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No. 1

REGISTRATION OF BIRTHS AND DEATHS.

THE SUPREME COURT OF ARKANSAS DECIDES THAT LOCAL REGISTRARS ARE STATE OFFICERS AND THAT THEIR COMPENSATION SHOULD NOT BE PAID BY THE COUNTIES.

In 1913 the legislature of the State of Arkansas passed a law providing for the appointment of local registrars of births and deaths by the State registrar of vital statistics and for the payment of local registrars by the counties on certification by the State registrar that prompt reports had been made to him.

The supreme court of Arkansas has decided that under the constitution of the State the counties can not be required to pay the local registrars, as they are considered to be State officers. This feature of the law has therefore been declared unconstitutional.

The opinion is published in this issue of the Public Health Reports, page 22.

THE NEW UNITED STATES LIFE TABLES.¹

THEIR PURPOSE AND WHAT THEY SHOW.

By JAMES W. GLOVER, Professor of Mathematics and Insurance, University of Michigan, and Special Agent, United States Bureau of the Census.

Speculation on the chances of life and death has been indulged in by writers, artists, and philosophers of all ages. The dominant note characterizing these reflections, particularly in the mediæval arts, is that Death strikes at random; that there is no law in the aiming of his shaft. This belief² is borne out in the dances of death which picture the skeleton reaper leading alike the young and old, rich and poor, good man and gambler, in a wild dance to the grave. A fifteenth-century painting of a dance of death is

¹ Read before the Section on Vital Statistics, American Public Health Association, Cincinnati, Ohio, Oct. 27, 1916.

² Karl Pearson dwells on this theme in his essay on "The Chances of Death."

still preserved on the walls of the chapel of the Marienkirche at Lübeck. Holbein in the beginning of the sixteenth century produced 53 designs of the "Danse Macabre," which express the traditions of this period concerning death. They are pronounced by a high authority to be the first and perhaps greatest satirical moralities known to the modern world.

Death is pictured in various forms, all more or less hideous and fantastic. A famous fresco in the Campo Santo, Pisa, "The Triumph of Death," dating back to the middle of the fourteenth century, depicts Death as an old hag with batlike wings about to descend upon a company of youths and maidens, who in the enjoyment of music and love, are quite unaware of the grim presence. Throughout this painting, rich in subjects and details, the moral is to prepare for the unexpected coming of death, by a life of meditation and good deeds, rather than to indulge in the selfish pursuit of worldly pleasure.

The same thought runs through the greatest of the morality plays, *Everyman*, which is assigned to the latter half of the fifteenth century. When "Dethe" appears unexpectedly to *Everyman*—"O, Dethe, thou comest when I had thee leest in mynde!"—he is deserted by all his friends except "Good Dedes." *Everyman*, when advised by "Dethe" that he "must take a longe journey," implores in vain for respite:

O wretched caytyfe, wheder shall I flee,
That I myght scape this endles sorowe?
Now, gentyll Dethe, spare me tyll to-morowe,
That I may amende me
With good advysement!

Dethe:

Naye, therto I wyll not consent,
Nor no man wyll I respyte;
But to the herte sodeynly I shall smyte
Without ony advysement.

In more recent times music has contributed through Kastner a remarkable treatise on "Les Danses des Morts" and Saint Saëns gave to the world the beautiful and mournful symphonic poem, the *Danse Macabre*.

The English bills of mortality, which correspond to our death certificates, first appeared about 1538, but the age at death was not stated in these bills until as late as 1728. This would indicate that little importance was attached to the age at death and may be regarded as consistent with the notion that death was a random distribution with respect to age as well as social condition.

The idea of blind chance in the hand of Death probably persisted in the minds of the masses throughout the last century. This is reflected in the almost universal practice of guilds and societies of

the working classes of collecting equal dues of all, without regard to age, for insurance protection or funeral benefit in the event of death.

It was not until the end of the seventeenth century that Edmund Halley, the distinguished English astronomer and mathematician, prepared the first life table and showed that the law of averages, not pure chance, governed the steps in the weird dance of death. This result was presented to the Royal Society in the form of a paper entitled "The degrees of mortality in mankind," and published in the Philosophical Transactions in 1693. This table has since been known as the Breslau table. No English records being available at that time, it was based on the records of 6,193 births and 5,869 deaths in the city of Breslau in Silesia during the five years 1687 to 1691.

I have often wondered if Addison's Vision of Mirza, which appeared in the Spectator in 1711, 18 years later, was not inspired by Halley's Breslau life table. This remarkable allegory presents a most striking picture of the march of human life, of the Dance of Death. Mirza, the prince, is led by the genius to the highest pinnacle of a rock near Bagdad, where the following colloquy takes place:

"Examine now," said he, "this sea that is thus bounded with darkness at both ends and tell me what thou discoverest in it."

"I see a bridge," said I, "standing in the midst of the tide."

"The bridge thou seest," said he, "is human life; consider it attentively."

Upon a more leisurely survey of it I found that it consisted of three score and ten entire arches, with several broken arches, which added to those that were entire made up the number about an hundred. As I was counting the arches the genius told me that this bridge consisted at first of a thousand arches, but that a great flood swept away the rest and left the bridge in the ruinous condition I now beheld it.

"But tell me further," said he, "what thou discoverest on it."

"I see multitudes of people passing over it," said I, "and a black cloud hanging on each end of it."

As I looked more attentively I saw several of the passengers dropping through the bridge into the great tide that flowed underneath it, and upon further examination perceived there were innumerable¹ trapdoors that lay concealed in the bridge which the passengers no sooner trod upon but they fell through them into the tide and immediately disappeared. These hidden pitfalls were set very thick at the entrance of the bridge, so that throngs of people no sooner broke through the cloud but many of them fell into them. They grew thinner towards the middle, but multiplied and lay closer together towards the end of the arches that were entire.

There were, indeed, some persons, but their number was very small, that continued a kind of hobbling march on the broken arches, but fell through one after another, being quite tired and spent with so long a walk.

¹ Pearson in "The Chances of Death" pictures the bridge of life, and in place of the concealed trapdoor introduces five skeleton marksmen who shoot down the passengers, in accordance with the distribution in five frequency curves whose resultant he conceives to represent approximately the law of human mortality.

In the Vision of Mirza the delightful contributor to the *Spectator* has given us the first and most entertaining description of a life table. It is free from technicalities and unblemished by the presence of a single statistical fact. To convert it into a modern life table and make the transition as easy as possible, I will merely add that in this bridge of human life each span or arch represents a year, and the throng or multitude entering upon the bridge is usually taken as 100,000. The life table then shows in cold figures the number of passengers who fall through the concealed trapdoors in each span or age interval, in other words, the number of survivors at each age out of 100,000 persons born alive. Upon this fundamental information is built up the entire structure of the modern life table.

This year (1916) the Bureau of the Census issued the first publication devoted exclusively to life tables; it appears under the title¹ "United States Life Tables: 1910," and contains 25 life tables prepared under the supervision of Prof. James W. Glover, of the University of Michigan. Similar tables have been published from time to time in England, France, Germany, Sweden, and other countries; in some cases these tables date back over a century, and tables based on statistics collected during the period 1850 to 1900 are quite numerous.

The new United States life tables are based on the census enumeration of 1910 and the mortality statistics of 1909, 1910, and 1911, in the original registration States, consisting of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Indiana, and Michigan, and the District of Columbia.

The first table is for both sexes in the original registration States; it is fairly representative of mortality conditions prevailing in this country because it is based on over 24,000,000 enumerated lives and 1,000,000 reported deaths. The next 14 tables are for males and females, respectively, in the following classes in the original registration States: Aggregate, white, Negro, native white, foreign white, cities, and rural. Finally, 10 tables appear for male and female, respectively, in Indiana, Massachusetts, Michigan, New Jersey, and New York.

The preparation of a life table from the census and mortality statistics is like striking a balance in a set of accounts. Only through the life table can one know at each age the mortality rate, expectation of life, and annual death rate in the community. Crude rates may be quite misleading; for example, a pioneer community including an excess of young persons might show a lower annual

¹ A copy may be obtained free by writing to the Director of the Census, Washington, D. C.

death rate than another community in which there is a preponderance of older people, and it might be inferred that the first group was enjoying a more favorable mortality rate. A life table based on the same data might show that in the first community the mortality rate was actually higher at every age than in the second.

