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QUALIFICATIONS OF PROFESSIONAL PUBLIC HEALTH PERSONNEL [1]

III. NURSES

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Nurses make up the largest single professional group engaged in public health work. They assist in all medical services rendered by official health departments and carry major responsibility for specific health education through home visiting. Inasmuch as these activities are both essential functions of health departments and require time-consuming work with individuals, a large number of nurses is employed to carry them on. It is not surprising, therefore, that, in a survey of the qualifications of professional public health personnel in official health departments, 7,931 of the 16,670 schedules submitted from the 1,114 jurisdictions covered should come from nurses. Although no data are available on the exact number of nurses employed in the reporting jurisdictions at the time of the survey, it is believed that schedules were received from practically all the nurses. Since 97 percent of all jurisdictions having full-time health officers are included in the survey, the sampling represents at least 95 percent of public health nurses working for such jurisdictions.

Administrative classification of nurses.—In accordance with the plans discussed in the first two papers of this series, individual nurses are classified for the analysis into two administrative functional groups, i. e., supervisory and staff nurses. The 128 directors of public health nursing bureaus who returned schedules have been included with those reporting as superintendents or supervisors to make up the group designated as supervisory nurses. Included in the classification "staff nurses" are all field and clinic nurses, school nurses, and 14 nurse trainees. Table 1 shows the number in each group by employing jurisdiction. Throughout the subsequent analysis, data for the 7,900 cases will be presented separately for both the administrative and the jurisdictional classifications if the differences between the several groups justify it.

[1] From Division of Public Health Methods, National Institute of Health. This is the third in the series: Qualifications of Professional Public Health Personnel. Preceding papers are:

I. Plan and Scope of the Survey. Pub. Health Rep., 55: 2312 (1940).

II. Health Officers and Other Medical Personnel. Pub. Health Rep., 55: 2377 (1940).

For details on the method of conducting the survey and the completeness of the sample, see the first paper.

This survey was made possible through the cooperation of State and local health officers and members of their staffs throughout the country. Assistance in the preparation of these materials was furnished by the personnel of the Works Progress Administration, Official Project No. 765-23-3-2.

TABLE 1.—*Nurses in 1,114 jurisdictions, by employing jurisdiction and type of position held*

Employing jurisdiction	All nurses		Supervisory nurses [1]		Staff nurses [2]	
	Number	Percent	Number	Percent	Number	Percent
Total	7,900	100.0	833	100.0	7,067	100.0
State	1,186	15.0	251	30.1	935	13.2
County or district	2,846	36.0	214	25.7	2,632	37.3
City	3,868	49.0	368	44.2	3,500	49.5

[1] Includes directors of nursing bureaus, superintendents, and supervisors.
[2] Includes all field and clinic nurses, school nurses and "nurse trainees."

Nearly half the nurses considered here are employed in city health departments. Of the remainder, there are two and one-half times as many in counties as in State departments. Approximately one-tenth of the group as a whole are supervisors; however, as would be expected, the proportion among State employees is twice as large as among the county and city nurses, since many State employees act as consultants to or supervisors of local staffs.

Color.—Nurses in health departments are predominantly white. About 9 percent of the nurses are other than white and 5 percent are Negroes. The ratio of white to Negro nurses, although less than that of the two races in the general population, is much nearer the ratio available for employment.

TABLE 2.—*Age of nurses, by type of position held*

Age	All nurses		Supervisory nurses		Staff nurses	
	Number	Percent	Number	Percent	Number	Percent
Total	7,900	100.0	833	100.0	7,067	100.0
Under 25	333	4.2	7	0.9	326	4.6
25–29	1,515	19.2	65	7.8	1,450	20.5
30–34	1,493	18.9	110	13.2	1,383	19.6
35–39	1,194	15.1	131	15.7	1,063	15.1
40–44	1,153	14.6	156	18.7	997	14.1
45–49	885	11.2	126	15.1	759	10.7
50–54	605	7.7	123	14.8	482	6.8
55–59	360	4.5	59	7.1	301	4.3
60–64	147	1.9	25	3.0	122	1.7
65 or over	53	.7	9	1.1	44	.6
Unknown	162	2.0	22	2.6	140	2.0
Average	38.6		43.2		38.1	

Age.—The average age of nurses in official full-time departments is nearly 39 years. Supervisory nurses average 43 years of age, 5 years older than their staffs. It might also be pointed out that 25 percent of staff nurses, but fewer than 9 percent of administrative nurses, are under age 30. There would seem, therefore, to be a greater tendency here than was found among physicians [2] to assign positions with administrative responsibility to older workers. Nurses in city depart-

[2] See "Health Officers and Other Medical Personnel," the second in this series of papers.

ments are 5 years older than State and county employees, both of which groups average 36 years of age. The distribution of nurses by age and jurisdiction is shown in figure 1 and that by age and functional classification in table 2.

EDUCATIONAL QUALIFICATIONS

The nursing profession has not yet standardized basic requirements for entrance to professional training schools. A great deal is being done by organizations such as the National Organization for Public

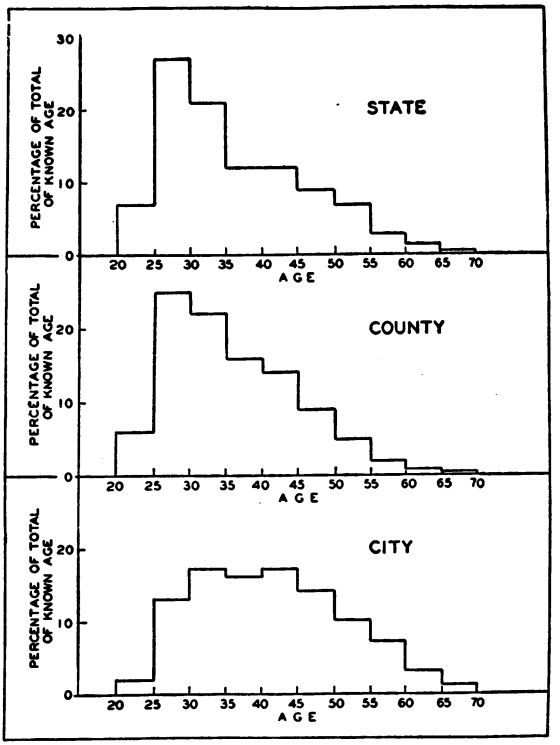

FIGURE 1.—Age of public health nurses, by employing jurisdiction.

Health Nursing and the League for Nursing Education to accomplish this, but schools of nursing throughout the country do not yet conform to a uniform standard. For this reason, one cannot assume that nurses have a specified minimum basic training before they begin their professional work, as was done in discussing the training of physicians. For example, among the 7,900 nurses studied (table 3), almost one-fourth did not report graduation from high school. Some did not report any high school training, but no determination of the number has been made for the table. Almost half of the group graduated from high school, but have no further academic experience. More than one-quarter have had some college work but only 9 percent have college degrees. Only 35 nurses have graduate degrees.

TABLE 3.—*Level of academic training reported by nurses, according to administrative and jurisdictional classifications*

Level of academic training reported	All nurses	Supervisory nurses	Staff nurses	State nurses	County nurses	City nurses
	Number					
Total	7,900	833	7,067	1,186	2,846	3,868
Not graduated from high school	1,818	168	1,650	264	410	1,144
High school graduation only	3,654	313	3,341	552	1,387	1,715
Some college training:						
2 years or less, no degree	1,459	150	1,309	185	556	718
3 years or more, no degree	292	43	249	47	125	120
Bachelor's degree [1]	550	124	426	118	311	121
Graduate training	127	35	92	20	57	50
	Percentage					
Total	100.0	100.0	100.0	100.0	100.0	100.0
Not graduated from high school	23.0	20.2	23.3	22.3	14.4	29.6
High school graduation only	46.3	37.6	47.3	46.5	48.7	44.3
Some college training:						
2 years or less, no degree	18.4	18.0	18.5	15.6	19.6	18.6
3 years or more, no degree	3.7	5.1	3.5	4.0	4.4	3.1
Bachelor's degree [1]	7.0	14.9	6.0	9.9	10.9	3.1
Graduate training	1.6	4.2	1.4	1.7	2.0	1.3

[1] Includes those with professional degrees.

In this connection it might be pointed out that the college work that nurses take is apparently pointed more directly toward their professional training than that taken by physicians, for two-thirds of the nurses with college degrees graduated in science rather than in the arts.

Supervisory nurses have a much better educational background than those in staff positions, and State and county nurses as a whole have more academic training than city nurses. Part of this jurisdictional difference is accounted for by the larger proportion of staff nurses in cities, though the better training of the county employees probably indicates an attempt to meet the need for superior personnel where immediate supervision is frequently not available.

Comparison with some of the previous surveys of the training of public health nurses indicates a gradual improvement in the educational background of the personnel. It is unfortunate that the data on 1,973 nurses presented in the White House Conference Reports [3] were not presented in the terms used in the other surveys summarized. In attempting to make these comparable in table 4, it has been assumed, as it was in the present survey, that the group reported as "unspecified" at any level did not have the training in question. No such assumptions were necessary in utilizing the material from the National Organization for Public Health Nursing study in 1934 [4]

[3] Public Health Organization, vol. IIA, Reports of the White House Conference on Child Health and Protection. The Century Co., New York, 1932.

[4] Survey of Public Health Nursing by the National Organization for Public Health Nursing. The Commonwealth Fund, New York, 1934.

and from Marian Randall's study for the Organization in 1937,[5] inasmuch as their data on training were reported in the manner that is used in the present survey.

TABLE 4.—*Academic education of public health nurses, summary of four surveys*

Level of college training reported	Survey and year			
	United States Public Health Service, 1938	Randall,[1] 1937	National Organization for Public Health Nursing,[2] 1934	White House Conference,[3] 1932
Total	*Percentage* 100	*Percentage* 100	*Percentage* 100	*Percentage* 100
None	69	88	82	80
Not graduated from high school	23	6	47	40
High school graduation only	46	82	35	40
Less than a degree	22	1	17	17
Bachelor's degree	9	11	1	3
Number of nurses included	7,900	917	405	1,973

[1] From table 2, page 46, Personnel Policies in Public Health Nursing, prepared for the Committee on Personnel Practices in Official Agencies of the National Organization for Public Health Nursing by Marian G. Randall. It should be noted that some of the nurses in this study are board of education nurses, and for that reason the bases are not entirely comparable. It is also true that 8 out of the 917 nurses did not report training.

[2] Adapted from table 7, page 65, Survey of Public Health Nursing by the National Organization for Public Health Nursing. It should be noted that the percentages apply only to nurses employed by departments of health.

[3] Data from table 2, page 274, of Public Health Organization, vol. IIA, Reports of the White House Conference on Child Health and Protection. The White House Conference Reports on training did not state the findings in terms of levels of college training but rather summarized elementary education, secondary education, and college training separately. In putting the percentages in the form that is used here, the assumption has been made that those who did not attend college had only high school education. In view of the fact that the White House Conference data and the National Organization for Public Health Nursing data agree quite closely in the essentials, it is believed that the assumptions are tenable. The data for the White House Conference Reports were also confined to nurses working in official public health agencies.

The sampling in the White House Conference survey and the present one may be considered directly comparable. The National Organization for Public Health Nursing survey was based only on field nurses. Randall's sample contains a much higher proportion of directors and supervisors than is found in the present survey. Taking these limitations into account, it is obvious from the table that there has been considerable progress toward more adequate training of public health nurses since 1930.

Professional training.—In addition to the academic education summarized above, 54 supervisory and 287 staff nurses reported from 1 to 4 years of professional training in fields other than nursing or public health. The form of the schedule did not require specifications as to the type of training and it is, therefore, only in occasional instances that definite information on the point is available. However, in many cases the professional training reported was in medical or premedical work. Because of the relatively small numbers involved, no detailed tabulation of the amount of such training has been made.

[5] Personnel Policies in Public Health Nursing. Prepared for the Committee on Personnel Practices in Official Agencies of the National Organization for Public Health Nursing by Marian G. Randall. Macmillan, New York, 1937.

In order to obtain a more accurate estimate of the whole educational equipment of nurses, the number of years spent in academic, professional, and nursing education has been determined for each nurse and the results combined to produce table 5.[6] Almost two-thirds of the nurses have had only 3 years of training, usually their nursing training, with no other educational work beyond high school. On the whole, supervisors have had more years of training than their staffs; and county nurses have had more academic education than either of the other two jurisdictional groups. Among city nurses (mostly staff workers), are 303 of the 456 cases with less than 3 years of training and the majority of those whose total amount of training is unknown.

It is assumed that all the nurses have taken the training necessary to become graduate nurses, even though 227 (2.9 percent) did not report registration. The majority of these cases are probably omissions in reporting. No separate tabulation has been made of the number of years in nursing school, inasmuch as ways of reckoning nursing training are known to vary considerably among institutions. It is equally well recognized that prerequisites required by institutions vary, although schools requiring college work prior to entrance are in the minority. The schedules give no evidence as to the relative number of nurses who were graduated from accredited schools of nursing.

TABLE 5.—*Total years of training* [1] *reported by nurses*

Total years of training reported	All nurses	Supervisory nurses	Staff nurses	State nurses	County nurses	City nurses
	Number					
Total	7,900	833	7,067	1,186	2,846	3,868
2	456	51	405	43	110	303
3	4,903	431	4,472	767	1,647	2,489
4	778	69	709	97	290	391
5	571	63	508	69	233	269
6	347	56	291	63	168	116
7	456	109	347	89	255	112
8	81	19	62	19	41	21
9 or more	52	17	35	6	19	27
Unknown	256	18	238	33	83	140
	Percentage					
Total	100.0	100.0	100.0	100.0	100.0	100.0
2	5.8	6.1	5.7	3.6	3.9	7.8
3	62.1	51.7	63.3	64.7	57.9	64.4
4	9.8	8.3	10.0	8.2	10.2	10.1
5	7.2	7.6	7.2	5.8	8.2	7.0
6	4.4	6.7	4.1	5.3	5.9	3.0
7	5.8	13.1	4.9	7.5	8.9	2.9
8	1.0	2.3	.9	1.6	1.4	.5
9 or more	.7	2.0	.5	.5	.7	.7
Unknown	3.2	2.2	3.4	2.8	2.9	3.6

[1] Includes academic, nursing, and professional education. "Professional education," as used here, specifically excludes both nursing training and public health training.

[6] In table 5, differences in high school education are not considered.

Public health training.—Half the nurses in public health departments have had some public health training and one out of six has had as much as a year. These proportions are approximately the same as those shown in an earlier paper for the medical personnel. The major difference between the public health training of nurses and that of physicians is in the proportion reporting only "special courses." Relatively many more physicians than nurses report having had only special courses but fewer physicians report having had training in an accredited graduate school of public health.

In the course of analyzing the public health training data, it was discovered that many nurses had reported training of less than a year's duration as "special courses." Accordingly, all nurses' schedules were reviewed by two public health nursing consultants of the Public Health Service who are familiar with the field; and, in all cases in which it was possible to determine at what institutions individuals had been trained, the recording was corrected. The category "special courses" has, therefore, been restricted to "in-service field courses of short duration" in table 6, as elsewhere in the study. Although there was no evidence in the data to indicate that similar reporting errors had been made by physicians, it is possible that such errors did occur, which would account in part for the difference in the proportion who have had only special courses.

