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A SUMMARY OF CENSUS DATA ON SEWERAGE SYSTEMS IN THE UNITED STATES[1]

Beginning in February 1939, the United States Public Health Service has conducted, from its Cincinnati Station of Stream Pollution Investigations, a Nation-wide census of sewerage systems and water purification plants in the continental United States. The sewerage census, which has been brought to date as of the year 1940, has included detailed information on the rated capacity and methods of treatment of each individual plant and also on the population served, date of installation, and volume of water or sewage treated. The sewerage data have shown, in addition to treatment, the populations contributing untreated sewage discharged by individual communities in each State, and the bodies of water into which both treated and untreated sewage is discharged.

The tabulations of census data from individual communities have been made up by States in mimeographed form for general distribution. The summary of census data shows for each State the total number of sewered communities, the number of treatment plants of various types, and the numbers of communities and their populations served under each classified group according to method or lack of treatment. Similar information also is given on classified methods of processing and disposal of sewage sludge.

For convenience, the summaries have been divided into four tables. In table 1 are given the totals, by States, for sewer systems and disposal of raw sewage. In table 2 are shown the general data on sewage treatment, together with data on treatment by sedimentation only or by less than sedimentation, which usually are termed primary treatment. In table 3 are given corresponding data for various types of secondary treatment, such as trickling filters, activated sludge, chemical precipitation, etc. In table 4 are given the numbers of plants at which chlorination is used in connection with either primary or secondary treatment, and also the plants at which various methods of sludge processing and disposal are followed. The data on chlorination have been tabulated separately, as this process is used in connection with all types of treatment and cannot be regarded as belonging to any particular type, either primary or secondary.

[1] From the Division of Public Health Methods, National Institute of Health.

TABLE 1.—*Sewer systems and raw sewage disposal*

State	Total	Number of sewered communities			Ownership of system		Total population of sewered communities		Disposal of raw sewage							
									Total communities discharging				To ocean, bays, etc.		To streams, etc.	
		Type of system									Total population					
		Separate	Combined	Both	Public	Private	Census	Estimated connected	All raw	Part raw	Census	Estimated connected	Number of communities	Estimated population connected	Number of communities	Estimated population connected
Alabama	144	144	0	0	122	33	826,000	675,000	66	13	427,000	321,000	2	42,600	77	278,900
Arizona	41	41	0	0	29	11	195,000	175,000	5	1	31,000	22,000	0	----------	6	22,000
Arkansas	111	109	2	0	104	7	464,000	398,000	26	3	221,000	195,000	0	----------	29	195,000
California	346	340	5	1	321	29	4,535,000	4,074,000	81	7	1,622,000	1,382,000	61	1,214,300	27	167,800
Colorado	106	99	----------	4	----------	3	598,000	450,000	55	0	99,000	75,000	0	----------	55	75,000
Connecticut	62	38	14	10	51	12	1,381,000	1,135,000	19	7	710,000	297,000	6	110,900	20	186,300
Delaware	19	14	4	1	19	0	142,000	135,000	8	1	121,000	114,000	5	6,900	4	106,600
District of Columbia	1	0	1	0	1	0	487,000	550,000	0	0	----------	----------	0	----------	0	----------
Florida	113	113	0	0	109	4	821,000	746,000	27	9	462,000	369,000	15	184,200	21	184,800
Georgia	167	163	0	4	161	9	1,041,000	818,000	72	6	755,000	338,000	2	68,000	76	270,100
Idaho	15	14	0	0	15	0	108,000	116,000	11	0	91,000	101,000	0	----------	11	101,000
Illinois	380	206	169	4	380	0	5,887,000	5,539,000	87	12	603,000	420,000	0	----------	99	420,000
Indiana	269	71	193	5	259	12	1,991,000	1,723,000	188	8	791,000	587,000	0	----------	196	587,000
Iowa	351	319	14	4	271	----------	1,257,000	1,095,000	73	2	405,000	331,000	0	----------	75	331,000
Kansas	210	208	1	1	205	----------	896,000	759,000	52	0	283,000	239,000	0	----------	52	239,000
Kentucky	154	121	26	7	119	35	927,000	836,000	89	6	703,000	631,000	0	----------	95	631,000
Louisiana	76	76	0	0	71	5	894,000	886,000	28	1	706,000	747,000	0	----------	29	747,000
Maine	105	32	51	13	103	3	538,000	380,000	96	5	509,000	371,000	37	160,900	64	210,500
Maryland	86	74	12	0	84	2	1,356,000	1,168,000	33	1	157,000	100,000	1	600	33	96,900
Massachusetts	127	88	30	9	126	1	3,777,000	3,514,000	81	1	2,854,000	2,698,000	44	2,136,000	38	562,000
Michigan	307	115	149	30	294	12	3,523,000	3,513,000	173	0	646,000	550,000	0	----------	173	550,000
Minnesota	306	253	49	1	304	0	1,464,000	1,457,000	106	1	185,000	157,000	0	----------	107	157,000
Mississippi	110	110	0	0	109	1	397,000	336,000	55	0	308,000	260,000	0	----------	55	260,000
Missouri	192	169	5	18	192	0	2,040,000	1,730,000	64	2	1,618,000	1,434,000	0	----------	66	1,434,000
Montana	70	55	3	0	68	2	231,000	205,000	23	2	169,000	146,000	0	----------	25	146,000
Nebraska	195	164	12	7	179	7	650,000	594,000	90	1	414,000	317,000	0	----------	91	317,000
Nevada	25	18	7	0	21	4	59,000	58,000	10	0	16,000	14,000	0	----------	10	14,000
New Hampshire	60	33	9	0	59	1	253,000	250,000	50	1	315,000	225,000	0	----------	51	225,000
New Jersey	236	210	12	3	193	17	3,512,000	3,455,000	19	3	938,000	873,000	12	691,000	10	182,000
New Mexico	46	46	0	0	36	67	137,000	159,000	4	0	13,000	10,000	0	----------	4	10,000
New York	399	311	38	31	362	37	10,837,000	10,712,000	95	8	7,874,000	5,372,000	1	4,600,000	102	772,000
North Carolina	276	265	1	1	254	22	1,016,000	925,000	103	9	392,000	340,000	11	37,000	104	303,000

North Dakota	82	32	50	0	81	1	179,000	160,000	12	0	33,000	27,000	0	----------	12	27,000
Ohio	513	301	161	51	510	4	4,924,000	4,695,000	254	3	2,588,000	1,701,000	0	----------	257	1,701,000
Oklahoma	210	210	0	0	210	0	1,009,000	1,003,000	26	0	160,000	159,000	0	----------	26	159,000
Oregon	92	48	36	8	88	5	552,000	418,000	47	2	446,000	335,000	7	17,000	42	318,000
Pennsylvania	629	376	162	74	525	105	6,792,000	6,478,000	428	8	5,275,000	4,770,000	0	----------	436	4,770,000
Rhode Island	13	7	3	3	13	0	518,000	460,000	2	2	132,000	89,000	2	26,000	2	62,600
South Carolina	97	97	0	0	96	1	453,000	504,000	25	4	203,000	198,000	3	59,000	26	139,400
South Dakota	104	82	22	0	104	0	217,000	221,000	30	1	47,000	41,000	0	----------	31	41,000
Tennessee	109	101	5	3	100	5	976,000	827,000	48	10	841,000	694,000	0	----------	58	694,000
Texas	447	438	7	1	391	55	2,773,000	2,633,000	14	1	452,000	361,000	5	105,000	10	256,000
Utah	47	35	0	0	37	10	296,000	213,000	24	1	251,000	186,000	0	----------	25	186,000
Vermont	68	6	32	0	55	7	197,000	160,000	64	0	182,000	152,000	0	----------	64	152,000
Virginia	139	61	3	0	47	15	923,000	835,000	80	1	726,000	655,000	8	201,000	73	454,000
Washington	137	74	55	8	122	15	988,000	767,000	72	3	866,000	640,000	27	462,000	48	178,000
West Virginia	387	312	52	22	157	247	806,000	687,000	336	14	742,000	616,000	0	----------	350	616,000
Wisconsin	301	208	50	43	282	2	1,781,000	1,762,000	55	4	184,000	156,000	0	----------	59	156,000
Wyoming	38	37	0	0	37	0	104,000	114,000	22	2	65,000	73,000	0	----------	24	73,000
Total	8,518	6,444	1,445	367	7,476	747	75,728,000	70,506,000	3,431	166	37,487,000	29,889,000	249	10,122,400	3,348	19,766,900

TABLE 2.—*Sewage treatment, general and primary*

State	Sewage treatment, all types						Less than sedimentation		Plants with sedimentation only							
	Communities served			Treatment plants					Total		Septic tanks		Imhoff tanks		Separate tanks	
	Total number	All treated	Part treated	Total number	Population served		Number of plants	Estimated population connected	Number	Estimated population connected	Number	Estimated population connected	Number	Estimated population connected	Number	Estimated population connected
					Census	Estimated connected										
Alabama	78	65	13	117	523,000	354,000	2	120,900	99	220,500	75	79,680	14	15,030	10	125,770
Arizona	36	35	1	36	170,000	153,000	0		21	43,500	14	29,400	5	11,500	2	2,600
Arkansas	85	82	3	103	260,000	203,000	0		78	119,000	30	36,780	27	60,600	21	21,620
California	265	258	7	243	3,711,000	2,692,000	7	1,350,900	82	540,000	49	131,520	17	45,500	16	384,950
Colorado	51	51	0	49	499,000	375,000	0		26	32,000	13	11,000	8	8,000	5	13,000
Connecticut	43	36	7	52	1,146,000	838,000	4	96,000	31	589,000	10	12,310	4	61,350	17	515,300
Delaware	11	9	1	10	128,000	21,000	0		6	12,200	1	800	3	4,060	2	7,300
District of Columbia	1	1	0	1	487,000	550,000	0		1	550,000	0		0		1	550,000
Florida	86	77	9	177	498,000	377,000	3	48,100	163	269,300	136	150,690	22	80,180	5	38,460
Georgia	95	90	6	143	611,000	480,000	0		113	95,600	74	46,020	35	26,140	4	23,400
Idaho	4	4	0	4	17,000	15,000	0		0		0		0		0	
Illinois	293	281	12	264	5,373,000	5,119,000	0		78	1,810,800	19	25,460	41	1,628,970	18	171,400
Indiana	81	73	8	93	1,241,000	1,136,000	1	97,000	31	39,100	20	21,880	9	10,150	2	7,050
Iowa	278	276	2	302	854,000	764,000	0		39	84,000	29	17,700	9	3,400	1	62,500
Kansas	158	158	0	164	612,000	520,000	0		29	171,200	13	32,630	14	15,670	2	122,850
Kentucky	64	59	6	97	270,000	205,000	0		64	81,700	43	27,400	20	50,020	1	4,200
Louisiana	48	47	1	52	192,000	139,000	1	1,750	13	15,900	9	11,900	4	4,000	0	
Maine	9	4	5	9	32,000	9,000	0		8	8,500	7	2,500	1	6,000	0	
Maryland	53	52	1	53	1,216,000	*1,068,000	3	16,500	36	124,700	5	2,000	24	30,300	7	92,400
Massachusetts	46	45	1	49	935,000	816,000	2	88,000	8	207,000	0		0		8	207,000
Michigan	134	134	0	115	2,877,000	2,963,000	1	1,400	66	2,333,000	18	24,000	13	186,000	35	2,123,000
Minnesota	200	199	1	192	1,280,000	1,300,000	0		106	132,000	7	7,600	89	78,000	10	46,000
Mississippi	55	55	0	60	88,000	76,000	0		55	53,000	48	42,800	7	10,200	0	
Missouri	128	126	2	156	442,000	296,000	0		74	105,000	31	54,800	37	33,100	6	17,400
Montana	*47	45	2	49	70,000	59,000	0		35	38,000	27	34,000	4	3,800	0	
Nebraska	105	104	1	105	450,000	277,000	0		29	37,000	14	28,500	14	7,900	1	600
Nevada	15	15	0	14	43,000	44,000	0		12	36,400	6	4,500	1	1,700	5	30,200
New Hampshire	10	9	1	15	51,000	25,000	0		10	21,600	7	1,200	2	16,400	1	4,000
New Jersey	217	214	3	199	2,816,000	2,582,000	4	4,000	108	2,022,000	54	144,000	29	292,000	25	1,586,000
New Mexico	42	42	0	42	125,000	149,000	0		27	61,500	14	7,150	12	40,350	1	14,000
New York	*303	295	8	285	10,145,000	5,340,000	15	1,394,000	174	1,986,000	35	78,700	74	683,000	67	1,224,000
North Carolina	*170	161	9	240	664,000	‡585,000	2	5,650	162	146,000	56	27,000	90	76,000	16	43,000