The United States life tables are intended chiefly as a source of information for the public, and to this end are presented in simple form with detailed explanations and numerous examples illustrating their use. Apart from this general purpose they are expected to serve as a source of reference to public health officials, students of vital statistics, and physicians. Statisticians, actuaries, sociologists, economists, and writers on public health will find much useful material for consideration, discussion, and interpretation.

Life tables are frequently used in legal practice in cases where the value of a life annuity is needed to fix the measure of damages; the value of the expectation of life is also required very often. They may also be employed in the valuation of reversions, retirement funds, and old-age pensions. The tables which have heretofore been employed have too often been based on statistics not applicable in this country. It is well known that the Northampton table based on English experience exhibits mortality rates altogether too high and annuity values correspondingly too low. Other tables employed have been based upon insurance experience involving selected lives. The present tables will in most legal cases be found better adapted to conditions in this country.

A detailed comparative study of mortality in different classes of the population is made possible through the life tables and raises numerous important questions which deserve the most careful consideration. Among the larger questions a few may be mentioned here. The excess of city over rural mortality is so great that the attention of health officials should be given to this subject without delay to determine its cause and to what extent it is practicable to reduce city mortality to the minimum actually existing in the country. To give an idea of the difference, the tables show that out of 100,000 rural male births 58,117 survive to age 60, while among the same number of city births only 43,454 survive to this age. In other words, 14,663 more men out of the same number of births—100,000—would attain to age 60 in the country than in the city on the basis of existing mortality rates. These figures are so astounding that they deserve the utmost prominence. Similar differences exist in England and Germany, as shown by recent life tables. The tables show that the mortality rates among women are lower throughout the entire range of life than for men and that the expectation of life of women is much greater. While this is true in general, there is a striking exception in the case of rural women. It appears from the tables that from

ages 20 to 40 the mortality rate for rural women is almost as great as that of the men, except from ages 25 to 31, where it is actually greater. The same thing occurs in the case of negro women from ages 10 to 20. It would be interesting to know what is the cause of these curious exceptions.

There is considerable interest at the present time in occupational mortality, particularly in the manufacturing industries. The life table for Massachusetts exhibits approximately occupational or industrial mortality as compared with that exhibited by a State like Indiana, which is largely rural. The industrial mortality is greatly in excess of that in the rural communities.

The infant mortality tables contained in the United States Life Tables offer an excellent opportunity for a comparative study of infant mortality in different classes of the population.

In all these studies the question naturally arises whether the differences exhibited in mortality rates are due to racial characteristics and not easily changed, or whether they are due to environment and mode of living and admit of improvement.

Is it possible to attain approximately as favorable a mortality for all classes as the actual minimum now existing for rural men and women? The answer to this question is of profound significance to the people of this country.

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.

ANTHRAX.

Connecticut—New Haven.

Collaborating Epidemiologist Black reported that during the week ended December 23, 1916, one case of anthrax was notified at New Haven, Conn.

CEREBROSPINAL MENINGITIS.

State Reports for November, 1916.

Place.	New cases reported.	Place.	New cases reported.
California:		Mississippi:	
Los Angeles County—		Jackson County.....	3
Los Angeles.....	1	Kemper County.....	1
Pasadena.....	1	Warren County.....	1
Stanislaus County.....	1	Stone County.....	1
Total.....	3	Total.....	6
Iowa:			
Benton County.....	2		

City Reports for Week Ended Dec. 16, 1916.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Baltimore, Md.....	1	2	New Britain, Conn.....	1	.....
Chicago, Ill.....	2	3	New York, N. Y.....	3	2
Jersey City, N. J.....	1	1	Philadelphia, Pa.....	1	1
Lexington, Ky.....	1	1	Providence, R. I.....	1	.....
Lynn, Mass.....	1	1	St. Louis, Mo.....	1	1
Milwaukee, Wis.....	1	1	Springfield, Mass.....	.....	1

DIPHThERIA.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 15.

ERYSIPELAS.**City Reports for Week Ended Dec. 16, 1916.**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Binghamton, N. Y.	2		Milwaukee, Wis.	3	
Boston, Mass.		1	Newark, N. J.	7	1
Buffalo, N. Y.	1		New York, N. Y.		1
Butte, Mont.		1	Niagara Falls, N. Y.		2
Camden, N. J.			Oakland, Cal.	1	1
Chicago, Ill.	37	2	Passaic, N. J.	1	
Cincinnati, Ohio	3		Philadelphia, Pa.	7	2
Cleveland, Ohio	3		Pittsburgh, Pa.	5	
Cumberland, Md.	1		Providence, R. I.	1	1
Detroit, Mich.	5		St. Louis, Mo.	12	1
Harrison, N. J.	1		St. Paul, Minn.	2	
Jackson, Mich.	2		San Francisco, Cal.	2	
Jersey City, N. J.	6		Steubenville, Ohio	1	
Kalamazoo, Mich.	4		Toledo, Ohio	1	
Lincoln, Nebr.	1		York, Pa.	1	
Los Angeles, Cal.	1	2			

LEPROSY.**City Reports for Week Ended Dec. 16, 1916.**

During the week ended December 16, 1916, one case of leprosy was reported in Indianapolis, Ind., and one case in San Francisco, Cal.

MALARIA.**State Reports for November, 1916.**

Place.	New cases reported.	Place.	New cases reported.
California:		Mississippi—Continued.	
Alameda County—		Benton County	12
Berkeley	1	Bolivar County	715
Hayward	1	Calhoun County	48
Piedmont	1	Carroll County	89
Amador County	1	Chickasaw County	35
Butte County	14	Choctaw County	64
Chico	6	Claiborne County	93
Gridley	1	Clarke County	29
Colusa County	7	Clay County	19
Colusa	4	Coahoma County	523
Fresno County	2	Copiah County	147
Firebaugh	2	Covington County	106
Glenn County—		De Soto County	37
Orland	4	Forest County	139
Los Angeles County—		Franklin County	77
Long Beach	1	George County	45
Merced County	2	Greene County	17
Modoc County	1	Grenada County	100
Placer County	4	Hancock County	101
Rocklin	1	Harrison County	106
San Francisco	5	Hinds County	346
San Joaquin County	8	Holmes County	545
Stockton	2	Issaquena County	14
Solano County	5	Itawamba County	56
Vacaville	1	Jackson County	53
Stanislaus County	1	Jasper County	76
Tehama County	1	Jefferson County	80
Tulare County	2	Jefferson Davis County	25
Yolo County	7	Jones County	235
Total	85	Kemper County	57
		Lafayette County	63
Mississippi:		Lamar County	16
Adams County	98	Lauderdale County	150
Alcorn County	40	Lawrence County	84
Amite County	54	Leake County	115
Attala County	110	Lee County	92
		Leflore County	242

MALARIA—Continued.**State Reports for November, 1916—Continued,**

Place.	New cases reported.	Place.	New cases reported.
Mississippi—Continued		Mississippi—Continued.	
Lincoln County.....	54	Smith County.....	83
Lowndes County.....	45	Stone County.....	35
Madison County.....	80	Sunflower County.....	505
Marion County.....	150	Tallahatchie County.....	146
Marshall County.....	106	Tate County.....	200
Monroe County.....	70	Tippah County.....	74
Montgomery County.....	48	Tishomingo County.....	55
Neshoba County.....	160	Tunica County.....	177
Noxubee County.....	56	Union County.....	36
Oktibbeha County.....	117	Warren County.....	181
Panola County.....	96	Washington County.....	325
Pearl River County.....	75	Wayne County.....	68
Perry County.....	383	Webster County.....	37
Pike County.....	56	Wilkinson County.....	17
Pontotoc County.....	29	Winston County.....	92
Prentiss County.....	51	Yalobusha County.....	62
Quitman County.....	96	Yazoo County.....	470
Rankin County.....	60	Walthall County.....	6
Scott County.....	74		
Sharkey County.....	77		
Simpson County.....	73		
		Total.....	9,578

City Reports for Week Ended Dec. 16, 1916.