TABLE 6.—*Public health training reported by public health nurses, distribution by administrative and jurisdictional classifications*

Public health training reported	All nurses	Supervisory nurses	Staff nurses	State nurses	County nurses	City nurses
	Number					
Total	7,900	833	7,067	1,186	2,846	3,868
None	4,021	300	3,721	466	1,149	2,406
Special courses only	680	100	580	124	167	389
Less than 1 semester	1,025	97	928	98	500	427
1 semester, less than year	833	93	740	209	412	212
1 year or more	1,267	230	1,037	273	585	409
Graduate training, unspecified [1]	74	13	61	16	33	25
Certificate	863	121	742	148	435	280
Degree	65	43	22	37	21	7
	Percentage					
Total	100.0	100.0	100.0	100.0	100.0	100.0
None	50.9	36.0	52.6	39.3	40.4	62.2
Special courses only	8.6	12.0	8.2	10.5	5.9	10.1
Less than 1 semester	13.0	11.6	13.1	8.3	17.6	11.0
1 semester, less than year	10.5	11.2	10.5	17.6	14.5	5.5
1 year or more	16.1	27.6	14.7	23.0	20.5	10.6
Graduate training, unspecified [1]	.9	1.6	.9	1.3	1.1	.6
Certificate	10.9	14.5	10.5	12.5	15.3	7.2
Degree	.8	5.2	.3	3.1	.7	.2

[1] All evidence leads to the belief that this training is less than a year's course.

In general, the differences in public health training between supervisory and staff nurses and between nurses employed in the several types of jurisdictions are similar to those shown for academic training. Supervisory nurses have more public health training than their staffs; nurses in city jurisdictions have less than those in States and counties. Only 8 in 1,000 nurses have degrees in public health. Among the 65 nurses who report degrees in public health, 37 are bachelors of science in public health. Twenty-six have master's degrees in public health or are masters of science with a major in public health. One nurse is a doctor of public health and another is a doctor of philosophy with a major in public health.

The reporting of certificates is more difficult to interpret because of the wide variation in the requirements for a certificate. It cannot be assumed that those reporting certificates have all passed accredited courses. In this connection it may be well to point out that the category "graduate training, unspecified" in table 6 is one not previously used in this series of papers. Each of the 74 individuals reporting an unspecified amount of graduate training also reported a "certificate." All available evidence leads to the belief that the training reported was less than a year's course but there is not enough information to permit a decision as to whether it was more or less than one semester.

Although half the nurses engaged in the special field of public health have no other training than that obtained in their basic nursing course, the present situation represents a definite advance over that revealed by the White House Conference in 1930, when 60.4 percent of those who reported on their public health training[7] had had no such training and only 9.0 percent had had one year or more. Similar improvement is shown over the results obtained in the survey by the National Organization for Public Health Nursing which showed that only 8 percent had completed an accredited course leading to a certificate or a degree. The categories are not exactly comparable but are sufficiently so to make the comparison valid. On the other hand, the data in table 6 are widely at variance with Randall's finding in 1937 that 85 percent of her sampling of 917 nurses had had some public health nursing courses and that 29 percent had a public health nursing certificate. The reason for this wide divergence is not altogether evident in the material. It will be recalled that a similar divergence was evident in the comparison of college training reported in table 4.

Although no comparable data on the public health training of nurses in 1935 (the year in which funds were made available for training personnel under the Social Security Act) are available, some evidence

[7] In the above, the 11.5 percent who failed to specify the amount of their public health training have been excluded from the computations. If the more likely assumption were made—that those failing to report public health training had none—the improvement of the situation now over 1930 would be even greater.

of the stimulus given to training by the Act may be obtained by comparing the training of those employed in their present positions prior to 1935 (old employees) and those employed in their present positions since that date (new employees). Thus, if those employed prior to 1935 were sent away for training and returned to the same job, they are classified in table 7 as "new employees."

TABLE 7.—*Comparison of public health training levels among public health nurses, by recency of employment*

Personnel classification	All nurses		Public health training reported							
			None		Special courses only		Less than 1 year [1]		1 year or more	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
All nurses	7,900	100.0	4,021	50.9	680	8.6	1,932	24.5	1,267	16.0
Old employees [2]	4,462	100.0	2,595	58.2	447	10.0	895	20.0	525	11.8
New employees [3]	3,438	100.0	1,426	41.5	233	6.8	1,037	30.1	742	21.6
State nurses	1,186	100.0	466	39.3	124	10.5	323	27.2	273	23.0
Old employees	431	100.0	209	48.5	64	14.8	95	22.1	63	14.6
New employees	755	100.0	257	34.0	60	8.0	228	30.2	210	27.8
County nurses	2,846	100.0	1,149	40.3	167	5.9	945	33.2	585	20.6
Old employees	1,047	100.0	492	47.0	69	6.6	326	31.1	160	15.3
New employees	1,799	100.0	657	36.5	98	5.4	619	34.5	425	23.6
City nurses	3,868	100.0	2,406	62.2	389	10.1	664	17.1	409	10.6
Old employees	2,984	100.0	1,894	63.5	314	10.5	474	15.9	302	10.1
New employees	884	100.0	512	57.9	75	8.5	190	21.5	107	12.1

[1] For the purposes of this comparison, "graduate training unspecified" is considered less than 1 year although certificates were reported in each case.
[2] Includes all reporting continuous employment in present position for 3 years or more.
[3] Includes all reporting appointment to present position within 3 years (1935–1938).

As shown in table 7, the proportion of new workers with as much as one year of public health training is twice as great as that of old workers. Similarly, the proportion with less than one year of graduate public health work is greater among the recently employed group. Furthermore, differences are much more pronounced among State and county nurses than among those employed in cities. In this connection, it should be recalled that a large proportion of the training funds have been expended on State and county personnel, and expansion in public health has been largely in State and county units.

There is evident, however, a tendency to appoint young workers with no formal public health training. An analysis of public health training by age, shown in table 8, demonstrates this point. Fifty-five percent of all nurses under 25 report no public health training. In this, the youngest group, the proportion with no training is higher than in any other group except those over 50; among State employees it exceeds all others. Lack of public health training among young workers is most pronounced in State and city departments; only in county units is the proportion of nurses with at least one year of training greater in the youngest age group than the average for all ages.

TABLE 8.—*Public health training reported by public health nurses, according to age group and employing jurisdiction*

Age	State					County					City				
	Total	Training reported				Total	Training reported				Total	Training reported			
		None	Special courses	Less than 1 year	1 year or more		None	Special courses	Less than 1 year	1 year or more		None	Special courses	Less than 1 year	1 year or more
	Number														
Total, all ages	1,186	466	124	307	289	2,846	1,149	167	912	618	3,868	2,406	389	639	434
Under 25	83	54	1	14	14	162	69	12	41	40	88	61	12	13	2
25–29	317	142	29	86	60	711	259	47	257	148	486	293	32	106	55
30–34	244	83	27	76	58	620	240	32	203	145	630	360	57	121	92
35–39	146	46	14	37	49	455	170	26	137	122	593	341	53	123	76
40–44	139	45	14	33	47	378	158	17	119	84	636	394	76	83	83
45–49	107	40	15	31	21	244	110	15	75	44	534	333	69	86	46
50–54	84	27	10	20	27	141	75	14	31	21	380	250	40	49	41
55–59	35	15	9	3	8	66	34	----------	23	9	259	191	25	28	15
60 or over	20	12	2	4	2	33	15	3	13	2	147	111	14	16	6
Unknown	11	2	3	3	3	36	19	1	13	3	115	72	11	14	18
	Percentage														
Total, all ages	100.0	39.3	10.5	25.8	24.4	100.0	40.4	5.9	32.0	21.7	100.0	62.2	10.1	16.5	11.2
Under 25	100.0	65.0	1.2	16.9	16.9	100.0	42.6	7.4	25.3	24.7	100.0	69.3	13.6	14.8	2.3
25–29	100.0	44.8	9.2	27.1	18.9	100.0	36.4	6.6	36.2	20.8	100.0	60.3	6.6	21.8	11.3
30–34	100.0	34.0	11.1	31.1	23.8	100.0	38.7	5.2	32.7	23.4	100.0	57.1	9.1	19.2	14.6
35–39	100.0	31.5	9.6	25.3	33.6	100.0	37.4	5.7	30.1	26.8	100.0	57.5	8.9	20.8	12.8
40–44	100.0	32.4	10.1	23.7	33.8	100.0	41.8	4.5	31.5	22.2	100.0	61.9	11.9	13.1	13.1
45–49	100.0	37.4	14.0	29.0	19.6	100.0	45.1	6.2	30.7	18.0	100.0	62.4	12.9	16.1	8.6
50–54	100.0	32.1	12.0	23.8	32.1	100.0	53.2	9.9	22.0	14.9	100.0	65.8	10.5	12.9	10.8
55–59	100.0	42.9	25.7	8.6	22.8	100.0	51.5	----------	34.9	13.6	100.0	73.7	9.7	10.8	5.8
60 or over	100.0	60.0	10.0	20.0	10.0	100.0	45.4	9.1	39.4	6.1	100.0	75.5	9.5	10.9	4.1
Unknown	100.0	18.1	27.3	27.3	27.3	100.0	52.8	2.8	36.1	8.3	100.0	62.6	9.6	12.2	15.6

EMPLOYMENT EXPERIENCE

Recognizing that experience as well as training is needed to make an efficient employee, the questionnaires in the present survey requested data on the employment history of individuals canvassed. Items included in the questionnaire were: Title of each position held, name and address of each employing organization, type of organization, length of employment in each position, and whether it was full- or part-time.

Failure to obtain exact dates of employment and periods of unemployment has, however, seriously handicapped analysis of the resulting data. In the case of nurses, the situation is rather more difficult than in the case of physicians, since a smaller percentage reported what seemed to be complete employment histories. In the preceding paper in this series [8] it was stated that schedules were classified as adequate or inadequate in reporting employment history according to the number of years of employment reported in relation to the number of years of availability for employment after completing professional training. Nurses were assumed to be employable at 21 years of age if they had 2 years of nursing training; at 22, if they had 3 years or more. Those with college degrees were arbitrarily assumed to be ready for employment at 25 years of age. If less than a full course was reported, an appropriate interpolation was made. In addition, employment histories were called "inadequate" only if the discrepancy in reporting amounted to at least 5 years. Even by these criteria, believed to be fair in the majority of cases, approximately one-third of the nurses failed to report employment sufficient to cover the "employable" period in their individual cases.

It should not be assumed, however, that the data are entirely deficient for all of the more than 2,500 nurses whose employment histories fail to cover the period following their school work. A sampling (approximately 30 percent) of incomplete schedules returned to the field for more adequate information indicated that in a few cases the gaps in the information were due to failure to report short periods of unemployment. For the longer periods the explanation usually was that nurses had been out of public health nursing for a number of years rearing a family. It follows then that, despite the apparent inadequacy of employment reporting by nurses, their reported experience history represents on the whole their complete employment outside of the home.

Private duty and other prior experience.—The experience of public health nurses in other than public health work is summarized in table 9. Almost three-fifths of the group have had prior experience in

[8] See footnote 2.

private duty nursing. Among jurisdictions the percentage is lowest for State nurses and highest for city nurses. A fourth of the total have been hospital supervisors or superintendents, and about the same proportion have had general hospital duty. These categories are not mutually exclusive; private duty commonly occurs in combination with other types of experience. It is interesting to note that relatively few nurses have been instructors of nursing but some have been public school teachers, or have done stenographic or other office work. However, aside from their public health work, the nurses now in health departments have had experience chiefly in private duty nursing and in hospitals.

TABLE 9.—*Types of prior experience reported by nurses*

Type of experience reported	All nurses	Supervisory nurses	Staff nurses	State nurses	County nurses	City nurses
	Number					
Total	7,900	833	7,067	1,186	2,846	3,868
No other experience reported	748	39	709	105	223	420
Private duty [1]	4,551	461	4,090	594	1,529	2,428
Hospital supervisor or superintendent	2,016	285	1,731	333	772	911
General hospital duty	1,912	129	1,783	271	713	928
Instructor of nursing	145	44	101	52	53	40
Educator, teacher	250	40	210	51	134	65
Welfare worker	123	16	107	30	31	62
Stenographer, office worker	235	24	211	38	90	107
Emergency nursing work	198	16	182	46	134	18
Other	934	145	789	182	412	340
	Percentage					
Total	100.0	100.0	100.0	100.0	100.0	100.0
No other experience reported	9.5	4.7	10.0	8.9	7.8	10.9
Private duty [1]	57.6	55.3	57.9	50.1	53.7	62.8
Hospital supervisor or superintendent	25.5	34.2	24.5	28.1	27.1	23.6
General hospital duty	24.2	15.5	25.2	22.8	25.1	24.0
Instructor of nursing	1.8	5.3	1.4	4.4	1.9	1.0
Educator, teacher	3.2	4.8	3.0	4.3	4.7	1.7
Welfare worker	1.6	1.9	1.5	2.5	1.1	1.6
Stenographer, office worker	3.0	2.9	3.0	3.2	3.2	2.8
Emergency nursing work	2.5	1.9	2.6	3.9	4.7	.5
Other	11.8	17.4	11.2	15.3	14.5	8.8

[1] Private duty occurs in combination with the majority of other types of experience.

Since most of the reported experience of the nurses outside the field of public health has been in nursing, there is presented in table 10 the length of such experience. The years spent in private duty nursing in hospitals and in homes and staff duty in hospitals are included in the total length of nursing experience. There is little difference between jurisdictional and administrative groups in the amount of nursing experience. Each has had on the average about 5 years of nursing work. More nurses in cities report private duty nursing experience than those from other jurisdictions.

TABLE 10.—*Years of private duty nursing reported by public health nurses*

Years of private duty nursing	All nurses	Supervisory nurses	Staff nurses	State nurses	County nurses	City nurses
	Number					
Total	7,900	833	7,067	1,186	2,846	3,868
No such experience	888	170	718	196	434	258
No report on private duty [1]	1,045	65	980	144	306	595
Reported private duty	5,967	598	5,369	846	2,106	3,015
0–4	3,845	367	3,478	544	1,414	1,887
5–9	1,564	182	1,382	202	537	825
10–14	416	38	378	75	117	224
15–19	112	8	104	16	31	65
20 or over	30	3	27	9	7	14
Average	4.9	5.0	4.9	5.1	4.6	5.0
	Percentage					
Total	100.0	100.0	100.0	100.0	100.0	100.0
No such experience	11.2	20.4	10.2	16.5	15.2	6.7
No report on private duty [1]	13.2	7.8	13.9	12.1	10.8	15.4
Reported private duty	75.6	71.8	75.9	71.4	74.0	77.9
0–4	48.7	44.0	49.1	45.9	49.7	48.7
5–9	19.8	21.8	19.6	17.1	18.9	21.3
10–14	5.3	4.6	5.3	6.3	4.1	5.8
15–19	1.4	1.0	1.5	1.3	1.1	1.7
20 or over	.4	.4	.4	.8	.2	.4

[1] Includes nurses who (*a*) did not report all experience; (*b*) reported only the present position; or (*c*) submitted schedules obviously deficient, contradictory, or lacking in detail, e. g., number of years unknown.

Public health experience.—Ten percent of public health nurses report no other work than their present position and an additional 6.5 percent report that all of their employment has been in public health. However, even though more than four-fifths of all currently employed public health nurses have had employment in other fields, it is shown in table 11 that the average length of public health employment for all nurses is 9 years. City nurses exceed this by about 2.5 years; county and State nurses average 2 to 2.5 years less. In spite of the relatively long average experience in the field, over half of the State and county nurses and two-fifths of the whole group have served less than 5 years in public health. Five percent of city nurses have been in the field 25 years or more. The staff average of 8.6 years compares favorably with that found in 1934 by the National Organization for Public Health Nursing. At that time the average total experience in public health among 404 nurses in official departments studied was 6.6 years.[9]

[9] Comparisons are not possible with the White House Conference data in view of the fact that 22.6 percent of the nurses reporting failed to specify the length of their employment.

