AND STEEL WORKS.	1890.	1880.	1870.
Number of establishments.....	35	61	48
Total capital invested.....	\$13,415,450	\$11,560,408	\$5,909,000
Average number of hands employed.....	6,645	8,654	3,815
Total wages paid.....	^a \$3,224,318	\$3,357,911	\$2,168,719
Total cost of materials.....	\$9,286,050	\$9,518,570	\$7,338,150
Total value of products.....	\$15,105,441	\$14,558,627	\$10,824,603

^a Excluding officers or firm members and clerks or salesmen.

Notwithstanding the decrease shown in the number of establishments in 1890 as compared with 1880, there has been an increase in the amount of capital invested and in the value of products. It is proper to state in this connection that the growth of the New England iron and steel industries during the past decade, as shown by a comparison of the total value of products made in 1870, 1880, and 1890, is due mainly to the development of a single concern engaged in the manufacture of the more highly finished products of iron and steel. While the value of the products of this establishment has more than trebled during the past decade, there has been a decline of almost one-half in the aggregate business of the other works during the same period.

BLAST FURNACES.

During the census year 1890 there were produced by the blast furnaces of New England 34,335 net tons of pig iron, valued at \$886,438, as compared with 30,957 net tons, valued at \$1,042,896, during the census year 1880. In 1890 the pig iron industry of New England was confined to Maine, Massachusetts, and Connecticut: Maine containing 1 establishment with 1 furnace, Massachusetts containing 2 establishments with 4 furnaces, and Connecticut containing 7 establishments with 8 furnaces. The pig iron industry of Massachusetts and Connecticut is located in the western parts of these states, in what is known as the Salisbury district, the iron being made with charcoal as fuel and

consumed chiefly in the manufacture of car wheels, for which purpose it is especially adapted. In the following table is given a comparative statement of the blast furnace industry of New England during the census years 1890, 1880, and 1870 :

BLAST FURNACES.	1890.	1880.	1870.
Number of establishments.....	10	14	13
Total capital invested.....	\$1,942,553	\$2,149,000	\$1,565,000
Average number of hands employed	a198	855	613
Total wages paid	a\$76,034	\$288,959	\$437,035
Total cost of materials	\$634,052	\$677,862	\$1,202,031
Total value of products.....	\$886,438	\$1,042,896	\$1,737,350

a Excluding officers or firm members and clerks or salesmen.

Of the blast furnace establishments reporting for 1890, 3 were idle during the entire year, and are included in the above table. That the investment in the two classes of works may be separately shown for 1890, the following table is presented :

CLASSIFICATION.	Works in operation in 1890.	Works idle in 1890.
Total capital.....	\$1,751,253	\$191,300
Land	158,136	13,300
Buildings, machinery, tools, etc.....	552,794	128,000
Cash and stock on hand.....	1,040,323	50,000

Of the 4 establishments that have been abandoned since 1880, 1 was located in Vermont, 2 were in Massachusetts, and 1 was in Connecticut.

LABOR AND WAGES AT BLAST FURNACES.

In the preceding summary of blast furnace statistics the average number of hands employed during the year and the total wages paid refer only to the labor directly employed at the furnaces, officers and clerks being omitted in compiling the figures for 1890, as was probably done in previous census reports. It is, however, impossible to make a correct comparison of the number of employes and the wages paid at blast furnaces in 1880 and 1890, on account of the difference in the methods employed in obtaining the data for the 2 periods. In view of the large decrease that is shown in the number of hands and the total wages paid in the census year 1890, as compared with the census year 1880, it is necessary to explain that the figures for 1880 include not only the labor directly employed at the furnaces in New England, but also the labor engaged in mining and other operations conducted in direct connection with these works. The statistics for 1890 relating to ore mining, charcoal burning, and other industries dependent on the manufacture of pig iron are embraced by other branches of census inquiry, and are therefore not included in the presentation for the blast furnace industry.

In the following table are shown separately the number and wages of skilled and unskilled labor and the number and salaries of officers and clerks employed at the blast furnaces of New England during the census year 1890 :

CLASSES.	Average number employed. (Males.)	Total wages paid.
Total	216	\$100,581
Officers or firm members.....	11	18,500
Clerks or salesmen.....	7	6,047
Skilled workmen	76	32,948
Unskilled workmen	122	43,086

The following statement shows the weekly rates of wages for males and the average number employed during the year, exclusive of officers and clerks:

Under \$5	2
\$5 and over, but under \$6	3
\$6 and over, but under \$7	38
\$7 and over, but under \$8	41
\$8 and over, but under \$9	63
\$9 and over, but under \$10	37
\$10 and over, but under \$12	7
\$12 and over, but under \$15	1
\$15 and over, but under \$20	6
\$20 and over, but under \$25	
\$25 and over	198
Total	

During the census year 1890 the blast furnaces of New England were in operation an average of 8 months each, and the average term of employment for labor was 9 months, the excess of the latter term being due to the fact that establishments reporting the maximum term of operation employ the greater number of hands. Furnace hands were employed 12 hours per day, 7 days each week, yard hands working 10 hours daily for 6 days of the week.

MATERIALS USED BY BLAST FURNACES.

The quantities and values of the materials consumed by the blast furnaces of New England during the census years 1890 and 1880 are given in the following table, the ton of 2,000 pounds being used, except for charcoal, which is given in bushels:

MATERIALS.	1890.		1880.	
	Quantities.	Cost.	Quantities.	Cost.
Total		\$634,052		\$677,862
Iron ore (tons).....	75,698	268,880	73,019	345,361
Limestone (tons).....	11,168	10,330	12,004	11,033
Charcoal (bushels).....	3,691,504	354,388	2,955,827	295,292
Anthracite coal (tons).....			5,900	23,240
All other materials.....		454		2,936

ROLLING MILLS AND STEEL WORKS.

The census of 1880 credited New England with 35 iron rolling mills, 5 open-hearth steel works, and 4 crucible steel works. In 1890 there were 16 iron and steel rolling mills not connected with steel works, 5 bessemer and open-hearth steel works, including 1 Clapp-Griffiths steel plant, and 4 crucible steel establishments. All the New England states rolled iron or steel in 1880, and in 1890 each state except Vermont contained rolling mills or steel works which were in operation at some time during the year, although the business of several of them was confined chiefly to the working of material furnished by their customers. The comparative condition of the iron and steel rolling mills, bessemer, Clapp-Griffiths, open-hearth, and crucible steel works during the census years 1890, 1880, and 1870 is shown in the following table:

ROLLING MILLS AND STEEL WORKS.	1890.	1880.	1870.
Number of establishments.....	25	44	34
Total capital invested.....	\$11,472,897	\$9,316,408	\$4,338,000
Average number of hands employed...	66,447	7,791	3,195
Total wages paid.....	\$3,148,284	\$3,069,388	\$1,728,684
Total cost of materials.....	\$8,651,998	\$8,833,874	\$6,124,919
Total value of products.....	\$14,219,003	\$13,513,531	\$9,070,253

^a Excluding officers or firm members and clerks or salesmen.

While there is an apparent decrease of 19 in the number of establishments in 1890 as compared with 1880, only 17 of the rolling mills and steel works that were in existence when the census of 1880 was taken were actually abandoned before the census of 1890. The apparent discrepancy is due to the different methods pursued in tabulating the figures for the 2 years. In 1880, where a rolling mill was operated in connection with a steel plant, the works were tabulated as 2 establishments. In 1890, owing to the growth of the manufacture of steel, and the consequent impossibility of making any accurate division between the iron and steel establishments, works consisting of a rolling mill and a steel plant have been considered as one establishment.

During the period covered by the Tenth Census the establishments since abandoned represented an invested capital of \$2,932,000, gave employment to 2,262 hands, to whom wages amounting to \$763,599 were paid, and produced various manufactures of iron and steel valued at \$3,759,499. There were erected during the decade 2 other establishments which have also been abandoned, and do not appear in the census reports for either period. Several of the works that have continued in operation have abandoned portions of their plant and are now running on a smaller scale than formerly. The apparent increase of capital shown in the foregoing table is due in a great measure to the form of inquiry used in 1890, which has tended to develop more fully the true amount of capital employed.

MACHINERY IN ROLLING MILLS AND STEEL WORKS.

A statement of the machinery contained in the rolling mills and steel works of New England in the census years 1890 and 1880 is presented in the following table, with the increase or decrease shown in each case:

MACHINERY.	1890.	1880.	Increase.	Decrease.
Single puddling furnaces.....	48	220		172
Heating furnaces.....	162	302		140
Bessemer converters.....	4		4	
Open-hearth furnaces.....	3	7		4
Crucible pots, per heat.....	188	202		14
Hammers.....	39	49		10
Cut-nail machines.....	311	801		490
Trains of rolls.....	77	134		57
Aggregate daily capacity in finished products (net tons).....	1,448	1,200	248	

Although the returns show that there are still 48 puddling furnaces in the rolling mills and steel works of New England, it should be explained that the greater number of these furnaces were idle during the census year 1890, and very few of them are likely ever to be used again for the purpose for which they were built. In fact, only 2 of the rolling mills puddled any pig iron during that year, the total quantity thus worked being less than 2,000 net tons. It appears that 3 mills worked cast scrap iron in their puddling furnaces, nearly 14,000 net tons of this material being thus consumed. The remaining mills rolled their iron products from wrought scrap almost exclusively, a small amount of imported Swedish billets and purchased muck bar being used.

Notwithstanding the decrease shown in the number of heating furnaces and trains of rolls reported for 1890 as compared with 1880, there is seen to have been an increase in the daily capacity of finished products. This is explained by the fact that many of the works which formerly produced their finished products from pig iron now use scrap iron, rendering a larger output possible, while at the same time a considerable quantity of finished steel is rolled from purchased billets or slabs.

CHANGES IN THE IRON AND STEEL INDUSTRY OF NEW ENGLAND.

The decline in the iron rolling mill industry of New England has been due chiefly to conditions peculiar to locality rather than to causes affecting the industry at large. The rapid growth of the iron and steel industry in other sections of the country, where pig iron and fuel can be obtained at much lower cost, has gradually narrowed the market of most of the New England iron mills to the limits of local demand, and even much of this trade has been absorbed by manufacturers in more favored localities. The natural resources that are required for the profitable operation of rolling mills and steel

works are lacking in New England. There is no local supply of either fuel or pig iron. Although considerable pig iron is made in Massachusetts and Connecticut the entire product is used for foundry purposes. The small quantity of pig iron that is consumed by the New England rolling mills and steel works is brought from other producing regions, and all the coal and coke is similarly obtained. At the present time scrap iron constitutes the chief dependence of the rolling mills of New England, and this is the only raw material of which there is a local supply, the railroads and diversified manufacturing industries furnishing it in considerable quantity.

The rapid progress that has been made in this country in the manufacture of steel, the cheapening of the product, and its consequent substitution for iron for many uses have been important factors in the decline of the iron rolling mill industry of New England. The conditions in New England being generally unfavorable for the economical manufacture of the crude forms of steel, most of the iron manufacturers have been reluctant to assume the risks attendant upon the establishment of steel plants in connection with their works to meet the increasing demand for this class of material, preferring to depend upon a supply of crude steel obtained from works more advantageously located in other sections of this country or from abroad. Apart from the natural disadvantages of location, many of the iron manufacturers of New England have not shown a disposition to accommodate themselves to changing conditions, and not a few of them have retired from business in preference to remodeling their plants to meet modern requirements. The rerolling of imported Norway and Swedish iron was formerly an important branch of the iron industry of New England, but within the past decade it has dwindled to small proportions, owing chiefly to the substitution of steel for uses to which this class of iron was formerly applied.

LABOR AND WAGES AT ROLLING MILLS AND STEEL WORKS.

The average number and aggregate salaries of officers and clerks, and the average number and aggregate earnings of skilled and unskilled hands, are shown separately for the census year 1890 in the following table:

CLASSES.	AGGREGATE.		MALES ABOVE 16 YEARS.		FEMALES ABOVE 15 YEARS.		CHILDREN.	
	Average number employed.	Total wages paid.						
Total	6,628	\$3,420,894	6,509	\$3,390,302	43	\$13,212	76	\$17,380
Officers or firm members.....	46	115,866	46	115,866				
Clerks or salesmen.....	135	156,744	134	156,224	1	520		
Skilled workmen	3,703	2,031,398	3,645	2,017,398			58	14,000
Unskilled workmen	2,744	1,116,886	2,684	1,100,814	42	12,692	18	3,380

WEEKLY RATES OF WAGES AND AVERAGE NUMBER OF HANDS EMPLOYED AT EACH RATE

RATES PER WEEK.	AVERAGE NUMBER EMPLOYED. (a)		
	Males.	Females.	Children.
Total.....	6,329	42	76
Under \$5.....	46	15	48
\$5 and over, but under \$6	149	12	21
\$6 and over, but under \$7	362	8	7
\$7 and over, but under \$8	637	4	
\$8 and over, but under \$9	1,305	3	
\$9 and over, but under \$10	1,259		
\$10 and over, but under \$12	889		
\$12 and over, but under \$15	787		
\$15 and over, but under \$20	541		
\$20 and over, but under \$25	205		
\$25 and over	129		

a Officers or firm members, clerks or salesmen, are not included in this table.