During the week ended December 16, 1916, five cases of malaria, with one death, were reported in New Orleans, La., and one fatal case was reported in New York, N. Y.

MEASLES.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 15.

PELLAGRA.**Mississippi Report for November, 1916.**

Place.	New cases reported.	Place.	New cases reported.
Mississippi:		Mississippi—Continued.	
Adams County.....	8	Lowndes County.....	4
Alcorn County.....	1	Madison County.....	4
Amite County.....	3	Marion County.....	6
Attala County.....	3	Marshall County.....	12
Bolivar County.....	22	Monroe County.....	5
Carroll County.....	1	Montgomery County.....	1
Chickasaw County.....	5	Neshoba County.....	6
Choctaw County.....	2	Noxubee County.....	4
Clalborne County.....	1	Oktibbeha County.....	6
Clay County.....	3	Panola County.....	3
Coahoma County.....	22	Pearl River County.....	1
Copiah County.....	3	Perry County.....	5
Covington County.....	3	Pike County.....	3
De Soto County.....	2	Pontotoc County.....	1
Forest County.....	10	Prentiss County.....	1
Franklin County.....	2	Rankin County.....	2
George County.....	1	Scott County.....	3
Harrison County.....	9	Sharkey County.....	2
Hinds County.....	22	Sunflower County.....	7
Holmes County.....	10	Tallahatchie County.....	24
Itawamba County.....	7	Tate County.....	3
Jones County.....	2	Tippah County.....	3
Kemper County.....	1	Tunica County.....	7
Lafayette County.....	1	Warren County.....	3
Lamar County.....	1	Washington County.....	8
Lauderdale County.....	6	Wayne County.....	2
Lawrence County.....	6	Wilkinson County.....	3
Leake County.....	1	Yazoo County.....	9
Lee County.....	3		
Leflore County.....	12		
Lincoln County.....	9	Total.....	320

PELLAGRA—Continued.**City Reports for Week Ended Dec. 16, 1916.**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Charleston, S. C.	1	Nashville, Tenn. ....	.....	1
Lexington, Ky.	1			

PLAGUE.**Louisiana—New Orleans—Plague-Infected Rat Found.**

Passed Asst. Surg. Simpson reported that a rat trapped December 1, 1916, at 2421 St. Roche Avenue, New Orleans, La., was proved positive for plague infection December 21, 1916.

PNEUMONIA.**City Reports for Week Ended Dec. 16, 1916.¹**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Berkeley, Cal.	1	1	Manchester, N. H.	1	1
Binghamton, N. Y.	4	5	Morristown, N. J.	2	.....
Chicago, Ill.	232	88	Newark, N. J.	56	17
Cleveland, Ohio.	32	19	New Castle, Pa.	2	.....
Coffeyville, Kan.	1	.....	Newport, Ky.	1	1
Detroit, Mich.	5	18	Pawtucket, R. I.	4	4
Dubuque, Iowa.	1	1	Philadelphia, Pa.	88	44
Grand Rapids, Mich.	4	.....	Pittsburgh, Pa.	33	43
Harrisburg, Pa.	1	1	Reading, Pa.	4	2
Harrison, N. J.	1	.....	Sacramento, Cal.	4	.....
Johnstown, Pa.	2	2	San Francisco, Cal.	15	11
Kalamazoo, Mich.	3	3	Schenectady, N. Y.	4	1
Kansas City, Mo.	5	8	Springfield, Ohio.	1	1
Lancaster, Pa.	1	.....	Stockton, Cal.	2	1
Lexington, Ky.	1	1	Toledo, Ohio.	12	4
Los Angeles, Cal.	14	10	Wilksburg, Pa.	1	.....

POLIOMYELITIS (INFANTILE PARALYSIS).**State Reports for November, 1916.**

Place.	New cases reported.	Place.	New cases reported.
California:		Iowa:	
Calaveras County—		Adair County	1
Angels Camp	1	Allamakee County	2
Colusa County	1	Calhoun County	2
Contra Costa County—		Cedar County	1
Martinez	1	Greene County	1
Humboldt County—		Hamilton County	1
Eureka	1	Jackson County	2
Kings County—		Maahaska County	3
Hanford	1	Marshall County	1
Los Angeles County	1	Mills County	1
Los Angeles	1	Monona County	1
Marin County	2	Monroe County	1
Riverside County—		Polk County	2
Riverside	2	Scott County	1
Sacramento County—		Union County	3
Sacramento	1	Washington County	1
San Bernardino—		Wright County	1
Colton	1	Total	25
San Francisco	6		
San Luis Obispo County	1	Mississippi:	
Santa Barbara County—		Bolivar County	1
Santa Barbara	1	Jasper County	2
Santa Clara County	1	Rankin County	2
Sonoma County	1	Washington County	2
Tehama County	1	Yazoo County	1
Tulare County	1	Total	8
Total	25	Wyoming:	
		Uinta County	1

POLIOMYELITIS (INFANTILE PARALYSIS)—Continued.**City Reports for Week Ended Dec. 16, 1916.**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Baltimore, Md.....	1	.....	New Haven, Conn.....	1	.....
Boston, Mass.....	1	1	New Orleans, La.....	1	.....
Brookline, Mass.....	2	.....	Newton, Mass.....	1	.....
Cambridge, Mass.....	1	.....	New York, N. Y.....	3	2
Chicago, Ill.....	.....	1	Northampton, Mass.....	.....	1
Erie, Pa.....	1	.....	Oakland, Cal.....	1	.....
Grand Rapids, Mich.....	1	1	Philadelphia, Pa.....	1	.....
Hartford, Conn.....	1	.....	San Francisco, Cal.....	3	.....
Medford, Mass.....	1	.....		

RABIES IN ANIMALS.**City Reports for Week Ended Dec. 16, 1916.**

During the week ended December 16, 1916, one case of rabies in animals was reported in Detroit, Mich., two cases were reported in Niagara Falls, N. Y., and one case was reported in St. Paul, Minn.

SCARLET FEVER.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 15.

SMALLPOX.**Connecticut.**

Collaborating Epidemiologist Black reported that during the week ended December 23, 1916, cases of smallpox were notified in Connecticut as follows: Middlebury 5, Waterbury 11.

Minnesota.

Collaborating Epidemiologist Bracken reported that during the week ended December 30, 1916, 5 new foci of smallpox infection were reported in Minnesota, cases of the disease having been notified as follows: Ottertail County, Orwell Township, 1; Swift County, Toring Township, 6; Wadena County, Oronot Township, 3; Wilkin McCaulegville Township, 1, Roberts Township, 1.

Texas—El Paso.

Acting Asst. Surg. Tappan reported that during the period from December 10 to 23, 1916, three cases of smallpox were notified in El Paso, Tex., making a total of 25 cases reported since July 1, 1916.

SMALLPOX—Continued.

California Report for November, 1916.

Place.	New cases reported.	Deaths.	Vaccination history of cases.			
			Number vaccinated within 7 years preceding attack.	Number last vaccinated more than 7 years preceding attack.	Number never successfully vaccinated.	Vaccination history not obtained or uncertain.
California:						
Alameda County.....	2				2	
Oakland.....	1					1
Contra Costa County.....	1				1	
Imperial County.....	2				2	
Kern County.....	2					2
Napa County.....	5				5	
Riverside County.....	5				5	
Riverside.....	1					1
San Francisco.....	1					1
San Mateo County—						
Burlingame.....	1				1	
Yolo County—						
Woodland.....	1			1		
Total.....	22			1	16	5

Miscellaneous State Reports.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Iowa (Nov. 1-30):			Mississippi (Nov. 1-30)—Con.		
Lee County.....	11		Tate County.....	6	
Linn County.....	2		Yalobusha County.....	1	
Page County.....	1		Total.....	97	
Polk County.....	1		North Dakota (Nov. 1-30):		
Webster County.....	8		Foster County.....	2	
Woodbury County.....	1		Grand Forks County.....	1	
Total.....	24		Kidder County.....	3	
Mississippi (Nov. 1-30):			Lamoure County.....	14	
Amite County.....	1		Logan County.....	3	
Bolivar County.....	1		Morton County.....	8	
Calhoun County.....	1		Sargent County.....	2	
Chickasaw County.....	6		Stutsman County.....	7	
Jefferson Davis County.....	28		Ward County.....	1	
Lafayette County.....	5		Williams County.....	2	
Lauderdale County.....	15		Total.....	43	
Marshall County.....	2		Wyoming (Nov. 1-30):		
Neshoba County.....	3		Goshen County.....	2	
Perry County.....	6				
Simpson County.....	18				
Sunflower County.....	4				