TABLE 11.—*Length of employment*[1] *in public health among public health nurses*

Years of public health employment reported	All nurses	Supervisory nurses	Staff nurses	State nurses	County nurses	City nurses
	Number					
Total	7,900	833	7,067	1,186	2,846	3,868
Under 5	3,249	160	3,089	659	1,555	1,035
5–9	1,497	158	1,339	219	577	701
10–14	1,508	188	1,320	153	419	936
15–19	968	160	808	105	232	631
20–24	458	111	347	38	50	370
25–29	187	44	143	8	12	167
30 or over	33	12	21	4	1	28
Average	9.1	13.0	8.6	7.0	6.7	11.5
	Percentage					
Total	100.0	100.0	100.0	100.0	100.0	100.0
Under 5	41.1	19.2	43.7	55.6	54.6	26.8
5–9	18.9	19.0	19.0	18.5	20.3	18.1
10–14	19.1	22.6	18.7	12.9	14.7	24.2
15–19	12.3	19.2	11.4	8.8	8.2	16.3
20–24	5.8	13.3	4.9	3.2	1.8	9.6
25–29	2.4	5.3	2.0	.7	.4	4.3
30 or over	.4	1.4	.3	.3	(2)	.7

[1] Includes those who reported no other employment than the present position.
[2] Less than 0.1 percent.

Variety of experience.—In judging the extent to which an employee's prior experience fits him for his present duties, one must take into account not only the length but also the character of such experience. Although it may be argued that an employee who has moved about from place to place or has held many different jobs is often an unsatisfactory type of worker, it is also true that breadth of experience leads to professional advancement for the individual and improves the service rendered to the public.

The nurses' schedules furnish 3 indexes of variety of experience: (*a*) Number of public health positions held, (*b*) experience in other States, and (*c*) experience in other agencies, especially voluntary health agencies. Table 12 shows the first of these indexes. Although over half of all nurses in public health departments have had no variety in experience in that they report only one position in the field, the average for the group is 2 positions. Supervisors have had a slightly more varied experience with an average of 3 positions each. Only one out of six of the supervisors is now in her first public health job, which indicates the tendency to require staff experience before a nurse may become a supervisor. A few nurses have had as many as 6 positions in public health, but the proportion of the total is only 3 percent.

TABLE 12.—*Periods of public health employment reported by public health nurses*

Number of periods of public health employment reported	All nurses	Supervisory nurses	Staff nurses	State nurses	County nurses	City nurses
	Number					
Total	7,900	833	7,067	1,186	2,846	3,868
1[1]	4,205	144	4,061	538	1,255	2,412
2	1,889	244	1,645	274	723	892
3	868	167	701	147	379	342
4	470	114	356	91	258	121
5	236	87	149	63	114	59
6	107	35	72	33	55	19
7	68	20	48	22	32	14
8	30	9	21	8	16	6
9 or more	27	13	14	10	14	3
Average	1.9	3.1	1.8	2.3	2.2	1.6
	Percentage					
Total	100.0	100.0	100.0	100.0	100.0	100.0
1[1]	53.2	17.3	57.5	45.4	44.1	62.3
2	23.9	29.3	23.3	23.1	25.4	23.1
3	11.0	20.0	9.9	12.4	13.3	8.8
4	5.9	13.7	5.0	7.7	9.1	3.1
5	3.0	10.4	2.1	5.3	4.0	1.5
6	1.4	4.2	1.0	2.8	1.9	.5
7	.9	2.4	.7	1.8	1.1	.4
8	.4	1.1	.3	.7	.6	.2
9 or more	.3	1.6	.2	.8	.5	.1

[1] Includes those reporting only present employment.

Not only, as has been shown, are city nurses' individual and average years of service longer than those of State and county nurses (perhaps owing to recent expansion in which State and county nurses have been employed in large numbers), but city nurses more than those in other jurisdictions tend to stay in the same jobs. They are, therefore, much more limited in their variety of experience than are the State and county nurses.

A somewhat better indication of the sort of varied experience most likely to be valuable as training is the number of States in which an individual has worked. This is admittedly subject to the limitation that in individual instances moving from State to State may indicate inefficiency. If, however, the broadened outlook to be gained from working in different States under different administrators be an advantage, more State and county than city nurses have had that advantage. Although the proportion of the total who have worked in more than one State is only 12 percent, 21 percent of State nurses, 18 percent of county nurses, but only 6 percent of city nurses have worked in a State other than the one where they are now employed. Ten percent of the supervisors and 9 percent of State employees have served in 3 or more States.

The third index of variety of experience is employment in agencies such as voluntary health organizations, the Army or Navy, and the United States Public Health Service. Although only 26 percent of public health nurses have had any of these types of experience, the proportion is much larger for supervisors than for their staffs (42 as opposed to 24 percent). Eighty-five percent of all service in agencies other than health departments was in voluntary health agencies. Such service was reported much more frequently by State and county employees than by city nurses Over one-third of all supervisory nurses and one-fourth of State and county nurses have served in voluntary agencies. These data bear out the generally recognized fact that many of the present public health nurses began their work and gained their first experience in nonofficial public health nursing organizations which have accepted the responsibility of giving nurses carefully supervised field experience.

Stability of public health employment.—Stability of employment or job security is the concern not only of the individual but of the service for which he works. Since occupational stability is an important factor influencing choice of vocation among young workers, it becomes important to know what chance for security exists in public health nursing. It is uneconomical to train workers who cannot remain in the service for a reasonable period of time; and a high personnel turnover produces poor service. Data from these schedules do not provide a direct answer to the question of stability, although they do present considerable evidence with bearing on it.

One evidence of stability of employment is the length of experience in a given position. In the case of nurses, over half of whom have had only one position in public health, our best evidence on this point is length of service in the present jurisdiction. This is, admittedly, subject to the limitation that the service has not yet terminated. Among all public health nurses the average length of service in the present position is 7.5 years. Supervisory nurses average about 2 years more; city nurses, 3 years more. The shortest average tenure (4.6 years) occurs among county nurses.

These figures indicate a relatively high stability, in spite of the fact that more than three-quarters of State and county nurses have served less than 5 years. More than two-thirds of city nurses, on the other hand, have served from 5 to 30 years and almost two-fifths of them have been in the same positions from 10 to 20 years. In this connection there is an interesting side light on stability among city employees. The distribution of the number of years of employment in the present position is irregular in that the proportion employed for 10 to 14 years is greater than that for 5 to 9 years. Since rela-

tively few have had more than one position, the length of employment becomes an index of employing policy. Very few of the present staff of nurses were employed between 1929 and 1933, but then an upswing began and continued to 1937. It must be remembered, however, that, considered relatively or absolutely, the recent increase in employment in nursing service in cities did not approach that of States or counties.

TABLE 13.—*Continuity of service in public health among currently employed public health nurses*

Number of periods of nonpublic health employment reported, after the first public health position	All nurses	Supervisory nurses	Staff nurses	State nurses	County nurses	City nurses
	Number					
Total	7,900	833	7,067	1,186	2,846	3,868
None	6,734	654	6,080	965	2,414	3,355
Present position only reported	748	39	709	105	223	420
1	682	121	561	128	246	308
2	287	31	256	46	108	133
3	124	19	105	30	47	47
4	40	4	36	10	20	10
5 or more	33	4	29	7	11	15
Average number of positions out of the field, among those with interrupted service	1.7	1.5	1.7	1.7	1.7	1.6
	Percentage					
Total	100.0	100.0	100.0	100.0	100.0	100.0
None	85.3	78.5	86.0	81.4	84.8	86.7
Present position only reported	9.5	4.7	10.0	8.9	7.8	10.9
1	8.6	14.5	8.0	10.8	8.6	8.0
2	3.6	3.7	3.6	3.9	3.8	3.4
3	1.6	2.3	1.5	2.5	1.7	1.2
4	.5	.5	.5	.8	.7	.3
5 or more	.4	.5	.4	.6	.4	.4

Employment stability, however, is not dependent upon remaining in the same job if the worker remains in the field. A rough index of such stability is shown in a tabulation of the number of periods of full-time employment out of the field after the individual first entered it. This is, however, subject to the limitation that we have no data on those who came into the field at the same time but subsequently left. The available data are presented in table 13.

The conclusion as to stability to be drawn from the table is similar to that previously mentioned, inasmuch as only 15 percent of nurses now in public health have left the field (i. e., have had one or more periods of other employment) after entering it. This makes the assumption that those who reported only the present position have actually had no prior position. Judging by this index of stability,

there is little difference between the administrative and jurisdictional classes, although slightly higher percentages of supervisory nurses and State workers than of the other groups have had interrupted service in the field.

The tendency for public health employees to remain in their jobs without interruption is somewhat greater among nurses than among physicians. Moreover, occupational stability for nurses is even better than it appears in that a number of the "interruptions" to public health employment were occasioned by marriage and the subsequent rearing of a family. In such circumstances, other employment, in the usual sense, was not the reason for leaving the field, although our data represent any such period as a discontinuance.

SUMMARY AND DISCUSSION

1. Nurses are the largest professional group in public health and make up almost half of all full-time employees in health departments.

2. The present study, limited to employees in whole-time departments, covers more than one-third of the public health nursing profession and includes practically all public health nurses in official agencies.

3. Although there has been an increase in the basic educational attainment of nurses in the past 10 years, there is still wide variation. About one-fourth of the nurses in public health departments have less than high school graduation in addition to their nursing training; the same proportion have some college work and 9 percent have a college degree. A relatively small proportion of nurses report professional education other than 3 years of nursing training. Staff nurses now are better trained than in 1930, but their academic training level (particularly in cities) is still not up to the standard recommended by the Conference of State and Territorial Health Officers.

4. Half the nurses in public health departments have some public health training but only one in six has as much as a year. Although the Social Security Act has apparently operated to supplement the training of many State and county nurses in service, health departments employ considerable numbers of young nurses, untrained in public health and with little or no experience in either general nursing or public health work. The youngest nurses have less public health training than those of any other age group under 50.

5. City health departments, employing about half the nurses in official agencies, apparently recruit their staffs from the general nursing field. There is a marked tendency for city employees to remain in their jobs longer than those in other types of jurisdictions.

6. There is a marked tendency in public health nursing for positions of administrative responsibility to be held by older workers. This tendency is much more pronounced than among physicians.

7. The majority of nurses in official agencies have had only a single period of employment in public health; but a high degree of occupational stability is evident from the fact that relatively few nurses have had other employment after entering public health, although they did not enter the field immediately after graduation.

8. Apparently a qualification for supervisorship in nursing is prior employment by a voluntary health agency. Three-eighths of all supervisors have served in nonofficial agencies; only one-fifth of staff nurses have done so.

NOTE ON THE "MOST PROBABLE NUMBER" INDEX AS USED IN BACTERIOLOGY

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The statistical analysis of the most probable number index by Halvorson and Ziegler (*1, 2, 3*) indicates the need for a revaluation of its significance in bacteriology. This is particularly true when three bacterial dilutions are used. In such cases, the above authors have shown that the errors of the most probable number index are not functions of the bacterial density, as is true with single dilutions, but of the number of tubes used.

The reason for the use of the mode or "most probable number" in a frequency distribution is that it represents the result of most probable occurrence. Its merit in the field of quantitative bacteriology probably arises from the mathematical ease of calculation. It must be stressed, however, that the most probable number by itself gives no measure of the form of the frequency distribution, even in conjunction with a suitable parameter. In two series of samples, each of three dilutions, one series of 10 tubes and the other of 5 tubes, each may have the same "most probable number" (mode), but the deviation which includes 97 percent of the data in the first case (10 tubes) may be too high by 130 percent and too low by 60 percent, while in the second (5 tubes) the excess and deficiency may amount to 260 and 70 percent, respectively. Thus, the last series of samples has little significance and should probably be discarded. This does not necessarily follow from the fact that it does not fulfill the laws of chance, but simply because it is not sufficiently definite. The sub-

ject of this note is concerned with the calculation of most probable numbers for three dilutions of N-tubes and the associated errors involved.

CALCULATION OF "MOST PROBABLE NUMBER" SIMPLIFIED

Using Hoskins' notation (*4*), the Greenwood-Yule (*5*) equation for the "most probable number" of bacteria per cc., λ, in samples of three dilutions of 10 cc., 1 cc., and 0.1 cc., respectively, is

$$10q+s+0.1u=\frac{10p}{e^{10\lambda}-1}+\frac{r}{e^{\lambda}-1}+\frac{0.1t}{e^{0.1\lambda}-1} \qquad (1)$$

where p, r, and t are the number of positive tubes and q, s, and u are the corresponding number of negative tubes. The solution of this equation is generally obtained by methods of approximation based on tables of the function $(1-e^{-\epsilon x})$. In order to simplify the solution of equation 1, the nomogram shown herewith has been prepared.[1] This nomogram gives a fairly accurate estimate of the most probable number which may be considered as a first approximation to a more exact estimate obtained by substitution in the equation.

ERRORS OF THE "MOST PROBABLE NUMBER"

Halvorson and Ziegler (*3*) have plotted the percentage deviation above and below the mode that includes 97 percent of the data (equivalent to twice the standard deviation) obtained with N-tubes in each of three dilutions. The curves were determined empirically and indicate, as may be seen by reference to table 1, that little significance can be attached to the most probable number when the number of tubes used is less than 20 in each dilution. No data were presented by Halvorson and Ziegler for unequal numbers of tubes in each dilution.

More recently, Haldane (*6*) has reexamined the most probable number concept and applied it to epidemiological investigations. In the course of the development of the generalized formula, he has also given a measure of the standard deviation of the most probable number. The derivation of the standard deviation as given by Haldane utilizes the "information available" first introduced by

[1] The nomogram is based on the following approximate equation:

$$\sqrt{\lambda}=\frac{-1.3p+\sqrt{1.8p^2+4N(p+r+t)}}{2N}$$

$$N=10q+s+0.1u$$

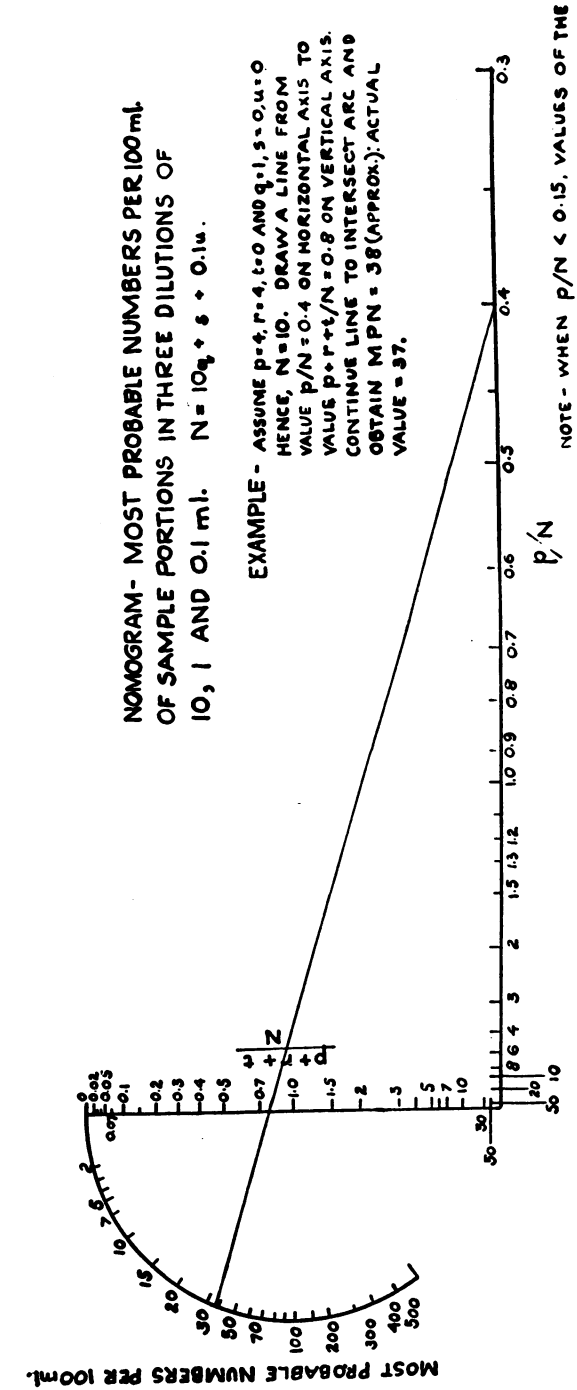
NOMOGRAM- MOST PROBABLE NUMBERS PER 100 ml.
OF SAMPLE PORTIONS IN THREE DILUTIONS OF
10, 1 AND 0.1 ml. N = 10q + s + 0.1u.
EXAMPLE- ASSUME p=4, r=4, t=0 AND q=1, s=0, u=0
HENCE, N=10. DRAW A LINE FROM
VALUE p/N=0.4 ON HORIZONTAL AXIS TO
VALUE p+r+t/N=0.8 ON VERTICAL AXIS.
CONTINUE LINE TO INTERSECT ARC AND
OBTAIN MPN = 38 (APPROX.): ACTUAL
VALUE = 37.
NOTE - WHEN p/N < 0.15, VALUES OF THE
MPN MAY BE OBTAINED BY PROJECT-
ING p+r+t/N HORIZONTALLY TO
THE ARC.
p/N
MOST PROBABLE NUMBERS PER 100 ml.