North Dakota	70	70	0	70	147,000	133,000	0	----------	34	25,900	17	16,150	17	9,800	0	----------
Ohio	259	256	3	217	3,286,000	2,994,000	0	----------	71	719,800	11	3,800	50	327,000	10	389,000
Oklahoma	184	184	0	200	849,000	847,000	0	----------	84	149,900	32	44,800	51	95,600	1	9,500
Oregon	45	43	2	55	110,000	83,000	0	----------	35	44,000	27	13,000	1	7,000	7	24,000
Pennsylvania	201	*193	8	188	3,500,000	1,708,000	2	61,400	81	950,600	14	6,700	47	564,600	20	380,000
Rhode Island	11	9	2	10	489,000	371,000	0	----------	5	39,900	3	20,400	1	10,000	1	9,500
South Carolina	72	68	4	136	260,000	306,000	0	----------	98	127,300	69	50,065	36	29,255	3	48,000
South Dakota	74	73	1	74	176,000	180,000	0	----------	35	34,700	3	,630	31	27,410	1	3,260
Tennessee	61	51	10	81	288,000	133,000	0	----------	67	84,200	40	,270	26	26,140	1	5,800
Texas	433	432	1	453	2,581,000	2,272,000	0	----------	192	312,600	62	64,000	125	217,000	5	31,100
Utah	23	22	1	23	47,000	27,000	0	----------	16	15,600	14	13,100	2	2,500	0	----------
Vermont	4	4	0	4	15,000	8,000	0	----------	2	200	2	190	0	----------	0	----------
Virginia	59	58	1	66	199,000	180,000	0	----------	38	61,000	18	14,500	16	33,500	4	13,000
Washington	65	62	3	68	501,000	127,000	2	2,700	51	88,400	37	32,680	7	9,050	7	46,625
West Virginia	51	37	14	213	97,000	71,000	0	----------	185	39,600	171	10,640	14	28,990	0	----------
Wisconsin	246	242	4	215	1,607,000	1,606,000	0	----------	98	390,100	17	6,375	25	20,750	56	363,000
Wyoming	16	14	2	17	41,000	41,000	0	----------	13	29,200	8	16,210	5	12,950	0	----------
Total	5,085	4,918	166	5,580	52,019,000	40,618,000	49	3,288,300	2,889	15,097,600	1,409	1,462,830	1,083	4,910,325	405	8,760,785

See footnotes at end of table 4.

TABLE 3.—*Intermediate and secondary treatment*

State	Total plants		Chemical treatment		Activated sludge		Trickling filter		Intermittent sand filter		Application to land		Miscellaneous	
	Number	Estimated population connected	Number	Estimated population connected	Number	Estimated population connected	Number	Estimated population connected	Number	Estimated population connected	Number	Estimated population connected	Number	Estimated population connected
Alabama	16	12,700	1	2,000	0	----------	5	6,960	2	1,750	8	2,020	0	----------
Arizona	15	109,500	3	44,100	2	40,500	3	8,300	0	----------	9	57,000	*1	500
Arkansas	25	*84,400	4	13,100	1	25,000	11	*39,570	4	3,960	0	----------	**5	12,800
California	154	801,100	†5	29,960	10	184,270	55	158,910	5	5,000	102	373,160	**12	205,050
Colorado	23	343,000	6	307,000	0	----------	10	29,000	2	1,100	3	1,800	*3	227,000
Connecticut	17	152,900	1	65,000	3	68,900	2	21,000	13	84,720	1	200	0	----------
Delaware	4	9,200	0	----------	0	----------	4	9,200	0	----------	0	----------	0	----------
District of Columbia	0	----------	0	----------	0	----------	0	----------	0	----------	0	----------	0	----------
Florida	11	59,200	2	12,000	0	----------	6	41,000	3	6,200	0	----------	0	----------
Georgia	30	384,500	3	286,650	0	----------	27	178,960	2	1,400	0	----------	*1	75,000
Idaho	4	15,500	2	11,000	0	----------	2	11,000	0	----------	2	4,500	0	----------
Illinois	186	3,307,700	4	75,500	52	2,698,500	114	514,780	16	20,300	0	----------	**3	82,600
Indiana	61	999,600	2	6,700	13	761,100	44	180,010	2	6,040	0	----------	*3	52,500
Iowa	263	680,000	12	221,000	5	26,000	134	553,000	116	105,000	0	----------	*5	2,000
Kansas	135	348,700	0	----------	13	105,700	67	188,670	44	41,570	2	1,850	*17	21,920
Kentucky	33	123,600	3	22,060	2	3,050	30	116,740	0	----------	0	----------	0	----------
Louisiana	38	121,000	0	----------	4	44,200	25	59,500	3	5,700	0	----------	*5	11,700
Maine	1	16	0	----------	0	----------	0	----------	0	----------	1	16	0	----------
Maryland	14	892,300	2	2,940	2	849,300	12	862,310	3	18,260	0	----------	0	----------
Massachusetts	39	521,000	0	----------	1	20,000	10	382,000	29	175,000	1	2,000	0	----------
Michigan	48	629,000	**7	74,700	16	315,000	17	261,000	11	43,000	2	13,900	*4	73,000
Minnesota	86	1,168,000	5	956,000	9	36,400	75	220,000	1	1,070	0	----------	*2	805,000
Mississippi	5	22,600	0	----------	0	----------	4	21,500	0	----------	0	----------	*1	1,100
Missouri	82	191,000	2	775	13	40,500	65	147,000	1	2,100	1	180	0	----------
Montana	15	21,000	1	6,000	0	----------	0	----------	6	4,800	8	10,000	0	----------
Nebraska	76	240,000	8	87,200	23	93,900	36	130,000	10	4,900	4	4,300	0	----------
Nevada	2	8,000	1	2,000	0	----------	0	----------	0	----------	1	6,000	0	----------
New Hampshire	5	3,600	0	----------	0	----------	3	2,500	3	1,900	1	100	0	----------
New Jersey	87	556,000	19	213,000	8	79,000	44	256,000	26	116,000	5	8,500	*12	182,000
New Mexico	15	87,250	3	60,000	0	----------	10	74,150	0	----------	3	23,100	0	----------
New York	94	1,960,000	7	261,000	8	1,378,000	56	271,000	23	91,000	8	1,400	**9	122,000
North Carolina	69	409,000	9	‡172,000	8	181,000	26	127,000	31	23,000	1	250	**1	1,500
North Dakota	37	107,100	2	17,000	1	5,000	11	70,400	1	600	22	13,680	*1	400
Ohio	146	2,274,000	**20	158,000	27	1,241,000	68	961,000	41	96,600	0	----------	†12	224,000
Oklahoma	116	697,500	18	273,550	4	33,080	103	463,320	1	1,260	1	860	*4	10,160
Oregon	20	39,000	1	8,000	3	12,500	10	25,000	3	550	1	200	*3	1,400
Pennsylvania	104	696,000	2	30,500	18	177,000	71	422,000	3	8,100	3	41,800	*10	22,400
Rhode Island	5	331,000	0	----------	3	317,000	1	12,000	1	2,000	0	----------	0	----------

South Carolina	38	178,200	0	----------	3	7,700	14	140,700	4	6,850	7	2,265	**10	20,700
South Dakota	39	145,400	1	33,640	2	46,180	31	126,600	6	5,030	1	990	0	----------
Tennessee	14	48,900	2	7,300	1	1,300	11	36,600	1	8,500	0	----------	*1	5,500
Texas	259	1,959,000	5	290,000	17	812,000	163	979,000	2	1,760	74	269,000	*15	34,700
Utah	7	10,900	0	----------	0	----------	0	----------	2	1,300	5	9,600	0	----------
Vermont	2	8,300	0	----------	0	----------	0	----------	0	----------	0	----------	*2	8,300
Virginia	26	92,000	3	54,000	1	1,600	21	38,000	0	----------	2	700	*1	2,000
Washington	15	35,500	2	6,200	2	1,600	6	22,125	1	300	1	250	4	7,050
West Virginia	28	31,200	0	----------	0	----------	5	29,300	0	----------	23	1,870	0	----------
Wisconsin	117	1,215,800	*15	192,700	27	873,200	73	226,600	9	7,900	1	500	**4	5,550
Wyoming	4	12,250	2	11,100	0	----------	1	1,000	1	150	0	----------	0	----------
Total	2,630	22,143,416	185	4,012,775	302	10,479,780	1,486	8,424,705	432	904,700	304	851,991	151	2,217,730

See footnotes at end of table 4.