City Reports for Week Ended Dec. 16, 1916.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Ann Arbor, Mich.....	1		New Orleans, La.....	4	
Charleston, S. C.....	1		Omaha, Nebr.....	2	
Chicago, Ill.....	1		Pittsburgh, Pa.....	1	
Cleveland, Ohio.....	4		Portland, Oreg.....	14	
Danville, Ill.....	5		Rockford, Ill.....	2	
Detroit, Mich.....	1		St. Paul, Minn.....	1	
Indianapolis, Ind.....	1		Salt Lake City, Utah.....	1	
Kalamazoo, Mich.....	1		San Francisco, Cal.....	1	
Little Rock, Ark.....	6		Sioux City, Iowa.....	9	
Minneapolis, Minn.....	9		South Bend, Ind.....	1	
Muscatine, Iowa.....	3		Toledo, Ohio.....	2	

TETANUS.**City Reports for Week Ended Dec. 16, 1916.**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Chicago, Ill.		1	Philadelphia, Pa.	2	2
Harrisburg, Pa.	1	1	St. Louis, Mo.		1

TUBERCULOSIS.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 15.

TYPHOID FEVER.**State Reports for November, 1916.**

Place.	New cases reported.	Place.	New cases reported.
California:		California—Continued.	
Alameda County—		Stanislaus County.....	1
Alameda.....	3	Yolo County.....	1
Berkeley.....	1	Total.....	91
Oakland.....	3		
Amador County—		Mississippi:	
Jackson.....	1	Adams County.....	3
Butte County—		Alcorn County.....	10
Gridley.....	1	Amite County.....	4
Contra Costa County.....	1	Attala County.....	2
Pinole.....	1	Benton County.....	2
Fresno County.....	1	Bolivar County.....	6
Clovis.....	1	Calhoun County.....	3
Humboldt County—		Carroll County.....	4
Eureka.....	1	Chickasaw County.....	5
Imperial County—		Choctaw County.....	3
Calexico.....	1	Clallam County.....	1
Kern County.....	2	Coahoma County.....	6
Los Angeles County.....	2	Copiah County.....	2
Alhambra.....	1	Covington County.....	8
Long Beach.....	1	De Soto County.....	3
Los Angeles.....	19	Forest County.....	1
Pasadena.....	2	Franklin County.....	4
Mendocino County.....	1	Grenada County.....	6
Merced County—		Hancock County.....	2
Los Banos.....	1	Harrison County.....	5
Monterey County—		Hinds County.....	12
Salinas.....	1	Holmes County.....	5
Riverside County—		Issaquena County.....	1
Riverside.....	1	Itawamba County.....	5
Sacramento County.....	1	Jackson County.....	3
Sacramento.....	3	Jasper County.....	3
San Benito County—		Jefferson Davis County.....	3
San Juan.....	1	Jones County.....	9
San Bernardino County—		Kemper County.....	3
Rialto.....	1	Lafayette County.....	4
San Bernardino.....	1	Lamar County.....	1
San Diego County—		Lauderdale County.....	4
National City.....	1	Lawrence County.....	3
San Diego.....	2	Leake County.....	14
San Francisco.....	13	Lee County.....	10
San Joaquin County—		Leflore County.....	1
Stockton.....	2	Lincoln County.....	4
San Luis Obispo County.....	1	Madison County.....	2
San Mateo County—		Marshall County.....	21
San Mateo.....	1	Monroe County.....	5
Santa Barbara County—		Neshoba County.....	2
Santa Barbara.....	1	Oktibbeha County.....	2
Santa Maria.....	1	Panola County.....	3
Santa Clara County.....	2	Perry County.....	6
Shasta County.....	2	Pike County.....	8
Siskiyou County.....	1	Pontotoc County.....	2
Montague.....	2	Prentiss County.....	1
Solano County—		Quitman County.....	1
Benicia.....	1	Rankin County.....	6
Sonoma County.....	1	Scott County.....	8
Healdsburg.....	1	Simpson County.....	7
Petaluma.....	1	Smith County.....	2
Santa Rosa.....	3		

TYPHOID FEVER—Continued.

State Reports for November, 1916—Continued.

Place.	New cases reported.	Place.	New cases reported.
Mississippi—Continued.		North Dakota:	
Stone County.....	6	Hettinger County.....	8
Sunflower County.....	8	Mountrail County.....	1
Tallahatchie County.....	9	Stutsman County.....	1
Tate County.....	22	Williams County.....	1
Tippah County.....	4	Total.....	11
Tishomingo County.....	3	Wyoming:	
Tunica County.....	2	Goshen County.....	3
Walthall County.....	2	Fremont County.....	2
Warren County.....	6	Laramie County.....	1
Washington County.....	4	Carbon County.....	1
Wayne County.....	1	Platte County.....	1
Webster County.....	1	Total.....	8
Wilkinson County.....	3		
Winston County.....	4		
Yalobusha County.....	10		
Yazoo County.....	8		
Total.....	334		

City Reports for Week Ended Dec. 16, 1916.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Atlantic City, N. J.....	1		New Castle, Pa.....	1	
Austin, Tex.....		1	New Orleans, La.....	6	
Baltimore, Md.....	8		Newport, R. I.....	1	
Berkeley, Cal.....	2		New York, N. Y.....	24	2
Birmingham, Ala.....	1		Niagara, Falls, N. Y.....	1	
Boston, Mass.....	6	1	Norfolk, Va.....	1	
Buffalo, N. Y.....	6	1	Oakland, Cal.....	20	1
Camden, N. J.....	2		Oklahoma, Okla.....		1
Charleston, S. C.....	4	1	Omaha, Nebr.....	2	
Chicago, Ill.....	12	1	Philadelphia, Pa.....	4	3
Cleveland, Ohio.....	5	1	Pittsburgh, Pa.....	4	
Coffeyville, Kans.....	1		Providence, R. I.....	2	
Denver, Colo.....	2		Quincy, Ill.....	1	
Detroit, Mich.....	3		Racine, Wis.....	2	
Duluth, Minn.....	4		Reading, Pa.....	3	
El Paso, Tex.....		1	Saginaw, Mich.....	1	
Erie, Pa.....	2		St. Louis, Mo.....	8	2
Evansville, Ind.....	3		St. Paul, Minn.....	1	
Fall River, Mass.....	2		Salt Lake City, Utah.....	1	
Fort Worth, Tex.....	1	1	San Francisco, Cal.....	4	
Grand Rapids, Mich.....	2		Saratoga, Springs, N. Y.....		2
Hartford, Conn.....	2	2	South Bend, Ind.....	4	1
Indianapolis, Ind.....	2		Springfield, Mass.....	1	
Johnstown, Pa.....	1		Springfield, Ohio.....	1	
Lancaster, Pa.....	1		Syracuse, N. Y.....	1	1
Long Beach, Cal.....	1	1	Toledo, Ohio.....	1	
Los Angeles, Cal.....	1		Washington, D. C.....	4	1
Lowell, Mass.....		1	Watertown, N. Y.....	1	
Lynchburg, Va.....	1		Wheeling, W. Va.....	4	
Lynn, Mass.....	3	1	Williamsport, Pa.....	1	
Milwaukee, Wis.....	2		Wilmington, Del.....	1	
Minneapolis, Minn.....	2		Wilmington, N. C.....	2	
Nashville, Tenn.....	1		Worcester, Mass.....	1	
Newark, N. J.....	1		York, Pa.....	2	
New Bedford, Mass.....	2				

TYPHUS FEVER.

Texas—El Paso.

Acting Asst. Surg. Tappan reported that during the period from December 10 to 23, 1916, two cases of typhus fever were notified at El Paso, Tex., making a total of 39 cases reported since July 1, 1916.