The rolling mills and steel works of New England were in operation an average of 10 months during the census year 1890. The average term of employment for men was 11 months, for women 12 months, and for children 10.5 months, the excess of the average term of employment over the average term of mill operation being caused by the fact that the establishments employing the greater number of hands also report the maximum term of operation. In 3 mills 9 hours constituted the day of labor, and in the remaining establishments the men worked 10 hours per day (6 days per week) throughout the year. In 1880 the rolling mills and steel works of this section employed 7,791 hands, and were in operation an average of 9.75 months during the year.

MATERIALS CONSUMED BY ROLLING MILLS AND STEEL WORKS.

A comparative statement of the quantities and cost of materials consumed by the rolling mills and steel works of New England in the census years 1890 and 1880 is presented in the following table. Quantities are stated in tons of 2,000 pounds except for charcoal, which is stated in bushels.

MATERIALS.	1890.		1880.	
	Quantities.	Cost.	Quantities.	Cost.
Total		\$8,651,998		\$8,838,874
Iron ore (tons).....	2,277	14,931	20,212	141,154
Pig iron (tons)	17,565	359,661	56,918	1,352,553
Spiegeleisen (tons).....	623	44,511	855	21,500
Old iron rails (tons).....	26,279	655,762	36,593	1,048,414
Other old or scrap iron (tons).....	71,939	1,168,528	78,267	2,108,820
Old steel rails (tons).....	2,668	50,692	1,400	35,000
Other old or scrap steel (tons).....	20,145	343,531	5,008	156,759
Hammered iron ore blooms (tons).....	170	7,200	8,187	435,150
Pig or scrap blooms (tons).....			2,226	89,010
Purchased bessemer steel (tons)	83,884	2,489,502	16,600	964,000
Purchased open-hearth steel (tons)	10,825	365,207	3,440	266,200
Anthracite coal (tons).....	16,829	81,702	44,095	200,046
Bituminous coal (tons).....	186,900	760,288	213,055	1,037,413
Coke (tons).....	5,350	35,571	3,545	10,410
Charcoal (bushels)	919,303	76,289	673,786	50,113
All other materials (a)		2,198,623		922,332

a Includes purchased muck bar, Swedish billets and bars, purchased wire rods, copper, and miscellaneous supplies.

While the consumption of old or scrap iron of all kinds has not varied greatly in the 2 census years, there is seen to have been a considerable decrease in the quantity of pig iron used. Most of the pig iron consumed in 1880 was used by the rolling mills in the production of the various iron products, while in 1890 almost the entire quantity was converted into steel. The most notable increase in the consumption of materials in 1890, as compared with 1880, was in purchased bessemer steel.

PRODUCTS OF ROLLING MILLS AND STEEL WORKS.

The total tonnage of rolled and hammered products made by the rolling mills and steel works of New England in the census years 1890 and 1880 is given in the following table:

PRODUCTS.	1890. (Tons.)	1880. (Tons.)
Total	208,304	181,979
Iron.....	86,103	148,692
Bessemer steel	93,746	16,406
Open-hearth steel	25,702	14,676
Crucible steel	2,753	2,205

The classified tonnage and value of the products of the rolling mills and steel works of New England, so far as they can be separately enumerated, are stated in the following table, all quantities being given in tons of 2,000 pounds except nails, which are stated in kegs of 100 pounds :

CLASS OF PRODUCTS.	1890.		1880.	
	Quantities.	Value.	Quantities.	Value.
Aggregate value of products.....		\$14,219,003		\$13,513,531
IRON :				
Bar (tons).....	39,394	1,469,152	32,704	1,738,604
Rod (tons).....	8,013	377,200	32,535	2,479,635
Skelp (tons).....			7,163	501,513
Rails (tons).....			7,100	368,000
Plates, except nail plate (tons).....	1,790	114,043	25,389	1,506,461
Hoop (tons).....			4,358	252,062
Cut nails (kegs of 100 pounds).....	116,840	260,624	495,360	1,789,929
All other products (tons).....	31,064	1,926,032	14,675	971,778
STEEL—BESSEMER :				
Bar (tons).....	1,070	56,500		
Rails (tons).....			1,500	112,500
Plates, except nail plate (tons).....	12,255	534,480		
Cut nails (kegs of 100 pounds).....	100,719	227,084		
All other products (tons).....	75,385	4,960,852	14,905	1,500,000
STEEL—OPEN-HEARTH :				
Bar (tons).....	7,335	370,000	3,704	326,400
Rails (tons).....			3,000	195,000
Plates (tons).....	10,700	527,329	3,578	472,260
All other products (tons).....	7,667	717,085	4,394	451,800
STEEL—CRUCIBLE :				
Finished products (tons).....	2,753	470,174	2,205	318,923
VALUE OF ALL OTHER PRODUCTS.....		2,178,438		525,666

In order to avoid disclosing the operations of individual establishments, it has been necessary to group a considerable portion of the products under the heads of "all other" iron, bessemer, or open-hearth steel products, inasmuch as several important items among the products are made only by a single concern, and to enumerate these items separately would be to reveal the identity of the works by which they were made. In final tabulations for the entire country these products will be placed under their proper headings with similar products from other establishments.

The quantities of bar and rod iron stated exclude all bar and rod iron manufactured into bolts, nuts, and other products by the same establishment, the quantities and values of these finished products being stated as "all other iron products".

The rod iron reported for 1880 probably included the quantity and value of all wire rods produced. This item for 1890 includes only rod iron sold in that form. The larger part of the wire rods produced in 1890 was drawn into wire and sold in the form of wire or manufactures of wire. The steel wire rods, of which a large quantity was rolled in New England in 1890, were also largely finished into wire and other products at the works where they were rolled. As the rods so consumed were only an intermediate product, and almost exclusively the output of a single establishment, they are not given separately, but the quantity and value of the finished products made from them, together with the rods sold to other works for the manufacture of screws, rivets, and other finished forms, appear as "all other", bessemer, open-hearth, and crucible products. The items of "all other" iron, bessemer, and open-hearth steel products also include nail plate produced for sale, billets, car wheels, forgings, and car springs, which were manufactured by the rolling mills and steel works. All Clapp-Griffiths steel products are included with bessemer steel.

The quantities and values of finished steel products include all articles made either from steel produced by the steel works of this section or from purchased steel billets, slabs, or bars. In addition

to the large quantity of steel that was obtained from outside sources and consumed by the rolling mills and steel works, the bessemer steel works of New England produced 15,753 net tons of ingots during the census year 1890, and the open-hearth steel works made 16,840 net tons of ingots, all of which was worked into finished forms, and so reported in the foregoing table. In the census year 1880 the open-hearth steel works of this section made 16,996 net tons of ingots, but no steel ingots were made in New England by the bessemer process in that year. The crucible steel works produced 2,275 net tons of ingots, or direct castings, in the census year 1890, and 2,556 net tons in the census year 1880.

Several of the New England iron and steel rolling mills also roll copper and brass, and the value of these products, together with the amounts received from sales of roll scale, cinder, scrap, and other by-products, is given under the head of "value of all other products".

The radical change which has taken place in the class of products manufactured is clearly shown in the foregoing table. The proportion which manufactures of iron, steel, and miscellaneous allied products bear to the aggregate value for the respective census years is as follows:

PRODUCTS.	PERCENTAGE.	
	1890.	1880.
Manufactures of iron.....	29.38	71.12
Manufactures of steel.....	55.30	24.99
Miscellaneous products.....	15.32	3.89
	100.00	100.00

The percentage of decrease in value of manufactures classified as iron is 56.54, the percentage of increase in value of steel products having distinct classification is 132.86, and the percentage of increase in value of miscellaneous products not specified is 314.41.

FORGES AND BLOOMARIES.

In the census year 1880 there were 3 establishments in New England for the manufacture of blooms from iron ore and from pig and scrap iron. The capital invested in these works amounted to \$95,000. They employed 8 hands, paying \$564 in wages during the year, expended \$1,834 for materials, and produced blooms valued at \$2,200. Since 1880 2 other establishments were built in this section, but in the census year 1890 all of these works were idle and were considered by their owners as abandoned iron-making plants.

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AGRICULTURE.—IRRIGATION IN IDAHO.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,

WASHINGTON, D. C., January 4, 1892.

This bulletin, the sixth of the series devoted to irrigation in the arid states and territories, has been prepared by Mr. F. H. NEWELL, special agent of the Census Office for the collection of statistics of irrigation, under the direction of Mr. JOHN HYDE, special agent in charge of the Division of Agriculture, and relates to the state of Idaho, in which there are 4,323 farms that are irrigated out of a total number of 6,654. The total area of land upon which crops were raised by irrigation in the census year ending May 31, 1890, was 217,005 acres. The average size of the irrigated farms, or, more strictly, of irrigated portions of farms on which crops were raised, is 50 acres. The average first cost of water right is \$4.74 per acre, and the average cost of preparing the soil for cultivation, including the purchase price of the land but excluding the cost of water right, is \$10.56 per acre. The average present value of the irrigated land of the state, including buildings, etc., is reported as \$46.50 per acre, showing an apparent profit, less cost of buildings, of \$31.20 per acre. The average annual cost of water is \$0.80 per acre, which, deducted from the average annual value of products per acre, leaves an average annual return of \$12.13 per acre.

The tendency throughout the entire arid region to describe as irrigated all land to which water has been applied within any recent period by artificial means, land to which ditches, perhaps so far destitute of water, have been constructed, and even land for which water rights merely are claimed, has placed the Census Office under the necessity of absolutely restricting itself in its official bulletins on irrigation to land on which crops were actually raised by the artificial application of water during the year 1889. The farms or stock ranches in Idaho irrigated merely for grazing purposes have therefore not been taken into account in this bulletin.



Superintendent of Census.

IRRIGATION IN IDAHO.

BY F. H. NEWELL.

In Idaho crops were raised by irrigation in the census year ending May 31, 1890, on 217,005 acres, or 339.07 square miles, about four-tenths of 1 per cent of the entire area of the state. The enumerators' schedules indicate that probably two-thirds of this crop area was devoted to the raising of various kinds of forage. It should be noted that in the bulletins of this series only the irrigated acreage in crop is given, for the reason that reliable statistics can not be obtained concerning the acreage irrigated but upon which no crops were produced.

The aggregate number of farms in Idaho on June 1, 1890, was 6,654, and of these 4,323, or about two-thirds, contained irrigated areas, the remaining third being farms in the northern counties or stock ranches upon which no irrigation was practiced. The total area of the crops irrigated on these 4,323 farms was only 26.07 per cent of the total area of lands owned by the irrigators.

The average size of the irrigated portions of farms on which crops were raised was 50 acres. Classifying these areas according to size, the following results are obtained: 7 irrigated farms (crop areas only) of 640 acres or upward, 34 of from 320 to 640 acres, and 172 of from 160 to 320 acres. These 213 crop areas contained an average of 270 acres each, and had a total of 57,477 acres, or over 26 per cent of the entire amount watered in the state. The remaining 4,110 individual crop areas, under 160 acres in size, comprised nearly 74 per cent of the total irrigated area, and averaged 39 acres each.

COUNTIES.	Number of irrigators in 1889.	Total irrigated acreage in crop in 1889.	Average size of irrigated crop areas in acres in 1889.	Average value of products per acre in 1889.
Total	4,323	217,005	50	\$12.93
Ada.....	547	38,919	71	15.04
Alturas.....	106	4,412	42	17.61
Bear Lake.....	387	19,844	51	10.52
Bingham.....	335	40,328	49	9.81
Boise.....	164	7,829	48	15.20
Cassia.....	402	19,800	49	10.41
Custer.....	171	8,570	50	17.48
Elmore.....	87	3,437	40	11.72
Idaho.....	36	466	13	(a)
Kootenai.....	2	9	5	(a)
Latah (b).....				
Lemhi.....	140	9,984	71	15.89
Logan.....	316	15,793	50	13.02
Nez Perce.....	22	482	22	(a)
Oneida.....	630	21,423	34	13.15
Owyhee.....	155	9,076	59	13.90
Shoshone (c).....				
Washington.....	323	16,133	50	15.59

a Not reported.

b See page 20.

c See page 25.

The results shown in the above table were obtained by the compilation of the enumerators' returns of the area of crop and value of products for each irrigator in the state. The average value of products per acre was obtained by dividing the total value of products for 1889, sold, consumed, or on hand, by the total irrigated acreage in crop. This quotient represents largely the irrigators' estimates of their own success in the census year. Two influences contribute to make it small: first,

the widespread tendency of farmers to underestimate the value of products consumed and on hand; and, second, the equally strong inclination to overstate the acreage of crop irrigated.

The average first cost of bringing water to the land throughout the state is estimated from the statements of the farmers to have been \$4.74 per acre, ranging by counties from \$2.90 up to \$20 per acre. The average estimated selling value placed by the irrigators upon their water rights is \$13.18 per acre. This is the price which the water rights, if transferable without the land, might be expected to bring per acre.

The average annual expense of maintaining the ditches, of repairing breaks in the headworks or main ditch, and of cleaning out the sediment, wherever this is deposited, as estimated by the farmers, is 80 cents per acre, the averages of the different counties ranging from 51 cents up to \$3.11.

The cost of preparing the ground for cultivation, excluding the cost of bringing water to the land, but including such items as plowing, breaking sagebrush, and fencing, as taken from the statements of the irrigators, was \$9.31 per acre. Assuming the government rate, \$1.25 per acre, as the original cost of the land, the cost of preparing the ground as \$9.31 per acre, and the cost of bringing the water to the land as \$4.74 per acre, the total cost of the tilled land to the irrigator was \$15.30 per acre. In comparison with this, the estimated present value of the land on which crops were raised by irrigation, including buildings, fences, and other improvements, is placed at \$46.50 per acre, showing an apparent profit, less cost of buildings, of \$31.20 per acre.