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TABLE 4.—*Chlorination—sludge processing and disposal*

State	Number of plants providing:—											
	Plants with chlorination		Raw sludge disposal	Sludge digestion					Sludge dewatering and disposal			
	Number	Estimated population connected		Total	Septic tanks	Imhoff tanks	Separate digestion tanks	Digestion in lagoons	Beds and lagoons	Mechanical dewatering	Incineration	No organized method
Alabama	10	18,550	0	115	84	16	15	0	29	0	0	86
Arizona	4	46,850	0	35	19	7	8	1	11	0	0	23
Arkansas	6	8,360	0	103	33	39	31	0	68	0	0	35
California	46	486,500	2	235	85	86	64	0	134	2	*0	‡94
Colorado	3	225,000	0	48	16	16	16	0	46	1	1	2
Connecticut	22	335,900	5	42	17	8	20	0	34	8	5	7
Delaware	9	16,700	0	10	1	6	4	0	9	0	0	1
District of Columbia	0	----------	0	1	0	0	1	0	0	1	0	0
Florida	15	126,900	1	173	139	24	10	0	21	0	0	*152
Georgia	10	341,550	1	142	77	45	20	0	69	1	0	73
Idaho	1	6,000	0	4	0	2	2	0	2	0	0	2
Illinois	38	271,900	*4	258	21	132	112	0	228	6	†3	27
Indiana	9	268,550	0	92	22	37	32	1	64	4	4	24
Iowa	4	23,600	0	302	113	136	53	0	267	4	0	32
Kansas	1	7,250	0	164	18	117	34	0	155	0	0	9
Kentucky	27	128,400	0	97	43	40	14	0	55	0	0	42
Louisiana	16	69,700	0	51	13	34	4	0	24	0	0	28
Maine	0	----------	0	9	8	1	0	0	1	0	0	8
Maryland	26	137,100	2	48	5	20	15	0	28	7	1	17
Massachusetts	5	184,000	20	18	2	9	7	0	31	1	0	7
Michigan	53	2,186,000	10	103	28	19	56	0	77	†8	4	21
Minnesota	66	1,118,000	3	189	7	123	58	2	184	2	2	6
Mississippi	12	29,000	0	60	48	11	1	0	9	0	0	51
Missouri	13	30,800	0	156	32	94	30	0	121	0	0	35
Montana	1	300	0	47	40	4	1	0	5	0	0	44
Nebraska	2	3,100	1	104	23	47	35	0	82	0	0	23
Nevada	0	----------	0	14	6	1	7	0	0	0	0	14
New Hampshire	4	5,200	0	15	9	5	1	0	7	0	0	8
New Jersey	133	1,155,000	9	185	69	60	59	0	128	9	3	53
New Mexico	1	500	0	42	16	19	7	0	24	0	0	18
New York	161	2,779,000	11	257	54	110	96	1	221	12	5	†34
North Carolina	13	51,000	†4	225	71	123	30	0	154	6	0	71
North Dakota	0	----------	0	66	28	30	8	0	32	0	0	34
Ohio	49	1,853,000	4	*217	31	109	79	0	186	11	8	19
Oklahoma	20	241,300	2	198	36	136	26	0	161	1	0	39

Oregon	11	31,000	0	55	32	5	18	0	22	0	0	33
Pennsylvania	107	939,000	1	184	28	98	58	0	153	2	1	30
Rhode Island	4	43,900	1	9	4	2	3	0	6	1	0	3
South Carolina	3	72,500	0	136	91	36	8	1	61	0	0	75
South Dakota	0	----------	1	73	5	60	9	0	46	0	0	28
Tennessee	5	11,000	0	81	42	35	5	0	34	0	0	47
Texas	84	237,000	3	445	94	315	43	2	265	1	1	182
Utah	0	----------	0	23	19	4	0	0	0	0	0	23
Vermont	2	8,300	0	4	2	0	2	0	2	0	0	2
Virginia	36	116,000	0	64	21	32	12	0	45	0	0	19
Washington	29	97,980	0	66	43	8	15	0	1	0	0	65
West Virginia	13	50,700	0	212	194	19	0	0	16	0	0	196
Wisconsin	50	561,300	6	209	21	36	153	0	196	8	12	14
Wyoming	3	12,700	0	17	9	6	2	0	8	0	0	9
Total	1,127	14,336,390	91	5,403	1,819	2,331	1,284	8	3,522	96	40	1,865

Arizona:
*Rapid sand filters.
Arkansas:
*Includes 6,900 served by Texarkana, Tex., plant.
**Contact beds.
California:
*Excludes cake dried for fertilization.
**Nine oxidizing lagoons.
One contact bed.
One pressure sand filter.
†One, mechanical flocculation.
‡Does not include 5 to ocean outfalls.
Colorado:
*Two oxidizing lagoons.
One magnetite filter.
Florida:
*One to canal.
Georgia:
*One magnetite filter.
Illinois:
*Includes 1 plant pumping to another.
**One magnetite filter.
One rapid sand filter.
One oxidizing lagoon.
†Does not include one destructive distillation.
Indiana:
*One Guggenheim process.
One contact bed.
One magnetite filter.
Iowa:
*Contact beds.
Kansas:
*Eight contact beds.
Nine oxidizing lagoons.
Louisiana:
*Five contact beds.
Maryland:
*Population connected to treatment includes 35,000 to Washington, D. C., plant.
Michigan:
*Three contact beds, one mechanical filter.
**Includes one plant flocculation only.
†Does not include 7 plants having sludge transferred to another plant for mechanical dewatering.
Minnesota:
*Two magnetite filters.
Mississippi:
*One contact bed.
Montana:
*One treatment unknown.
New Jersey:
*Five magnetite filters.
Four mechanically cleaned sand filters.
One rapid sand filter.
Two contact beds.
New York:
*Two, treatment unknown.
**Four magnetite filters.
Two vacuum filters.
One mechanically cleaned sand filter.
Two contact beds.
†Excludes 2 to sea.

North Carolina:
*Seven, treatment unknown.
**One rapid sand filter.
†Includes one plant digesting raw sludge aerobically.
‡23,800, treatment unknown.
North Dakota:
*One contact bed.
Ohio:
*One plant pumps to another.
**One Guggenheim process.
†Four magnetite filters.
Seven contact beds.
One grass filter.
Oklahoma:
*Four contact beds.
Oregon:
*Three contact beds.
Pennsylvania:
*One, treatment unknown.
**Eight contact beds.
One plain aeration.
One grass filter.

South Carolina:
*Ten contact beds.
Tennessee:
*One contact bed.
Texas:
*Eleven contact beds.
Two oxidizing lagoons.
One contact aeration.
One plain aeration.
Vermont:
*Two plain aeration.
Virginia:
*One contact bed.
Washington:
*Four contact beds.
West Virginia:
*Includes 3,500 people in Virginia.
Wisconsin:
*Four dose no chemicals (floc. only).
**Three plain aeration.
One rapid sand filter.
†Does not include one rotary sludge dryer.

It will be noted in table 1 that the numbers of sewer systems classified as "separate" or "combined" or both, and as publicly or privately owned, do not in all cases add up to the total number of communities in each State served by sewers since in some instances the status of particular systems in these two respects was unknown and hence could not be classified. In grouping systems as to ownership, some of them were found to be partly public and partly private and thus had to be counted under both groups.

It is apparent in table 3 that the sum of the number of classified unit processes and their connected population figures in most cases exceeds the number of treatment plants and total population connected. This discrepancy results from the inclusion of the individual unit treatment processes at plants embracing more than one of these major unit processes. The same considerations apply to sludge digestion in table 4 because of installations including both Imhoff tanks and separate sludge digestion at the one plant.

In tables 1 and 2, the total census and estimated connected populations of communities served by sewer systems, of those discharging raw sewage, and of those served by treatment of all kinds, have been rounded to thousands. This has been done in order to make these larger figures more uniformly comparable among themselves (in some cases the "estimated" populations have been available only in thousands) and also to avoid any impression of fictitious precision in these grand totals, which are made up of smaller subtotals of varying degrees of accuracy. Where possible, the subtotal population figures in tables 1, 2, and 3 have been carried out to hundreds and tens, in order to facilitate checking their cross-additions against the grand totals. In some cases it is doubtful whether these subtotals were sufficiently accurate to justify carrying the number of significant figures shown.

The data summarized in the tables include all communities having organized sewer systems serving a resident population of 100 or more people. Corresponding data for institutional or other semipublic systems serving more than 100 resident population have been listed in the detailed tabulations for individual States, but have not been included in this summary. Other information contained in the detailed tabulations but not in this summary includes: (*a*) Rated design capacities of treatment plants; (*b*) total populations for which treatment plants are designed; (*c*) population equivalents of industrial wastes where these figures have been available; (*d*) details concerning the methods of treatment followed at individual plants; (*e*) the name or location of the watercourse into which raw or treated sewage is discharged by each community; and (*f*) the name of the drainage basin in which such watercourse is located. This information is of such a nature that it does not lend itself readily to inclusion in a general summary of the type here presented.

In the summary tables, considerable variations are noted in the extent of development of sewerage services in the different States and geographical areas of the country and likewise in the engineering practices followed in connection with these services. A detailed analysis of the summarized data from this viewpoint will be presented in a future publication, though a few brief comments of a general nature appear to be desirable here.

The total census population of the 8,518 served communities listed in the summary is given in table 1 as 75,728,000, on the basis of the United States census of 1930. This figure represents about 62 percent of the total population for the same year. The estimated total population connected to sewer systems, amounting to 70,506,000, probably is fairly up-to-date as of 1939–40, as this figure is based on the latest records of the various States at the time of compiling the present data. On this basis and that of the United States Census of 1940, it is estimated that roughly 55 percent of the total population and 95 percent of the urban population of the country is served by public sewer systems. Of these systems, about 91 percent are publicly owned and 76 percent are of the separate type.

The figures given on the methods of sewage disposal indicate that, considering the country as a whole, an estimated population of 40,618,000, or about 58 percent of the total connected population, is served by sewage treatment of all kinds and the remaining 42 percent by no treatment. Of the total population served by treatment, about 18,386,000, or 45 percent of this total, are served by primary treatment plants and 55 percent by some form of secondary treatment. Under primary treatment, sedimentation in all forms accounts for about 82 percent of the population thus served. Of this large proportion, separate tank treatment serves 58 percent, Imhoff tanks 33 percent, and septic tanks the remaining 9 percent. Under secondary treatment the activated-sludge and trickling-filter methods predominate, the former serving 47 percent and the latter, 38 percent, or both combined, 85 percent of the total population served by secondary treatment. Plants furnishing chlorination serve a population of 14,336,000, or about 35 percent of the total population served by all forms of treatment.

Although connected populations are not given in the summary for various methods of sludge disposal, the figures in table 4 show that a total of 5,403 plants, or about 97 percent of the total treatment plants, provide sludge digestion, and 3,522 plants, or 63 percent of the total, some form of sludge dewatering and disposal. It thus appears that the disposition of the solid matters resulting from sewage treatment is now receiving much more attention throughout the country than was the case a relatively few years ago.

As a whole, the census data here summarized indicate very substantial progress in the treatment of community sewage during recent years in practically every State of the Union. In some States, notably Illinois, Maryland, Minnesota, Texas, and Wisconsin, the proportion of the total sewered population now served by treatment is extremely high, approaching 90 percent or more. In several other States, the present situation is almost as favorable as in those above named. Nevertheless, the discharge of raw sewage and of inadequately treated effluents into our coastal and inland waters still constitutes a sanitary problem of great importance, as is attested by the deteriorated condition of many natural waterways in the more populous sections of the country.

The data on which the census has been based have been furnished and checked by the sanitary engineering divisions of the departments of health in the various States listed in the summary tables. Grateful acknowledgment is due to the personnel of these organizations who have collaborated both willingly and effectively in the very considerable task of compiling the census data for their respective States. In this connection, it should be noted that in a majority of cases the original tabulations of data were made by assistants employed with the State sanitation divisions, at the cost of much time and effort. In some instances the records of the divisions were made available to representatives of the Public Health Service for transcription. The final tabulations were submitted to the various State divisions, where they were checked, corrected, and returned to the Cincinnati station for mimeographing. The summaries herein presented were prepared only after this checking process had been completed.

It thus is apparent that the collection of the census data would have been impracticable without the active collaboration of the States concerned. It is hoped to keep the census up-to-date each year by compiling annual supplements showing new installations and additions to existing plants. At intervals of 5 or 10 years, this information can be incorporated into a complete inventory, brought up-to-date. Although some of this work may have to be curtailed during the war period, it is hoped that the plan indicated may be followed as an ultimate objective.

MILK CONTROL IN THE DEFENSE PROGRAM[1]

By A. W. FUCHS, *Senior Sanitary Engineer, United States Public Health Service*

NEED FOR GREATER MILK PRODUCTION

Never before has milk been more widely used in this country than it is today. The newer knowledge of nutrition has firmly elevated this most nearly perfect food to a stellar role in the national diet. Recognition of its value by our military authorities and by the rank and file of the armed forces has resulted in a greater per capita as well as a greater total consumption of milk and its products by our troops than at any other time in our history. At the same time improved economic conditions in centers of defense industries have been accompanied by unprecedented increases in the demand for milk. Last, but not least, there must be taken into account the large shipments of milk in concentrated form to our allies overseas. It is not to be wondered, then, that some sections of this country are experiencing a shortage of fluid market milk.