TYPHUS FEVER—Continued.**City Report for Week Ended Dec. 16, 1916.**

During the week ended December 16, 1916, one case of typhus fever was reported in New York, N. Y.

PREVENTABLE DISEASES.**Massachusetts Report for Week Ended Dec. 23, 1916.**

Disease.	Cases reported.	Disease.	Cases reported.
Anthrax.....	1	Polioomyelitis (infantile paralysis).....	2
Cerebrospinal meningitis.....	2	Scarlet fever.....	119
Chicken pox.....	133	Septic sore throat.....	3
Diphtheria.....	187	Tetanus.....	1
German measles.....	1	Trachoma.....	3
Malaria.....	1	Tuberculosis (pulmonary).....	119
Measles.....	202	Tuberculosis (other forms).....	8
Mumps.....	80	Typhoid fever.....	18
Ophthalmia neonatorum.....	22	Whooping cough.....	36
Pellagra.....	1		

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.**State Reports for November, 1916.**

State.	New cases reported.			State.	New cases reported.		
	Diphtheria.	Measles.	Scarlet fever.		Diphtheria.	Measles.	Scarlet fever.
California.....	327	392	559	North Dakota.....	34	97	33
Iowa.....	45	.....	85	Wyoming.....	5	57	2
Mississippi.....	173	162	78				

City Reports for Week Ended Dec. 16, 1916.

City.	Popula- tion as of July 1, 1915 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Over 500,000 inhabitants:										
Baltimore, Md.....	584,605	180	16	1	.....	.....	10	.....	58	20
Boston, Mass.....	745,139	201	59	3	16	.....	39	3	49	24
Chicago, Ill.....	2,447,045	619	235	22	107	3	237	5	205	56
Cleveland, Ohio.....	656,975	189	62	3	59	.....	8	.....	27	16
Detroit, Mich.....	554,717	211	119	9	8	.....	57	1	25	20
New York, N. Y.....	5,468,190	1,344	208	12	94	2	88	3	417	170
Philadelphia, Pa.....	1,683,684	562	48	12	18	.....	24	1	103	59
Pittsburgh, Pa.....	571,984	212	34	5	95	1	19	1	32	19
St. Louis, Mo.....	745,988	228	88	2	21	.....	28	.....	36	18
From 300,000 to 500,000 inhabit- ants:										
Buffalo, N. Y.....	461,335	140	28	4	4	.....	13	.....	14	19
Cincinnati, Ohio.....	406,706	130	29	1	5	.....	10	.....	24	18
Jersey City, N. J.....	300,133	81	11	1	1	.....	9	.....	17	7
Los Angeles, Cal.....	465,367	.....	4	.....	13	.....	13	.....	44	22
Milwaukee, Wis.....	428,062	105	25	.....	13	.....	57	1	17	5
Minneapolis, Minn.....	353,460	.....	15	.....	7	.....	15	.....	.....	.....
Newark, N. J.....	399,000	.....	14	1	4	.....	9	.....	34	20
New Orleans, La.....	366,454	.....	12	1	442	2	5	.....	31	30
San Francisco, Cal.....	416,912	164	35	2	54	.....	15	.....	37	19
Washington, D. C.....	358,679	134	12	2	2	.....	14	.....	22	12

¹ Population Apr. 15, 1910; no estimate made.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Con.

City Reports for Week Ended Dec. 16, 1916—Continued.

City.	Popula- tion as of July 1, 1915 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.		
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	
From 200,000 to 300,000 inhabit- ants:											
Columbus, Ohio.....	209,722	67	5	.....	29	.....	14	1	7	5
Denver, Colo.....	253,161	54	.....	.....	22	.....	9	.....	.....	10
Indianapolis, Ind.....	265,578	.....	36	.....	6	.....	7	.....	12	.....
Kansas City, Mo.....	289,879	85	13	1	2	.....	15	1	14	11
Portland, Oreg.....	272,833	48	7	.....	54	.....	11	.....	3	2
Providence, R. I.....	250,025	59	16	2	1	.....	12	.....	.....	2
St. Paul, Minn.....	241,999	56	18	.....	4	.....	18	.....	9	7
From 100,000 to 200,000 inhabit- ants:											
Birmingham, Ala.....	174,108	40	4	.....	.....	.....	3	.....	9	3
Bridgeport, Conn.....	118,434	36	5	.....	7	.....	8	.....	5	3
Cambridge, Mass.....	111,669	31	6	.....	1	.....	3	.....	7	4
Camden, N. J.....	104,349	.....	9	.....	.....	.....	2	.....	10	.....
Fall River, Mass.....	126,904	30	1	.....	57	.....	.....	.....	32	2
Grand Rapids, Mich.....	225,759	29	2	.....	4	.....	14	.....	10	1
Hartford, Conn.....	108,969	48	1	1	4	.....	2	.....	4	4
Lowell, Mass.....	112,124	49	6	1	31	1	8	.....	6	.....
Lynn, Mass.....	100,316	25	6	.....	2	.....	2	.....	3	.....
Nashville, Tenn.....	115,978	40	3	.....	133	2	5	.....	7	2
New Bedford, Mass.....	114,694	33	3	1	5	.....	.....	.....	4	2
New Haven, Conn.....	147,065	.....	9	1	11	.....	1	.....	3	1
Oakland, Cal.....	190,803	.....	2	1	1	.....	5	.....	4	6
Omaha, Nebr.....	135,455	39	2	1	.....	.....	15	.....	.....	4
Reading, Pa.....	105,094	46	2	.....	.....	.....	1	.....	.....	5
Richmond, Va.....	154,674	55	5	.....	5	.....	8	.....	5	7
Salt Lake City, Utah.....	113,567	45	2	.....	321	.....	6	.....	.....	1
Springfield, Mass.....	103,216	42	3	.....	.....	.....	5	.....	4	1
Syracuse, N. Y.....	152,531	41	14	1	5	.....	8	.....	3	2
Tacoma, Wash.....	108,094	17	.....	.....	.....	.....	5	.....	.....	.....
Toledo, Ohio.....	187,840	68	7	.....	252	.....	43	1	11	6
Trenton, N. J.....	109,212	43	.....	.....	2	.....	.....	.....	.....	.....
Worcester, Mass.....	160,523	41	6	.....	9	.....	11	.....	10	5
From 50,000 to 100,000 inhabit- ants:											
Atlantic City, N. J.....	55,836	12	.....	.....	3	.....	.....	.....	13	.....
Berkeley, Cal.....	54,879	5	1	.....	.....	.....	5	.....	1	.....
Binghamton, N. Y.....	53,082	29	18	2	2	.....	2	.....	4	4
Brockton, Mass.....	65,746	16	2	.....	1	.....	1	.....	2	2
Canton, Ohio.....	59,139	8	2	.....	.....	.....	9	.....	1	.....
Charleston, S. C.....	60,427	29	1	.....	.....	.....	1	.....	.....	4
Covington, Ky.....	56,520	12	4	.....	.....	.....	3	.....	2	2
Duluth, Minn.....	91,913	.....	1	.....	2	.....	.....	.....	.....	.....
El Paso, Tex.....	51,926	35	.....	1	2	.....	1	.....	.....	4
Erie, Pa.....	73,708	.....	4	.....	1	.....	5	.....	8	23
Evansville, Ind.....	72,125	18	12	.....	1	.....	2	.....	1	3
Fort Worth, Tex.....	99,528	19	4	.....	1	.....	.....	.....	.....	2
Harrisburg, Pa.....	70,754	20	6	1	3	.....	1	.....	5	1
Hoboken, N. J.....	76,104	15	3	.....	.....	.....	2	.....	2	.....
Johnstown, Pa.....	66,585	22	2	.....	1	.....	1	.....	.....	.....
Lancaster, Pa.....	50,269	.....	.....	.....	.....	.....	.....	.....	1	.....
Lawrence, Mass.....	98,197	19	3	.....	.....	.....	1	.....	5	5
Little Rock, Ark.....	55,158	23	1	.....	3	.....	1	.....	1	.....
Malden, Mass.....	59,067	12	2	.....	8	.....	2	.....	2	1
Manchester, N. H.....	76,959	14	1	1	1	.....	1	.....	1	1
Mobile, Ala.....	56,536	20	1	.....	.....	.....	2	.....	.....	2
New Britain, Conn.....	52,203	2	1	.....	.....	.....	1	.....	.....	.....
Norfolk, Va.....	88,076	6	.....	.....	2	.....	3	.....	.....	3
Oklahoma, Okla.....	88,158	22	2	1	8	.....	2	.....	.....	2
Passaic, N. J.....	69,010	18	2	.....	.....	.....	1	.....	.....	.....
Pawtucket, R. I.....	58,156	17	5	.....	.....	.....	2	.....	.....	.....
Portland, Me.....	63,014	20	1	.....	5	.....	1	.....	.....	.....
Rockford, Ill.....	53,761	10	1	.....	.....	.....	3	.....	.....	.....
Sacramento, Cal.....	64,876	23	1	.....	.....	.....	1	.....	1	2
Saginaw, Mich.....	54,815	5	3	.....	.....	.....	9	.....	6	.....
San Diego, Cal.....	51,115	24	1	.....	.....	.....	2	.....	1	5
Schenectady, N. Y.....	95,265	15	5	.....	7	.....	3	.....	3	.....
Somerville, Mass.....	85,460	20	16	1	2	.....	.....	.....	4	1
South Bend, Ind.....	67,030	12	4	1	.....	.....	8	.....	.....	1
Springfield, Ill.....	59,468	17	3	.....	7	.....	1	.....	.....	1
Springfield, Ohio.....	50,804	16	2	.....	.....	.....	2	1	4	3
Troy, N. Y.....	77,738	.....	2	.....	13	.....	4	.....	4	6
Wilkes-Barre, Pa.....	75,218	15	5	1	1	.....	5	.....	3	1
Wilmington, Del.....	93,161	27	.....	1	.....	.....	5	.....	.....	.....
York, Pa.....	50,543	.....	2	.....	.....	.....	2	.....	2	.....