Deducting the average annual expense for water, 80 cents per acre, from the average annual value of productions, \$12.93 per acre, it appears that the average annual return per acre is \$12.13.

In the following table the more important of the foregoing statements are compared with similar results for the adjoining states:

ITEMS.	Idaho.	Utah.	Wyoming.	Montana.
Total irrigated acreage in crop in 1889.....	217,005	263,473	229,676	350,582
Total number of irrigators in 1889.....	4,323	9,724	1,917	3,706
Average size of irrigated farms, in acres (crop area only).....	50	27	119	95
Average size of irrigated crop areas of 160 acres and upward, in acres..	270	312	494	307
Per cent of acreage of irrigated crop areas of 160 acres and upward to total acreage irrigated.	26	10	65	50
Average size of irrigated crop areas under 160 acres, in acres.....	39	25	50	56
Average first cost of water right per acre irrigated.....	\$4.74	\$10.55	\$3.62	\$4.63
Average annual cost of water per acre irrigated.....	\$0.80	\$0.91	\$0.44	\$0.95
Average first cost per acre of preparation for cultivation.....	\$9.31	\$14.85	\$8.23	\$8.20
Average present value of irrigated land, including buildings, etc., per acre, 1889.	\$46.50	\$34.25	\$31.40	\$49.50
Average value of products per acre in 1889.....	\$12.93	\$18.03	\$8.25	\$12.96

From an examination of these figures it appears that in a general way Idaho stands intermediate between Utah on the one extreme and Montana and Wyoming on the other, approaching more nearly to the condition of Montana than to that of Utah as regards the size of irrigated areas, value of products, and cost of irrigation. The effect of a generally less altitude and lower latitude than those of Montana, with corresponding influence on the climate, is shown by these results.

The state of Idaho lies on the southwest side of the Bitterroot mountains, and extends from the crest of this range southward across the Snake river and westward to the same stream, being bounded by it until the point is reached where it turns nearly west to flow into the Columbia. The peculiar wedge-shaped form of the state, broad on the southern end and tapering almost to a point at the north, is due largely to the peculiar topography of the region. The Bitterroots trend in a northwesterly direction, while the Snake river, which in a general way governs the other boundaries of the state, takes a widely different course. It rises south of the end of the Bitterroot mountains in the continental divide near the Yellowstone park, and, issuing from these mountains, the main stream flows southwest, then west, northwest, and finally north, thus describing roughly a great arc of a circle. The greater part of the state of Idaho lies within this area, being bounded on the upper side by the mountains and on the lower by this great half circle made by the Snake river.

On the south the state lines do not follow the Snake river, but take in a portion of the country on the south side of the river, and in order to coincide with lines of latitude and longitude they have

been laid out independent of the topography. Thus it happens that in the southeastern corner an important portion of the Bear river drainage is included within Idaho, although topographically it belongs to the drainage of the Great Salt lake. As an apparent offset to this gain on the part of Idaho, the headwaters of the most important tributaries of the Snake lie beyond the eastern borders of the state of Wyoming. With these exceptions it may be said that Idaho lies within the drainage basin of the Columbia and almost wholly on the basin of its great tributary, the Snake.

A conception of the topography of Idaho in its broad features can be formed by picturing a great range of mountains extending in a northwesterly and southeasterly direction, sending off about its center spurs toward the west. Imagine, then, the base of these mountain masses toward the south and west buried beneath great deposits of lava, which form extensive plateaus or high plains, stretching out in every direction and descending by broad terraces or gradual slopes until broken by isolated groups of mountains. The rivers which flow out from the high backbone of the state on reaching these plains have cut for themselves deep channels, and often disappear into narrow gorges or cañons, continuing on their way to the sea at a depth of from 200 to 500 feet or more beneath the general level of the plains. This peculiar condition of things offers an obstacle to the complete agricultural development of the state, which can be overcome in part only by the exercise of great skill by engineers who would render productive the dry but naturally fertile lava-covered plains.

These two great topographic divisions of Idaho, the mountains and the high plains, afford a convenient classification for a consideration of the agricultural resources of the state, from the fact that in the mountains the rainfall is generally sufficient to mature crops, while around the bases of the mountains and out on the plains it is exceptional for anything to be produced without irrigation. Thus the mountain counties, especially those at the northern end of the state, do not need irrigation, except in rare instances for the gardens and orchards in the lower valleys, while the counties south and west of the mountain mass, with less rainfall, require the artificial application of water for almost every crop, the natural grasses constituting probably the only exception.

Although irrigation is necessary for the raising of crops outside of the mountain areas, it must not be supposed that the land is barren. Much of it in its original state was covered by the rich, though dry, "bunch grass," which has afforded pasturage for enormous herds of cattle ranging from the plains far up in the mountain valleys. Next to mining, stock raising has been the great industry, although in the last few years, with the introduction of irrigation on a larger scale, the cultivation of the soil has assumed importance.

The great plains, though consisting for the most part of lava and having a surface occasionally broken by craters and buttes, contain in the aggregate many hundreds of thousands of acres of land that by the application of water may be rendered wonderfully productive. Besides the high plains, there are places where the larger streams have eroded valleys of considerable width, as, for instance, along the Boise and Payette rivers, and it is here that the greatest agricultural development has taken place. There are also localities, as, for example, at the fork of the Snake river, where the streams have not yet succeeded in cutting through the lava, and where river water can be brought out upon the surface of the plain. West and south of this latter point, however, stretches the vast expanse of broken and slightly rolling lands, to water any part of which will require some of the greatest irrigation systems of the country.

The water supply of Idaho as a whole is large, and there are a number of rivers whose perennial flow amounts to hundreds or even thousands of second-feet, but unfortunately the peculiarities of topography above described render it impossible to utilize the whole of this water, since the greater part of it sinks rapidly beneath the general level of the agricultural lands. This is the case with the waters of the Snake, the Salmon, and the Clearwater. The smaller streams, which rise mainly in the foothills and flow out toward the lower lands, have a very small summer discharge, from the fact that they drain lower mountains, and their waters for the greater part of the year sink into their pervious channels. In order to render these small streams useful in the highest degree, it will be necessary to hold their waters from March and April until later in the season.

As an example of the fluctuation of the streams of the state in their discharge month by month, the monthly percentages of their total annual flow are given below. These percentages were obtained

from the results of stream measurements made by the United States Geological Survey during the past two years. To illustrate the difference in character between the upper and lower tributaries of the Snake, the two classes have been separated and the percentages computed for each. Taking first the streams on the extreme west, in Bingham county, the distribution of water through the year is as follows: In January there flowed in the streams 3.9 per cent of the total flow for the year; in February, 4.0 per cent; March, 4.0; April, 7.7; May, 24.0; June, 21.0; July, 11.0; August, 6.0; September, 5.0; October, 4.5; November, 4.5, and December, 4.4.

For comparison with these figures should be noted the distribution of water throughout the year in the lower tributaries of the Snake, for example, the Weiser, in Idaho, and the Owyhee and Malheur, flowing into the Snake from Oregon. Averaging these rivers, it appears that in January 1.4 per cent of the entire water for the year flowed in the stream; in February, 4.3; March, 27.0; April, 30.0; May, 24.7; June, 6.4; July, 1.7; August, 0.6; September, 0.5; October, 0.7; November, 1.2, and December, 1.5. These rivers flowed from lands of lesser altitude, and, as shown by the percentages, the greater part of the water came down in March, April, and May, over four-fifths of the water of the entire year being discharged in these 3 months.

The waters coming from the higher mountains, as shown by the first series of percentages, were more evenly distributed through the year. The main discharge was, however, in May and June, nearly one-half of the entire amount for the year being discharged in those months. The smallest amount discharged in any one month was in the eastern rivers nearly 4 per cent, while in the case of those farther west and at a lower altitude the discharge fell to one-half of 1 per cent.

It is instructive to compare the distribution of the available water with that of the rain. For this purpose it is convenient to take the normal monthly rainfall for Boise City as published by the Signal Office. Taking a range of 16 years, the average annual rainfall was 15.61 inches, and this was distributed by months at the following rate: During January there fell 17 per cent of this total amount; during February, 12 per cent; March, 13; April, 11; May, 9; June, 5; July, 1; August, 1; September, 2; October, 7; November, 8, and December, 14. From December to April, inclusive, two-thirds of the entire amount for the year fell, in May and June about one-seventh, and in July, August, and September only one twenty-fifth. While the greatest amount of rain falls during the winter months, the water which is available for agriculture is found in the smaller streams in early spring and in the larger streams a few weeks later.

The methods of agriculture of the country and the practice of irrigation are governed by these peculiarities in the distribution of the rainfall and of the flowing water. Little, if any, rain comes after seeding time, and as a consequence irrigation must be practiced throughout the period of growing crops. The irrigators who depend upon water from the lower mountain slopes have an excess during April and May, as shown by the statement of percentages, but in June the supply diminishes rapidly, and toward the end of that month the streams become almost if not quite dry. The methods of using water must to a certain extent conform to this state of things, and therefore while the water is plentiful it is applied to the ground, even though the plants do not need it at that time and perhaps might be better off without this excess. The ground, however, must be thoroughly saturated, in order to store up moisture for future needs.

Those farmers who are so fortunate as to have ditches leading from streams flowing out of areas of high mountains depend upon receiving water later in the season, since the discharge of the streams during June is nearly as great as that for the month previous, and even during July the streams maintain a discharge above that of the average for the year. Moreover, during August and September the waters fall not very far below the mean annual discharge, and thus, with a less wide range of fluctuation, these rivers and creeks are far more valuable to agriculture.

Water storage is of the utmost importance, especially on the small streams showing a great range in discharge from month to month. Certain irrigators have already begun the construction of small reservoirs at various points, and have attempted in their own way to hold over some of the flood waters of March and April into the dry time, in the latter part of June and July. They state that there are many valleys which in their opinion are suitable for holding water, and there is every probability that many works of this character will be built. The problem, however, of greater general

interest at present is that of utilizing the large rivers by bringing them out upon the high plains through which they flow.

From the fact that considerable capital will be required to divert the water of the principal rivers of the state from their deep channels, the attempts of the irrigators in the past have been confined almost exclusively to those localities where streams of moderate size flow from the foothills into small, open valleys or upon the edge of the larger plains. Here, at favorable points, small ditches have been dug, running for a few miles along the river and as far away from it as the contour of the ground will allow. The early settlers generally constructed very small ditches, and as the population in any one locality increased other ditches were made, either higher up or lower down, each of these leading to the lands of a few irrigators. As a general rule, the ditch last constructed is the largest and best, although, on account of the existence of other older ditches, it may not be well located or have rights to any but surplus water.

Taking the state as a whole, there was in 1889 an independent ditch leading from a river for every 385 acres of crop irrigated, deducting in this, however, a few of the larger canals. It has been shown that in Montana the corresponding area per ditch was 225 acres. For purposes of comparison, the irrigation ditches have been divided into three general classes: first, those under 5 feet in width; second, those 5 feet in width and over and under 10 feet, and third, those of 10 feet in width and over. The average cost per running mile, including the cost of headworks, flumes, and other details, was for the first class \$205, for the second class \$810, and for the third \$1,320 per mile.

The duty of water has been estimated in many cases by ditch owners, and the statements range from 50 to 250 miner's inches for 100 acres, the average being 120 miner's inches. Assuming that 50 of these miner's inches make a second-foot, this would be equivalent to an average water duty of 44 acres per second-foot. The accuracy of these statements is open to question, from the fact that water measurements are rarely made with any care, if made at all, in obtaining these figures. The miner's inch, as stated in the bulletin on Montana, is exceedingly variable, and it is rare that any two irrigators agree in their opinions as to the methods of measuring the miner's inch, or even as to the head or pressure under which it is to be measured. Thus, since even the unit of measurement is undetermined, it is doubtful if the results expressed in this unit are of value.

The methods of using water upon the land are as varied as the experience of the persons using it. As a general rule, the farmers confess that they have much to learn in this direction; that the major portion of the land is not well irrigated, and that the crops are not as large as they should be. In irrigated countries it is possible to pick out many areas on which wonderful crops are raised largely through the exercise of unusual skill and intelligence on the part of the irrigators, and were these instances taken alone the conclusion could be drawn that the farmer employing irrigation was the most successful and prosperous individual of his kind. Unfortunately, the rank and file of farmers who have been forced to adopt irrigation have done so almost under protest, and do not in the majority of cases exhibit great skill. Thus it is that the greatest disparity is to be seen between crops on adjacent farms where all the physical conditions are similar.

The most widespread method of irrigating is to turn the water out upon the field and let it find its own way. This is the lowest stage of development, and from this as one extreme every method can be found in use in Idaho up to the case of the farmer who levels his ground, plowing down the high places, filling up depressions, and systematically laying off furrows, so that every portion of the field receives only its due share of water. This difference in the preparation of the ground, as well as in the character of the soil and subsoil and the kind of crop, gives rise to the widest range in the duty of water, so that any generalization must be taken as such and not applied to particular cases or localities.

The irrigating season begins in April and continues until September, although in this regard there is the usual wide difference, some farmers at lower altitudes beginning to use the water as early as March, and others, higher in the mountains, as late as June. For the greater number of the irrigators scarcity of water puts an end to irrigation, while those who hold prior rights and can obtain the water use it until frost sets in. The principal irrigated crop is for forage, and of the forage plants the chief

is lucern, or alfalfa. In general, two crops of this product are cut, and in some cases three or even more, but oftener on account of the scarcity of water only one crop is successful.