TABLE 1.—*Deviations from the mode that include 97 percent of the data obtained with N-tubes in each of 3 dilutions in the ratio 10:1:0.1* [1]

Number of tubes in each dilution	Percentage deviation above mode	Percentage deviation below mode	Average deviation $\pm 2\sigma$
5	260	70	----
10	130	60	----
15	90	51	----
20	75	47	61.0
25	64	44	54.0
30	58	42	50.0
40	48	40	44.0
50	43	38	40.5
100	31	30	30.5
150	21	22	21.5

[1] Extrapolated from curves calculated by Halvorson and Ziegler.

Fisher (7). For the case of three dilutions, 10:1:0.1, the information available is given by

$$I=\frac{100pe^{10\lambda}}{(e^{10\lambda}-1)^2}+\frac{re^{\lambda}}{(e^{\lambda}-1)^2}+\frac{0.01te^{0.1\lambda}}{(e^{0.1\lambda}-1)^2} \tag{2}$$

and the standard deviation σ, following Fisher, is obtained from the equation

$$\sigma=\frac{1}{\sqrt{I}} \tag{3}$$

Hence, the standard deviation as obtained by this procedure depends on the number of positive tubes in each dilution. As an example, let us take 40 tubes in each dilution and let the distribution of positive tubes obtained be $p=40$, $r=38$, and $t=9$, giving a most probable number of 3.0. Using equations 2 and 3, we obtain a value of $\sigma=\pm 0.58$. Halvorson and Ziegler give a value of $2\sigma=\pm 1.2$ (assuming deviations given in table 1, above and below the mode, to be approximately the same). These values compare favorably and indicate that for the number of tubes used the standard deviation is sufficiently accurate when expressed only as a function of the number of tubes.

When 20 tubes in each dilution are employed, the distribution tends to be more skewed. Thus, if $p=20$, $r=18$, $t=8$, the most probable number is 3.0 as before. The value of σ obtained from equations 2 and 3 is, however, in this case equal to ± 0.72, whereas Halvorson and Ziegler give $2\sigma=\pm 1.8$ (approximately).

As a final example, let there be five tubes in each dilution, and further let the positive tubes be thus distributed: $p=5$, $r=1$, and $t=1$, giving a most probable number of 0.46. Using equations 2 and 3, $\sigma=\pm 0.26$, which is more than half the most probable number itself. No reasonably accurate estimate can be obtained from the data of Halvorson and Ziegler, as may be seen from table 1. The frequency curve is extremely skewed. More reliance must be placed on the

results of the latter investigators since their data actually represent a test of the validity of equations 2 and 3. However, the same equations themselves indicate that less reliance can be placed upon the most probable number when the number of tubes employed is less than 10 for each dilution.

DISCUSSION

Since the accuracy of the "most probable number" for three different dilutions following Halvorson and Ziegler depends upon the number of tubes used, it is readily seen that, from a statistical standpoint, little reliability can be placed upon the values obtained unless the number of tubes is large (>20). Nor, as Halvorson and Ziegler have shown, is the probability very great that a given combination of positive tubes will occur frequently even when repeated an infinite number of times on the same sample. The fact that the samples examined can be evaluated in terms of a discrete number is valuable as an index, but such most probable numbers cannot all be equally reliable.

What, then, is the value of the most probable number index in bacteriology? Actually, all that can be obtained by use of three dilutions is: (1) An *estimate* of the number of bacteria present in a sample of unknown pollution, a point stressed by Reed (*8*); and (2) the allocation of a discrete value statistically derived regardless of the combinations of positive and negative tubes or "skips" obtained.

It has been pointed out that when the number of tubes used is small, the estimate is at best only approximate. When the number of tubes is large (40 or more in each dilution), the accuracy obtained is about the same as can be obtained with a single dilution. This can be verified by actual computation using Parker's data (*9*) or the data of Halvorson and Ziegler (*1*, *3*) for 40 tubes in each dilution. Thus, if the probable number can be roughly estimated, the use of three dilutions adds little to the accuracy of the final result. In fact, if the total number of tubes ordinarily used for making three dilutions were applied to a single dilution, the accuracy of the result in all probability would be increased.

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(5) Greenwood, M., and Yule, G. Udney: On the statistical interpretation of some bacteriological methods employed in water analysis. J. Hyg., 16: 36–54 (1917).
(6) Haldane, J. B. S.: Sampling errors in the determination of bacterial or virus density by the dilution method. J. Hyg., 39: 289–293 (May 1939).
(7) Fisher, R. A.: On the mathematical foundations of theoretical statistics. Philos. Trans. A, 222: 309–368 (1921).
(8) Reed, Lowell J.: Drinking-water standards. Appendix III. B. coli densities as determined from various types of samples. Pub. Health Rep., 40: 693–721 (1925). (Reprint No. 1029.)
(9) Parker, R. F.: Statistical studies of the nature of the infectious unit of vaccine virus. J. Exp. Med., 67: 725–738 (1938).

BIOLOGICAL PRODUCTS

Establishments Licensed for the Propagation and Sale of Viruses, Serums, Toxins, and Analogous Products

There is presented herewith a list of the establishments holding licenses issued by the Federal Security Agency in accordance with the act of Congress approved July 1, 1902, entitled "An act to regulate the sale of viruses, serums, toxins, and analogous products in the District of Columbia, to regulate interstate traffic in said articles, and for other purposes."

The licenses granted to these establishments for the products mentioned do not imply an endorsement of the claims made by the manufacturers for their respective preparations. The granting of a license means that inspection of the establishment concerned and laboratory examinations of samples of its products are made regularly to insure the observance of safe methods of manufacture, to ascertain freedom from contamination, and to determine the potency or safety, or both, of botulinus antitoxin, diphtheria antitoxin, histolyticus antitoxin, odematiens antitoxin, perfringens antitoxin, scarlet fever streptococcus antitoxin, sordellii antitoxin, staphylococcus antitoxin, tetanus antitoxin, vibrion septique antitoxin, antidysenteric serum, antimeningococcic serum, antipneumococcic serum, pneumococcus typing serum, bacterial vaccines made from typhoid bacillus, paratyphoid bacillus A, and paratyphoid bacillus B, diphtheria toxin-antitoxin mixture, diphtheria toxoid, tetanus toxoid, diphtheria toxin for Schick test, scarlet fever streptococcus toxin for Dick test, scarlet fever streptococcus toxin for immunization, and the arsphenamines, the only products for which potency standards or tests have been established.

The enumeration of the products is as follows: Serums are placed first, the antitoxins, being more important, heading the list. The other products are arranged generally in the order of their origin.

Establishments Licensed and Products for Which Licenses Have Been Issued

AMERICAN ESTABLISHMENTS

Parke, Davis & Co., Detroit, Mich.—License No. 1:

Diphtheria antitoxin; erysipelas streptococcus antitoxin; gonococcus antitoxin; meningococcus antitoxin; perfringens antitoxin; scarlet fever streptococcus antitoxin; staphylococcus antitoxin; tetanus antitoxin; vibrion septique antitoxin; antianthrax serum; antidysenteric serum; antigonococcic serum; antiinfluenza bacillus serum; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; hemostatic serum (Lapenta); immune globulin (human), normal horse serum; thyroidectomized horse serum; pneumococcus typing serum; smallpox vaccine; rabies vaccine (Cumming); tuberculin old; tuberculin T. R.; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from acne bacillus, acne diplococcus, Brucella melitensis, colon bacillus, dysentery bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, prodigiosus bacillus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus and typhoid bacillus, diphtheria toxin-antitoxin mixture; diphtheria toxoid-antitoxin mixture, diphtheria toxoid; staphylococcus toxoid; tetanus toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; animal epidermal extracts; animal food extracts; vegetable food extracts; poison ivy extract; pollen extracts; modified bacterial derivatives made from colon bacillus, gonococcus, paratyphoid bacillus A, paratyphoid bacillus B, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial antigens made from colon bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, and streptococcus.

Mulford Biological Laboratories, Sharp & Dohme, Broad and Wallace Streets, Philadelphia, Pa.—License No. 2:

Botulinus antitoxin; diphtheria antitoxin; erysipelas streptococcus antitoxin; B. histolyticus antitoxin; B. odematiens antitoxin; perfringens antitoxin; scarlet fever streptococcus antitoxin; B. sordellii antitoxin; staphylococcus antitoxin; tetanus antitoxin; vibrion septique antitoxin; antianthrax serum; antidysenteric serum; antierysipeloid serum; antigonococcic serum; antiinfluenza bacillus serum; antimelitensis serum; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; antitularemic serum, antivenin (Nearctic crotalidae); antivenin Bothropic; antivenin (Crotalus terrificus); antivenin (Latrodectus mactans); acute anterior poliomyelitis immune serum (human); normal human plasma; measles immune serum (human); scarlet fever immune serum (human); normal human serum; immune globulin (human); normal horse serum; pneumococcus typing serum; smallpox vaccine; rabies vaccine (Pasteur); rabies vaccine (killed virus); tuberculin old; tuberculin T. R.; tuberculin B. E.; tuberculin B. F.; tuberculin-purified protein derivative; bacterial vaccines made from acne bacillus, cholera vibrio, colon bacillus, dysentery bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, Brucella melitensis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, plague bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, Bacterium tularense, and typhoid bacillus; sensitized bacterial vaccines made from acne bacillus, cholera vibrio, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; staphylococcus toxoid; tetanus toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; pollen extracts; animal epidermal extracts; animal food extracts; vegetable food extracts; poison ivy extract; poison oak extract; miscellaneous allergenic extracts; pneumococcus antibody solution; bacterial antigens made from acne bacillus, colon bacillus, dysentery bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, proteus bacillus, pyocyaneus bacillus, staphylococcus aureus, streptococcus, typhoid bacillus; bee venom; snake venom solution.

The Cutter Laboratory, Berkeley, Calif.—License No. 8:

Diphtheria antitoxin; B. odematiens antitoxin; perfringens antitoxin; scarlet fever streptococcus antitoxin; B. sordellii antitoxin; tetanus antitoxin; vibrion septique antitoxin; antianthrax serum; antimeningococcic serum; antistreptococcic serum; normal horse serum; smallpox vaccine; rabies vaccine (killed virus); tuberculin old; tuberculin B. F.; bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus; staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial antigens made from colon bacillus, staphylococcus aureus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; tetanus toxoid; diphtheria toxin for Schick test; pollen extracts; poison ivy extract; poison oak extract.

Bureau of Laboratories, Department of Health, Foot East Sixteenth Street, New York City.—License No. 14:

Smallpox vaccine.

Lederle Laboratories, Inc., Pearl River, N. Y.—License No. 17:

Botulinus antitoxin; diphtheria antitoxin; erysipelas streptococcus antitoxin; B. histolyticus antitoxin; B. odematiens antitoxin; perfringens antitoxin; scarlet fever streptococcus antitoxin; staphylococcus antitoxin; B. sordellii antitoxin; tetanus antitoxin; vibrion septique antitoxin; antianthrax serum; antidysenteric serum; antimeningococcic serum; antipneumococcic serum; encephalitis vaccine, herpes "F" strain; immune globulin (human); normal horse serum; pneumococcus typing serum; smallpox vaccine; rabies vaccine (killed virus); equine encephalomyelitis vaccine; tuberculin old; bacterial vaccines made from acne bacillus, Brucella melitensis, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, streptococcus, and typhoid bacillus; bacterial antigen made from pertussis bacillus; diphtheria toxoid; tetanus toxoid; staphylococcus toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; pollen extracts; poison ivy extract; poison oak extract; animal epidermal extracts; animal food extracts; vegetable food extracts; animal oil extracts; vegetable oil extracts; fungus extracts; miscellaneous allergenic extracts; snake venom solution.

G. H. Sherman, M. D., Inc., 14600 East Jefferson Avenue, Detroit, Mich.—License No. 30:

Bacterial vaccines made from acne bacillus, Brucella melitensis, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; pollen extracts; bacterial antigens made from colon bacillus, gonococcus, micrococcus catarrhalis, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, and streptococcus.

The Abbott Laboratories, Fourteenth Street and C.-W. Interurban Railroad Tracks, North Chicago, Ill.—License No. 43:

Bacterial vaccines made from acne bacillus, Brucella melitensis, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, micrococcus tetragenus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial antigens made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, micrococcus catarrhalis, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus; tetanus toxoid; poison ivy extract; pollen extracts; animal epidermal extracts; animal food extracts; vegetable food extracts; fungus extracts; miscellaneous allergenic extracts.

The Upjohn Co., Kalamazoo, Mich.—License No. 51:

Bacterial vaccines made from colon bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial antigens made from colon bacillus, staphylococcus aureus, streptococcus.

E. R. Squibb & Sons' Research and Biological Laboratories, New Brunswick, N. J.—License No. 52:

Diphtheria antitoxin, erysipelas streptococcus antitoxin, perfringens antitoxin, scarlet fever streptococcus antitoxin, staphylococcus antitoxin, tetanus antitoxin; vibrion septique antitoxin; antiinfluenza bacillus serum; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; immune globulin (human); normal horse serum; antivenin (Latrodectus mactans); pneumococcus typing serum; smallpox vaccine; rabies vaccine (Pasteur); rabies vaccine (killed virus); bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, streptococcus, and typhoid bacillus; bacterial antigen made from staphylococcus aureus; leucocyte extract; diphtheria toxin-antitoxin mixture; diphtheria toxoid; staphylococcus toxoid; tetanus toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; pollen extracts; poison ivy extract; poison oak extract; arsphenamine, neoarsphenamine, sulfarsphenamine.

Eli Lilly & Co., Indianapolis, Ind.—License No. 56:

Diphtheria antitoxin; erysipelas streptococcus antitoxin; perfringens antitoxin; tetanus antitoxin; vibrion septique antitoxin; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; normal horse serum; hemostatic serum (Lilly); heterophile antibody; smallpox vaccine; rabies vaccine (Harris); tuberculin old; bacterial vaccines made from acne bacillus, cholera vibrio, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, plague bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial vaccine made from partially autolized pneumococci; diphtheria toxin-antitoxin mixture; diphtheria toxoid; tetanus toxoid; diphtheria toxin for Schick test; bacterial antigens made from acne bacillus, colon bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, and streptococcus; fungus antigens; trichinella extract.