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Con.

City Reports for Week Ended Dec. 16, 1916—Continued.

City.	Popula- tion as of July 1, 1915 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
From 25,000 to 50,000 inhabitants:										
Alameda, Cal.	27,031	6	1		1		3			4
Austin, Tex.	31,016	18	3				1			1
Brookline, Mass.	31,934	7	2						1	1
Butler, Pa.	26,587	6	4				2			1
Butte, Mont.	42,918	29	4		1		1		4	1
Chelsea, Mass.	132,452	12	2		1				3	
Cumberland, Md.	25,564	4	2						4	
Danville, Ill.	31,554	12							4	2
Davenport, Iowa.	47,127						1			
Dubuque, Iowa.	39,650				3				1	1
East Orange, N. J.	41,155	7	2							
Elgin, Ill.	27,844	3			23		1			
Everett, Mass.	38,307		4				7		3	1
Everett, Wash.	33,767	12			13					
Fitchburg, Mass.	41,144	11	3		3				4	1
Galveston, Tex.	41,076	19	1							1
Haverhill, Mass.	47,774						2			1
Jackson, Mich.	34,730	17			1		2			1
Kalamazoo, Mich.	47,364	16					2			1
Kenosha, Wis.	30,319	5	2	1			2		1	
La Crosse, Wis.	31,522	8	1				1		2	
Lexington, Ky.	39,703	20	2		1		4			4
Lincoln, Nebr.	46,028	17	2				1			
Long Beach, Cal.	26,012	9					1			
Lorain, Ohio.	35,662		2							
Lynchburg, Va.	32,385	4			23				1	2
Madison, Wis.	30,084		1				7			1
Medford, Mass.	25,737	8			15		2		1	
Montclair, N. J.	25,550	4	1				1			
Nashua, N. H.	27,114	3	2							
New Castle, Pa.	40,351								1	
Newport, Ky.	31,722	7							1	1
Newport, R. I.	29,631	6	4							
Newton, Mass.	43,085	11					5			
Niagara Falls, N. Y.	36,240	15	9		5		1		1	1
Norristown, Pa.	30,833	7	4	1			1			
Odgen, Utah.	30,466	12	2		83	1	8			
Orange, N. J.	32,524	21			1		3		2	1
Pasadena, Cal.	43,859	12					1		2	2
Perth Amboy, N. J.	39,725		1		1		1		2	
Pittsfield, Mass.	37,580	12	2				1		4	1
Portsmouth, Va.	38,610	10	2		1		3			
Quincy, Ill.	36,764	15								2
Quincy, Mass.	37,251	12								
Racine, Wis.	45,507	11					1			
Steubenville, Ohio	26,631	11	2				1			1
Stockton, Cal.	34,508	13	3		48				2	1
Superior, Wis.	45,285	10	3		1		1			1
Taunton, Mass.	35,957	13					6		2	2
Topeka, Kans.	47,914				21					1
Watertown, N. Y.	29,384	13	1		1					
West Hoboken, N. J.	41,893	5					1		1	1
Wheeling, W. Va.	43,097		2		1		1			2
Williamsport, Pa.	33,495		5				1			
Wilmington, N. C.	28,264	12			3					1
Zanesville, Ohio.	30,406	6					3			2
From 10,000 to 25,000 inhabitants:										
Ann Arbor, Mich.	14,979	9	1				1		2	1
Braddock, Pa.	21,310	5					1		1	
Cairo, Ill.	15,593	11								1
Clinton, Mass.	13,075	2							1	
Concord, N. H.	22,480	8	4							2
Galesburg, Ill.	23,923	7	1							
Kearny, N. J.	22,753	8								
Kokomo, Ind.	20,312	5	4		39		1		1	1
Long Branch, N. J.	15,057	1			1		2			
Marinette, Wis.	14,610	2			2					
Morristown, N. J.	13,158	4	3		1		2		2	
Nanticoke, Pa.	22,441	3	2				2			
Newburyport, Mass.	15,195	3					1		1	

¹ Population April 15, 1910; no estimate made.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Con.

City Reports for Week Ended Dec. 16, 1916—Continued.

City.	Popula- tion as of July 1, 1915 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
From 10,000 to 25,000 inhabit- ants—Continued.										
New London, Conn.....	20,771	9	1				1			
North Adams, Mass.....	22,019	3							1	1
Northampton, Mass.....	19,846	9			1	1	1		1	
Plainfield, N. J.....	23,280	5								
Portsmouth, N. H.....	11,602				45					
Rutland, Vt.....	14,624	2			19		1			
Sandusky, Ohio.....	20,160				19					
Saratoga Springs, N. Y.....	12,842	7					5			1
Steelton, Pa.....	15,337	6			1				1	
Wilkinsburg, Pa.....	22,361	5	1				2		1	
Woburn, Mass.....	15,862	5								

¹ Population Apr. 15, 1910; no estimate made

FOREIGN.

CUBA.

Communicable Diseases—Habana.

Communicable diseases have been notified at Habana as follows:

Disease.	Dec. 1-9, 1916.		Remaining under treatment Dec. 9, 1916.
	New cases.	Deaths.	
Diphtheria.....	11	2	11
Leprosy.....			250
Malaria.....	39		56
Measles.....	10	1	15
Paratyphoid fever.....			3
Scarlet fever.....	2		4
Typhoid fever.....	6	2	41

Quarantine Against Arrivals from the Azores.

Quarantine measures were ordered, December 22, 1916, to be enforced at Cuban ports against arrivals from the Azores on account of plague.

EGYPT.

Plague on Vessel—Alexandria.

The steamship *Proton*, under military authority, arrived November 16, 1916, at Alexandria, Egypt, with a case of plague on board in the person of a resident of Alexandria. The *Proton* left Alexandria November 10 for Sidi Barani and Sollum, and sailed for Alexandria November 14, 1916.

GREAT BRITAIN.

Examination of Rats—Hull.

During the week ended December 9, 1916, 12 rats taken from three dock warehouses were examined at Hull. No plague infection was found.

JAVA.

Malaria—Cheribon.

An epidemic of malaria was reported in Cheribon district, island of Java, in October, 1916, 183 new cases with 40 deaths having been notified during the week ended October 5, and 157 new cases with 36 deaths during the week ended October 12, 1916. The cases occurred among natives.