The laws regarding the control of the water and the rights of the different irrigators depending upon any one stream are not satisfactory to the farmers, for they do not appear to guard the rights of individuals. There is a general complaint that no one can enjoy the undisturbed ownership of water sufficient to render his farm productive until his rights have been tested by lawsuits, often of the most expensive and protracted nature. Even then there may be questions of doubt come up to disturb the value of his lands. There appear to be many points of weakness in the present statutes, many of which are stated to react injuriously upon agricultural interests. The situation is in many localities complicated by the rapid growth of new and improved systems of irrigation, the rights of such systems to water being, however, secondary to those of the older, poorly-built ditches. Some of these systems are being built by corporations that are investing considerable capital in bringing large areas under ditch and increasing the extent of the agricultural lands.

The feeling of the farmers toward the corporations owning canals and renting the water, or, rather, charging so much per annum for bringing it to the land, is not always friendly. The water rates are burdensome to the farmers, although not necessarily profitable to the canal owners. The farmers complain that in the first instance inducements are held out to them of benefits that are never fully realized. They are persuaded to pay from \$8 to \$10 per acre for a water right which entitles them to a certain amount of water upon the annual payment of from \$1 to \$3 an acre for what may be considered the expense of transporting the water to the land. In certain instances the farmers have signed agreements which virtually amount to mortgages upon their land, and upon failure to comply with the conditions the canal company has acquired possession, the farmer perhaps becoming a tenant of the company.

The supply of water from springs and wells has considerable local importance. Along the Snake river, especially in Logan county, are some wonderful springs, which gush from the cañon walls and fall into the gorge. This water is probably the drainage of the mountains to the north, which has disappeared into the lava plain and traversed the pervious rock layers. Some of the water can be used for irrigation, either by conducting it by flumes and canals to lower lying lands or by utilizing the water power to force a portion of the water to higher levels.

Attempts have been made to find artesian water, but with little success. The railroad known as the Oregon Short line has drilled several deep wells at stations on the lava plain north of the Snake river, and has struck water at various depths and in large quantities, none of which, however, rises to the surface. The wells range from 150 to 425 feet in depth, and water is brought to the surface by suitable pumping machinery. From the fact that water escapes so freely in the large springs along the Snake, it is doubtful if flowing wells can be obtained on this plain. In the vicinity of Boise City and at some elevation above the city there are reported to be a number of flowing wells which deliver a small though valuable supply sufficient for municipal purposes; also in Oneida county, on the low grounds in the vicinity of Malad, flowing wells are obtained by driving pipes into the ground to the depth of about 40 feet. Water overflows from these pipes, and is a great convenience for domestic purposes and for watering stock, the excess being utilized to irrigate a few acres of land. Near Oxford, in Bingham county, small flowing wells are obtained in the vicinity of the marsh or lake that marks the outlet of the ancient Lake Bonneville. The flowing wells of Malad and Oxford are similar to those obtained along the shores of Utah lake and Great Salt lake, the water being found near the surface in lacustrine deposits.

ADA COUNTY is in southwestern Idaho, on the north and east of the Snake river, covering the comparatively level ground between that river and the mountains. It is crossed by two large streams, the Payette on the north and the Boise at about the center. Each of these streams carries a large and perennial supply of water, and coming from a mountainous region in Boise and Elmore counties they are not liable to complete diversion before reaching Ada county. The opportunities for irrigation development in this county are exceptionally good on account of the character of these rivers and the existence of great areas of fertile land to which the water can be brought. Already a number of

canals of large size have been built, besides numerous small ditches; and some of the greatest irrigation projects in the country are in process of completion.

On the lower lands along the Payette and Boise crops can sometimes be raised by the moisture which seeps through the ground at the time of flood. Except in these localities, however, nothing can be raised without irrigation. The farmers have taken out small ditches from the rivers and perennial creeks, and in this way have brought considerable areas under irrigation at small cost. Following the construction of the individual ditches have come the associations of farmers, who by united effort have built canals from both the Payette and Boise rivers, the ownership being in the hands of those using the water. In this county the third stage of irrigation development also has been reached, namely, that in which outside capital has come in to build great canals, in the hope of making a profit out of the sale of land or of water rights. These richer companies have undertaken works of some magnitude, requiring careful engineering skill, and have brought out the water upon the higher bench lands remote from the streams, where the soil is generally of better quality than that along the river.

As is usually the case where owners of large canals and owners of small ditches take water from the same source, there is considerable complaint from the farmer. If he owns a small ditch, he is in constant fear of being deprived of his share of the water in the river by the larger, better built canals, and the statement is frequently made that, being a poor man, he can not defend his claim in the courts against a powerful corporation. On the other hand, the farmer who obtains water from the canal company is apt to complain of the excessive rates charged and of the unsatisfactory manner in which the water is furnished.

In the northern part of the county a large proportion of the arable land can be covered by water from the Payette or Boise river, but at the southern end the elevation is too great to allow of water being brought from any large sources of supply. The Snake river, which bounds this land on the southwest, flows in a gorge or cañon at such a depth that there is no probability that water can be brought out even by canals heading further up the river.

Most of the irrigation from the Payette is on the south side of the river, but on the north side is a canal, known as the lower Payette ditch, taking water from the river about 7 miles above the town of Payette and carrying it for a distance of nearly 22 miles into the Snake river valley, and extending into Washington county. The average width is said to be 20 feet, the average depth 4 feet, and the total cost \$32,000. On the south side of the river are a number of large ditches, among which may be mentioned the Last Chance, 7 miles long, 8 feet wide on bottom, and 1.5 feet deep, the cost of which was \$10,000. The head of the ditch is about 30 miles above the mouth of the Payette river. The Rossi ditch also takes water from the south side of the Payette river, heading 4 miles below Emmett. Its total length is 10 miles, its average width 9 feet, and its total cost about \$10,000. The ditch is owned by an unincorporated company. Each ranchman under the ditch takes as much water as he chooses when there is plenty, and at other times the watermaster regulates the supply.

On the north side of the Boise river, among the canals worthy of mention, is the Boise City canal, 5 miles long, 8 feet wide, and costing about \$12,000. The ownership is divided into 12 shares. There is also the Dry Creek ditch, 6.5 miles long and 9 feet wide, the cost of which was \$4,000. It was built and owned by the farmers, each share entitling the owner to a certain proportion of the water. The largest canal on this side of the river is that of the Idaho Irrigation and Colonization Company, heading about 30 miles below Boise City and 1 mile above Caldwell. Its general course is northwesterly, in the direction of the Snake river; its total length is 24 miles, its average width 10 feet, and its cost about \$35,000. Besides these are many other ditches, large and small, taking water in the same general direction.

The largest works in the county are those of the Idaho Mining and Irrigation Company, which has a canal already completed, the Phyllis canal, on the south side of the river, 14 miles below Boise City, and also a high-line canal under construction, starting at a point on the same side 12 miles above Boise City. The capacity of this great canal is estimated to be over 2,500 second-feet, the bottom width being 40 feet and the total length of the main canal 70 miles. It is being built not only for the purpose of irrigating an area of over 300,000 acres between the Boise and Snake rivers, but

also in order to furnish water for working the placer deposits along the Snake. The details of construction of this great enterprise are to be found in volume xxv, page 161 of the Transactions of the American Society of Civil Engineers, in an article on American engineering by Mr. H. M. Wilson. The Phyllis canal has a capacity of about 175 second-feet; its bottom width is 20 feet and its length, approximately, 50 miles. There are other irrigating ditches on this side taking water at various points above and below Boise City.

The discharge of the Boise river has been measured by Mr. A. D. Foote, the engineer of the above-mentioned company, and has been found to range from about 1,200 second-feet in low water up to 10,000 second-feet at the time of the spring floods, the greatest known discharge being about 30,000 second-feet. In order to supply water for all the canals now in operation or projected, it will probably be necessary to supplement the low-water discharge by storage on the headwaters in Boise and Elmore counties, excellent sites for reservoirs having been discovered. The discharge of the Payette is not known, but it is probably not very different from that of the Boise, averaging, it is stated, about 3,000 second-feet.

ALTURAS COUNTY is a little south of the center of the state, extending east and west in a long, narrow belt north of the Snake river plains. On the west it includes the headwaters of the tributaries of the Wood river, all of which flow southward into Logan county. It also includes on the extreme west a portion of the Sawtooth range, from which streams flow northeast into the Salmon river and westward into the Boise. The area of agricultural land in this part of the county is comparatively limited, and the water supply is ample, although farther to the south, in Logan county, are vast areas for which the amount flowing from Alturas county is insignificant.

On the east the county extends to the lava plain of the Snake river, into which sink the rivers which flow from the ranges to the northwest. This fact has given rise to the names of the streams, viz, "Big Lost river" and "Little Lost river". Big Lost river rises in Custer county, on the west side of the Lost River range, and flows southeasterly into Alturas county, where its waters are used upon ranches along the stream. In time of flood the water flows far out upon the lava plain toward the Snake river. In 1889 it ran to a point 3 miles below Arco, but in the middle of June of the same year it was dry up to the mouth of Antelope creek, 20 miles above Arco. Not only are the channels of the streams very porous, allowing great quantities of water to escape into the lava fields, but the soil also is in many places very pervious, and a large amount of water is needed for irrigation, especially during the first few years.

The water of the tributaries of the Big Lost river is used to a large extent in Thousand Spring valley and other valleys in Custer county, so that the amount which escapes into Alturas county is gradually diminishing. It has been proposed to make an effort to remedy this state of things by constructing reservoirs at points in Custer county, but no active steps have been taken in the matter. The county has suffered severely from forest fires, and it is possible that the effect upon the water supply will be disastrous.

Stock raising and mining are the principal industries, the cultivation of the soil being carried on largely in connection with the former. The ditches of the county are owned by individuals or associations of irrigators, and have been built for the most part in the cheapest possible manner. It is interesting to note that the noria or undershot water wheel, carrying buckets upon the rim for raising water, has been introduced and is used upon the swifter streams.

BEAR LAKE COUNTY is in the southeastern corner of Idaho, adjoining Rich county, Utah, on the south and Uinta county, Wyoming, on the east. It includes that portion of the drainage area of Bear lake which lies in Idaho, being bounded on the west by the summits of the Bear River range, and on the northeast by the Aspen range, which forms the divide between the Blackfoot and Bear rivers.

The southern boundary of Idaho, extending east and west, crosses Bear lake near its center, leaving the northern half in Bear Lake county and the southern half in Rich county, Utah. North of the lake is an almost level plain about 16 miles long and 8 miles wide. A portion of it is swampy, and on the maps of the General Land Office it is represented as an open body of water and called "North lake", but on the Hayden map, published in 1877, it is shown as it actually is, viz, a marsh

with a small body of open water to the south. In 1889 this marsh was perfectly dry, excepting the small area of water in the southeast corner near the head of Bear lake. Roads cross this level land in all directions, and it is occupied by farmers, who have built houses, barns, and fences, and are raising large crops of hay. No title, however, can be secured from the government on account of the land having been officially designated as a lake. Many of the inhabitants complain bitterly that the development of the county is thus retarded by the fact that titles can not be acquired to much of the best land within its borders.

The upper Bear river, rising in Summit county, Utah, first flows into Wyoming, then westward into Rich county, Utah, then back into Wyoming, and, finally, turning westward again around the northern end of the Boundary hills and the Bear Lake plateau, enters the eastern side of the plain north of Bear lake, where its waters divide into many channels. At the northern end of this plain the lower Bear river takes its origin, winding northerly between hills to the vicinity of Soda springs, in Bingham county, where it is deflected and turned southward toward Cache valley.

The water from the upper Bear river in times of flood partially submerges the plain and backs up into Bear lake, and in times of drought the waters of Bear lake, escaping through marshy channels, traverse the level country and finally make their way into the lower Bear river. Thus the lake and lowlands to the north act somewhat as a safety valve to the floods of the upper river, receiving them and slowly delivering them, at least in part, to the lower section of the drainage system.

To represent the condition of affairs clearly it will be well to picture a long, narrow lake basin, 35 miles or more in extent from north to south and about 8 miles in average width. Into this a river has flowed for long periods of time, entering near the northern end, gradually building a delta, and filling the upper half of the basin with débris brought down in floods. In this way a level plain of great fertility has been formed at the northern end of the old lake basin, and at the same time the open water at the south end of the basin has, under the influence of prevailing winds, built for itself a barrier 4 miles or more in length and lying nearly east and west. The barrier consists of a ridge of sand from 100 to 200 feet in width and from 4 to 6 feet above the ordinary level of the water. Toward the lake the barrier presents a smooth and beautiful beach, and on the north it gradually subsides into the marsh.

The future development of agriculture along the lower Bear river depends largely upon the control of this magnificent reservoir site, and at the same time the prosperity of a large part of Bear Lake county is at stake. The problem before the people of the Bear river drainage, whether in Wyoming or Utah, is so to utilize Bear lake as a reservoir that a supply of water shall be insured sufficient for all demands along the lower Bear, and also that all the agricultural land of Bear Lake county shall be utilized. Without entering upon the engineering details of the investigations carried on by the United States Geological Survey, it is sufficient to state that the best use of the waters can probably be secured by the construction of an outlet canal to lower the level of Bear lake in time of need, suitable headworks being provided, so that the water can be held up to its present area. By diverting the upper Bear river directly into Bear lake, and by drawing the waters down to the lowest possible level, a vast amount of water can be secured for use upon the lands in the lower valleys, as, for instance, on the arid plain on the west side of Cache valley, should it be found practicable to construct a canal to cover this region. The satisfactory execution of such works would, however, require large capital and skillful engineering, as well as hearty co-operation between the people of Idaho and those of Utah.