Gilliland Laboratories, Marietta, Pa.—License No. 63:

Diphtheria antitoxin; perfringens antitoxin; scarlet fever streptococcus antitoxin; tetanus antitoxin; vibrion septique antitoxin; anticolon bacillus serum; antimeningococcic serum; antipneumococcic

serum; antistreptococcic serum; immune globulin (human); normal horse serum; pneumococcus typing serum; smallpox vaccine; rabies vaccine (Pasteur); rabies vaccine (killed virus); tuberculin old; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid, tetanus toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization.

Antitoxin and Vaccine Laboratory, Department of Public Health, Commonwealth of Massachusetts, 375 South Street, Jamaica Plain, Boston 30, Mass.—License No. 64:

Diphtheria antitoxin; scarlet fever streptococcus antitoxin; antiinfluenza bacillus serum; antimeningococcic serum; antipneumococcic serum; pneumococcus typing serum; smallpox vaccine; tuberculin old; bacterial vaccines made from paratyphoid bacillus A, paratyphoid bacillus B, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; diphtheria toxin for Schick test.

United States Standard Products Co., Woodworth, Wis.—License No. 65:

Diphtheria antitoxin; erysipelas streptococcus antitoxin; perfringens antitoxin; tetanus antitoxin; vibrion septique antitoxin; antimeningococcic serum; normal horse serum; smallpox vaccine; rabies vaccine (killed virus); bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial antigens made from staphylococcus albus, staphylococcus aureus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; tetanus toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; pollen extracts; poison ivy extract; poison oak extract.

D. L. Harris Laboratories, Metropolitan Building, St. Louis, Mo.—License No. 66:

Rabies vaccine (Harris).

The Arlington Chemical Co., Yonkers, N. Y.—License No. 67:

Bacterial vaccines made from colon bacillus, Friedländer bacillus, micrococcus catarrhalis, micrococcus tetragenus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, and streptococcus; fungus extracts; pollen extracts; animal epidermal extracts; animal food extracts; vegetable food extracts; miscellaneous allergenic extracts.

Dermatological Research Laboratories, 1720 Lombard Street, Philadelphia, Pa.—License No. 68:

Arsphenamine; silver arsphenamine; neoarsphenamine; sulfarsphenamine; bismuth arsphenamine sulfonate; neosilver arsphenamine; trisodium sulfarsphenamine.

The Winthrop Chemical Co., Inc., 33 Riverside Avenue, Rensselaer, N. Y.—License No. 69:

Arsphenamine; arsphenamine diglucoside; neoarsphenamine; silver arsphenamine; sulfarsphenamine; acetylglycarsenobenzene.

Diarsenol Co., Inc., 72 Kingsley Street, Buffalo, N. Y.—License No. 70.

Arsphenamine; neoarsphenamine; sodium arsphenamine; sulfarsphenamine.

Mallinckrodt Chemical Works, St. Louis, Mo.—License No. 77:

Arsphenamine; neoarsphenamine; sulfarsphenamine.

Merck & Co., Inc., Rahway, N. J.—License No. 82.

Arsphenamine; neoarsphenamine; sulfarsphenamine.

Terrell Laboratories, Texas National Bank Building, Fort Worth, Tex.—License No. 84:

Rabies vaccine (killed virus).

Jensen-Salsbery Laboratories, Twenty-first and Penn Streets, Kansas City, Mo.—License No. 85:

Botulinus antitoxin; antianthrax serum, antierysipeloid serum; rabies vaccine (killed virus); bacterial vaccine made from Brucella melitensis; diphtheria toxin for Schick test; diphtheria toxoid.

Hollister-Stier Laboratories, Spokane, Wash., and Los Angeles, Calif.—License No. 91:

Acute anterior poliomyelitis immune serum (human); bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and xerosis bacillus; animal epidermal extracts, animal food extracts, fungus extracts, miscellaneous allergenic extracts, poison ivy extract; poison oak extract; pollen extracts; vegetable food extracts.

Medical Arts Laboratory, Medical Arts Building, Oklahoma City, Okla.—License No. 98:

Rabies vaccine (killed virus).

Bureau of Laboratories, Michigan State Department of Health, Lansing, Mich.—License No. 99:

Diphtheria antitoxin; scarlet fever streptococcus antitoxin; tetanus antitoxin; antimeningococcic serum; antipneumococcic serum; pneumococcus typing serum; smallpox vaccine; rabies vaccine (Cumming); tuberculin old; bacterial vaccines made from pertussis bacillus and typhoid bacillus; diphtheria toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization.

National Drug Co., 5109 Germantown Avenue, Philadelphia, Pa.—License No. 101:

Diphtheria antitoxin, erysipelas streptococcus antitoxin, scarlet fever streptococcus antitoxin; perfringens antitoxin; staphylococcus antitoxin; tetanus antitoxin; vibrion septique antitoxin; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; immune globulin (human);

normal horse serum; pneumococcus typing serum; tuberculin old; smallpox vaccine; rabies vaccine (killed virus); bacterial vaccines made from acne bacillus, Brucella melitensis, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; staphylococcus toxoid; tetanus toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; miscellaneous allergenic extracts; pollen extracts.

Mulford Colloid Laboratories, Thirty-eighth and Ludlow Streets, Philadelphia, Pa.—License No. 102:
Poison ivy extract; poison oak extract.

Allergy Laboratories, 1200 North Walker Street, Oklahoma City, Okla.—License No. 103:
Pollen extracts; vegetable food extracts; animal epidermal extracts; miscellaneous allergenic extracts.

Hixson Laboratories (Inc.), Johnstown, Ohio.—License No. 104:
Diphtheria antitoxin; tetanus antitoxin; antimeningococcic serum; normal horse serum; rabies vaccine (killed virus); bacterial vaccines made from acne bacillus, colon bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; tetanus toxoid; diphtheria toxin for Schick test.

C. F. Kirk Co., New York, N. Y.—License No. 105:
Bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; pollen extracts.

Knapp & Knapp, 2921 So. Olive Avenue, Burbank, Calif.—License No. 106:
Pollen extracts.

The Porro Biological Laboratories, 718 Medical Arts Building, Tacoma, Wash.—License No. 107:
Bacterial vaccines made from micrococcus catarrhalis, pneumococcus, staphylococcus aureus, and streptococcus, pollen extracts; animal epidermal extracts; vegetable food extracts; miscellaneous allergenic extracts.

Central Pharmacal Co., Seymour, Ind.—License No. 109:
Bacterial antigens made from colon bacillus, Friedländer bacillus, gonococcus, micrococcus catarrhalis, pertussis bacillus, pneumococcus, pyocyaneus bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus.

Pitman-Moore Co., Division of Allied Laboratories, Inc., Zionsville, Ind.—License No. 110:
Diphtheria antitoxin; perfringens antitoxin; tetanus antitoxin; vibrion septique antitoxin; antierysipeloid serum; immune globulin (human); rabies vaccine (killed virus); bacterial vaccines made from acne bacillus, colon bacillus, Brucella melitensis, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, micrococcus tetragenus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial antigens made from colon bacillus, gonococcus, staphylococcus albus, staphylococcus aureus, streptococcus; diphtheria toxoid; tetanus toxoid; diphtheria toxin for Schick test; pollen extracts.

The Wm. S. Merrell Co., Cincinnati, Ohio.—License No. 111:
Bacterial vaccines made from colon bacillus, Friedländer bacillus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, typhoid bacillus.

Wyatt Clinic Laboratories, Tucson, Ariz.—License No. 112:
Bacterial antigen made from streptococcus.

Michael Reese Hospital, Twenty-ninth Street and Ellis Avenue, Chicago, Ill.—License No. 113:
Acute anterior poliomyelitis immune serum (human); measles immune serum (human); scarlet fever immune serum (human); normal human serum.

The Milwaukee Serum Center, Columbia Hospital, Milwaukee, Wis.—License No. 117:
Acute anterior poliomyelitis immune serum (human); measles immune serum (human); scarlet fever immune serum (human); normal human serum.

Barry Allergy Laboratory, Michigan Theater Building, Detroit, Mich.—License No. 119:
Pollen extracts.

Biological Laboratory, Illinois Department of Health, Springfield, Ill.—License No. 120:
Rabies vaccine (killed virus); bacterial vaccine made from typhoid bacillus; diphtheria toxoid; diphtheria toxin for Schick test.

State Department of Health, Austin, Tex.—License No. 121.
Rabies vaccine (killed virus); bacterial vaccines made from paratyphoid bacillus A, paratyphoid bacillus B, typhoid bacillus; diphtheria toxin for Schick test, diphtheria toxoid.

Turner's Clinical and X-ray Laboratories, El Paso, Tex.—License No. 122:
Rabies vaccine (killed virus).

Manhattan Convalescent Serum Laboratory, Health Research Fund, Inc., Fifteenth Street and East River, New York, N. Y.—License No. 123:
Measles immune serum (human); scarlet fever immune serum (human); normal human serum.

Children's Hospital Convalescent Serum Center, Los Angeles, Calif.—License No. 124:
Measles immune serum (human); acute anterior poliomyelitis immune serum (human); scarlet fever immune serum (human), normal human serum.

Hynson, Westcott and Dunning, Baltimore, Md.—License No. 125:
Snake venom solution.

R. J. Strasenburgh Co., Rochester, N. Y.—License No. 127:
Bee venom ointment.

Research Foundation of Toledo Hospital, Inc., Toledo, Ohio.—License No. 128:
Bacterial antigen made from colon bacillus.

A. W. Kretschmar, Inc., 396 Broadway, New York, N. Y.—License No. 132:
Bee venom solution.

Michigan State College, East Lansing, Mich.—License No. 133:
Bacterial antigen made from Brucella melitensis.

Bio-Therapeutic Laboratories, 22 Halsted Street, East Orange, N. J.—License No. 135:
Bacterial antigens made from pyocyaneus bacillus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, and streptococcus.

Hoffmann-La Roche, Inc., Roche Park, Nutley, N. J.—License No. 136:
Bee venom.

Iowa State Department of Health Serum Center, Des Moines, Iowa.—License No. 137:
Normal human serum, measles immune serum (human), pertussis immune serum (human), poliomyelitis immune serum (human), and scarlet fever immune serum (human).

University of Minnesota Human Serum Laboratory, Minneapolis, Minn.—License No. 138:
Normal human serum, measles immune serum (human), pertussis immune serum (human), poliomyelitis immune serum (human), and scarlet fever immune serum (human).

Philadelphia Serum Exchange, The Children's Hospital, Philadelphia, Pa.—License No. 139:
Normal human serum, measles immune serum (human), pertussis immune serum (human), and scarlet fever immune serum (human).

Hyland Laboratories, Los Angeles, Calif.—License No. 140:
Normal human plasma, normal human serum, measles immune serum (human), pertussis immune serum (human), poliomyelitis immune serum (human), and scarlet fever immune serum (human).

The Venomin Co., Venice, Fla.—License No. 141:
Bee venom solution.

The Bayer Co., Inc., Rensselaer, N. Y.—License No. 142:
Acetylglycarsenobenzene, neoarsphenamine, silver arsphenamine, sulfarsphenamine.

The Hicks Laboratory, Tuscon, Ariz.—License No. 143:
Bacterial vaccine made from streptococcus.

Reichel Laboratories, Kimberton, Pa.—License No. 144:
Normal human plasma.

FOREIGN ESTABLISHMENTS

Institut Pasteur de Paris, 36 rue du Dr. Roux, Paris, France.—License No. 11. Selling agents for the United States, Mr. A. Charklian, Pasteur Vaccine Laboratories of France, 516 Fifth Avenue, New York, N. Y.:
Diphtheria antitoxin; tetanus antitoxin; antianthrax serum; antidysenteric serum; antiplague serum; antistreptococcic serum; bacterial vaccines made from cholera vibrio, plague bacillus, staphylococcus albus, and staphylococcus aureus.

Interessen Gesellschaft Farbenindustrie Aktiengesellschaft, Hoechst am Main, Germany.—License No. 24. Selling agents for the United States, The Winthrop Chemical Co., 170 Varick Street, New York, N. Y.:
Tuberculin old; tuberculin T. R.; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from cholera vibrio, gonococcus, staphylococcus albus, staphylococcus aureus, and staphylococcus citreus; typhoid bacillus; sensitized bacterial vaccine made from typhoid bacillus; fungus extracts; arsphenamine; neoarsphenamine; sodium arsphenamine; silver arsphenamine; neosilver arsphenamine; sulfarsphenamine; sulfoxylarsphenamine.

Connaught Antitoxin Laboratory, University of Toronto, Toronto, Canada.—License No. 73:
Diphtheria antitoxin; staphylococcus antitoxin; tetanus antitoxin; diphtheria toxoid; staphylococcus toxoid.

Laboratoire de Biochimie Medicale, 19-21 rue Van-Loo, Paris, France.—License No. 83. Selling agents for the United States, Anglo-French Drug Co., 1270 Broadway, New York, N. Y.; selling agents for Puerto Rico, Chas. Vere, box 216, San Juan, P. R.:
Sulfarsphenamine.

Instituto Sieroterapico Milanese, Via Darwin 20, Milan, Italy.—License No. 87. Selling agents for the United States, Italian Drugs Importing Co., 225 Lafayette Street, New York, N. Y.; selling agent for Puerto Rico, Mr. Braulio Caballero, San Juan, P. R.:
Antianthrax serum; bacterial vaccines made from colon bacillus, gonococcus, pneumococcus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, and streptococcus; neoarsphenamine; acetyl-gluco-arsphenamine.

Boots Pure Drug Co., Ltd., Nottingham, England.—License No. 92. Selling agents for the United States, The United Drug Co., 43 Leon Street, Boston, Mass.:
Arsphenamine diglucoside.

Sero-Bacteriological Department, Bayer-Meister-Lucius, Behringswerke, I. G. Farbenindustrie, A. G. Section, Marburg-Lahn, Germany.—License No. 97. Selling agents for the United States, The Winthrop Chemical Co., 170 Varick Street, New York, N. Y.:
Diphtheria antitoxin; tetanus antitoxin; antistreptococcic serum; normal horse serum; bacterial vaccines made from colon bacillus, gonococcus, pneumococcus, pyocyaneus bacillus, staphylococcus albus, staphylococcus aureus, and streptococcus.

Laboratoire de Bacteriophage, 75 rue Olivier de Serres, Paris, France.—License No. 108. Selling agents for the United States, Anglo-French Drug Co., 1270 Broadway, New York, N. Y.; selling agents for Puerto Rico, Mr. Joaquin Belendez, San Juan, P. R.:
Bacterial antigens made from colon bacillus, dysentery bacillus, enterococcus, Friedländer bacillus, paradysentery bacillus, paratyphoid bacillus A, paratyphoid bacillus B, pneumococcus, proteus bacillus, pyocyaneus bacillus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, streptococcus, and typhoid bacillus.

Dr. Kade, Elisabeth Ufer 35, Berlin SO, 36, Germany.—License No. 114:
Bacterial vaccine made from colon bacillus.

La Biotherapie, 5 rue Paul-Barruel, Paris, France.—License No. 115:
Bacterial vaccines made from cholera vibrio, colon bacillus, dysentery bacillus, paratyphoid bacillus A, paratyphoid bacillus B, and typhoid bacillus; bacterial antigens made from pneumococcus, staphylococcus albus, staphylococcus aureus, and streptococcus.