The need for greater milk production during the present emergency is evident, and higher production goals have been set by the Secretary of Agriculture. In the December 30, 1941, issue of the weekly magazine "Victory," the Secretary makes the following statement:

> Total milk production in 1942 is expected to be the largest on record. This increase will result partly from an expected 3-percent increase in the number of milk cows on farms. The production of manufactured dairy products in 1942 probably will be the largest on record, mainly because of prospective larger export needs under the lease-lend program. Production of American cheese and evaporated milk probably will increase most. A milk production goal of 125 billion pounds (7 percent above probable production in 1941) has been recommended for 1942. This quantity of milk would provide not only for the increased requirements for exports in 1942 but also for a record per capita consumption of milk and other dairy products.

SCARCITY OF CRITICAL MATERIALS USED IN DAIRY EQUIPMENT

This goal of greater milk production must be achieved in the face of a shortage of certain critical materials used in the manufacture of dairy equipment. As is well known, the quantities of war materials required are so vast that it has become necessary for the Government to institute a system of rationing whereby materials not available in sufficient quantities to satisfy all demands are allocated to various uses in the order of their importance to the national defense. The War Production Board has included the dairy equipment industry among the vital civilian industries and services entitled to some degree of priority. Under the recent Preference Rating Order

[1] From the States Relations Division. Read at the annual meeting of the Connecticut Association of Dairy and Milk Inspectors at Hartford, Jan. 13, 1942.

P–100, which replaces the former P–22, dairy plants are privileged to use an A–10 rating for maintenance of plant operation, repairs of equipment, emergency inventory, or operating supplies. This rating does not, however, cover new equipment for expansion of capacity. However, fabricators can apply under PD–25A for the privilege to manufacture new equipment and repair parts for stock purposes on a quota basis. A Dairy Industries Advisory Committee has recently been nominated to discuss with the War Production Board the problems confronting the industry.

Since first preference is given to dairies awarded defense orders, and since a shortage of practically all metals used in the manufacture of dairy equipment is developing, the wisest course for dairy plant operators to follow seems to be that of keeping existing equipment in the highest state of repair. Dairy plants are apparently assured of securing the necessary repairs, and, for the time being at least, of obtaining replacement of units, but every indication points to the advisability of determining future needs and placing orders well in advance to avoid delays.

In this program of conservation the cooperation of milk inspectors with the dairy industry is essential. Surgeon General Parran of the United States Public Health Service addressed the following letter on this subject to all State health officers under date of October 6, 1941:

My attention has been called to the tendency of some milk control officials to demand compliance by the dairy industry with dairy and milk plant equipment specifications which may not be too stringent in normal times but which may be unreasonable under present circumstances. I am sure this attitude is due simply to the failure to realize that the present emergency requires the fullest cooperation of milk control authorities and the dairy industry in the interest of national defense.

The unobstructed and increasing flow of milk and dairy products is necessary for a successful defense effort. More and more of these concentrated vital foods will be needed for the military forces and defense workers at home and for export overseas. At the same time it has been necessary for the Government to place under strict control and to conserve for defense purposes certain materials used for dairy and milk plant equipment, such as aluminum, nickel-bearing steel, tin, and electric motors. Milk plants using aluminum foil must take immediate steps to obtain equipment which will provide other means of closing their bottles. Certain dairy equipment containing other restricted metals may be obtainable only in limited quantities and after considerable delay. In the meanwhile the Dairy Industries Supply Association is cooperating with the Office of Production Management in attempting to work out suitable substitutes to relieve shortages of critical materials.

Accordingly, the path along which each milk control officer can contribute to the defense effort should be plain. A change from aluminum to other satisfactory milk bottle closures and the development of other satisfactory substitutes for dairy equipment materials should be encouraged rather than condemned. Unusual features of equipment which would require radical changes either in design or in tooling should not be specified. Immediate replacement of milk cans and

milk equipment which though imperfect are still safely usable should not be insisted upon. Instead, the dealer should be assisted in determining now his future needs so that orders may be placed well in advance. All of this may be accomplished without significantly jeopardizing the essential safety of the milk supply.

I sincerely believe that merely calling this emergency situation to the attention of health officers will elicit their wholehearted cooperation in advancing the national defense effort.

This letter was written prior to the declaration of war by the United States, and before the scarcity of certain materials became as critical as it is today. Milk control officials may have to recede even farther from their peace-time standards for dairy equipment if the materials normally used become completely unavailable by virtue of war-time necessity. Without question the primary goal must be to win the war. Nevertheless, there is little justification for the attempt on the part of some milk dealers to take undue advantage of Dr. Parran's plea for cooperation by urging health officers to accept certain practices which would significantly jeopardize the essential safety of the milk supply but in which no critical materials are involved and for which no real need has yet been demonstrated.

An outstanding example has been the effort of dealers in a number of cities to bring about the discontinuance or suspension of the lip-cover cap requirement now in effect in many cities. The current edition of the milk ordinance recommended by the Public Health Service requires, for grade A pasteurized milk and milk products, that the cap or cover shall cover the pouring lip of the container to at least its largest diameter. The public health reasons for this requirement are: (1) To protect the normal pouring lip of the container from contamination by handling, and (2) to prevent the sucking back into the container by temperature contraction of any contaminated liquid which may be on the cap, or of any milk which may previously have been squeezed out by temperature expansion. In a bacteriological study by Isaacs and Zeiber (Am. Jour. Hyg., **16**: 806 (1932)), it was found that the disc caps on commercially distributed bottled milk often became contaminated with large numbers of bacteria, including in a majority of cases coliform organisms of the fecal type. These investigators also found that ink placed on the cap of a bottle in the process of cooling is drawn into the bottle as cooling proceeds and tends to sink through the cream layer and to some depth in the milk. Furthermore, a study of outbreaks of milk-borne disease compiled by the Public Health Service reveals that in seven outbreaks contamination of the top of the bottle may have been responsible, and that the use of lip-cover caps might have prevented the outbreaks. An additional outbreak recently reported by the health officer of a large New England city as having occurred in 1926 was traced to a typhoid carrier who delivered pasteurized milk in bottles with disc caps; the organism

was isolated by swabbing the pouring lip and the top of the bottle, was also present in the bottled milk, but was not found in the milk before bottling. That more outbreaks have not been traced to such contamination may be due to the great difficulty, epidemiologically, of tracing outbreaks to such a source. For these reasons many health officers have expressed opposition to the discontinuance of cover caps unless such a step should become absolutely necessary.

The milk dealers who advocate suspension of the lip-cover requirement argue that a shortage of cover caps and cappers may be expected. It is true that there are shortages of paper and pulp and that voluntary conservation programs are being sponsored by the War Production Board. The Paper and Pulp Branch of the War Production Board stated, however, that there was every indication that it would be unnecessary to apply restrictions to cover caps or paper milk bottles. The Public Health Service has recommended that if control of paper becomes necessary, preference should undoubtedly be given to cover caps. Where lip-cover caps are now employed the return to disc caps would effect an insignificant saving in paper and would, on the other hand, require a change in capper heads that would be wasteful of critical metals.

The question was also recently discussed with manufacturers, who gave assurance that all types of paper cover caps as well as capper heads for applying them will continue to be available, although there may be some difficulty in obtaining hood-type caps and capping machines. No difficulty is contemplated if dealers place orders reasonably in advance of the required delivery date. Such delays as have been experienced, coupled with less aggressive efforts by cover cap manufacturers to obtain new customers, may have been responsible in part for the unfounded shortage rumors. However, the chief source of the rumors has evidently been the desire of some milk dealers to economize by using the cheaper disc caps while placing the blame on "the emergency."

Accordingly, health officers who inquire regarding the desirability of enforcing or adopting the cover-cap requirement are being advised by the Public Health Service to allow a reasonable time for compliance, after which the dairyman should be penalized for violations unless he can prove that he has ordered the necessary equipment and caps from all possible sources and is unable to obtain delivery.

PROTECTION AGAINST AIR RAIDS AND SABOTAGE

Because of the importance of milk in the national diet, every precaution should be taken to safeguard municipal milk supplies against possible war-time interruptions. Most of us prefer not to be alarmists, but the many examples of the results of unpreparedness

in this war indicate the value of planning for all contingencies that can be foreseen.

The remoteness of the danger from air raids on our coastal States is a matter of opinion. Nevertheless, they are a possibility against which it would be foolish to be unprepared. As a result of a recent conference with representatives of the Office of Civilian Defense in Washington, it is suggested that prearranged plans be made for the following actions to reduce interruptions of the milk supply by air raids:

(1) Plan for emergency pasteurization of all milk.

(2) Milk inspectors should work through the milk dealers' associations to plan interchange of equipment and services. A milk plant would not be selected as a direct target, but if one is struck accidentally other plants would be able to help out, since most plants are not operating at full capacity.

(3) Plans might even be made for a pasteurization reserve in neighboring cities or in cheese, ice cream, and butter plants.

(4) Plan to scatter delivery vehicles rather than housing them in one central location.

(5) Arrange with the water supply superintendent and health officials to notify the milk plants promptly whenever there is an interruption in the water supply or when the supply becomes unsafe, and plan for emergency treatment or an alternate source.

(6) Although the milk producing farms are not vulnerable in significant numbers to air attack, plans should be made for rerouting the collecting routes in case bridges and roads are destroyed.

(7) To provide against a possible shortage of raw milk, arrange for the temporary emergency use of the raw supply of manufacturing plants such as cheese, ice cream, and butter plants, if that should become necessary.

(8) Under war-time conditions the dairy industry must conserve materials and manpower wherever possible. More attention may well be devoted to the maintenance of equipment. Unnecessary frills employed for competitive reasons, such as special deliveries, may well be eliminated, and 6-day deliveries adopted. The shortage of rubber for tires may require extreme conservation measures, such as every-other-day deliveries, combination of delivery routes, or even complete cessation of home deliveries except by horse-drawn carts.

(9) If plant operators or other key employees belong to organizations which might interfere with their plant duties, arrangements should be made for their replacement. Better still, such employees should not join such organizations, as they are of greater value to their community as plant men.

(10) Milk plants should cooperate with air raid wardens in instituting the usual precautions, including those against incendiary bombs.

Poison gas has, fortunately, not been employed so far in the present war, but a desperate enemy may be driven to use it as a last resort. A few words regarding its effect on milk may not be amiss.

The nonpersistent gases (i. e., those readily dispersed by wind, air currents, and rain), such as chlorine and phosgene, produce damage to the lungs when inhaled, and although foods may absorb them to some extent on exposure to fairly high concentrations they are seldom rendered unfit for consumption. Even prolonged exposure to high concentrations of nonpersistent gas of the phosgene type, such as might easily occur in a confined space, is more likely to impair the palatability of food than to render it unwholesome. Milk so exposed may have its taste slightly affected, but its palatability can be restored by boiling. Cheese and butter may bleach slightly at the surface, but when the bleached portions are cut away the remainder is edible.