CHOLERA, PLAGUE, SMALLPOX, AND TYPHUS FEVER.**Reports Received During the Week Ended Jan. 5, 1917.¹****CHOLERA.**

Place.	Date.	Cases.	Deaths.	Remarks.
India:				
Bombay.....	Nov. 5-11.....	3	3	
Calcutta.....	Oct. 15-28.....		10	
Madras.....	Nov. 5-11.....	2		
Japan:				
Taiwan Island—				
Keelung.....	Nov. 13-19.....			Present.
Taihoku.....	..do.....	1		
Osaka.....	Nov. 16-20.....	4	3	Aug. 13-Nov. 20, 1916: Cases, 952; deaths, 577.
Java:				
Mid-Java.....	Sept. 23-29.....	1	1	
West Java.....	Sept. 29-Oct. 5....	3	2	
Batavia.....	..do.....	2	1	
Philippine Islands:				
Manila.....	Oct. 29-Nov. 4....	7	1	Not previously reported: Cases, 2.
Provinces.....				Oct. 29-Nov. 4, 1916: Cases, 448; deaths, 290.
Albay.....	Oct. 29-Nov. 4....	64	42	
Bataan.....	..do.....	19	12	
Batangas.....	..do.....	1	1	
Bohol.....	..do.....	19	6	
Bulacan.....	..do.....	2	1	
Camarines.....	..do.....	24	15	
Capiz.....	..do.....	9	6	
Cavite.....	..do.....	38	25	
Iloilo.....	..do.....	61	43	
Leyte.....	..do.....	1		
Misamis.....	..do.....	11	10	
Negros Occidental.....	..do.....	145	96	
Rizal.....	..do.....	13	8	
Sorsogon.....	..do.....	38	21	
Zambales.....	..do.....	3	4	
Straits Settlements:				
Singapore.....	Oct. 22-28.....	2	2	
Turkey in Europe:				
Constantinople.....	Oct. 1-29.....	6	1	
Turkey in Asia.....	Sept. 22-Nov. 3....	189	81	

PLAGUE.

Brazil:				
Bahia.....	Nov. 5-25.....	11	7	
Ceylon:				
Colombo.....	Oct. 28-Nov. 4....	1	1	
Egypt.				Jan. 1-Nov. 23, 1916: Cases, 1,698; deaths, 825.
Alexandria.....	Nov. 12-22.....	2	1	1 case on s. s. Proton, arrived Nov. 16, 1916, from Sidi Barani and Sollum.
India.....				Oct. 15-28, 1916: Cases, 9,165; deaths, 7, 304.
Bassein.....	Oct. 22-28.....		1	
Bombay.....	Nov. 5-11.....	11	7	Oct. 8-14, 1916: Cases, 13; deaths, 7. Received out of date. Original report lost on s. s. Arabia.
Karachi.....	Oct. 29-Nov. 4....	1	1	
Madras Presidency.....	Nov. 5-11.....	503	337	
Prome.....	Oct. 22-28.....		7	
Rangoon.....	Oct. 28-Nov. 4....	2	2	
Toungoo.....	Oct. 22-28.....		4	
Indo-China:				
Saigon.....	Nov. 6-19.....	3	1	
Java:				
East Java—				
Kediri Residency.....	Aug. 26-Sept. 22..	12	10	
Paseroean Residency.....	..do.....	2	2	
Surabaya Residency.....	..do.....	3	3	
Straits Settlements:				
Singapore.....	Oct. 22-28.....	1	1	

¹ From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, AND TYPHUS FEVER—Continued.**Reports Received During the Week Ended Jan. 5, 1917—Continued.****SMALLPOX.**

Place.	Date.	Cases.	Deaths.	Remarks.
Austria-Hungary:				
Hungary—				
Budapest.....	Nov. 5-11.....	27		
Brazil:				
Bahia.....	Nov. 12-18.....	3		
Rio de Janeiro.....	Nov. 12-25.....	16	4	
China:				
Amoy.....	Oct. 31-Nov. 20.....			Present.
Hongkong.....	Oct. 28-Nov. 11.....	19	17	
Nanking.....	Nov. 12-25.....			Do.
Egypt:				
Cairo.....	June 11-July 1.....	50	20	
Port Said.....	June 11-17.....	1	1	
France:				
Marseille.....	Oct. 1-31.....		5	
India:				
Bombay.....	Oct. 8-14.....	3	3	Received out of date. Original report lost on s. s. Arabia.
Madras.....	Nov. 5-11.....	4		
Rangoon.....	Oct. 28-Nov. 4.....	1		
Indo-China:				
Saigon.....	Nov. 6-19.....	11	4	
Java:				
East Java.....	Sept. 16-29.....	17	1	
Mid-Java.....	do.....	26	3	
West Java.....	Sept. 29-Oct. 12.....	135	28	
Batavia.....	do.....	10	1	
Mexico:				
Nuevo Laredo.....	Dec. 10-16.....	1		
Portugal:				
Lisbon.....	Nov. 19-25.....	5		
Russia:				
Petrograd.....	Oct. 8-22.....	27	5	

TYPHUS FEVER.

Austria-Hungary:				
Austria—				
Vienna.....	Nov. 5-11.....	1		
Hungary—				
Budapest.....	do.....	1		
Belgium:				
Ghent.....	Oct. 29-Nov. 4.....		1	
Liege.....	do.....		1	
China:				
Hankow.....	Nov. 12-18.....	1		
Tientsin.....	Oct. 29-Nov. 4.....	1		
Cuba:				
Santiago.....	Dec. 7-13.....	1	1	
Egypt:				
Alexandria.....	Nov. 12-18.....	1		
Cairo.....	June 11-July 1.....	275	142	
Port Said.....	June 11-17.....	20	9	
Germany:				
Berlin.....	Oct. 15-21.....		1	
Bremen.....	Oct. 22-Nov. 4.....	1	1	
Königsberg.....	Nov. 12-18.....	2		
Nuremberg.....	Oct. 29-Nov. 11.....	3		
Great Britain:				
Glasgow.....	Dec. 3-9.....	3		
Greece:				
Saloniki.....	Nov. 7-13.....		7	
Java:				
East Java.....	Sept. 16-22.....	2		
Mid-Java.....	Sept. 16-29.....	11	2	
West Java.....	Sept. 29-Oct. 12.....	24	1	
Batavia.....	do.....	21	1	
Mexico:				
Mexico City.....	Dec. 3-9.....	232		
Nuevo Laredo.....	Dec. 10-16.....	4		July 1-Dec. 16, 1916: Cases, 28.
Russia:				
Petrograd.....	Oct. 8-14.....	11		
Sweden:				
Stockholm.....	Nov. 28-Dec. 4.....	1		

SANITARY LEGISLATION.

COURT DECISIONS.

ARKANSAS SUPREME COURT.

Local Registrars of Births and Deaths—Payment by Counties Held to be Unconstitutional in Arkansas.

FORT SMITH DISTRICT OF SEBASTIAN COUNTY *v.* EBERLE. (Oct. 2, 1916.)

The law of Arkansas provided that local registrars of births and deaths should be appointed by the State registrar, that they should make returns to him, and that their compensation should be paid by the county treasurers on certification by the State registrar. The court decided that the local registrars were State officers and that under the Constitution of Arkansas it was improper to pay their compensation from the county treasuries. This feature of the law was therefore declared to be unconstitutional.

[188 Southwestern Reporter, 821.]

KIRBY, J.: This appeal comes from a judgment of allowance by the circuit court on appeal from the county court of a claim against the county by appellee, as compensation for services as local registrar of vital statistics. A certificate of the State registrar to the county treasurer of the amount due was filed with the affidavit required by the statute to authenticate claims against the county made by appellee, and, upon the claim being disallowed, an appeal was taken to the circuit court.

It is conceded that appellee rendered the services charged for under the provisions of the law creating the State board of health and bureau of vital statistics. Act 96 of Acts 1913, p. 352.¹ It is contended that said law is unconstitutional as creating permanent offices, contrary to the provisions of the constitution, and in providing for payment out of the county treasury for the services of the local registrar, which is claimed to be a district and State office, and in the method of drawing the money from the county treasury.