The agricultural areas of Bear Lake county are principally along the eastern foot of the Bear River range, stretching in a comparatively narrow strip between the mountains and the lake, or extending from the hills outward upon the plain to the north of the lake. A number of streams flow from this range with a rapid fall, so that water has been taken out upon the land with comparative ease. A town has grown up at each point where a large stream issues from the mountains, the population being almost wholly supported by agriculture or stock raising.

The east side of Bear Lake valley is in most respects similar to the west side, although the mountains being, as a general rule, of less height, the water supply is smaller and the number of

agricultural settlements less. East of this valley, on the other side of the Preuss range, is the valley of Thomas fork, the greater part of which is in this county, the state line between Idaho and Wyoming running north and south along the valley. There is a large area of fertile land along Thomas fork, but the water supply is deficient, and an attempt has been made to bring water from Smith fork, farther to the east.

The altitude of the agricultural lands of Bear Lake county is very nearly 6,000 feet. The climate is cool, and frosts are liable to occur even during the summer, so that some of the farmers state that oats and timothy are the only sure crops. The principal crops are for forage, although large areas of the smaller grains are cultivated, and also some potatoes and other vegetables. Stock raising is the leading industry, on account of the excellent summer feed upon the mountains and the facilities for raising hay for feed during winter. Most of the inhabitants came originally from Utah, so that the methods of irrigation are similar to those employed in that territory. The water from each mountain stream is taken by ditches which head in or near the cañons and conduct it along the slopes of the hills on each side of the stream. Generally two, but sometimes three or even more, ditches run in a course nearly parallel with each other, carrying the water in the same direction, but with less economy than could be attained by the use of one large high-line canal. The advantages, however, of a number of small ditches are that each small association of farmers controls the water for a particular district, and the management is greatly simplified, although, on the other hand, quarrels are apt to arise in time of low water as to the proportionate amounts to be taken from the stream.

At this high altitude water must be used with care, for if put upon the plants too early in the spring it chills them and retards their growth. It is stated that an error is often made in attributing the slow growth of the young plants in the cool spring to lack of water rather than to lack of warmth, and thus irrigation is begun too early, with injurious results. The amount of water used is very great, especially on the gravelly slopes, where the ground is porous. It is asserted that 100 miner's inches for 40 acres are sometimes necessary to satisfy the demands of the irrigator.

As an example of the ditch systems of this county, that for Bloomington, on the west side of the valley, may be given. 4 ditches take the water from Bloomington Cañon creek, their length being about 4 miles, their average width 5 feet, their depth 2 feet, and their total cost about \$8,000. The water is diverted by dams of brush and stone or of logs. The water is divided among the shareholders, each share entitling the holder to what is known as an "irrigating stream" for 48 hours, during which time he is supposed to be able to irrigate 5 acres. The water is measured, as in many cases in Utah, by the size of the cross-section of the stream when not under pressure, no account therefore being taken of the velocity. For example, the water flowing 10 inches deep through a gate or flume 50 inches wide is considered to have a volume of 500 inches, and should give 10 "irrigating streams". It is customary to allow the use of one of these "streams" for 96 hours for every 10 acres. The streams are allotted in the order of application until the whole amount of water has been assigned, and the various applicants are then notified as to who is using the water and when each irrigator may expect to take his turn. The water right is stated to be worth \$5 per acre, and the annual assessment for cleaning the ditch and paying the watermaster is from 30 to 40 cents per acre. Of this amount 15 cents per acre must be in cash for the pay of the watermaster, and the balance can be worked out at the rate of \$1.50 per day. In the case of another ditch the "irrigating stream" is measured through a box 1 foot square under a 4-inch pressure, this amount of water being allotted at the rate of 35 hours for every 10 acres.

In general it may be said that the water is under the control of the irrigators, who have built the ditches and have adopted methods of distribution which, although crude, are efficient so long as the water is plentiful. It is the practice for each association controlling a ditch to elect annually a watermaster, who receives \$1.50 a day and upward for his services, and who apportions the water and settles disputes among neighboring irrigators according to his own judgment. The total cost of maintaining the ditch system is thus very low, as there are no salaries or expenditures beyond those for a few simple repairs.

BINGHAM COUNTY is in southeastern Idaho, adjoining Wyoming and the Yellowstone National Park on the east, and separated from Montana by the continental divide on the north. It receives

the drainage of the high mountain ranges of western Wyoming, and has probably as good a water supply as any county in the arid region; and not only is it favored in this respect, but also as containing vast areas of almost level land, the surface of which, though broken in places, is well adapted for agriculture. The county contained in 1890 the largest number of irrigated farms and the greatest acreage of crops in the state, and its prospects for the future are very bright.

The agricultural resources of the county are due to its peculiar history. In comparatively recent geologic time, as previously intimated, a vast quantity of lava flowed from numerous craters or openings, filled ancient valleys, and extended from the foot of the continental divide and of the Teton and Caribou ranges south and west for a hundred miles or more. The surface of this lava sheet is, as a whole, gently inclined toward the southwest, and though appearing at a distance smooth and unbroken it is often uneven. The upper layer has been partially decomposed, forming in places a rich soil, which, however, is very porous.

The torrential streams flowing from the high mountains out upon this plain become comparatively sluggish, subdividing in places, but finally uniting to form the Snake river in the vicinity of Market lake. Near the intersection of the principal streams large areas of fertile land have been formed by the deposition of material brought down by the torrents, the relative elevation of the land and water being such that irrigating ditches can be easily and cheaply constructed.

In the northwestern part of the county, north of the tilled lands at the junction of the North and South forks of the Snake, the extensive lava plains have little or no water, for the streams that flow southward from the continental divide are comparatively small and are often lost in the porous lava fields. There are accordingly many townships containing arable land for which there appears to be no possible way of obtaining water. At the southern end of this county the lava has penetrated the ancient valleys and extends to Bear river, which enters the county from Bear Lake county on the southeast. Apparently this latter river has been diverted by the lava flow, and soon after entering the county has been forced to turn back toward the south, ultimately contributing its waters to Great Salt lake. The Fort Hall Indian reservation covered a large part of the fertile land in the southwestern corner of the county, but in 1889 this reservation was reduced in size, a large tract of fertile land being made available for settlement and entry as soon as the surveys are completed. In fact, the permanent improvement of considerable portions of this county only awaits the official subdivision of the lands.

The principal body of tilled land is, as before intimated, along the lower courses of the rivers which issue from the Teton and Snake River ranges and unite in the vicinity of Market lake, the farms extending from this point down to Blackfoot. Besides this great area, there are smaller areas of crops raised along the Bear river from Soda springs to the Oneida county line, principally in Gentile valley, and also along the Portneuf river and in the upper Portneuf valley on the headwaters of Marsh creek, as well as on small areas on the Fort Hall Indian reservation.

Gentile valley is about 15 miles long and from 1 mile to 3 miles in width. There are few towns, the farms being scattered along the sides of the valley, utilizing the water from the streams which issue from the mountains on the east and west. Bear river, which flows southward through the valley, although a large stream, is not used to any extent on account of the difficulty of diverting water. The best irrigating streams are those coming from the Bear River range on the east, the water supply of the west side of the valley being insufficient for the area now under cultivation. The most important streams are Trout, Spring, and Bridge creeks, coming from Bear River range on the east. Cottonwood creek, which drains a larger area of lower country, is of less value, not having sufficient water for all the land to which it can be taken.

In the extreme southern part of the county, in the vicinity of Oxford and Swan Lake, are a number of prosperous settlements, the water supply being derived from streams which flow either from the Portneuf or the Malade range. Some of these streams flow northward into the Portneuf river, a tributary of the Snake, and thus ultimately to the Pacific ocean, while others find their way to Bear river, the principal feeder of Great Salt lake. The long, narrow valley in this vicinity is of especial interest from the fact that it once formed the outlet of the great interior basin to which the term Lake

Bonneville has been given, and many of the peculiar features upon which its agricultural development depends are explained by this knowledge of its past history. At several points in this valley, in the vicinity of Oxford, small flowing wells are found.

The present supply from the small streams is not sufficient for all demands, and schemes for storage are being agitated, several small reservoirs built by individuals having established the success of such methods.

North of this point, in the vicinity of Chesterfield, in the upper Portneuf valley, is an agricultural community of from 50 to 60 families. Their cultivated land lies just east of the Fort Hall Indian reservation, out of which the headwaters of the upper Portneuf flow in a general southeasterly direction. The location of the Indian reservation across the headwaters of the Portneuf has led to a somewhat unfortunate condition of affairs for the farmers in this valley. Nearly 6 years ago they constructed a ditch, 4 miles of the upper part of which were on the Indian reservation, and spent upward of \$3,500. Objections, however, were raised to the location of the ditch on the reservation, and as a consequence it has lain idle until the present time. The water supply is now taken from creeks heading to the east of the reservation, the amount available, however, being far below the requirements of the people, so that it is stated that only about 10 or 15 acres on an average can be cultivated by each family. An attempt is being made to increase the water supply by storage.

Farther down the Portneuf, in the vicinity of Pocatello, are lands of wonderful fertility, but for which the water supply of the Portneuf is insufficient. A large portion, however, will be covered in time by large canals taken out farther up the Snake river near Idaho Falls and brought along the eastern side of the plain.

The Blackfoot river heads in the range of the same name immediately north of the Portneuf, and flows westward over the lava plain to join the Snake river. Its waters in time of drought are entirely used, and in 1889 there was not enough for the needs of the town of Blackfoot. The Eastern Idaho Water Company has a canal heading about 12 miles northeast of this town and continuing to Blackfoot, the average width being reported to be 20 feet and the total cost nearly \$8,000. The Indian reservation is bounded on the north by the Blackfoot river, and some trouble is reported between the irrigators and the Indians, who are said to have destroyed the ends of the dams which reached their lands on the south bank of the river.

At the head of each of the streams flowing out of the short mountain ranges of this county to the Snake river are lakes or marshes, in which it is probable that considerable water could be held by storage, but the proximity of the Snake river and the magnificent facilities for water conservation which exist on its headwaters cause them to sink into insignificance, for some of the greatest irrigation systems of the country will undoubtedly be built along that river.

Taking everything into consideration, the Snake is undoubtedly the largest river in the arid region, exceeding even the Yellowstone and Missouri, and containing along its valley perhaps the greatest body of irrigable land in the west. The extraordinary facilities it affords have already been taken advantage of in a small way, but the greater projects remain untouched. From Henry fork of the Snake, from the Falls and Teton rivers, Moody creek, and the south fork of the Snake, a large number of ditches and canals carry water out upon the lava-formed plain, intermingling in a most confusing manner. The soil of the deltas or islands at the junction of these streams is very rich, and agriculture has made rapid progress, all the conditions being favorable to rapid development by men of small means. The altitude of the valley in the vicinity of Eagle Rock, or Idaho Falls as it is now called, is from 4,800 to 5,000 feet. Nearly all crops are successful, although the daily range of temperature has, in some instances, been found too great for Indian corn.

In 1889 there was no irrigation carried on in the mountain valleys of these streams above the Snake River plains, the settlers on the plains below coming up to cut natural hay for use during winter. Above the mouth of Falls river the country was unsettled, and on Falls river the first steps were being taken toward irrigation by the construction of two ditches, no land having been brought under cultivation. Since that time, however, rapid growth has taken place, and settlement has pushed forward actively.

In the Teton River valley it may be said that all the water of the Teton river has been appropriated and there is land not yet supplied. Water is being brought from Falls river around the foothills into the Teton valley, the divide being comparatively low.

Without attempting to describe in detail the irrigating systems which extend from Falls river to below Idaho Falls, it will be sufficient to mention a few of the more prominent ditches. On the west side of the north fork the Saint Anthony canal is reported to be about 21 miles in length and 28 feet wide. It is owned by a stock company, each share entitling the owner to 10 miner's inches of water. The Egin canal, which is below and in general parallel with this, is about 14 miles long and 25 feet wide, and is said to have cost about \$20,000. The ownership is divided into 400 shares, each share entitling the holder to a proportionate amount of water.

The largest ditches are those taken from the south fork of the Snake, covering the land in the vicinity and north of Idaho Falls. For instance, the Eagle Rock and Willow Creek Water Company has a canal 25 miles long and 30 feet wide, with an average depth of water of about 3 feet. The cost is said to have been \$100,000. Each share in this company entitles the owner to 5 inches of water, 1 inch being considered under ordinary circumstances sufficient for 1 acre of land. The Farmers' Friend ditch is 5 miles long and 20 feet wide. It cost \$11,000, and covers land below the canal just mentioned, being built by irrigators. The Texas Slough canal is 7 miles long and 14 feet wide. It has cost \$5,600, and is not yet finished. It also has been built by farmers and enlarged from time to time.

The country has but recently been settled, and as yet the farms are hardly in good order, as is shown by the average value of products. Ditches are being built and enlarged constantly, some running parallel and others crossing from point to point. In general, the irrigation systems are owned by the farmers, although a few are in the hands of corporations. A good example is here afforded of the growth which takes place without system or comprehensive plan. Fortunately, however, the water supply is large, and the evils resulting from haphazard construction are not apparent.