More dangerous to foodstuffs are the persistent liquid blister gases, of which the outstanding representative is mustard gas, which cause incapacitation by producing acute inflammation of the skin, eyes, and throat. Nonarsenical blister gases are rapidly absorbed by uncovered fatty foodstuffs, including milk, cream, and cheese, so as to render them unpalatable, and since there is no effective treatment, fatty foods so contaminated are probably dangerous. Foods that have been in contact with arsenical blister gases of the lewisite type should be regarded with the greatest suspicion, as there is considerable danger of arsenical poisoning.

The protective value of the food packages commonly employed increases with the imperviousness of the material and the tightness of the cover. Sealed cans or metal drums give complete protection against all types of gases. Waxed cartons if well sealed afford good protection. Fairly good protection is given by cans with well-fitting lids and by glass bottles covered by greaseproof paper.

More complete information on this subject may be found in the pamphlet "Food and Its Protection against Poison Gas," released by the Ministry of Food and published in 1941 by His Majesty's Stationery Office, London. An interesting article, "The Detection of War Gases in Foodstuffs," appeared in the February 1941 issue (vol. 66, No. 779) of the Analyst, which is the journal of the Society of Public Analysts, published by Heffer and Sons, Cambridge, England. Decontamination of foods and buildings is discussed in the July 1941 number of the Journal of the Royal Sanitary Institute (London). Additional information on war-time protection of foods is to be issued to State defense councils and State health departments by the Office of Civilian Defense.

The danger from sabotage is probably more real at the moment than the possibility of destruction of milk plants by bombing attacks or the contamination of milk by gas bombs. In an article in the

November 1941 issue of the Journal of the American Water Works Association, J. Edgar Hoover suggests that consideration be given to some of the more common forms of sabotage that might be attempted against water supplies, and some of these are equally applicable to milk supplies.

Sabotage at individual farms on the milk shed can have no important effect, but some thought might be given to collection routes, receiving stations, and particularly pasteurization plants. The pasteurization of all milk supplies is probably the most effective measure against bacterial sabotage of raw milk supplies. It should be remembered, however, that while pasteurization destroys the usual milk-borne pathogens, it has its limitations, hence plants should protect their raw storage tanks by locking them over night or by other effective means. Bacterial sabotage of pasteurized supplies is possible by the introduction of organisms into the pasteurization vat, surface coolers, bottlers, or individual bottles or cans, but this could endanger limited quantities only unless repeated.

A recent circular on the prevention of sabotage in milk plants issued by the State Department of Health of Kentucky discusses the investigation of milk plant employees and milk truck drivers, citizenship status of employees, control of visitors and strangers, close watch of operating equipment and of stored containers, adequate reserve of replacement and consumable materials, employment of guards, test operation of standby parts, emergency water and power supplies. The circular suggests that in the event any situation arises with relation to a milk supply which looks suspicious, immediate contact should be made with the health officer and the nearest office of the Federal Bureau of Investigation.

SANITATION OF MILK SUPPLIES FOR ARMY CAMPS AND DEFENSE INDUSTRIES

No discussion of milk control in the defense program would be complete without some mention of the safeguards surrounding the milk supplies consumed by our military forces and by the workers in our defense industries.

For several years before the present emergency, Army and Civilian Conservation Corps camps purchased milk under Federal Specification C–M–381b for fresh milk, applicable to all Government departments and agencies. The Army specifications required the purchase of Type II pasteurized milk wherever available, otherwise Type III was to be obtained. Type II was milk conforming to the specifications for grade A pasteurized milk as defined in the current edition of the United States Public Health Service Milk Ordinance and Code. Type III was milk pasteurized in plants conforming to the pasteurization plant specifications of the current Public Health Service Milk

Ordinance and Code, but which had a bacterial count limit of 50,000 per cc. after pasteurization, and for which the producing farm standards were rather meager.

In certain sections of the country, as in the northeast, where the Army could not obtain grade A pasteurized milk conforming to the Public Health Service specifications, it had no alternative but to purchase Type III milk, even where a higher quality milk was locally available. To correct this situation, circular letter 134 issued by the Quartermaster General July 5, 1941, defines two classes of Type II pasteurized milk. Type II No. 1 is grade A pasteurized milk conforming to the Public Health Service specifications and produced in an area which has formally adopted the Milk Ordinance recommended by the Public Health Service. Type II No. 2 is the first quality pasteurized milk as defined in the local milk ordinance at the point of delivery. This order also provides that Type II No. 1 shall be purchased whenever this grade is available in adequate quantity and provided that cost is not greatly in excess of the cost of Type II No. 2, otherwise the latter is to be purchased. Type III is purchased when neither Type II No. 1 nor Type II No. 2 is available.

It may be of interest to compare the extent of the sanitary control of milk supplies for use by the military forces and defense industries in the first World War with present conditions. During the 1917–18 emergency, milk control was almost entirely limited to the larger cities. Except in the latter, practically no pasteurized milk was available. The milk sanitation program of the Public Health Service had not yet been developed, and no uniform milk sanitation standards were in general use. Instead, milk control was in a chaotic condition, with practically no two areas recognizing the same standards for the same grade. Local health services and qualified personnel experienced in milk sanitation were virtually unknown except in the larger centers of population. Under these conditions, adequate supplies of fresh milk of high sanitary quality were out of the question for most of the training camps, and it was necessary to resort to canned milk.

Great progress in milk sanitation has been made since those days. The Government program for the eradication of bovine tuberculosis, begun about that time, has recently reached the stage where every county in the United States is a modified accredited tuberculosis-free area. Considerable work has been done in recent years in the control of Bang's disease. The use of pasteurized milk has steadily increased until today probably 80 percent of the fluid market milk is pasteurized. And last, but by no means least, official recognition of the importance of milk sanitation has led to the wider adoption of modern milk-control legislation and the organization of milk-control departments not only in our large cities but also in many smaller communities and rural counties.

With the latter development the work of the Public Health Service is intimately related. Milk sanitation became a definite activity of the United States Public Health Service in 1923, when Leslie C. Frank was assigned to Alabama, at the request of the State health officer, to assist in formulating a model milk ordinance to be recommended for adoption by local communities. The work in Alabama soon attracted the attention of neighboring States and adoptions of the Standard Milk Ordinance grew apace. In 1926 this model was adopted as a standard for the United States by the Conference of State and Territorial Health Officers. To standardize the interpretation and enforcement of the milk ordinance the first interpretative code was formulated in 1927, and since that time several revised editions of the Milk Ordinance and Code have been issued as a result of improvements suggested through experience and research after approval by the Public Health Service Milk Sanitation Advisory Board. Voluntary adoptions of the recommended ordinance have steadily increased, until at the present time it is in effect in communities ranging in population from less than 1,000 to about 3,500,000 in 35 States. It has been adopted State-wide in 1 State, and by 104 counties and 851 municipalities. It has also been adopted as State regulations by several States, but in these cases enforcement is usually left to the local communities.

It was early recognized that mere adoption does not insure uniform and proper enforcement. Of even greater value were the measures adopted for promoting good enforcement. These include, first, the development of a uniform milk-sanitation rating program whereby States can measure the extent to which city milksheds comply with the requirements of the ordinance. The communities which are awarded a milk-sanitation rating of 90 percent or more by the States are published semiannually in PUBLIC HEALTH REPORTS. This list is useful in acquainting areas experiencing a milk shortage with sources from which satisfactory supplies can be obtained and is offered as a means for overcoming existing multiple inspections and trade barriers. Secondly, the Public Health Service undertook to promote the organization of milk sanitation divisions in State health departments. In recent years many States have been able to employ qualified milk sanitarians through funds made available by Title VI of the Social Security Act. The State milk sanitarians are offered training and advisory assistance through the Washington office and through district milk specialists. The State milk sanitarians, in turn, train local inspectors, provide consultation service to communities, and make milk-sanitation ratings. Thirdly, the Public Health Service has conducted regional milk-sanitation seminars in collaboration with the States, at which State and local milk inspec-

tors devote 5 days to an intensive study and discussion of the recommended program.

When construction of Army camps for selectees was begun in 1939, reconnaissance surveys of the public health organization and needs of each of the camp areas and of the defense industry areas were made by the Public Health Service, and where needed such organizations were established by the States with the help of personnel employed by the Public Health Service from Emergency Health and Sanitation funds. Mobile trailor laboratories of the Public Health Service stationed in some of the Army maneuver areas have rendered valuable service in examining milk and water samples where laboratory facilities were lacking. In addition, a bacteriologist of the Public Health Service is surveying milk laboratories in defense areas throughout the country with a view to obtaining closer compliance with the Standard Methods for the Examination of Dairy Products of the American Public Health Association. The Army veterinarians who are charged with the inspection of the milk supplies purchased by the Army obtain excellent and valuable cooperation from the local health units in the defense areas and from most State health departments.

As a result of these efforts many sections of the country where camps and defense industries are located have available supplies of fresh milk meeting the Type II No. 1 Army specifications. With but few exceptions, adequate and safe milk supplies are available to the armed forces and to defense industries during the present emergency.

PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES

February 1–28, 1942

The accompanying table summarizes the prevalence of nine important communicable diseases, based on weekly telegraphic reports from State health departments. The reports from each State are published in the PUBLIC HEALTH REPORTS under the section "Prevalence of disease." The table gives the number of cases of these diseases for the 4-week period ended February 28, 1942, the number reported for the corresponding period in 1941, and the median number for the years 1937–41.

DISEASES ABOVE MEDIAN PREVALENCE

Measles.—The number of cases of measles reported during the 4 weeks ended February 28 was 61,149, an increase of approximately 25,000 over the preceding 4-week period. Each section of the country

contributed to the increase, but the largest numbers of cases were reported from the South Atlantic, West South Central, and Pacific regions. While the current figure was more than 15 percent below the incidence in 1941, it represented an increase of approximately 15 percent over the 1937–41 median incidence for this period. In the East North Central and East South Central regions the incidence was relatively low, but in other regions the excesses ranged from 1.3 times the average incidence in the New England region to more than six times the 1937–41 median figures in the West South Central and Pacific regions.

Meningococcus meningitis.—For the current 4-week period there were 273 cases of meningococcus meningitis reported, as compared with 188, 178, and 227 during the corresponding period in 1941, 1940, and 1939, respectively. While an increase of this disease is normally expected at this season of the year, the current incidence was about 45 percent above last year's figure for this period and approximately 20 percent above the average seasonal incidence. All regions except the North Central and East South Central regions reported an increase over the normal seasonal expectancy. With the exception of Texas in the West South Central region, reporting 40 cases, the States reporting the highest incidence were located in the Atlantic Coast regions; New York reported 29 cases, Pennsylvania 20 cases, Maryland 18 cases, and Virginia 15 cases.

Poliomyelitis.—The incidence of poliomyelitis (101 cases) stood at the same level as last year, but it was about 20 percent above the average seasonal level. The incidence was relatively high in the North Atlantic and East North Central regions, but in all other regions the situation was very favorable. While the numbers of cases were not large, the number (9) in the New England region was four and one-half times the average number for preceding years; in the Middle Atlantic the number (19) was two and one-half times the 1937–41 median figure, and in the East North Central region the number (17) was one and one-half times the seasonal expectancy. As these were the last regions reached by the recent rise of this disease it is most likely that the incidence in those regions has not yet declined to a normal level.

DISEASES BELOW MEDIAN PREVALENCE

Diphtheria.—The number of cases of diphtheria (1,116) reported for the 4 weeks ended February 28 was only slightly below the number recorded for this period in 1941, but it was less than 60 percent of the 1937–41 median figure for the period. While the incidence in the New England, South Atlantic, and West South Central regions was higher than in 1941, in those regions as well as all others the incidence was low in comparison with the average incidence of preceding years.