Laboratorio Brasileiro de Chimiotherapia, Rua General Roca No. 28, Rio de Janeiro, Brazil.—License No. 116. Selling agents for the United States and Hawaii, Ernst Bischoff Co., Inc., Ivoryton, Conn.; selling agents for Puerto Rico, Cesar A. Toro, Apartado 3854, Santurce, P. R.:
Fungus extracts.

Wellcome Physiological Research Laboratories, Beckenham, Kent, England.—License No. 129:
Russell viper venom.

Schering, A. G., Charlottenburg, 1, Berlin, Germany.—License No. 130:
Bacterial vaccine made from pertussis bacillus.

Heinrich Mack Nachf, Illertissen, nr. Ulm, Germany.—License No. 131:
Bee venom solution.

Ayerst, McKenna, and Harrison, Montreal, Canada.—License No. 134:
Staphylococcus toxoid; bacterial vaccines made from influenza bacillus, micrococcus catarrhalis, pertussis bacillus, pneumococcus, and streptococcus.

REPORT ON MARKET MILK SUPPLIES OF CERTAIN URBAN COMMUNITIES

Compliance of the Market Milk Supplies of Certain Urban Communities With the Grade A Pasteurized and Grade A Raw Milk Requirements of the Public Health Service Milk Ordinance and Code, as Shown by Compliance (Not Safety) Ratings of 90 Percent or More Reported by the State Milk-Sanitation Authorities During the Period January 1, 1939, to December 31, 1940

The accompanying list gives the fifteenth semiannual revision of the list of certain urban communities in which the pasteurized market milk is both produced and pasteurized in accordance with the Grade A pasteurized milk requirements of the Public Health Service Milk Ordinance and Code and in which the raw market milk sold to the final consumer is produced in accordance with the Grade A raw milk requirements of said ordinance and code, as shown by ratings of 90 percent or more reported by State milk-sanitation authorities.

These ratings are not a complete measure of safety but represent the degree of compliance with the Grade A requirements of the Public Health Service Milk Ordinance and Code. Safety estimates should also take into account the percentage of milk pasteurized, which is given in the following tables.

The primary reason for publishing such lists from time to time is to encourage the communities of the United States to attain and maintain a high level of excellence in the public health control of milk supplies.

It is emphasized that the Public Health Service does not intend to imply that only those communities on the list are provided with high-grade milk supplies. Some communities which have high-grade milk supplies are not included because arrangements have not been made for the determination of their ratings by the State milk-sanitation authority. In other cases the ratings which have been determined are now more than 2 years old and have therefore lapsed. In still other communities with high-grade milk supplies there seems, in the opinion of the community, to be no local necessity nor desire for rating or inclusion in the list, nor any reasonable local benefit to be derived therefrom.

The rules under which a community is included in this list are as follows:

(1) All ratings must have been determined by the State milk-sanitation authority in accordance with the Public Health Service rating method (Pub. Health Rep., **53:** 1386 (1938). Reprint No. 1970), based upon the Grade A pasteurized milk and the Grade A raw milk requirements of the Public Health Service Milk Ordinance and Code.

(2) No community will be included in the list unless both its pasteurized milk and its raw milk ratings are 90 percent or more. Communities in which only raw milk is sold will be included if the raw milk ratings are 90 percent or more. Communities which receive, without local inspection, milk from other sheds will be included in the list only if the locally inspected supply, as well as the shipped-in supply, shows a rating of 90 percent or more.

(3) The rating used will be the latest rating submitted to the Public Health Service, but no rating will be used which is more than 2 years old.

(4) The Public Health Service will make occasional check surveys of cities for which ratings of 90 percent or more have been reported by the State. If such check rating is less than 90 percent but not less than 85, the city will be removed from the 90 percent list after 6 months unless a resurvey submitted by the State during this probationary interim shows a rating of 90 percent or more. If, however, such check rating is less than 85 percent, the city will be removed from the list immediately. If the check rating is 90 percent or more, the city will be retained on the list for a period of 2 years from the date of the check survey unless a subsequent rating submitted during this period warrants its removal.

Communities are urgently advised to bring their ordinances up to date at least every 5 years, since ratings will be made on the basis of later editions if those adopted locally are more than 5 years old.

Communities which are not now on the list and desire to be rated should request the State milk-sanitation authority to determine their ratings and, if necessary, should improve their status sufficiently to merit inclusion in the list.

Communities which are now on the list should not permit their ratings to lapse, as ratings more than 2 years old cannot be used.

Communities which have not adopted the Public Health Service Milk Ordinance may wish to give thoughtful consideration to the advisability of doing so. It is obviously easier to satisfy the requirements upon which the rating method is based if these are included in the local legislation.

Communities which are enforcing the Public Health Service Milk Ordinance, but which have not yet been admitted to the list, should determine whether this has been the result of failure to enforce the ordinance strictly or failure to bring the ordinance up to date.

State milk-sanitation authorities which are not now equipped to determine municipal ratings are urged, in fairness to their communities, to equip themselves as soon as possible. The personnel required is small, as in most States one milk specialist is sufficient for the work.

TABLE 1.—*Communities in which all market milk is pasteurized. In these communities market milk complies with the Grade A pasteurized milk requirements of the Public Health Service Milk Ordinance and Code to the extent shown by pasteurized milk ratings of 90 percent or more* [1]

Community	Percentage of milk pasteurized	Date of rating	Community	Percentage of milk pasteurized	Date of rating
ILLINOIS			MISSOURI		
Aurora	100	May 3, 1940.			
Brooklyn	100	Mar. 22, 1940.	St. Louis	100	June 7, 1940.
Canteen	100	Do.			
Centerville	100	Do.	NORTH CAROLINA		
East St. Louis	100	Do.			
Elgin	100	July 12, 1940.	Clinton	100	June 5, 1940.
Fairmont City	100	Mar. 22, 1940.	Fort Bragg	100	June 4, 1940.
National City	100	Do.	Greenville	100	June 15, 1940.
Stites	100	Do.	Sylva	100	May 10, 1940.
MINNESOTA					
Winona	100	Sept. 1940.			

[1] Note particularly the percentage of milk pasteurized in the various communities listed in these tables. This percentage is an important factor to consider in estimating the safety of a city's milk supply.

The inclusion of a community in this list means that the pasteurized milk sold in the community, if any, is of such a degree of excellence that the weighted average of the percentages of compliance with the various items of sanitation required for Grade A pasteurized milk is 90 percent or more and that, similarly, the raw milk sold in the community, if any, so nearly meets the requirements that the weighted

average of the percentages of compliance with the various items of sanitation required for Grade A raw milk is 90 percent or more. However, high-grade pasteurized milk is safer than high-grade raw milk, because of the added protection of pasteurization. To secure this added protection, those who are dependent on raw milk can pasteurize the milk at home in the following simple manner: Heat the milk over a hot flame to 165° F., stirring constantly; then immediately place the vessel in cold water and continue stirring until cool.

TABLE 2.—*Communities in which some market milk is pasteurized. In these communities the pasteurized market milk complies with the Grade A pasteurized milk requirements and the raw market milk complies with the Grade A raw milk requirements of the Public Health Service Milk Ordinance and Code to the extent shown by pasteurized and raw milk ratings, respectively, of 90 percent or more* [1]

[NOTE.—All milk should be pasteurized or boiled, either commercially or at home, before it is consumed. See text for home method]

Community	Percentage of milk pasteurized	Date of rating
ALABAMA		
Dothan	39	May 30, 1940.
Montgomery	28	Feb. 24, 1940.
Tuscaloosa	86	May 24, 1940.
ARKANSAS		
El Dorado	39	June 1940.
Fayetteville	60	Nov. 1940.
Fort Smith	48	Sept. 1940.
Jonesboro	59	Oct. 1940.
Little Rock	50	Do
Osceola	42	Jan. 1940.
Pine Bluff	25	June 1940.
Texarkana	47	Sept. 1940.
FLORIDA		
Coral Gables	97	Apr. 1940.
Dania	95	Mar. 28, 1940.
Fort Lauderdale	95	Do.
Hollywood	95	Do.
Miami	97	Apr. 1940.
Pompano	95	Mar. 28, 1940.
Tallahassee	38	Aug. 1940.
GEORGIA		
Americus	13	June 21, 1939.
Statesboro	40	Mar. 14, 1940.
ILLINOIS		
Chicago	99.9	May 20, 1939.
Decatur	92	Oct. 3, 1940.
Evanston	99.9	Apr. 17, 1940.
Glenco	99.8	Apr. 11, 1940.
Highland Park	99.8	Do.
Kenilworth	99.8	Do.
Lake Bluff	99.8	Do.
Lake Forest	99.8	Do.
Peoria	97	May 23, 1940.
Waukegan	99.9	Apr. 3, 1940.
Winnetka	99.8	Apr. 11, 1940.
KANSAS		
Chanute	40	May 1940.
Lawrence	69	Do.
Wellington	54	Apr. 1940.
Wichita	75	Dec. 1939.
KENTUCKY		
Berea	1	Nov. 1939.
Bowling Green	70	Dec. 22, 1939.
Glasgow	68	June 27, 1939.
Henderson	45	June 11, 1940.
Jefferson County	43	Aug. 1939.
Lexington	66	Sept. 1940.
Louisville	97	Oct. 1939.
Richmond	22	Nov. 1939.
Somerset	9	Nov. 1940.
MICHIGAN		
Crystal City	41	July 24, 1940.
Iron River	51	Do.
Stambaugh	51	Do.
MINNESOTA		
Little Falls	70	June 26, 1939.
MISSISSIPPI		
Greenville	58	May 25, 1939.
Tupelo	21	Jan. 6, 1939.
MISSOURI		
Clayton	[2]	Dec. 14, 1939.
Ferguson	[2]	Do.
Glendale	[2]	Do.
Kirkwood	[2]	Do.
Maplewood	[2]	June 7, 1940.
University City	[2]	Dec. 14, 1939.
Webster Groves	[2]	Do.
NEW MEXICO		
Albuquerque	72	Nov. 30, 1940.
Las Vegas	65	July 25, 1939.
Roswell	77	Aug. 8, 1939.
Santa Fe	44	Dec. 1939.
NORTH CAROLINA		
Asheville	66	June 14, 1940.
Black Mountain	24	May 21, 1940.
Durham	91	Oct. 1940.
Fayetteville	55	June 4, 1940.
Franklin	85	July 19, 1939.
Greensboro	86	Aug. 1940.
Goldsboro	62	June 5, 1940.

[1] Note particularly the percentage of milk pasteurized in the various communities listed in these tables. This percentage is an important factor to consider in estimating the safety of a city's milk supply.

[2] The percentage of the total milk supply pasteurized cannot be accurately determined owing to the overlapping of milk routes.

TABLE 2.—*Communities in which some market milk is pasteurized. In these communities the pasteurized market milk complies with the grade A pasteurized milk requirements and the raw market milk complies with the grade A raw milk requirements of the Public Health Service Milk Ordinance and Code to the extent shown by pasteurized and raw milk ratings, respectively, of 90 percent or more*—Contd.

Community	Percentage of milk pasteurized	Date of rating
NORTH CAROLINA—con.		
Hendersonville	73	June 26, 1940.
Hope Mills	25	June 4, 1940.
Kinston	12	July 9, 1940.
Lumberton	36	May 29, 1940.
Rockingham	53	Apr. 9, 1940.
Roxboro	36	July 2, 1940.
Tryon	49	July 24, 1939.
Waynesville	60	May 9, 1940.
Weaverville	40	June 5, 1940.
Winston-Salem	78	Nov. 1939.
NORTH DAKOTA		
Valley City	23	Nov. 10, 1939.
OHIO		
Athens	80	July 6, 1940.
OKLAHOMA		
Ada	55	June 27, 1940.
Bartlesville	45	Dec. 19, 1939.
Blackwell	35	Nov. 28, 1939.
Lawton	47	Feb. 22, 1939.
Muskogee	82	June 4, 1940.
Oklahoma City	73	Mar. 29, 1939.
Okmulgee	60	July 22, 1940.
Seminole	63	Mar. 26, 1940.
Tulsa	74	Apr. 6, 1940.
Wewoka	52	July 8, 1940.
OREGON		
Astoria	64	June 12, 1940.
Eugene	60	Nov. 1, 1940.
Portland	82	Apr. 3, 1940.
Seaside	67	June 14, 1940.
SOUTH CAROLINA		
Walterboro	26	Dec. 6, 1939.
TENNESSEE		
Bristol	69	July 14, 1939.
Memphis	90	Dec. 1940.
TEXAS		
Abilene	67	Apr. 25, 1939.
Amarillo	78	Aug. 12, 1940.
Ballinger	49	Apr. 21, 1939.
Big Spring	53	Aug. 8, 1940.
Brownwood	21	Dec. 19, 1939.
Bryan	14	July 20, 1940.
Canyon	42	Aug. 9, 1940.
Corpus Christi	87	May 26, 1939.
Crystal City	39	June 27, 1940.
Dallas	85	Dec. 7, 1940.
Fort Worth	75	Feb. 25, 1939.
Gainesville	63	June 30, 1939.
Jacksonville	85	May 2, 1940.
Kerrville	74	Sept. 6, 1939.
Lamesa	38	June 10, 1940.
Lubbock	76	Oct. 28, 1939.
Lufkin	43	Aug. 1, 1940.
Palestine	23	Jan. 30, 1940.
San Angelo	65	May 13, 1940.
San Antonio	82	June 28, 1940.
Seguin	19	Dec. 11, 1940.
Sherman	43	June 17, 1939.
Texarkana	26	Aug. 16, 1939.
Tyler	42	June 12, 1940.
Waco	48	Mar. 30, 1939.
VIRGINIA		
Bristol	69	July 14, 1939.
Lexington	41	Oct. 26, 1939.
Pulaski	77	Sept. 20, 1939.
South Boston	72	Sept. 22, 1939.
Waynesboro	95	Oct. 11, 1939.
Williamsburg	41	May 3, 1939.
WASHINGTON		
Camas	8	May 22, 1939.
Vancouver	31	May 25, 1939.
Walla Walla	53	Apr. 14, 1939.
Yakima	67	Apr. 20, 1939.
WEST VIRGINIA		
Huntington	66	June 5, 1939.
WYOMING		
Casper	61	Nov. 15, 1940.
Cheyenne	66	Oct. 20, 1940.

TABLE 3.—*Communities in which no market milk is pasteurized, but in which the raw market milk complies with the Grade A raw milk requirements of the Public Health Service Milk Ordinance and Code to the extent shown by raw milk ratings of 90 percent or more* [1]

[NOTE.—All milk should be pasteurized or boiled, either commercially or at home, before it is consumed. See text for home method]

Community	Date of rating
ALABAMA	
Bridgeport	June 29, 1940.
Demopolis	Oct. 23, 1940.
Lanett	Mar. 19, 1940.
Scottsboro	June 29, 1940.
Stevenson	Do.
FLORIDA	
Apalachicola	Jan. 1940.
KANSAS	
Horton	June 1940.
MISSISSIPPI	
Holly Springs	Jan. 4, 1939.
MISSOURI	
Brentwood	June 7, 1940.
NORTH CAROLINA	
Angier	June 6, 1940.
Bethel	May 15, 1940.
Brevard	July 28, 1939.
Calypso	May 23, 1940.
Coats	June 6, 1940.
Dunn	Do.
Elkin	Sept. 18, 1939.
Erwin	June 6, 1940.
Faison	May 23, 1940.
Farmville	May 15, 1940.
Jackson	July 16, 1940.
Kenansville	May 23, 1940.
Lillington	June 6, 1940.
NORTH CAROLINA—continued	
Mars Hill	Feb. 21, 1939.
Mount Olive	June 5, 1940.
Murfreesboro	July 17, 1940.
Parmele	June 20, 1940.
Raeford	May 20, 1940.
Red Springs	May 29, 1940.
Rich Square	July 16, 1940.
Robersonville	June 20, 1940.
Rosehill	May 23, 1940.
Scotland Neck	July 16, 1940.
Wallace	May 23, 1940.
Warsaw	Do.
Weldon	July 16, 1940.
Williamston	June 20, 1940.
Winton	July 17, 1940.
SOUTH CAROLINA	
Hartsville	Nov. 9, 1939.
TEXAS	
Colorado	Nov. 3, 1939.
Commerce	Mar. 16, 1939.
Del Rio	June 29, 1940.
VIRGINIA	
Blackstone	Nov. 2, 1939.
Boydton	Apr. 26, 1939.
WEST VIRGINIA	
Grantsville	June 7, 1939.