Several of these canals are so located that they can be enlarged to cover much of the agricultural land to the south of Idaho Falls, but it is probable that to obtain ample water for any great system it will be more advantageous to take water from the main stream near Idaho Falls instead of from the old channel or sloughs of the south fork of the Snake.

In order to give an idea of the water supply in the south fork of the Snake and also of the diversions being made, the results of a series of gaugings are given. On September 14, 1889, the Eagle Rock and Willow Creek canal was carrying 103 second-feet, the Farmers' Friend canal 65 second-feet, and the Burgess canal 38 second-feet, and on September 16 the Lewisville canal was carrying 74 second-feet, the Old channel 70 second-feet, La Belle 14 second-feet, Menan canal 236 second-feet, and the south fork below these canals 874 second-feet. On September 19 the south fork at the United States Geological Survey gauging station above these canals was carrying 1,614 second-feet.

The ditches from the various streams, especially from the south fork of the Snake, have as a rule no permanent headworks, some of them taking water from side channels or sloughs. The expense of construction is relatively small, and most, if not all, of the work can be done by the irrigators. The canals heading on the main river, however, require considerable attention and expense in order to keep the headworks clear. The gravelly bed of the river channel shifts rapidly, and occasionally is scoured out so deep that it is impossible to bring water into the old headworks.

In the vicinity of Idaho Falls are three great canals, the principal of which, the Idaho canal, heading on the main Snake near Bear island and now under construction, is reported to be 40 feet wide on bottom and 4 feet deep, and at a distance of 12 miles from the head 20 feet wide.

The water supply of this part of Idaho has been investigated by the United States Geological Survey, and measurements have been made of the discharge of the streams at various points, for example, of Henry fork of the Snake river about a mile above Falls river, also of Falls river above the canals and 6 miles from the junction with Henry fork; of the Teton river above the Willford canal, near the mouth of the cañon; of the south fork of the Snake above the Eagle Rock and Willow Creek canal, and of the Snake river at Idaho Falls. The maximum discharge of Henry fork was up to June, 1891, 7,710 second-feet, the minimum about 1,200 second-feet, and the average

annual discharge 1,589 second-feet, equivalent to 1,150,071 acre-feet for the entire year. The drainage area is approximately 931 square miles, so that this water, if put back upon the catchment area, would cover it to a depth of 22.4 inches.

Falls river discharged a maximum of 4,440 second-feet, a minimum of 450, and an average of 1,041, an amount equivalent to 753,684 acre-feet for the year. This is equivalent to a depth of 23.7 inches over the catchment area. The Teton discharged a volume of water ranging from 4,445 second-feet in flood down to 400 second-feet in time of low water, and averaging 862 second-feet, or for the entire year 624,450 acre-feet, equivalent to a run-off of 12.1 inches for the entire basin.

The total discharge of the Snake river, as measured at Idaho Falls during 1890, ranged from 50,450 second-feet in time of flood down to 2,000 in low water, the average being 9,435 second-feet, or 6,867,140 acre-feet, equivalent to a run-off of 12.7 inches from the entire drainage basin.

BOISE COUNTY is west of the center of Idaho, and includes the greater part of the catchment area of the Payette river. On the south it extends over the divide to the north fork of the Boise, thus including a small portion of this drainage. It has been mainly a mining county, a number of placers along the Payette having in past years been worked with success. Stock raising is an important industry, the valleys and lower mountains furnishing an excellent range.

The agricultural land lies along the Payette and its tributaries in the southern part of the county, and also on the north fork of the Payette in Long valley, at the northern extremity of the county. Long valley lies in a north and south direction, being about 35 miles in length and from 6 to 8 miles in width. The altitude is from 4,000 to 4,500 feet, and the climate is so cool that until within a few years there has been a belief that no crops could be raised, and that the land was suitable only for grazing. Of late years, however, settlers have pushed rapidly into the valley and have found that wheat, oats, and barley, and also potatoes and other vegetables, could be raised, and that these often succeeded without irrigation. By the use of water artificially applied, however, the land is made to yield larger crops, but in the case of the small grains it is stated that by irrigation the growth is increased and often prolonged so late in the season that they do not mature before winter. At the northern end of the valley are the Payette lakes, in which the river rises, and which might possibly be used for water storage should occasion demand.

Further down the Payette, at Garden valley, and on Jerusalem creek and Squaw creek are small irrigated areas. At these points also some barley and wheat is raised without irrigation, although all crops do better with the artificial application of water. In the drought of 1889 the supply of water from the small streams became very scanty, and in a few instances irrigators were compelled to buy water from the miners in order to save their trees and vegetables, the rate given in one instance being 10 cents per miner's inch per day.

Irrigation is being gradually developed in this county, but as yet all the ditches are small and take water from creeks and streams as they issue from the sides of the valleys. The Payette is a river of considerable size, but its waters have not been diverted on account of the expense. There is a demand for the construction of canals to cover the great areas in Long valley and in the lower part of the county. The present inhabitants, however, are mostly poor, and were barely able to build the small ditches now in use. There is at present an ample supply of water, but the time is not far distant when the entire quantity flowing through the summer in all the streams except the main Payette river will be appropriated.

CASSIA COUNTY is in southern Idaho, adjoining Boxelder county, Utah, and Elko county, Nevada, from whose mountains and plateaus this county receives a large part of its water. Snake river forms the northern boundary, and the tributary streams coming from the south flow nearly due north across the county, passing through many beautiful valleys on their way.

Agriculture has been gradually developed wherever water could be obtained for irrigation, and every spring and stream is utilized. The mountains from which the water comes, although rugged in places and including peaks upward of 10,000 feet in height, are not sufficiently extensive to receive the enormous deposits of snow required to maintain large perennial streams, and for this reason most of the creeks after emerging from the valleys dwindle in summer to proportions far below the needs of the irrigators. As an example may be cited the case of Goose creek. It has been found that the

water in this creek falls below 300 miner's inches as there measured, while the claim of a single irrigator owning prior rights is for 320 inches.

Water is measured usually in a short flume or box 16.5 feet long with a total fall of three-eighths of an inch. These boxes may be made of any width desired, but the water must be maintained at a depth of 9 inches. The number of miner's inches is obtained by multiplying the width of the box in inches by 9. It is exceedingly difficult to maintain the slope of these boxes constant, and since there are many other varying details, the amount of water carried by the different boxes as an "inch" varies widely. The actual amount of water contained in the average "inch" has not been ascertained. It is stated that water has been decreed by the courts at the rate of 160 of these inches for 160 acres, but several of the irrigators assert that 100 inches should irrigate from 160 to 200 acres.

As a result of gradual settlement and corresponding increase of area under cultivation the demand for water has grown, so that great difficulty is experienced by the older settlers in securing the amount claimed by them. Judicial decisions are usually unsatisfactory, from the fact that, although the water may be decreed to certain irrigators, the stream does not furnish a quantity sufficient for these decrees to be enforced. Litigation is pending among many of the irrigators, and prospects of speedy settlement are not encouraging.

On nearly every creek are places which the irrigators consider suitable for reservoir sites, but as yet few steps have been taken toward water storage. One or two small reservoirs have been constructed, and the outlet of a lake provided with regulating gates, so that water can be held. The great demand, however, is for a canal to take water from the Snake river, and it is asserted that such a scheme is practicable, although the surveys of the United States Geological Survey seem to leave the matter in doubt. Under the direction of Mr. A. D. Foote a line was run from the American falls on Snake river with the object of demonstrating the possibility of bringing the water of the Snake into the valleys of Raft river and Goose creek, but after progressing 13 miles the line was abandoned as impracticable on account of the difficulties of constructing the canal. A higher line was then taken up, with the assumption that water could be taken from a large canal heading near Idaho Falls, but after running 17 miles this survey was also abandoned for the same reason.

Nothing can be raised in this county without irrigation, excepting, perhaps, one crop of alfalfa in the early part of the year, and this would be greatly improved by irrigation. Farming is conducted on a small scale on account of the general scarcity of water, the area prepared by the farmers each year depending somewhat upon the appearance of snow among the high peaks. A large part of the timber in the mountains was burned in 1889, and the irrigators are fearful of its effects upon the water supply of future years, believing that the snow will melt more rapidly, especially on the lower ranges.

As an example of the ditches of this county may be given the Emerson ditch, taking water from Goose creek and carrying it to the vicinity of Oakley. Its length is 7 miles, its width 10 feet, and its depth 1.5 feet, the cost of its construction being about \$3,000. The water is diverted by a brush and stone dam, repaired each year. The ditch will carry about 1,200 miner's inches near the head. The water is divided among the shareholders in proportion to their interests, the amount being determined by a watermaster according to his judgment of the proper proportion for each share. On many of the main ditches the proportion to be turned to each irrigator is determined by an order of court, but even this is not satisfactory. The general complaint is voiced by one of the irrigators, when he says: "The greatest objection to irrigation is the everlasting litigation prevalent on all streams where there are numerous claimants to water and the losses to crops from failure of water, owing to the very crude law providing for its distribution".

CUSTER COUNTY is nearly in the center of the state, and includes an area of high mountains on the headwaters of the main Salmon river. On the southeast it extends into the catchment basins on the Big and Little Lost rivers, and on the northeast it includes that part of the Pahsimeroi valley which lies on the left bank of the stream. It is a mining and stock-raising county, but there are 3 valleys in which agriculture has gained a foothold. Nothing can be raised without irrigation, excepting perhaps on the low natural meadows or in the little valleys high among the mountains.

The Salmon river flows north through Round valley, carrying usually a larger quantity of water than is needed, the average amount being given as approximately 600 second-feet. Many ditches are

built to take water from this river and also from the tributary streams, and apparently there is an ample supply for all. There are also a number of farms in the valley of the Big Lost river, which flows southeasterly out upon the lava plains of the Snake and there disappears. The soil in this valley is very porous. Great quantities of water are necessary in order to raise a crop, and the supply is not sufficient to meet the demands in this county and those in Alturas county, further down the river.

In the Pahsimeroi valley is a large amount of fertile land which can be brought under irrigation. It is only recently that the cultivation of the soil has been attempted by more than a few individuals, from the fact that the cattle men have used this as a range and have opposed the advancing army of settlers. There is every reason to believe, however, that the climate, soil, and water supply are all equal to those of the adjacent valleys. In the case of all these agricultural lands there is great need of the construction of a few large, well-built canals to receive the waters of the streams before they are lost in the permeable valley bottoms, and to conduct them with the least possible loss to the agricultural lands on which they can be used to best advantage. Many of the creeks rapidly diminish in volume after June 15, and the complete development of agriculture is dependent upon the conservation of flood waters for use in the latter part of June and in July.

As a typical ditch of the county may be given that from the Big Lost river, taking water from the east side at a point 7 miles northwest of Houston and carrying it easterly to the farms of the owners. It is 7 miles long, averages 12 feet wide, carries approximately 25 second-feet, and cost \$5,000.

ELMORE COUNTY is in the southwestern part of Idaho, extending from the north fork of the Boise river south to the Snake river, and bounded on the east and west by straight lines arbitrarily located. This strip of country includes part of 3 minor drainage basins, these being, first, on the north, a large portion of the catchment area of Boise river; second, near the center of the county, a small portion of the headwaters of the Camas creek, which flows easterly into Logan county opposite to the general course of the Boise, and third, on the south, areas drained by small creeks flowing toward the Snake over or through the lava-formed plain bordering that river. The divide between the drainage basin of the Boise and that of the streams to the south is comparatively low, so that these latter streams do not, as a rule, receive a large or perennial supply of water.

In the northeastern corner of the county is a part of the Sawtooth range, containing summits which rise to heights of 7,000 feet and upward. The water supply of the Boise is therefore large, but the area of tillable land along the river in this county is limited. To the west, however, in Ada county, as previously described, are immense tracts of fertile land, requiring all the water that can be furnished by this stream. On the narrow bottom lands in Elmore county are a number of ranches, the average area of the level land of which is from 50 to 100 acres. There still remain other small patches to be taken up by settlers along the mountain valleys, the altitude of these, however, being so great that only forage crops or the hardier grains and vegetables can be successfully raised.

The principal agricultural settlements of the county are along the southern foot of the low range which separates the Snake river plain from the Boise drainage. Along each of the small creeks which issue from these mountains are areas of cultivated land, the water supply without storage being hardly sufficient to cover the land now tilled. Wherever water can be had, large crops of wild hay, alfalfa, wheat, rye, and vegetables are raised. There are no canals in this county, irrigation being carried on by means of small private ditches. The inhabitants are hopeful, however, that in the future a great canal may be built to take water from the Snake river far to the east and bring it out upon the broad plain which stretches from the foothills to the edge of the gorge in which the Snake river flows.

The broad, fertile plain extending from the Snake river northward to the foothills is underlaid with lava, and as the streams leave the mountains and flow out upon this lava sheet many of them lose a large part, if not all, of the water in the porous strata, so that on the open ground at a distance from the mountains the water supply is usually both more uncertain and less in quantity than it is in the narrow valleys. Among the foothills there is usually an ample supply from February to April, the amount depending largely upon the temperature of the season and the rate at which the snow

melts, whether gradually, giving a continuous flow, or rapidly, resulting in short, early floods followed by droughts, as was the case in 1889.

In this region stock raising is the principal industry, the tilling of the soil being of secondary importance. The settlers have taken up the land near each spring and along every stream, and have used the water according to the best of their ability. Both hot and cold springs are to be found along the foothills and near the Snake river, and most of these are now used for agriculture. In some instances the owners of these springs have built small reservoirs to hold the surplus waters, and they can thus irrigate comparatively large areas of ground. Other works of this kind are projected or are being executed as fast as the means of the settlers will allow.