Number of reported cases of 9 communicable diseases in the United States during the 4-week period Feb. 1–28, 1942, the number for the corresponding period in 1941, and the median number of cases reported for the corresponding period, 1937–41

Division	Diphtheria			Influenza [1]			Measles [2]		
	Current period	1941	5-year median	Current period	1941	5-year median	Current period	1941	5-year median
United States	1,116	1,171	1,994	22,139	146,496	71,176	61,149	72,972	53,546
New England	23	7	36	29	1,712	122	4,084	2,433	3,191
Middle Atlantic	173	191	331	137	5,152	552	7,860	29,698	5,818
East North Central	163	195	384	495	7,383	6,121	4,209	24,059	5,799
West North Central	76	106	146	209	6,558	836	5,732	1,932	3,724
South Atlantic	237	190	383	6,557	74,515	15,524	12,552	7,041	7,041
East South Central	104	195	178	2,825	18,018	5,571	1,269	2,975	1,494
West South Central	218	106	296	9,254	23,945	23,945	10,565	1,708	1,708
Mountain	62	98	86	1,999	4,473	1,528	3,209	1,319	1,860
Pacific	60	83	124	634	4,740	4,740	11,669	1,807	1,807
	Meningococcus meningitis			Poliomyelitis			Scarlet fever		
United States	273	188	227	101	101	89	16,160	13,812	22,169
New England	29	13	12	9	2	2	1,835	771	1,539
Middle Atlantic	61	29	51	19	8	7	3,945	3,824	5,682
East North Central	20	13	19	17	22	11	4,801	4,571	8,245
West North Central	11	12	19	2	12	7	1,880	1,282	2,507
South Atlantic	57	45	45	11	24	17	1,293	1,051	1,051
East South Central	23	43	51	14	7	14	687	853	623
West South Central	52	22	22	13	11	11	383	350	439
Mountain	8	3	11	7	5	5	647	430	734
Pacific	12	8	10	9	10	10	689	680	1,304
	Smallpox			Typhoid and paratyphoid fever			Whooping cough [2]		
United States	87	188	1,220	330	247	390	15,121	16,349	[3] 15,162
New England	0	0	0	19	12	12	1,758	1,256	1,367
Middle Atlantic	0	0	0	46	29	50	3,652	2,982	3,912
East North Central	8	72	196	39	29	44	3,625	3,151	2,938
West North Central	15	77	254	15	15	18	669	1,120	873
South Atlantic	3	0	5	132	45	74	1,981	2,940	2,410
East South Central	22	5	13	26	30	37	580	673	514
West South Central	36	16	36	37	46	77	610	1,536	996
Mountain	2	17	126	5	20	19	769	864	856
Pacific	1	1	95	11	21	23	1,477	1,827	1,305

[1] Mississippi, New York, and Pennsylvania excluded; New York City included.
[2] Mississippi excluded.
[3] 4-year (1938–41) average.

Influenza.—The incidence of influenza (22,139 cases) for the country as a whole was comparatively low, the number of reported cases for the current period being less than one-third of the average seasonal incidence (approximately 71,000 cases) for this period. Compared with 1941 the current incidence is particularly low as an epidemic of influenza that had started in the West had reached the North Central and North Atlantic regions during the period corresponding to the current one. The highest incidence is still confined to the South Central and South Atlantic regions, there being no sign as yet that the disease has spread into any other region. Of the total number of cases, approximately 7,000 were reported from Texas, 3,300 from South Carolina, 2,400 from Alabama, and 2,200 from Virginia—making a

total of approximately 15,000 cases reported from those 4 States. Arizona and Wyoming seemed mostly responsible for a slight increase over the seasonal expectancy in the Mountain region.

Scarlet fever.—For the current period there were 16,160 cases of scarlet fever reported, as compared with 13,812, 19,277, and 22,169 cases for the corresponding period in 1941, 1940, and 1939, respectively. The number of cases was higher than last year in all regions except the East South Central, but that region with the New England and South Atlantic were the only regions reporting an excess over the 1937–41 median incidence for this period. The excess in the New England region seemed to be largely due to an unusual prevalence of the disease in Massachusetts; the approximately 1,400 cases occurring in that State represented about a 75-percent increase over the preceding 5-year average incidence for this period.

Smallpox.—Again smallpox stood at a relatively low level, 87 cases being reported for the current period as compared with 188 cases in 1941 and 1,220 cases representing the 1937–41 median incidence for the corresponding period. Of the total of 36 cases reported from the West South Central region, 31 occurred in Texas. For the country as a whole the incidence was the lowest on record for this period.

Typhoid fever and paratyphoid fever.—The incidence of typhoid fever was also relatively low, the number of cases (330) being about 15 percent below the normal seasonal expectancy. Two regions reported excesses over the 1937–41 median figures for the period; in the New England region the increase was slight, but the number of cases (132) in the South Atlantic region represented an increase of about 80 percent over the average for recent years; of the total cases reported for that region, 91 occurred in Georgia and 18 in Florida.

Whooping cough.—The number of reported cases of whooping cough was about normal for this season of the year—15,121 cases for the 4 weeks ended February 28, as compared with 16,349 in 1941 and an average of 15,162 cases for the corresponding period in the 4 preceding years. Of the nine geographic regions, the New England, East North Central, East South Central, and Pacific regions reported excesses over the seasonal expectancy, while in the other five regions the incidence was relatively low.

MORTALITY, ALL CAUSES

The average mortality rate from all causes in large cities for the 4 weeks ended February 28, based on data received from the Bureau of the Census, was 12.6 per 1,000 inhabitants (annual basis). The mild form of the influenza that has been prevalent in certain regions of the country is no doubt reflected in the current low death rate. In 1941 the rate for the period corresponding to the current one was 13.6 and the average rate for this period in 1939–41 was also 13.6.

DEATHS DURING WEEK ENDED MARCH 7, 1942

[From the Weekly Mortality Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Mar. 7, 1942	Corresponding week, 1941
Data from 88 large cities of the United States:		
Total deaths	9,272	9,104
Average for 3 prior years	9,383	
Total deaths, first 9 weeks of year	83,444	87,500
Deaths per 1,000 population, first 9 weeks of year, annual rate	12.9	13.6
Deaths under 1 year of age	648	552
Average for 3 prior years	519	
Deaths under 1 year of age, first 9 weeks of year	5,137	4,907
Data from industrial insurance companies:		
Policies in force	64,951,480	64,655,691
Number of death claims	13,466	13,532
Death claims per 1,000 policies in force, annual rate	10.8	10.9
Death claims per 1,000 policies, first 9 weeks of year, annual rate	10.2	11.2

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

REPORTS FROM STATES FOR WEEK ENDED MARCH 14, 1942

Summary

Current reports show no unusual incidence of any of the important communicable diseases, although measles, meningococcus meningitis, and poliomyelitis continue slightly above the 5-year (1937–41) median.

A total of 88 cases of meningococcus meningitis was reported for the current week, as compared with 70 last week and a 5-year median of 52. The current figure is the highest for the corresponding week since 1937, when 210 cases were reported. The following 3 States reported 10 or more cases during the current week: Virginia, 10; New York, 12; Texas, 13. Massachusetts (7 cases) was the only other State which reported more than 4 cases.

The number of reported cases of poliomyelitis dropped from 23 to 18, with only one State (South Carolina 3) reporting more than 2 cases.

A total of 5,101 cases of influenza was reported as compared with a 5-year median of 6,740. Texas (1,712), South Carolina (705), and Virginia (637) reported the largest numbers. Of 16 cases of smallpox, 8 were reported in the North Central States.

Other diseases reported currently include 78 cases of bacillary dysentery (Texas 45, Georgia 14), 15 cases of amebic dysentery (Texas 6), 38 cases of unspecified dysentery (Virginia 27, Arizona 10); 1 case of anthrax in Massachusetts, and 12 cases of Vincent's infection in Maryland. No cases of Rocky Mountain spotted fever were reported, and only 5 cases have been reported this year to date.

The crude death rate for the current week for 88 large cities in the United States is 13.2 per 1,000 population, as compared with 12.9 for the preceding week and 12.8 for the 3-year (1939–41) average. The cumulative rate to date this year (first 10 weeks) is 13.0, as compared with 13.5 for the corresponding period last year.

Telegraphic morbidity reports from State health officers for the week ended March 14, 1942, and comparison with corresponding week of 1941 and 5-year median

In these tables a zero indicates a definite report, while leaders imply that, although none were reported, cases may have occurred.

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended—		Median 1937–41	Week ended—		Median 1937–41	Week ended—		Median 1937–41	Week ended—		Median 1937–41
	Mar. 14, 1942	Mar. 15, 1941		Mar. 14, 1942	Mar. 15, 1941		Mar. 14, 1942	Mar. 15, 1941		Mar. 14, 1942	Mar. 15. 1941	
NEW ENG.												
Maine	0	0	2	------	1	12	205	94	94	2	0	0
New Hampshire	1	0	0	------	3	------	21	23	23	1	0	0
Vermont	0	0	0	------	------	------	9	18	18	0	0	0
Massachusetts	5	2	2	------	------	------	615	811	810	7	2	1
Rhode Island	0	0	0	------	------	------	210	5	9	0	1	1
Connecticut	0	1	1	2	4	9	307	61	156	0	0	0
MID. ATL.												
New York	28	12	33	[1] 12	[1] 54	[1] 47	578	7,605	1,482	12	3	7
New Jersey	3	10	10	14	36	28	384	2,549	1,186	4	0	1
Pennsylvania	10	17	44	------	------	------	925	4,958	299	3	7	7
E. NO. CEN.												
Ohio	9	6	17	21	98	98	299	5,704	137	4	2	2
Indiana	4	21	16	32	39	61	71	627	10	2	1	0
Illinois	16	24	33	8	44	44	505	4,152	113	1	4	4
Michigan	5	3	9	32	33	23	248	4,416	373	2	1	1
Wisconsin	2	0	2	44	200	200	719	838	781	0	0	0
W. NO. CEN.												
Minnesota	1	0	8	1	29	6	823	11	68	0	0	0
Iowa	3	6	4	13	136	28	323	175	175	0	0	1
Missouri	2	6	18	8	11	109	465	151	14	0	1	1
North Dakota	1	2	4	9	21	21	128	13	9	0	0	0
South Dakota	4	0	1	------	6	2	5	27	4	0	0	0
Nebraska	2	2	2	48	15	15	167	6	12	0	0	1
Kansas	8	2	4	21	13	31	460	661	417	2	1	0
SO. ATL.												
Delaware	0	0	0	------	------	------	7	351	28	0	0	0
Maryland [2]	2	3	5	20	41	53	611	170	170	3	1	1
Dist. of Col	0	5	6	2	5	5	51	126	30	2	1	1
Virginia	12	14	12	637	1,077	552	282	1,971	401	10	2	2
West Virginia	6	6	6	40	72	72	443	360	17	2	2	2
North Carolina	5	7	16	16	83	83	1,459	921	921	0	0	1
South Carolina	3	6	4	705	754	774	225	278	44	3	1	2
Georgia	5	9	9	119	257	257	320	421	254	0	2	1
Florida	0	6	7	10	159	9	207	973	92	1	0	0
E. SO. CEN.												
Kentucky	10	4	8	20	135	135	73	1,317	102	2	1	1
Tennessee	5	4	4	123	161	238	118	339	117	2	2	2
Alabama	6	6	9	354	316	335	110	481	396	1	2	3
Mississippi [3]	70	8	5	------	------	------	------	------	------	1	2	1
W. SO. CEN.												
Arkansas	7	9	9	280	291	291	353	238	39	0	0	0
Louisiana	4	5	9	27	76	76	136	61	26	1	2	2
Oklahoma	8	12	7	94	207	337	515	14	25	1	2	1
Texas	57	30	38	1,712	1,361	968	2,815	1,416	416	13	1	1
MOUNTAIN												
Montana	0	7	2	38	11	11	80	5	46	1	1	0
Idaho	0	1	1	------	------	5	85	44	39	0	0	0
Wyoming	0	1	0	197	------	------	59	19	19	0	0	0
Colorado	6	10	10	88	44	29	256	214	200	0	0	0
New Mexico	2	5	2	3	5	7	118	187	89	0	0	0
Arizona	0	0	2	182	105	105	170	136	95	0	0	0
Utah [3]	1	0	0	4	22	8	178	32	145	0	0	0
Nevada	0	0	------	------	------	------	18	0	------	0	1	------
PACIFIC												
Washington	3	2	2	7	16	3	253	79	79	2	1	1
Oregon	1	1	1	10	21	34	97	442	41	0	0	0
California	23	13	26	148	404	211	4,867	231	348	3	1	3
Total	340	288	431	5,101	6,366	6,740	21,373	43,731	15,224	88	48	52
10 weeks	3,249	3,037	5,370	49,622	446,898	130,874	136,012	215,980	121,348	661	485	533