[1] Note particularly the percentage of milk pasteurized in the various communities listed in these tables. This percentage is an important factor to consider in estimating the safety of a city's milk supply.

CANCER MORTALITY IN THE UNITED STATES

III. Geographic Variation in Recorded Cancer Mortality for Detailed Sites, for an Average of the Years 1930–32 [1]

Public Health Bulletin No. 257 is the third in a series of studies of cancer mortality in the United States, made from unpublished data made available by the Bureau of the Census. It deals with (1) the geographic variation in recorded cancer mortality for detailed sites in separate States; (2) skin cancer related to other cancer mortalities in States; (3) mortality for specific sites of cancer with varying urbanization of the population; (4) cancer mortality, urbanization, and hospital facilities; and (5) mortality from cancer of the uterus and the birth rate in States.

[1] Public Health Bulletin No. 257, same title as above. By Mary Gover. From the Division of Public Health Methods, National Institute of Health and the National Cancer Institute, in cooperation with the Division of Vital Statistics, United States Bureau of the Census. Available from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 15 cents per copy.

DR. CHARLES VALUE CHAPIN

On January 31, 1941, Dr. Charles Value Chapin, the Superintendent of Health in Providence, R. I., from 1884 to 1932, died after an illness of a few days. Doctor Chapin was the dean of health officers in the United States and probably to him more than to anyone else is due the rational outlook on the common communicable diseases which has had some part in greatly lowering their incidence and severity. In developing this outlook, he opposed deep-seated ideas and practices with their attendant interests. Doctor Chapin took his responsibilities as a health officer intimately, seriously, and personally. He showed more interest in actually benefiting his community and advancing scientific knowledge than in persuading others that he was doing so. He was professor of physiology in Brown University from 1886 to 1896, lecturer at the Harvard Medical School in 1909, in the Harvard-Massachusetts Institute of Technology School for Health Officers from 1913 to 1922, and in the Harvard School of Public Health from 1923 to 1935.

COURT DECISION ON PUBLIC HEALTH

Statute regulating sale of bedding or upholstered furniture held invalid.—(Massachusetts Supreme Judicial Court; *Mueller et al.* v. *Commissioner of Public Health et al.*, 30 N.E.2d 217; decided November 14, 1940.) A 1939 Massachusetts statute provided in part that an article of bedding or upholstered furniture, manufactured without the State by a manufacturer residing without the State and having no usual place of business within the State, could not be sold unless there was placed upon the tag required for such articles the name of such manufacturer and the serial number of the permit granted him by the State department of public health, which permit could be obtained only by the payment of an annual fee of $50.

The question of the constitutionality of the statute in this respect was presented to the Massachusetts Supreme Court when a Michigan copartnership, having no usual place of business in Massachusetts and no partner who resided there, sought to enjoin the enforcement of the law. The court was of the opinion that the statute was in violation of the Federal Constitution in that it laid an unreasonable burden on interstate commerce. It was said that it was well settled that the regulation of sales of articles to prevent fraud was within the legislative power and that the fact that the plaintiffs' products were made without the State did not prevent the adoption of reasonable regulations relative to their sale in the State, but the court further stated that it was also settled that no State could, consistently with the Federal Constitution, impose upon the products of other States,

brought therein for sale or use, or upon citizens because engaged in the sale therein, or the transportation thereto, of the products of other States, more onerous public burdens or taxes than it imposed upon the like products of its own territory. The court pointed out that the statute, as applied to manufacturers, required the payment of the fee as a condition precedent to the local sale of furniture manufactured outside the State by a manufacturer who did not reside or have a usual place of business in the State, but that it did not require this exaction as a condition precedent to the local sale of furniture manufactured outside the State by a manufacturer who had a usual place of business, or resided, in the State. "We are of opinion," said the court, "that the provisions of the statute in question amount to discrimination for which no reasonable explanation can be given or special circumstances can be said to negative."

DEATHS DURING WEEK ENDED JANUARY 25, 1941

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

	Week ended Jan. 25, 1941	Corresponding week, 1940
Data from 88 large cities of the United States:		
Total deaths	10,472	9,645
Average for 3 prior years	9,321	
Total deaths, first 4 weeks of year	39,249	37,979
Deaths under 1 year of age	553	496
Average for 3 prior years	515	
Deaths under 1 year of age, first 4 weeks of year	2,257	2,189
Data from industrial insurance companies:		
Policies in force	64,729,355	66,405,318
Number of death claims	14,263	14,326
Death claims per 1,000 policies in force, annual rate	11.5	11.3
Death claims per 1,000 policies, 4 weeks of year, annual rate	10.3	10.3

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 FEBRUARY 1, 1941

Summary

Another decline in the incidence of influenza was recorded for the current week, with 72,578 cases reported, as compared with 96,652 for the preceding week. Decreases were reported from all geographic areas except the Middle Atlantic and West North Central States, where increases in New Jersey (from 377 to 1,579) and Minnesota (from 954 to 2,111) accounted for the rise. The highest current incidence (41,106 cases) was recorded for the South Atlantic States, which have reported the largest numbers of cases for the past three weeks. In this area, West Virginia (13,565 cases), Virginia (11,516), and South Carolina (8,645) reported the largest numbers of cases for the current week.

The Bureau of the Census reports 10,112 deaths in 88 major cities of the United States for the week ended February 1, as compared with 10,472 for the preceding week and a 3-year (1938–40) average of 9,586. The current figure is 526 above the 3-year average as compared with an excess of 1,151 for the preceding week. In 90 cities scattered throughout the United States, the deaths attributed to influenza have been above the 5-year (1936–40) average each week from December 28, 1940, to January 25, 1941, inclusive, while the deaths recorded from pneumonia have remained below the 5-year average for the same period.

Of the other 8 common communicable diseases reported weekly by the State health officers, only measles and whooping cough were above the 5-year median expectancy. The number of cases of poliomyelitis dropped from 37 for the preceding week to 18. One case of Rocky Mountain spotted fever was reported in Virginia and 1 case of tularemia each in Maryland and South Carolina. Of 25 cases of endemic typhus fever, 16 cases were in Georgia and 4 cases in South Carolina.

Telegraphic morbidity reports from State health officers for the week ended Feb. 1, 1941, and comparison with corresponding week of 1940 and 5-year median

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

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended		Median 1936–40	Week ended		Median 1936–40	Week ended		Median 1936–40	Week ended		Median 1936–40
	Feb. 1, 1941	Feb. 3, 1940		Feb. 1, 1941	Feb. 3, 1940		Feb. 1, 1941	Feb. 3, 1940		Feb. 1, 1941	Feb. 3, 1940	
NEW ENG.												
Maine	0	2	1	197	32	4	69	104	104	0	0	0
New Hampshire	0	0	0	27	----	----	48	16	34	2	0	0
Vermont	0	0	0	128	----	----	12	1	14	0	0	0
Massachusetts	2	4	4	----	----	----	438	292	513	1	0	2
Rhode Island	0	0	0	23	----	----	0	128	100	0	0	0
Connecticut	0	1	3	623	8	8	44	143	143	1	1	1
MID. ATL.												
New York	13	27	31	[1] 632	[1] 19	[1] 19	2,456	254	706	0	1	12
New Jersey	22	10	10	1,579	42	42	813	34	55	2	1	3
Pennsylvania	9	43	51	----	----	----	2,341	86	222	5	5	5
E. NO. CEN.												
Ohio	9	18	31	1,903	118	118	1,051	21	66	1	2	2
Indiana	16	18	29	291	363	28	105	10	12	1	1	1
Illinois	29	19	49	138	130	54	1,339	30	35	1	0	4
Michigan [3]	11	28	10	374	14	6	1,964	183	183	0	1	1
Wisconsin	0	1	1	414	42	51	554	230	230	0	0	0
W. NO. CEN.												
Minnesota	0	0	3	2,111	5	4	14	380	151	0	0	0
Iowa	9	1	4	574	11	11	138	72	45	0	0	1
Missouri	10	7	17	245	22	181	31	7	15	0	2	3
North Dakota	4	3	3	101	19	19	13	4	4	0	0	2
South Dakota [3]	0	0	3	13	2	1	31	37	31	0	0	1
Nebraska	0	1	3	----	6	----	3	45	25	0	0	0
Kansas	6	4	5	538	143	29	185	329	18	0	0	0
SO. ATL.												
Delaware	3	0	0	11	----	----	33	3	33	1	0	0
Maryland [3]	4	8	8	577	119	61	25	5	149	0	0	0
Dist. of Col	2	9	9	124	24	5	14	0	13	0	0	0
Virginia [3]	9	12	25	11,516	2,450	----	447	23	66	1	0	3
West Viginia [3]	8	9	13	13,565	175	175	54	15	15	2	2	4
North Carolina [4]	17	16	36	2,868	183	33	152	30	156	1	2	3
South Carolina [4]	6	3	5	8,645	1,674	772	114	5	18	9	2	2
Georgia [4]	8	6	8	3,588	1,104	259	93	46	46	3	1	2
Florida	7	5	11	212	20	10	11	30	30	2	0	1
E. SO. CEN.												
Kentucky	6	11	8	399	91	91	198	16	60	3	4	8
Tennessee	5	8	13	2,277	320	172	60	74	42	4	1	4
Alabama [4]	7	7	15	4,701	1,247	301	68	41	41	2	0	0
Mississippi [3]	3	5	5	----	----	----	----	----	----	1	0	1
W. SO. CEN.												
Arkansas	8	17	9	1,625	1,587	242	120	28	28	1	1	1
Louisiana [4]	8	9	12	308	121	24	3	3	6	2	0	0
Oklahoma	7	13	10	797	724	190	4	0	4	2	0	2
Texas	23	41	60	7,830	4,497	916	102	270	140	3	2	4
MOUNTAIN												
Montana	5	1	1	308	16	25	4	63	39	0	0	0
Idaho	1	0	0	922	2	4	14	125	31	0	0	0
Wyoming	1	2	0	182	4	----	7	5	5	0	0	0
Colorado	6	6	6	385	24	----	94	28	28	0	1	1
New Mexico	5	4	4	37	12	9	37	18	20	0	0	0
Arizona	3	12	5	408	288	125	85	4	8	0	1	1
Utah [3]	2	2	2	76	28	----	4	255	39	0	0	0
Nevada	0	----	----	----	----	----	0	----	----	0	----	----
PACIFIC												
Washington	0	0	5	83	324	2	81	1,180	182	0	0	0
Oregon	0	4	3	74	191	59	263	163	35	0	2	1
California	9	24	33	1,149	1,440	131	108	428	428	1	1	2
Total	303	421	617	72,578	17,641	4,310	13,844	5,264	6,351	52	34	86
5 weeks	1,523	2,250	3,124	456,208	65,597	17,075	54,263	20,897	25,152	218	163	463

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended Feb. 1, 1941, and comparison with corresponding week of 1940 and 5-year median—Contd.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Week ended		Median 1936–40	Week ended		Median 1936–40	Week ended		Median 1936–40	Week ended		Median 1936–40
	Feb. 1, 1941	Feb. 3, 1940		Feb. 1, 1941	Feb. 3, 1940		Feb. 1, 1941	Feb. 3, 1940		Feb. 1, 1941	Feb. 3, 1940	
NEW. ENG.												
Maine	0	0	0	8	19	19	0	0	0	0	0	0
New Hampshire	0	0	0	10	3	6	0	0	0	1	0	0
Vermont	0	0	0	4	20	20	0	3	0	3	0	0
Massachusetts	0	0	0	127	119	228	0	0	0	1	3	2
Rhode Island	0	1	0	10	0	13	0	0	0	0	0	0
Connecticut	1	0	0	35	77	93	0	0	0	3	8	0
MID. ATL.												
New York	1	1	1	368	581	661	0	0	0	6	5	6
New Jersey	0	2	2	266	340	175	0	0	0	0	2	2
Pennsylvania	0	0	0	239	468	490	0	0	0	2	9	8
E. NO. CEN.												
Ohio	4	2	0	218	444	444	0	2	2	1	0	2
Indiana	0	0	0	145	206	211	2	4	5	0	2	1
Illinois	0	2	1	387	579	628	1	2	6	2	8	4
Michigan [3]	1	0	0	231	298	474	3	0	1	1	0	1
Wisconsin	0	1	1	145	172	260	15	2	5	0	0	1
W. NO. CEN.												
Minnesota	0	0	0	56	136	137	23	13	13	0	0	0
Iowa	1	1	0	75	74	186	0	5	33	5	3	3
Missouri	0	0	0	60	53	163	1	2	12	1	1	2
North Dakota	0	0	0	8	52	40	0	0	7	2	0	0
South Dakota [3]	1	0	0	12	25	29	1	6	11	0	0	0
Nebraska	0	0	0	13	25	70	1	0	4	0	0	0
Kansas	0	0	0	81	121	226	2	0	11	2	0	0
SO. ATL.												
Delaware	0	0	0	12	9	6	0	0	0	0	2	0
Maryland [3]	0	0	0	65	56	56	0	0	0	2	1	1
Dist. of Col.	0	0	0	16	23	19	0	0	0	0	0	0
Virginia [3]	0	0	0	53	37	40	0	0	0	1	3	5
West Virginia [3]	0	0	1	33	54	46	0	0	0	2	0	2
North Carolina [4]	0	2	0	53	46	40	0	0	1	0	0	2
South Carolina [4]	0	1	1	11	4	7	0	0	0	1	3	2
Georgia [4]	1	2	1	29	19	20	0	0	0	1	1	2
Florida	2	0	0	7	21	13	0	0	0	2	1	1
E. SO. CEN.												
Kentucky	1	0	1	92	77	76	0	0	0	0	0	2
Tennessee	0	0	0	67	80	40	1	0	0	4	0	1
Alabama [4]	0	0	0	21	9	14	0	0	0	2	1	4
Mississippi [3]	1	1	1	19	10	10	0	0	1	0	2	2
W. SO. CEN.												
Arkansas	0	0	0	9	11	10	0	2	2	3	1	1
Louisiana [4]	1	0	0	6	15	15	0	0	0	7	5	6
Oklahoma	0	1	0	9	31	36	0	0	0	1	1	3
Texas	1	0	0	54	80	113	2	5	7	0	6	8
MOUNTAIN												
Montana	0	0	0	35	52	52	0	0	9	0	0	0
Idaho	0	1	0	17	0	13	1	0	8	0	0	0
Wyoming	0	0	0	8	5	15	0	0	0	0	0	0
Colorado	0	2	0	30	66	66	1	20	6	2	0	0
New Mexico	0	0	0	6	30	24	1	0	1	1	0	1
Arizona	0	0	0	15	8	13	0	1	1	2	1	1
Utah [3]	0	0	0	6	28	38	0	1	0	0	1	0
Nevada	0			0			0			3		
PACIFIC												
Washington	1	1	1	32	54	89	0	0	8	0	2	2
Oregon	0	1	1	17	34	45	0	0	5	1	2	0
California	1	9	2	115	197	236	1	6	10	8	0	5
Total	18	31	21	3,330	4,868	6,004	56	71	313	73	74	111
5 weeks	188	182	106	16,004	21,356	29,791	246	390	1,457	385	403	554

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended Feb. 1, 1941, and comparison with corresponding week of 1940 and 5-year median—Contd.