The principal crop is hay made from the natural grasses of the bottom lands, which usually receive water in spring by the overflow of the streams. The creeks are sometimes dry from the last of June or first of July until late in the year. In a few instances wells have been dug to depths of 20 feet or more, supplying water in abundance, and small areas have been irrigated by raising this water by windmills. It is reported that in several instances upward of 5 acres have been watered by means of a windmill with a wheel 16 feet in diameter.

IDAHO COUNTY is north of the center of the state, and extends from the Bitterroot mountains on the east to the Snake river on the west, thus reaching across the state. The greater part of the county is composed of mountain ranges, which have been but partially explored, even for their mineral wealth. The agricultural land lies in the northwestern part of the county, on the almost level divide known as Camas prairie, between Clearwater and Salmon rivers. The northern part of this prairie is in the Nez Perce Indian reservation, but the greater portion of this high, slightly rolling country is utilized for grazing, and to a small extent for agriculture.

The Clearwater and Salmon rivers flow through deep cañons or narrow valleys a thousand feet or more below the general level of the prairie, and their waters can not be diverted upon this large body of fertile land. There is usually, however, sufficient rainfall to mature the crops, and farming operations have been successful, except during the droughts of the past few years. On the lowlands in the deep valleys along the Salmon river small gardens, orchards, and vineyards are irrigated mainly by the use of ditches built for placer mining, some of which have been abandoned by their former owners.

On Camas prairie, wheat, oats, barley, rye, flax, timothy, and occasionally some vegetables, are raised without irrigation, and it may be said that, upon the whole, dry farming is successful. It does not seem probable at the present time that any of this high land will be brought under irrigation, except perhaps close to the mountains at a few points where streams issue. This county may be said to be on the dividing line between the counties to the south, in which irrigation is the rule, and those to the north, in which it is the exception.

KOOTENAI COUNTY is at the northern end of Idaho, adjoining British Columbia, and comprises the comparatively narrow strip between the states of Montana and Washington. For the greater part it consists of mountains, generally well timbered, between which are many lakes, some of them of notable size. The agricultural land of the county lies principally on the Spokane prairie, a high, rolling tract along the Spokane river, extending in a belt 30 miles long and about 5 miles in width from Lake Cœur d'Alene to the city of Spokane, in Washington. The rainfall is usually sufficient to mature the crops, although severe droughts have been reported, and the climate is favorable for the growth of all the small grains and hardier vegetables. It is reported that corn does not mature, but is raised for fodder.

Great difficulty is experienced on the Spokane plains in obtaining water for stock and domestic purposes, it being necessary in many instances to haul it for distances of from 2 to 5 miles. A number of wells have been sunk to a depth of from 80 to 320 feet, and from these water is obtained by pumping. No flowing wells have been found. On the eastern side of Pend d'Oreille and Cœur d'Alene lakes are lowlands which are cultivated or upon which hay is cut, but in that locality there is no necessity for irrigation, in fact the settlers are more anxious to get rid of an excess of water than to obtain an additional supply. In springtime, when the snow melts in the mountains, the floods

entering these lakes escape slowly through the narrow outlets below the lakes, and thus the water level is raised 15 or 20 feet or more, flooding the lower lands around the borders. The two instances where irrigation is practiced in this county are cases in which, owing to the exceptionally favorable location of the land, water can be brought to orchards and gardens.

LATAH COUNTY is south of Kootenai county and north of the Snake river, and lies principally on the headwaters of the Palouse river and of tributaries of the Clearwater. The country is, in the main, a high, rolling prairie, into which the rivers have cut deep cañons. The rainfall is ample for the raising of crops, and no irrigation is practiced beyond, perhaps, the watering of a few gardens or fruit trees, which can hardly be called systematic irrigation. Wheat, oats, barley, flax, rye, and the hardier vegetables, as well as many kinds of fruits, thrive well, and bountiful crops are produced on the rich, deep soil of the high, rolling lands. Although there have been several dry years, the drought does not appear to have been so severe as to have led to serious losses or to have suggested the necessity for irrigation.

LEMHI COUNTY lies along the Bitterroot mountains on the eastern side of the state. The Lemhi river flows in a generally northwesterly course, mainly through an open valley, along the base of the mountains to its junction with the Salmon river, at which point Salmon City is located. Mining and stock raising are the principal industries, but irrigation is making gradual progress, water being taken mainly from the small streams which flow into Lemhi river from each side.

Lemhi river is bounded by bench lands, portions of which are known locally as "bar lands". The soil on these "bar lands" is often better than that in the bottoms, but water from the main stream can not be taken out upon these areas, lying 100 feet or more above the stream, except by the construction of expensive canals. The smaller tributaries, however, having a rapid fall, can be readily diverted, and have been in some instances. These smaller streams in many cases become nearly if not quite dry in summer, and therefore are not as valuable for irrigation as the main stream would be. In the lower part of the valley, near Salmon City, questions concerning the rights of prior appropriators have given rise to lawsuits, which have somewhat retarded developments. The irrigators higher up the stream have attempted to make use of some of the water in times of scarcity, turning back the surplus, if any, into the stream. Prior appropriators, however, living in the lower end of the valley, have made an effort to restrain them from diverting any of the water into their canals except at such times as there is a surplus above the needs of the older settlers.

On the north fork of the Salmon, in the northern end of the county, are a few ranches in the narrow valley along the stream. Here the water supply is abundant for the small amount of agricultural land, the minimum discharge being estimated to be 60 second-feet. In the southern or southeastern part of the county also a few ranches have been established on the headwaters of Birch creek and Medicine Lodge creek, both of which flow toward the Snake river plains, supplying water for agricultural lands in Bingham and Alturas counties.

LOGAN COUNTY is in southern Idaho, north of the Snake river, being the southern portion of an area formerly included in Alturas county. It extends from the foothills of the Wood River mountains on the north to the lava fields bordering the Snake, and contains in the northwestern corner the beautiful Camas prairie, chief of many of that name, as well as a number of fertile valleys along the Wood river and its tributaries.

The tilled lands of the county are near the foothills on the northern edge of the county or along the valleys of the Big and Little Wood rivers and their tributaries. There are also small areas under cultivation down on the lowlands within the cañon walls of the Snake. These lands are irrigated mainly from springs which issue from the precipitous sides of the gorge, some of them falling from a height of 150 feet or more. Here also along the river are many placer mines, and the water from the springs is employed for mining as well as for irrigation.

The Big Camas prairie is a broad, fertile tract lying in a generally east and west direction, its length being about 50 miles and its width from 6 to 8 miles. Malade river or Camas creek flows easterly through the center of the prairie, receiving on its way a number of small streams that come from the mountains to the north. These streams discharge considerable water at the time of melting

snow, but in the latter part of June they diminish rapidly in volume, and in July and August little, if any, water reaches the Malade, although there may be a constant flow in the streams near the mountains. On June 28, 1889, Camas creek was measured above the backwater from the Wood river, and it was found to be discharging only 2 second-feet. The fall of the river is very slight, and water from the Wood river backs up for a distance of 6 miles.

Agricultural operations are almost entirely confined to the northern side of the prairie, at which point all the water to be obtained in summer is utilized. In wet years crops can sometimes be raised successfully upon the prairie without irrigation, but in times of drought, as in 1889, even the small comparatively well-watered areas near the mountains suffer. Rye is often cultivated without the artificial application of water, and after alfalfa has once been started one crop a year can be obtained from the dry ground.

Along the Wood river, in the vicinity of Bellevue and Broadford, are many ranches taking the full supply of that stream except for a few weeks when the rivers are in flood. Also on the Little Wood river and its principal tributary, Silver creek, there are comparatively large areas of irrigated land. From these streams a great number of small ditches have been laid out, and there is no doubt among the farmers that the available water supply could be greatly increased if in place of these little ditches one or two well-made canals could be constructed. In their lower courses the rivers flow over pervious beds, and thus lose a great part, if not all, of their water, and if canals with well-puddled sides and bottoms could be constructed to cut off the meanders of the stream and carry the water with moderate velocity to the places where it is needed a far larger acreage could be cultivated. One or two reservoirs are being constructed above narrow places along the rivers, and hopes are entertained of greatly increasing the crop area by this means.

In many places, especially in the vicinity of the great Camas prairie, the slope of the country is so gentle that the water does not flow freely in the ditches as at present constructed, and, as a consequence, aquatic plants locally known as "moss" accumulate to such an extent as to shut off the water. The irrigators state, in a few instances, that it is almost as much trouble to clean out an old ditch that has been neglected as it would be to dig a new one. There was great loss of crops in 1889, not only on account of drought, but also through the ravages of grasshoppers. Undoubtedly the damage done by these pests would have been greatly lessened if there had been ample water to irrigate the fields and prevent the development of the young insects.

Owing to the peculiar character of the soil, what is known as subirrigation is largely practiced; that is, the water is turned out of the laterals on to the fields. After saturating the surface it soon reaches an impervious layer, upon which it spreads laterally, wetting the ground at a distance beneath the surface. Enormous quantities of water are used in this way, and a good deal of it is wasted. Smaller ditches, dug nearer together over the field, would probably irrigate a larger area with less water.

A few measurements of river discharge have been made in this county by the United States Geological Survey, but no continuous records have been kept. The Wood river, as described in the statement concerning Alturas county, was measured near Hailey. On June 20, 1889, the river at that point was discharging at the rate of 300 second-feet, while 50 miles or more below, at the junction of Big and Little Wood rivers, its bed was almost dry. At the same time the Little Wood river at a point about 30 miles above the junction was discharging 30 second-feet, and its principal tributary, Silver creek, 170 second-feet, or in all 200 second-feet for the Little Wood. This, added to the 300 second-feet in the Big Wood river at Hailey, would make 500 second-feet, which, aside from the discharge from other sources, should theoretically be found at the junction, since a very small amount was being appropriated for irrigation. It thus appears that at least 500 second-feet were lost in the passage through the lava beds.

NEZ PERCE COUNTY is in the northwestern part of Idaho, opposite the southeastern corner of the state of Washington, and includes the country from the Snake river eastward along a portion of Clearwater river. The Lapwai or Nez Perce Indian reservation has until recently covered the greater part of the county back from the Snake river, and settlement has been retarded pending the opening of at least a portion of this reservation.

The greater part of the county consists of high, rolling prairies or table-lands, through which the streams flow in great ravines or cañons at a depth of from 200 to 500 feet or more below the general level. The altitude of these uplands is from 2,000 to 3,000 feet, and usually there is sufficient rainfall to produce fair crops of wheat, oats, rye, barley, and corn, as well as potatoes and other vegetables. The soil is very fertile, and in years of abundant rainfall the crops are exceptionally large. Often, however, as in 1889 and 1890, the rainfall is deficient in quantity, and the crops, if not a total loss, are so scanty as hardly to repay the value of the seed and the labor of planting.

Water can not readily be taken to these plateaus on account of the depth to which the streams have eroded their channels. It is possible, however, that careful surveys may discover localities to which the streams can be conducted by long canal lines. The water supply from the Clearwater and its principal tributaries is excellent, but the smaller streams of the plateaus are very uncertain in their discharge. If found necessary as a protection against droughts, reservoirs can be built on the headwaters of some of these small streams, especially in the vicinity of Craig mountains. In one case, at least, a small lake has already been utilized. As, however, irrigation is not always essential on these highlands, it is doubtful if many attempts will be made at present.

On the lowlands in the narrow valleys it is necessary to irrigate the gardens, orchards, and vineyards, as well as many of the field crops. The Lewiston mining, milling, and irrigating ditch from Clearwater river, 5 miles long and 4 feet wide on bottom, supplies water to a number of gardens and orchards at Lewiston, and there is also an irrigating ditch in the valley of the Sweetwater. Most of the irrigation in the county, however, is from small springs or by water raised by steam pumps, pulsometers, pumps driven by water wheels, or by norias.

ONEIDA COUNTY is in southeastern Idaho, west of Bingham and Bear Lake counties and south of the Snake river. It is irregular in shape, a narrow projection from the southeastern corner extending along the Utah line across the northern end of the Cache valley to the summits of the Bear River range. It thus includes several distinct drainage districts, those of the streams flowing into the Bear river on the north, that of the Malade and its tributaries on the south, and the Cache valley streams on the southeast.

The greater part of the county is mountainous, although the peaks do not, as a rule, rise to great heights. As a consequence of the general low altitude the water supply is comparatively small, even for the narrow valleys, and is not sufficient to irrigate all the cultivated land, although this forms but a small proportion of the total amount arable. In the northern part of the county the valley along Bannock creek and the Portneuf river has been a part of the Fort Hall Indian reservation, and accordingly agriculture has not been developed along these streams. To the west of these, however, are a number of creeks flowing northward from the short mountain ranges, and each of them is used to its full extent in summer. The largest of them is Rock creek, along which, in the vicinity of Rockland, are irrigated areas of considerable extent.

In the southwestern part of the county are many valleys, some of them broad and containing thousands of acres of fertile land. The water supply from the hills is, however, very small, and cultivation is possible only in favored spots close to ravines from which small streams flow. At these points some forage is raised for the cattle which roam over the higher lands, where, as a rule, they find an excellent range.