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended March 14, 1942, and comparison with corresponding week of 1941 and 5-year median—Con.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Week ended—		Median 1937–41	Week ended—		Median 1937–41	Week ended—		Median 1937–41	Week ended—		Median 1937–41
	Mar. 14, 1942	Mar. 15, 1941		Mar. 14, 1942	Mar. 15, 1941		Mar. 14, 1942	Mar. 15, 1941		Mar. 14, 1942	Mar. 15, 1941	
NEW ENG.												
Maine	0	0	0	30	7	17	0	0	0	3	0	0
New Hampshire	0	0	0	58	3	9	0	0	0	0	0	0
Vermont	0	0	0	3	8	8	0	0	0	0	0	0
Massachusetts	0	0	0	381	168	219	0	0	0	0	1	1
Rhode Island	0	0	0	15	5	18	0	0	0	0	0	0
Connecticut	0	0	0	49	52	107	0	0	0	1	1	1
MID. ATL.												
New York	1	0	0	536	524	937	0	0	0	4	5	5
New Jersey	1	0	0	208	330	232	0	0	0	2	1	3
Pennsylvania	1	0	0	649	338	649	0	0	0	7	6	6
E. NO. CEN.												
Ohio	2	0	0	758	256	370	0	0	2	8	2	4
Indiana	0	0	0	127	191	224	0	5	5	1	1	1
Illinois	1	0	1	289	516	714	4	14	14	0	0	3
Michigan	1	0	0	359	252	609	0	3	3	0	0	2
Wisconsin	0	1	1	170	166	182	1	7	7	0	1	0
W. NO. CEN.												
Minnesota	1	0	0	110	59	121	0	5	7	0	0	0
Iowa	0	0	0	58	65	198	0	1	31	1	0	1
Missouri	0	0	0	123	96	102	1	19	19	1	4	5
North Dakota	0	0	0	26	21	14	0	0	3	0	0	0
South Dakota	0	0	0	41	11	26	1	0	2	0	0	0
Nebraska	0	0	0	34	24	41	0	0	9	0	1	0
Kansas	0	0	0	130	52	127	1	1	1	0	0	0
SO. ATL.												
Delaware	0	0	0	58	16	13	0	0	0	0	0	0
Maryland [2]	0	0	0	70	36	41	0	0	0	0	1	1
Dist. of Col	0	0	0	16	32	18	0	0	0	0	0	0
Virginia	0	0	0	50	48	36	0	0	0	0	1	2
West Virginia	0	0	0	48	46	48	0	0	0	1	0	3
North Carolina	0	0	1	43	34	28	0	0	0	1	0	0
South Carolina	3	0	0	2	5	5	2	0	0	0	10	3
Georgia	0	0	0	22	14	17	0	0	0	5	3	3
Florida	0	3	0	10	8	8	0	0	0	6	4	3
E. SO. CEN.												
Kentucky	1	0	1	98	151	96	1	0	0	1	2	2
Tennessee	2	1	0	38	153	49	0	1	1	1	3	2
Alabama	0	1	1	22	26	23	0	1	0	1	5	3
Mississippi [2]	0	0	1	15	6	5	0	2	1	0	1	1
W. SO. CEN.												
Arkansas	0	1	1	10	7	7	0	0	3	3	3	3
Louisiana	0	1	1	0	14	14	0	0	1	3	5	13
Oklahoma	0	0	0	5	13	33	1	0	16	0	1	3
Texas	0	1	2	49	74	79	1	2	2	2	7	8
MOUNTAIN												
Montana	0	1	0	19	38	36	2	0	0	0	0	0
Idaho	0	0	0	2	11	16	0	0	1	0	9	1
Wyoming	0	0	0	23	11	11	0	0	0	0	1	0
Colorado	1	0	0	49	51	44	1	1	3	0	0	0
New Mexico	0	0	0	9	5	16	0	0	1	0	0	0
Arizona	1	0	0	2	3	9	0	0	0	1	2	0
Utah [2]	0	0	0	27	16	27	0	0	0	1	0	0
Nevada	0	0	------	2	1	------	0	1	------	0	0	------
PACIFIC												
Washington	0	0	0	33	12	53	0	0	0	1	0	2
Oregon	1	0	0	11	11	24	0	2	19	2	1	2
California	1	1	1	149	170	234	0	0	11	1	5	4
Total	18	11	16	5,036	4,146	5,818	16	65	285	58	87	106
10 weeks	250	250	216	39,658	35,845	53,966	231	844	2,942	779	745	1,101

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended March 14, 1942—Continued.

Division and State	Whooping cough		Week ended Mar. 14, 1942								
	Week ended—		Anthrax	Dysentery		Unspecified	Encephalitis	Leprosy	Rocky Mountain spotted fever	Tularemia	Typhus fever
	Mar. 14, 1942	Mar. 15, 1941		Amebic	Bacillary						
NEW ENG.											
Maine	30	13	0	0	0	0	0	0	0	0	0
New Hampshire	6	11	0	0	0	0	0	0	0	0	0
Vermont	34	7	0	0	0	0	0	0	0	0	0
Massachusetts	235	227	1	0	0	0	1	0	0	0	0
Rhode Island	43	18	0	0	0	0	0	0	0	0	0
Connecticut	82	66	0	0	0	0	0	0	0	0	0
MID. ATL.											
New York	487	318	0	3	3	0	1	0	0	0	1
New Jersey	243	128	0	0	0	0	0	0	0	0	0
Pennsylvania	211	402	0	0	0	0	0	0	0	0	0
E. NO. CEN.											
Ohio	341	421	0	0	0	0	0	0	0	0	0
Indiana	27	25	0	0	1	0	0	0	0	0	0
Illinois	146	83	0	0	0	0	0	0	0	0	0
Michigan	164	351	0	0	0	0	0	0	0	0	0
Wisconsin	189	97	0	0	0	0	0	0	0	1	0
W. NO. CEN.											
Minnesota	59	95	0	0	0	0	0	0	0	0	0
Iowa	55	51	0	0	0	0	0	0	0	0	0
Missouri	22	65	0	1	1	0	0	0	0	0	0
North Dakota	5	8	0	0	0	0	0	0	0	0	0
South Dakota	6	14	0	0	0	0	0	0	0	0	0
Nebraska	8	7	0	0	0	0	0	0	0	0	0
Kansas	55	102	0	0	0	0	1	0	0	0	0
SO. ATL.											
Delaware	0	5	0	0	0	0	0	0	0	0	0
Maryland [1]	45	72	0	0	0	1	1	0	0	0	0
Dist. of Col	26	9	0	0	0	0	0	0	0	0	0
Virginia	74	98	0	0	0	27	0	0	0	1	0
West Virginia	41	46	0	0	0	0	0	0	0	0	0
North Carolina	100	340	0	0	0	0	0	0	0	0	0
South Carolina	80	123	0	0	0	0	0	0	0	0	1
Georgia	33	83	0	2	14	0	0	0	0	4	12
Florida	40	18	0	1	0	0	0	0	0	0	3
E. SO. CEN.											
Kentucky	76	102	0	0	0	0	0	0	0	0	0
Tennessee	34	59	0	0	0	0	0	0	0	1	0
Alabama	22	36	0	0	0	0	0	0	0	0	0
Mississippi [2]	0	0	0	0	0	0	0	0	0	1	0
W. SO. CEN.											
Arkansas	19	11	0	0	6	0	0	0	0	0	0
Louisiana	10	2	0	0	3	0	0	0	0	2	3
Oklahoma	9	21	0	0	0	0	1	0	0	0	0
Texas	217	233	0	6	45	0	0	0	0	0	11
MOUNTAIN											
Montana	6	28	0	0	1	0	0	0	0	0	0
Idaho	19	19	0	0	0	0	0	0	0	0	0
Wyoming	3	0	0	0	0	0	0	0	0	0	0
Colorado	55	57	0	0	0	0	0	0	0	0	0
New Mexico	59	16	0	0	0	0	0	0	0	0	0
Arizona	20	20	0	0	0	10	0	0	0	0	0
Utah [2]	69	92	0	0	0	0	0	0	0	0	0
Nevada	8	2	0	0	0	0	0	0	0	0	0
PACIFIC											
Washington	89	84	0	0	0	0	0	0	0	0	0
Oregon	37	7	0	0	0	0	0	0	0	0	0
California	277	463	0	2	4	0	0	0	0	0	0
Total	3,916	4,555	1	15	78	38	5	0	0	10	31
10 weeks	40,078	43,492									

[1] New York City only.
[2] Period ended earlier than Saturday.

WEEKLY REPORTS FROM CITIES

City reports for week ended Feb. 28, 1942

This table lists the reports from 87 cities of more than 10,000 population distributed throughout the United States, and represents a cross section of the current urban incidence of the diseases included in the table.