Division and State	Whooping cough	
	Week ended	
	Feb. 1, 1941	Feb. 3, 1940
NEW ENG.		
Maine	29	57
New Hampshire	6	2
Vermont	16	23
Massachus tts	186	144
Rhode Island	11	17
Connecticut	59	74
MID. ATL.		
New York	315	439
New Jersey	132	93
Pennsylvania	364	372
E. NO. CEN.		
Ohio	336	205
Indiana	14	45
Illinois	125	91
Michigan [2]	301	120
Wisconsin	130	175
W. NO. CEN.		
Minnesota	76	52
Iowa	31	4
Missouri	41	19
North Dakota	15	26
South Dakota [2]	7	5
Nebraska	46	6
Kansas	67	36
SO. ATL.		
Delaware	25	2
Maryland [2]	92	127
Dist. of Col	8	9
Virginia [2]	138	62
West Virginia [2]	55	7
North Carolina [4]	231	53
South Carolina [4]	91	17
Georgia [4]	18	13
Florida	4	9
E. SO. CEN.		
Kentucky	72	63
Tennessee	73	27
Alabama [4]	45	22
Mississippi [2]	------	------
W. SO. CEN.		
Arkansas	28	1
Louisiana [4]	9	22
Oklahoma	15	1
Texas	249	107
MOUNTAIN		
Montana	21	1
Idaho	22	2
Wyoming	0	22
Colorado	44	50
New Mexico	21	45
Arizona	26	9
Utah [2]	57	139
Nevada	0	------
PACIFIC		
Washington	113	35
Oregon	2	29
California	419	194
Total	4,185	3,073
5 weeks	21,042	13,490

[1] New York City only.
[2] Period ended earlier than Saturday.
[3] Rocky Mountain spotted fever, week ended February 1, 1941, cases: Virginia, 1.
[4] Typhus fever, week ended February 1, 1941, 25 cases, as follows: North Carolina, 1; South Carolina, 4; Georgia, 16; Alabama, 2; Louisiana, 2.

WEEKLY REPORTS FROM CITIES

City reports for week ended Jan. 18, 1941

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Data for 90 cities:											
5-year average	166	1,295	135	2,288	947	1,645	33	366	19	1,108	----
Current week [1]	70	7,346	140	3,961	687	1,076	16	332	20	1,132	----
Maine:											
Portland	0	14	1	0	2	1	0	0	0	8	23
New Hampshire:											
Concord	0	----	0	0	0	0	0	1	0	0	14
Manchester	0	----	1	0	3	10	0	1	0	0	25
Nashua	0	----	0	0	0	2	0	0	0	0	8
Vermont:											
Barre	0	----	1	0	0	1	0	1	0	0	5
Burlington	0	----	0	0	0	0	0	0	0	0	11
Rutland	0	----	0	0	1	0	0	0	0	0	5
Massachusetts:											
Boston	1	----	5	153	53	35	0	11	1	89	363
Fall River	1	----	0	0	2	5	0	2	0	3	40
Springfield	0	----	0	2	1	13	0	0	0	1	42
Worcester	0	----	0	71	10	10	0	5	0	0	76
Rhode Island:											
Pawtucket	0	----	0	0	2	2	0	0	0	0	24
Providence	0	16	2	0	10	3	0	3	0	13	77
Connecticut:											
Bridgeport	0	59	1	0	4	3	0	0	0	3	51
Hartford	0	259	0	0	2	3	0	1	0	4	52
New Haven	0	6	0	0	2	13	0	0	0	12	38
New York:											
Buffalo	0	15	1	42	13	21	0	5	0	29	157
New York	16	215	3	989	76	184	0	75	4	103	1,571
Rochester	0	----	0	1	7	2	0	1	2	19	84
Syracuse	0	----	0	0	6	6	0	1	0	12	58
New Jersey:											
Camden	2	8	2	38	6	10	0	1	0	3	36
Newark	0	11	0	122	6	38	0	2	0	25	104
Trenton	0	5	0	10	6	46	0	0	0	1	46
Pennsylvania:											
Philadelphia	5	40	10	619	39	72	0	17	0	97	594
Pittsburgh	0	80	5	4	21	9	0	6	1	64	178
Reading	1	----	0	113	7	0	0	1	0	3	36
Scranton	1	----	----	2	----	0	0	----	0	2	----
Ohio:											
Cincinnati	0	41	1	12	11	9	0	7		2	130
Cleveland	0	192	1	232	14	30	0	8	0	116	187
Columbus	1	----	0	8	7	8	0	2	0	20	95
Toledo	0	2	2	6	1	8	0	3	0	15	68
Indiana:											
Anderson	0	----	1	0	1	1	0	0	0	0	18
Fort Wayne	0	----	0	4	3	0	0	1	0	0	30
Indianapolis	2	----	3	7	13	16	0	3	0	8	116
Muncie	0	----	0	1	2	2	0	0	0	0	14
South Bend	0	----	0	6	3	2	0	0	0	0	23
Terre Haute	0	----	0	0	0	0	0	0	0	1	13
Illinois:											
Alton	0	----	0	0	5	1	0	0	0	0	14
Chicago	6	34	4	655	27	174	0	27	1	86	719
Elgin	0	----	0	4	2	1	0	0	0	0	18
Moline	0	----	0	0	0	0	0	0	0	0	12
Springfield	0	----	0	0	1	1	0	0	0	0	32
Michigan:											
Detroit	2	31	2	606	16	89	3	17	0	154	276
Flint	0	----	1	20	4	9	0	2	0	11	24
Grand Rapids	0	1	0	12	2	4	0	0	0	25	38
Wisconsin:											
Kenosha	0	1	0	7	0	1	0	0	0	0	7
Madison	0	----	0	0	0	0	0	0	0	1	13
Milwaukee	0	----	0	13	5	25	0	1	1	21	88
Racine	0	----	0	0	0	1	0	0	0	5	7
Superior	0	----	0	0	1	0	0	0	0	0	7

[1] Figures for Boise estimated; report not received.

City reports for week ended Jan. 18, 1941—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Minnesota:											
Duluth	0	------	0	1	1	2	8	0	0	1	30
Minneapolis	0	------	1	3	5	15	0	0	0	28	109
St. Paul	0	------	0	0	7	6	0	1	0	10	56
Iowa:											
Cedar Rapids	0	------	--------	0	--------	2	0	------	0	0	--------
Davenport	0	------	--------	1	--------	3	0	------	0	0	--------
Des Moines	1	------	0	0	0	5	0	0	0	1	46
Sioux City	0	------	--------	0	--------	1	0	------	0	1	--------
Waterloo	0	------	--------	0	--------	1	0	------	0	3	--------
Missouri:											
Kansas City	0	1	3	6	17	10	4	3	0	18	100
St. Joseph	0	------	1	2	16	0	0	0	0	0	44
St. Louis	3	35	0	7	30	43	0	4	0	20	267
North Dakota:											
Fargo	0	120	--------	0	--------	1	0	------	0	4	--------
Grand Forks	0	------	--------	0	--------	0	0	------	1	0	--------
Minot	0	------	0	2	0	1	0	0	0	2	6
South Dakota:											
Aberdeen	0	------	--------	0	--------	2	0	------	0	0	--------
Sioux Falls	1	------	0	0	0	3	0	0	0	0	9
Nebraska:											
Omaha	0	------	1	1	6	3	1	2	0	0	59
Kansas:											
Lawrence	0	57	1	5	1	0	0	0	0	0	8
Topeka	0	27	0	24	6	0	0	0	0	2	26
Wichita	0	13	0	3	6	2	0	0	0	15	31
Delaware:											
Wilmington	0	3	0	2	5	1	0	1	0	2	36
Maryland:											
Baltimore	0	64	3	7	20	27	0	12	1	59	218
Cumberland	0	------	0	0	0	1	0	0	0	0	12
Frederick	0	------	0	0	0	0	0	0	1	0	6
District of Columbia:											
Washington	2	172	0	4	14	18	0	11	0	14	199
Virginia:											
Lynchburg	1	------	0	0	2	2	0	1	0	0	11
Norfolk	0	216	0	6	2	1	0	0	0	2	30
Richmond	0	------	2	5	6	6	0	1	0	0	55
Roanoke	0	------	1	71	2	0	0	0	0	5	29
West Virginia:											
Charleston	0	8	0	0	1	0	0	0	0	0	12
Huntington	0	------	--------	0	--------	1	0	------	0	0	--------
Wheeling	0	9	0	1	3	0	0	0	0	15	37
North Carolina:											
Gastonia	1	4	--------	0	--------	0	0	------	0	1	--------
Raleigh	0	12	--------	0	0	0	0	0	0	5	5
Wilmington	0	------	0	0	2	0	0	0	0	1	11
Winston-Salem	2	22	--------	0	2	2	0	0	0	31	36
South Carolina:											
Charleston	1	1,537	1	6	6	0	0	0	0	0	28
Florence	0	42	0	11	1	0	0	0	0	0	8
Greenville	0	------	0	0	6	2	0	0	0	4	21
Georgia:											
Atlanta	0	1,417	6	5	10	4	0	2	0	0	103
Brunswick	0	12	0	0	2	0	0	1	0	4	8
Savannah	0	614	2	0	3	0	0	0	0	0	41
Florida:											
Miami	0	6	0	1	2	1	0	5	0	0	48
Tampa	1	8	1	0	1	1	0	0	1	1	39
Kentucky:											
Ashland	0	17	1	0	0	0	0	2	0	5	9
Covington	0	6	0	3	2	1	0	1	0	0	22
Lexington	0	------	0	12	5	0	0	1	0	5	21
Louisville	1	58	1	2	13	14	0	4	0	15	120
Tennessee:											
Knoxville	0	795	6	1	6	2	0	0	0	7	32
Memphis	0	------	9	15	4	5	0	7	0	2	110
Nashville	0	------	58	4	5	3	0	1	0	8	68
Alabama:											
Birmingham	0	667	1	8	6	2	0	3	0	3	84
Mobile	1	244	4	1	3	0	0	3	0	0	39
Montgomery	1	31	--------	0	--------	2	0	--------	0	0	--------

City reports for week ended Jan. 18, 1941—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Arkansas:											
Fort Smith	1	26		0		0	0		0	2	
Little Rock	0	148	1	0	10	1	0	4	0	2	62
Louisiana:											
Lake Charles	0	1	0	0	0	0	0	0	0	2	3
New Orleans	2	9	2	2	13	0	0	8	5	0	192
Shreveport	0	9	2	0	7	0	0	3	0	0	54
Oklahoma:											
Oklahoma City	3	116	1	2	8	4	0	2	4	2	51
Tulsa	0		0	1	1	4	1	0	0	8	7
Texas:											
Dallas	2	8	6	3	2	1	0	5	0	0	83
Fort Worth	0		3	39	3	5	0	2	0	0	38
Galveston	0		0	0	2	0	0	0	0	0	19
Houston	2	324	7	1	19	3	0	6	0	0	115
San Antonio	0	110	6	1	13	3	0	12	0	2	81
Montana:											
Billings	0	1	0	0	1	1	0	0	0	0	8
Great Falls	1		0	0	1	3	0	0	0	0	11
Helena	0	123	0	0	0	0	0	0	0	0	3
Missoula	0	174	0	0	1	2	0	0	0	0	7
Idaho:											
Boise											
Colorado:											
Colorado Springs	0		0	0	1	0	0	1	0	2	12
Denver	4	103	5	6	10	10	0	4	0	16	126
Pueblo	1		4	1	5	0	0	1	0	6	16
New Mexico:											
Albuquerque	0	4	0	3	1	2	0	2	0	1	11
Utah:											
Salt Lake City	0		2	2	1	3	0	2	0	8	33
Washington:											
Seattle	1		2	9	7	5	0	0	1	15	96
Spokane	0	1	3	1	1	3	0	1	0	0	30
Tacoma	0		0	2	0	1	0	1	1	1	37
Oregon:											
Portland	0	26	3	6	2	2	0	1	0	0	92
Salem	0	3		0		0	0		0	3	
California:											
Los Angeles	4	188	6	9	10	31	0	17	0	39	371
Sacramento	4	15	2	2	1	4	0	4	0	6	42
San Francisco	1	120	5	0	10	7	0	10	0	51	194

State and city	Meningitis, meningococcus		Poliomyelitis cases
	Cases	Deaths	
New York:			
Buffalo	1	0	0
New York	2	0	0
New Jersey:			
Trenton	1	0	0
Pennsylvania:			
Pittsburgh	2	0	1
Ohio:			
Cleveland	0	0	1
Illinois:			
Chicago	0	0	1
Michigan:			
Detroit	0	0	1
Missouri:			
St. Joseph	0	0	1
St. Louis	1	0	0
District of Columbia:			
Washington	0	0	1
Tennessee:			
Memphis	1	1	0
Alabama:			
Birmingham	0	1	0
Louisiana:			
Shreveport	0	1	0
California:			
Los Angeles	1	0	0

Encephalitis, epidemic or lethargic.—Cases: New York, 3; Toledo, 1; Charleston, S. C., 1.
Pellagra.—Cases: Atlanta, 1; San Antonio, 1.
Rabies in man.—Deaths: Cincinnati, 1.
Typhus fever.—Cases: Charleston, S. C., 1; Atlanta, 1; Savannah, 1; Mobile, 1; New Orleans, 1; Houston, 1; Los Angeles, 1.

TERRITORIES AND POSSESSIONS

HAWAII TERRITORY

Plague.—A rat found on December 30, 1940, at Honokaa, Hamakua District, Island of Hawaii, T. H., has been proved positive for plague.

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended December 28, 1940.—During the week ended December 28, 1940, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis	1	2	6	2	13	3	1	1	1	30
Chickenpox		21	3	69	372	33	29	49	22	598
Diphtheria		19		20		3	1			43
Influenza		961			343	19			233	1,556
Lethargic encephalitis					1					1
Measles		251	8	14	412	155	41	105	143	1,129
Mumps				17	66	7	3		1	94
Pneumonia		31			45	3			4	83
Scarlet fever		20	5	61	132	18	5	10	4	255
Tuberculosis		41	8	36	26	3		1		115
Typhoid and paratyphoid fever			1	5		1			1	8
Whooping cough		1		43	117	12	6	5		184

CUBA

Habana—Communicable diseases—4 weeks ended December 14, 1940.—During the 4 weeks ended December 14, 1940, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	26		Scarlet fever	1	
Malaria	5	1	Typhoid fever	37	11
Poliomyelitis	2	1			

FINLAND

Communicable diseases—4 weeks ended November 30, 1940.—During the 4 weeks ended November 30, 1940, cases of certain communicable diseases were reported in Finland as follows:

Disease	Cases	Disease	Cases
Diphtheria	260	Scarlet fever	490
Influenza	10,872	Typhoid fever	42
Paratyphoid fever	265	Undulant fever	1
Poliomyelitis	26		

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

NOTE.—A cumulative table giving current information regarding the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS of January 31, 1941, pages 206-210. A similar table will appear in future issues of the PUBLIC HEALTH REPORTS for the last Friday of each month.

Yellow Fever

Colombia.—Deaths from yellow fever have been reported in Colombia as follows: Cundinamarca Department, Dec. 12, 1940, 1; Intendencia of Meta, Nov. 20–Dec. 29, 1940, 5; Santander Department, Jan. 3, 1941, 1; Tolima Department, Nov. 25–Dec. 22, 1940, 6.

Ivory Coast—Abengorou.—On January 24, 1941, 1 death from suspected yellow fever was reported in Abengorou, Ivory Coast.