The Malade river receives the greater part of its water from the Bannock and Malade ranges to the east. Each of the tributary streams from these mountains is utilized at the point where it issues from its cañon, and a large portion of the northern and eastern edge of the Malade valley is thus irrigated. The farmers have found it impossible to water the whole of their land by the unregulated flow of the streams and have attempted to construct storage reservoirs, but on account of the lack of engineering skill and of capital not all of these have been successful. The Malade range, which separates this valley from Cache valley, is too low and too small in area to give rise to any very large streams, and as a consequence the greatest economy must be used in employing the waters upon the rich lands lying on either side.

In Cache valley is probably the largest body of level land in the county. The Bear river, coming from Gentile valley on the north, flows in a southwesterly course through narrow cañons, descending

by rapids or small falls, and enters Cache valley through a deep gorge which it has cut in the ancient lacustrine sediments. The lands in the upper end of the Cache valley are 100 feet or more above the river, but the plain descends rapidly toward the south, so that in Cache county, Utah, the river is only a few feet below the general level. The part of the valley which is in Oneida county is so high above the river that up to the present time none of the water from Bear river has been used except in the case of small ranches on the bottom land fringing the stream.

On the east side of Cache valley, flowing into the Bear river, are several large streams, each of which is diverted upon the lands extending out from the foothills toward the center of the valley. Several towns of importance have sprung up near the cañons of these streams, each depending upon the waters coming from the mountains. On the west side of Cache valley are enormous tracts of fertile land, extending from Deep creek to Western creek, for which no water is at present available. As previously stated, the Malade range, bounding the valley on the west, does not furnish sufficient water for the needs of the small agricultural towns, and water storage has already been found necessary, at least 4 reservoirs being under construction.

Surveys have been made to demonstrate the possibility of taking water from the Bear river at some point in the cañons below Gentile valley, and it has been found that there is sufficient fall to the river to allow of a canal being taken out to cover this west-side land, but that the difficulty of constructing and maintaining a canal in the sides of the steep bluffs of unconsolidated materials is so great that it is questionable whether such a canal would be profitable. There is also some doubt as to the available water supply. The water of Bear river is diverted at a point further down, where the river leaves Cache valley, and it has been found that in time of drought there is not sufficient water to fill the large canals now approaching completion. At such times, therefore, there will not be any unappropriated water in Bear river at the upper end of Cache valley. By utilizing, however, the storage facilities of Bear lake, mentioned in the description of Bear Lake county, it is probable that sufficient water can be secured to insure against drought even after the lower canals have been supplied.

The measurements of water flowing in the Bear river, made by the United States Geological Survey have been continued for over 2 years. They have been made at 2 points: the first at Battle creek, at the head of Cache valley, in Oneida county, and the second near Collinston, in Boxelder county, Utah, below Cache valley. The discharge at Battle creek varied from 270 to 5,980 second-feet, averaging for the 2 years 1,423 second-feet. This amount of water flowing throughout the year is equivalent to 1,030,252 acre-feet. The drainage area is about 4,500 square miles, and this water, if placed upon a plain of the same size, would cover it to a depth of 4.3 inches.

The discharge of the Bear river at Collinston has varied from 340 second-feet, the minimum in the summer of 1889, up to 8,220 second-feet in time of flood. The average for 2 years has been 2,585 second-feet, which is equal to about 1,871,540 acre-feet during the year. This water has come from a drainage area of 6,000 square miles, and is equivalent to a depth of run-off of about 5.9 inches. During the latter part of July, 1889, when the river was lower than it had been for years, the discharge at Collinston was less than 400 second-feet. During August it averaged 417 second-feet, September 509 second-feet, and October 728 second-feet, increasing through the winter. The various canals taking water from the river were each designed to carry 1,000 second-feet, and it is apparent that in times of drought the whole supply of the river will be utilized and that still more will be needed. Thus there will be no surplus for the land on the west side of Cache valley further up the river unless, as before stated, the flow is increased by storage.

On some of the fertile lands, to which water can not be brought, dry farming (that is, farming without irrigation) has been attempted, often with successful results. In fact, many of the farmers state that although the yield per acre is smaller the profits as a whole are greater than on irrigated land, from the fact that larger acreages are tilled with less labor and expense, and thus the cost per bushel of product to the farmer is less. This is the case also in Boxelder and Cache counties, Utah, as stated in the report on that territory. Rye, wheat, and corn are reported to be the principal crops thus raised, the greatest acreage being that in rye. As a general rule, however, it may be said that

irrigation is necessary in this county, and it is only when water can not be had that more precarious methods of agriculture are attempted.

Irrigation is carried on by means of small ditches built by the farmers individually or in partnership, or occasionally by corporations whose members are the irrigators using the water. Most of the agricultural towns are incorporated, and the management of the water is assumed by the town officers. In this case, however, since all the voters are farmers, the control is practically in the hands of irrigators. Many of the ditches have been built for so many years and have been so often enlarged that it is impossible to ascertain either their cost or dimensions. Irrigation is usually begun about May 1, water being used upon the lucern, or alfalfa, and one good irrigation insuring a crop. By the time these fields are irrigated the small grains need water, and the alfalfa receives no more until these are harvested. The grains usually require 3 waterings at intervals of about 18 days, the practice varying, however, with different individuals. If there is plenty of snow in January and the wind blows it into drifts, the farmers can expect a good supply of water in June and they plant a full acreage. They are accustomed to regulate to some extent the area of ground cultivated by the appearance of the snow in the mountains and the probable amount of water to be received. If there is an excess of water in the fall, it is frequently turned upon the ground, in the hope of securing a saturation sufficient to be of benefit the next spring.

As an example of the ordinary ditches of the county may be given the Saint John ditch, which is 6 miles in length, 7 feet wide, 1.5 feet deep, and cost \$4,000. Water is taken from the Little Malade river by a permanent dam of timber. It is owned by a corporation, each share entitling the holder to the use of water for a certain number of hours, the time and quantity depending upon the amount of water in the river. It is stated that each share is worth \$110, and that 2.5 acres can be irrigated by this proportionate amount of water. In the case of some of the ditches of the county, as, for instance, those leading from Cub river and Worm creek and winding along the steep hillsides, the cost of maintenance is large, owing to the steepness of the ground. Burrowing animals frequently dig into the lower side of the ditch, allowing the water to escape, and it is necessary to employ a man at an expense of about \$40 per month to traverse the ditch daily and carefully inspect it and make small repairs.

OWYHEE COUNTY is in the southwestern corner of Idaho, adjoining Oregon and Nevada. The Snake river forms the northern boundary, and receives the drainage of the county by a number of streams, most of which are short and carry but a small volume of water. The Owyhee river, rising in the mountains of northeastern Nevada, flows across the southwestern corner of the county into Oregon and finally enters Snake river a short distance north of the county line. This river receives most of the streams that rise in the western side of the county.

The great lava sheet of southern Idaho extends from the east half-way across this county, forming a great plateau, with a rough, barren surface. The Snake river has cut across this plateau, forming a deep, narrow gorge, which widens in places and is occasionally fringed with bottom lands. The larger tributaries also have cut deep ravines or gorges in the lava, making long, narrow valleys, while the smaller creeks issuing from the mountains are often lost in the porous mass, to reappear probably as springs in the deeper valleys.

The Bruneau is the principal river in the eastern end of the county. It rises in the mountains of Nevada north of the sources of the Humboldt river. This stream flows northward through deep cañons, and furnishes a perennial supply of water to the ranches along the lower valleys. Stock raising is the principal industry, but irrigation is being rapidly developed to the full extent of the water supply. A portion of the lower lands is wet by the annual overflow of the river, and some hay is thus raised. The discharge of the river is not known, but projects have been discussed for taking out the water along the valleys to the west and south of Snake river.

In the northwestern corner of the county are small mountain ranges, from which streams flow in all directions, those toward the north and east directly into the Snake, and those to the south and west into the Owyhee. The snow on these mountains melts early in the spring, and, as a consequence, the floods occur in April or May, some weeks earlier than in the high mountains farther to the east

around the headwaters of the Snake. The water begins to diminish early in the summer, and many of the streams are dry by the latter part of June or in July, so that occasionally, when the grain is well headed out, it is impossible to secure sufficient water to completely mature it. These mountains are among the largest gold and silver producing areas in the state, and, as a consequence, there is a good local market for agricultural produce. There are several small valleys among these mountains, the agricultural land being at an elevation of less than 5,000 feet. Among them may be mentioned Pleasant valley, on the headwaters of Jordan creek. This valley opens toward the west into Oregon, the portion in that state being known as Jordan valley.

Barley is the principal crop, oats are next in importance, and wheat comes last. Large crops of vegetables are raised, especially potatoes, the yield of which is said to average 200 bushels or more to the acre. Water is usually turned upon the land about the first of May, and a stream as large as a man can conveniently control is turned upon a small area, which is thoroughly irrigated in about 2 or 3 days. Then the water is diverted through another lateral to a second small plat of ground, and so on in turn until the entire crop is irrigated, when the operation is repeated for a second irrigation. It is usual to irrigate 3 times for grain and 4 or 5 times for hay and vegetables. The irrigating ditches are small and are usually owned by 1 or 2 irrigators. Water storage is a subject of prime interest to all farmers, and many practicable sites have been pointed out, although no attempts have as yet been made to construct reservoirs.

SHOSHONE COUNTY includes the high mountain region west of the Bitterroot mountains and east of Nez Perce, Latah, and Kootenai counties. It contains the headwaters of the Clearwater and Coeur d'Alene rivers. It is a mining region, and also contains excellent grazing areas. For the most part it is heavily timbered, and what little farm produce is raised is successful without irrigation. At the altitude of the cultivated lands of the valleys there is sufficient rainfall to produce wheat, oats, timothy, and the ordinary vegetables. Summer frosts, however, are apt to occur, and are of more injury than is scarcity of water.

WASHINGTON COUNTY is on the western side of Idaho, lying along the Snake river. It includes the drainage basin of the Weiser river and a very small part of the headwaters of Little Salmon river, and also on the west the narrow strip of country draining into Snake river. Along the Weiser is a succession of valleys, in each of which agriculture has been gradually developed, mainly as an adjunct to stock raising. In the highest of these valleys fair crops are sometimes obtained without irrigation, but success is not always certain, and the yield is less than that on well-irrigated land.

Small ditches have been built by the farmers to bring the water of the tributaries of the Weiser and in some cases that of the river itself upon the lands adjacent to the stream, but most of these ditches are very small and poorly constructed, from the fact that the farmers are poor and have had little experience in handling water to the best advantage. In the lower part of the county, near the Snake river, are larger ditches built by associations, and there is also a canal from the Payette river, as mentioned in the description of Ada county, extending northward into this county.

Many of the streams, especially those coming from the west into the Weiser, are dry in summer, and, as a general rule, the water supply throughout the county becomes scanty after the first of July. This was especially the case in 1889, at the time of the prevalence of the great drought. Along bottom lands good crops are occasionally secured by means of the moisture which saturates the ground when the streams are high, but even on these lands during the recent droughts very little was raised. Water storage is believed to be a necessity, and the irrigators have discussed the matter and designated various places that might be used. One or two individuals have built small storage works, but the greater number of the irrigators have about exhausted their means in digging the small ditches. In this county, as in fact in nearly all parts of the west, large tracts have been taken up by men too poor to improve more than a small fraction of the land, but who are struggling along in the hope that either the government or some great corporation will construct irrigation works that will be of benefit to them.

As an example of the ditches may be mentioned the Farmers' ditch, in Council valley, taking water from the Weiser river about 6 miles from Council Valley post office and bringing it out upon the

east side. The length of this ditch is 6 miles and its bottom width 4 feet. It is owned and is being completed by private parties, each share entitling the owner to 50 miner's inches. Further down, in Indian valley, is the Indian Valley and Gray Creek ditch, taking water from the Little Weiser river and carrying it in a northwesterly direction. It is 7 miles long, 5 feet wide, cost \$1,350, and is owned by a corporation, each share entitling the owner to 100 miner's inches of water. The annual assessment per share for cleaning and repairing the ditch is \$8, and if the duty of water is 1 inch to the acre, the annual cost will thus be only 8 cents per acre. The stream occasionally dwindles in summer to a quantity so small that the shareholders can not always obtain as much as they wish. In fact, the farmers on all the smaller streams in this vicinity suffer more or less from the want of water at critical times.

The Middle Valley Irrigation ditch takes water from the east side of the Weiser river, carrying it southward about 4 miles. Its average width is 8 feet; its capacity, approximately, 20 second-feet; and its cost \$6,000. There is plenty of water in the river at this point, and no complaint of loss of crops. On Mann creek, in the southern end of the county, is a ditch taking water from the east side and carrying it a distance of 8 miles. The average width is 3 feet, and the cost about \$2,000. As an example of prior rights may be cited a case on this creek, different, however, in no way from the conditions obtaining in other parts of the country. Here 8 ranches have prior rights, while other ranches, to the number of nearly 30, have secondary claims to the water. In time of drought these 8 ranches have the entire stream, while the others, equally good in every respect, must suffer.

Measurements of the discharge of the Weiser river have been made by the United States Geological Survey at the mouth of the cañon, 9 miles above Weiser, and computations of daily discharge have been made covering a period of nearly 2 years. The mean annual discharge has been found to be, approximately, 1,212 second-feet, varying from 11,220 second-feet in time of flood to 80 second-feet in low water. The drainage area is 1,670 square miles, and the average quantity of water which has flowed from this during the year, if put upon a plain of the same area as the drainage basin, would cover it to a depth of 9.8 inches. The river fluctuates greatly in early spring with the variations of temperature. The principal part of the water is received from the high divide between the Weiser and Payette rivers, while the floods of early spring come from the lower-lying hills.