	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
Atlanta, Ga	1	0	9	2	2	0	1	0	7	0	0	1
Baltimore, Md	1	0	2	0	259	4	15	0	24	0	0	35
Barre, Vt	0	0	------	0	0	0	0	0	0	0	0	3
Billings, Mont	0	0	------	0	1	0	1	0	0	0	0	0
Birmingham, Ala	0	0	25	0	3	0	8	0	5	0	0	3
Boise, Idaho	0	0	------	0	3	0	2	0	0	0	0	0
Boston, Mass	0	0	------	0	64	1	16	0	71	0	1	24
Bridgeport, Conn	0	0	1	0	6	0	3	0	2	0	0	0
Brunswick, Ga	0	0	------	0	16	0	0	0	0	0	0	0
Buffalo, N. Y	0	0	------	1	6	0	9	0	18	0	0	17
Camden, N. J	0	0	2	1	7	0	3	0	13	0	0	2
Charleston, S. C	0	0	64	0	0	1	0	0	1	------	0	0
Chicago, Ill	8	0	10	1	124	1	29	0	119	0	0	68
Cincinnati, Ohio	2	0	------	1	0	0	7	0	20	0	0	8
Cleveland, Ohio	0	0	12	2	5	1	8	0	72	0	0	17
Columbus, Ohio	0	0	3	3	16	0	5	0	2	0	0	7
Concord, N. H	0	0	------	1	0	0	1	0	1	0	0	0
Cumberland, Md	0	0	------	0	1	0	0	0	4	0	0	0
Dallas, Tex	3	0	3	3	177	0	9	0	8	0	1	2
Denver, Colo	0	0	24	0	107	1	7	0	12	0	0	17
Detroit, Mich	3	0	2	1	83	0	16	0	157	0	0	72
Duluth, Minn	0	0	------	0	1	0	1	0	7	0	0	2
Fall River, Mass	0	0	------	0	0	1	1	0	32	0	0	0
Fargo, N. Dak	0	0	------	0	0	0	0	0	0	0	0	0
Flint, Mich	0	0	------	0	1	0	4	0	2	0	0	2
Fort Wayne, Ind	0	0	------	0	0	0	2	0	1	0	0	0
Frederick, Md	0	0	------	0	1	0	0	0	0	0	0	0
Galveston, Tex	0	0	------	0	0	0	2	0	1	0	0	0
Grand Rapids, Mich	0	0	------	0	4	0	0	0	2	0	0	4
Great Falls, Mont	0	0	------	0	76	0	1	0	0	0	0	2
Hartford, Conn	0	0	------	0	14	2	1	0	3	0	0	4
Helena, Mont	0	0	------	0	1	0	0	0	1	0	0	5
Houston, Tex	2	0	------	0	39	0	6	0	4	0	0	3
Indianapolis, Ind	0	0	------	0	12	0	7	0	27	0	0	13
Kansas City, Mo	0	0	1	1	5	0	6	0	43	0	0	0
Kenosha, Wis	0	0	------	0	3	0	0	0	4	0	0	9
Little Rock, Ark	0	0	5	0	103	1	0	0	0	0	0	0
Los Angeles, Calif	2	0	27	2	346	0	15	1	22	0	0	35
Lynchburg, Va	0	0	------	0	1	0	1	0	0	0	0	1
Memphis, Tenn	0	0	19	4	3	0	4	0	6	0	0	14
Milwaukee, Wis	0	0	1	1	27	0	9	0	30	0	0	67
Minneapolis, Minn	1	0	------	1	67	0	2	0	27	0	0	14
Missoula, Mont	0	0	------	0	0	0	1	0	0	0	0	0
Mobile, Ala	0	0	------	1	10	0	2	0	3	0	0	0
Nashville, Tenn	0	0	------	1	4	0	8	0	0	0	0	3
Newark, N. J	0	0	4	0	42	0	8	0	21	0	0	23
New Haven, Conn	0	0	------	0	125	0	1	0	2	0	0	4
New Orleans, La	1	0	------	0	19	1	6	1	5	0	1	1
New York, N. Y	25	2	13	0	46	6	81	1	234	0	2	185
Omaha, Nebr	1	0	------	0	62	0	1	0	3	0	0	0
Philadelphia, Pa	4	0	4	5	20	0	34	0	262	0	1	53
Pittsburgh, Pa	1	0	------	0	12	1	12	0	15	0	3	5
Portland, Maine	0	0	------	1	1	0	2	0	2	0	0	3
Providence, R. I	1	0	1	1	80	17	5	0	1	0	0	42
Pueblo, Colo	0	0	------	0	30	0	1	0	2	0	0	0
Racine, Wis	0	0	------	0	1	0	0	0	5	0	0	21
Reading, Pa	0	0	------	0	4	0	1	0	0	0	0	2
Richmond, Va	3	0	------	0	0	1	6	0	2	0	0	0

City reports for week ended Feb. 28, 1942—Continued

	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
Roanoke, Va	0	0	------	0	0	0	2	0	0	0	0	0
Rochester, N. Y	0	0	------	0	5	0	3	0	7	0	1	5
Sacramento, Calif	0	0	4	0	83	0	3	0	2	0	0	6
Saint Joseph, Mo	0	0	------	0	1	0	8	0	1	0	0	0
Saint Louis, Mo	0	0	------	1	133	0	6	0	32	0	0	6
Saint Paul, Minn	0	0	------	0	525	0	2	0	5	0	0	17
Salt Lake City, Utah	0	0	------	0	6	0	2	0	1	0	0	5
San Antonio, Tex	1	0	1	0	5	0	14	0	5	0	0	2
San Francisco, Calif	0	0	8	0	84	1	4	0	6	0	0	4
Savannah, Ga	0	0	23	1	47	0	2	0	0	0	0	1
Seattle, Wash	0	0	------	1	0	0	3	0	3	0	0	22
South Bend, Ind	1	0	------	0	2	0	0	0	30	0	0	0
Spokane, Wash	0	0	------	0	7	0	3	0	3	0	0	15
Springfield, Ill	0	0	------	0	92	1	6	0	1	0	0	1
Springfield, Mass	3	0	------	0	23	0	0	0	14	0	0	16
Superior, Wis	0	0	------	0	0	0	0	0	3	0	0	3
Syracuse, N. Y	0	0	------	1	11	0	2	0	7	0	0	46
Tacoma, Wash	0	0	------	0	0	0	2	0	0	0	0	1
Tampa, Fla	0	0	------	0	5	0	0	0	0	0	1	2
Terre Haute, Ind	0	0	------	3	3	0	2	0	1	0	0	0
Topeka, Kans	0	0	------	0	2	0	2	0	3	0	0	8
Trenton, N. J	0	0	------	0	4	0	5	0	8	0	0	11
Washington, D. C	0	0	2	1	44	2	18	0	12	0	0	25
Wheeling, W. Va	0	0	------	0	41	0	5	0	2	0	0	1
Wichita, Kans	0	0	1	0	15	0	2	0	5	0	0	2
Wilmington, Del	5	0	------	0	0	0	4	0	6	0	0	0
Wilmington, N. C	0	0	------	0	239	0	3	0	0	0	0	0
Winston-Salem, N. C	1	0	------	0	158	0	2	0	0	0	1	0
Worcester, Mass	0	0	------	0	9	0	8	0	7	0	0	25

Anthrax.—Cases: Philadelphia, 1.

Dysentery, amebic.—Cases: Baltimore, 1; New York, 4.

Dysentery, bacillary.—Cases: Dallas, 1; Los Angeles, 1; New York, 4; Syracuse, 1.

Typhus fever.—Cases: Houston, 1; Savannah, 1; Tampa, 1.

Rates (annual basis) per 100,000 population for the group of 87 cities in the preceding table (estimated population, 1942, 33,870,168)

Period	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Typhoid fever cases	Whooping cough cases
		Cases	Deaths						
Week ended Feb. 28, 1942	10.78	42.03	6.16	551.75	74.51	226.15	0.00	1.85	156.57
Average for week, 1937–41	18.64	158.15	20.51	983.37	123.97	264.56	4.51	3.26	175.24

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended February 14, 1942.—During the week ended February 14, 1942, cases of certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis		7	1	3	4	2		1	3	21
Chickenpox		2		197	297	92	6	29	142	765
Diphtheria	2	34		22	2	6			10	76
Dysentery				70						70
German measles	2	1		35	41	29	17	18	42	185
Influenza		12			14	14			64	104
Measles				453	185	238	12	14	94	996
Mumps		21		348	298	137	75	40	434	1,353
Pneumonia		3			14	2			18	37
Poliomyelitis			2			1				3
Scarlet fever	2	19	13	138	252	37	35	74	43	613
Trachoma									1	1
Tuberculosis	2	2	8	88	39		28			167
Typhoid and paratyphoid fever				5				1		6
Undulant fever						1				1
Whooping cough		23		140	74				22	259
Other communicable diseases		2		1	244	39	6	5	10	307

REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK

NOTE.—Except in cases of unusual prevalence, only those places are included which had not previously reported any of the above-mentioned diseases, except yellow fever, during the current year. All reports of yellow fever are published currently.

A cumulative table showing the reported prevalence of these diseases for the year to date is published in the PUBLIC HEALTH REPORTS for the last Friday of each month.

Plague

Brazil.—Plague has been reported in Brazil, by States, as follows: November 1–30, 1941, Alagoas, 3 cases; Bahia, 2 cases, 1 death; Pernambuco, 16 cases, 9 deaths. December 1–31, 1941, Alagoas, 6 cases, 1 death; Pernambuco, 8 cases, 6 deaths.

Typhus Fever

Algeria.—Under date of January 29, 1942, typhus fever was reported to have spread in Algeria with great rapidity. Outbreaks are reported to have occurred in numerous localities, especially among the native

population, which is stated to lack sufficient food and proper sanitation. The numbers of cases have recently trebled in the Departments of Algeria and Oran, while in the Department of Constantine they have increased sixfold. From January 1 to 20, 1942, a total of 2,146 cases was reported, as compared with 65 cases for the corresponding period of 1941.

Various precautionary measures have been undertaken, such as disinfestation, head shaving of natives in public schools, and restrictions on travel in public conveyances. Compulsory preventive inoculation of the natives has not yet been undertaken but is under serious consideration. It is reported that the serum inoculations so far given have shown good results.

The following figures present a comparison of the incidence of typhus fever in Algeria during the period October 1–December 31, 1940, and 1941, and for the first 20 days of 1942 and 1941:

	1940	1941	1942
October 1–December 31	359	3,070	-----
January 1–20	---	65	2,146

France (unoccupied zone).—During the week ended February 28, 1942, 2 cases of typhus fever (including 1 imported case) were reported in the unoccupied zone of France. During the preceding week 2 imported cases of typhus fever were reported in the same locality.

Guatemala.—During the month of February 1942, 14 cases of typhus fever with 4 deaths were reported in Guatemala.

Morocco.—During the week ended February 21, 1942, 793 cases of typhus fever were reported in Morocco.

Peru.—During the period October 1 to December 31, 1941, cases of typhus fever were reported in Peru, by Departments, as follows: Amazonas, 62; Ancash, 11; Apurimac, 13; Arequipa, 26; Ayacucho, 12; Cajamarca, 1; Cuzco, 122; Huancavelica, 3; Hŭanuco, 4; Junin, 29; Libertad, 1; Lima, 4; Puno, 67; Tacna, 1.

Spain.—Recent reports reveal an increase in the incidence of typhus fever in Spain.[1] In the 4 weeks December 28, 1941, to January 24, 1942, inclusive, a total of 638 cases, with 64 deaths, was reported, as compared with 227 cases and 33 deaths for the preceding 4-week period. The current official figures are stated to be incomplete. The largest numbers of cases are reported to be occurring in the Provinces of Madrid, Cadiz, and Cordoba. It was estimated that there were 600 cases in Madrid on February 12, 1942. On February 9, 1942, it was reported that the disease had broken out in the political prisoners' jail in Barcelona, with approximately 100 cases present and a mortality of 14 percent.

[1] See PUBLIC HEALTH REPORTS for March 13, p. 407.

Tunisia.—During the week ended February 7, 1942, 416 cases of typhus fever (32 in Tunis) were reported in Tunisia. For the week ended January 31, 1942, 472 cases of typhus fever (58 in Tunis) were reported in Tunisia.

Yellow Fever

Brazil.—Yellow fever has been reported in Brazil as follows: Acre Territory, Sena Madureira, November 7, 1941, 1 death. Bahia State, Japu, December 21, 1941, 1 death.

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