The majority is of opinion that the first contention has been decided adversely in the case of *Greer v. Merchants & Mechanics' Bank*, 114 Ark., 217; 169 S. W., 802, by which this case is ruled. A like contention was made there that the act creating the State bank department for a period of 12 years was unconstitutional. The court held otherwise, and said of these provisions of the constitution (sec. 9, art. 19):

We are of the opinion that this command is one necessarily addressed to the legislature itself, and that that branch of government must determine how far it can exercise its powers without disobeying that command. We attach little, if any, importance to the provision of the statute limiting the time to 12 years, for we think that the legislature has the power to determine whether an office to be created is permanent or temporary, whether expressly declared in the act or not. If it is created as a temporary office, we must assume that the legislature found it to be such. The creation of the office implies a determination that it is temporary, and not permanent. There can be no irrepensible laws which depend for existence entirely upon the legislative will, and any office created by the legislature is temporary in the sense that it is subject to the legislative will, and may be abolished at any time.

There is no provision in this act limiting the existence of the boards to any period of time, and the writer and Mr. Justice Hart think this furnishes a ground for dis-

¹ Pub. Health Repts. Reprint 264, p. 30.

tinguishing the cases, and that a department and offices created by a law which does not provide for the termination thereof can in no wise be regarded otherwise than permanent, within the meaning of the constitution, which provided for and designated all permanent offices regarded necessary for the conduct and management of the State's affairs and expressly prohibited the creation of others.

The objection that no provision is made for appointment of members of the board at the expiration of the terms of those first appointed is without merit. The board is created by law, and the members are authorized to be appointed by the governor, and the language used indicates that it should be continued by the appointment of other members upon the expiration of the terms of those first appointed and authorizes such appointment.

A decision of this case does not require that we shall determine whether the manner of payment of the local registrar out of the county funds upon the certificate of the State registrar that the amount is due is in conflict with the provisions of the constitution granting powers and jurisdiction to the county court, since the method followed in this instance is that prescribed by law for the collection of all claims against the county. The court is of opinion, however, that the local registrar is a State rather than a county officer, since by the terms of the act the State registrar is required to "divide the State into registration districts, designating the boundaries thereof and appointing local registrars in each district. Each registration district shall have at least one county therein." The local registrar is appointed by the State registrar, without the consent or approval of county authority, to whom only he reports the certificates and statistics of births and deaths, which are not reported to the county at all, except by the State registrar to the county treasurer for the sole purpose of determining the amount to be paid the local registrar, and his services can not properly be regarded a county purpose within the meaning of the constitutional provision giving the county court exclusive jurisdiction in all matters relating to the disbursement of money for county purposes and in every other case that may be necessary to the internal improvement and local concerns of the respective counties. Article 7, § 28, Constitution; *Cotham v. Coffman*, 111 Ark. 115, 163 S. W. 1183.

That part of the act relating to the payment for the services of the local registrar out of the county treasury can be stricken out without affecting its validity otherwise, since it is easily apparent that the legislature would have passed the act without that provision in it. *Cotham v. Coffman*, *supra*.

It follows that the judgment of the circuit court is erroneous, and it is reversed, and the cause dismissed.

PENNSYLVANIA SUPREME COURT.

Pneumonia—Proof of the Cause of the Disease—Action Against a City for Allowing Water to Accumulate—Proof not Sufficient.

BRUGGEMAN v. CITY OF YORK. (July 1, 1916.)

In order to recover damages against a city for disease alleged to have been caused by accumulations of standing water, it must be proved that the conditions complained of caused the disease. It is not sufficient to show that the disease might have resulted from the conditions.

[98 Atlantic Reporter, 970.]

FRAZER, J.: Plaintiffs sued to recover damages from the city of York for the death of their 9-year-old son, alleged to have been due to disease contracted from a stagnant pool of water the municipality permitted to collect and remain on the street in front of plaintiffs' residence. A nonsuit was entered by the court below on the ground of insufficiency of proof to show that death was caused by the alleged negligence of defendant, which the court subsequently refused to take off. The assign-

ments of error raise the question of the correctness of this ruling, and also the action of the trial judge in excluding certain questions asked expert witnesses called on plaintiffs' behalf.

* * * * *

Both physicians who testified on behalf of plaintiffs said in their opinion the death of the boy was the result of his insanitary surroundings. They admitted, however, his anemic condition might have been due to other causes, and that pneumonia germs may exist in all localities, especially in cities where people are closely congregated and expectorations and unclean matter of various kinds accumulate and dry in the gutters of the streets, and that the boy may have acquired these germs from the schoolroom or from the streets in passing to and from his home to the schoolhouse, or from any other place where he happened to be, as well as from the street in front of the house of his parents. It was also admitted that no chemical analysis of the contents of the gutter in front of plaintiffs' house was made to determine whether or not pneumonia germs actually existed there. In view of this testimony a verdict for plaintiffs would be the result of mere conjecture upon the part of the jurors, based on an inference selected from a number of equally probable inferences, in other words, a mere guess as to the precise cause of the disease. *Gosser v. Ohio Valley Water Co.*, 244 Pa. 59, 90 Atl. 540, Ann. Cas. 1915C, 685.

It is not enough for plaintiffs to show the injury complained of was due to one of two or more possible causes if defendant was responsible for but one of them. They must go further and show the latter cause was the proximate one from which the injury followed as the natural and probable result, and that the succession of events leading up to the injury are linked together as a natural whole without intermediate cause not attributable to defendant's wrongful act. In the present case we are asked to permit the jury to infer the anemia with which the deceased suffered was due to defendant's negligent act in permitting water to accumulate in the street and become stagnant, and that his anemic condition was the proximate cause of the pneumonia which followed, notwithstanding the evidence that the anemia might have resulted from any one of a number of other causes, and the pneumonia germs may possibly have been acquired in other places. The case is similar to *Gosser v. Ohio Valley Water Co.*, supra, where this court refused to permit the recovery of damages for death from typhoid fever alleged to have been contracted by drinking water from defendant's plant, the evidence there, as here, showing the possibility of the germs of the disease being taken into the system at a place other than that claimed by plaintiffs.

* * * * *

The court was therefore right in declining to submit the cause to the jury and in entering a compulsory nonsuit.

MUNICIPAL ORDINANCES, RULES, AND REGULATIONS PERTAINING TO PUBLIC HEALTH.

SAN FRANCISCO, CAL.

Milk and Milk Products—Production, Care, and Sale. (Ord. 3961, N. S., Nov. 9, 1916.)

SECTION 1. *Board of health authorized to provide for the regulation and inspection of milk, milk food products, dairies, dairy farms, and dairy cows.*—The board of health of the city and county of San Francisco is hereby authorized, empowered, and directed to regulate and control the traffic of milk and cream in said city and county, to provide for the inspection of milk, cream, and of milk food products in said city and county, and to enforce the provisions of this ordinance.

SEC. 2. *Interpretation and definition of words and terms.*—Whenever in this ordinance the following words, terms, or names are used they shall be construed as follows:

Subdivision 1. *A dairy.*—Any place or store devoted in whole or in part to the sale or distribution of milk or milk products is a dairy within the meaning of this ordinance.

Subdivision 2. *A dairy farm.*—Any place or premises upon which milk is produced for sale or distribution is a dairy farm within the meaning of this ordinance.

Subdivision 3. *Persons; act of agent deemed act of corporation.*—The word "persons" as used in this ordinance shall be construed to import both the singular and plural, as the case demands, and shall include individuals, corporations, companies, societies, and associations. When construing and enforcing the provisions of this ordinance, the act, omission, or failure of any employee, officer, agent or other person, acting for or employed by any individual, corporation, company, society, or association, within the scope of his employment or office, shall in every case also be deemed to be the act, omission, or failure of such individual, corporation, company, society, or association, as well as that of the person. The provisions of this ordinance shall be construed to apply to hotel keepers, restaurant keepers, and boarding-house keepers, or any person who shall serve meals and accept payment therefor.

Subdivision 4. *Score card.*—The official score card for dairies and dairy farms shall be the score card adopted by the department of health, and the minimum standard of rating shall be in accordance with the score card adopted by the United States Bureau of Animal Industry, Department of Agriculture.

Subdivision 5. *Milk and its products.*—Milk is the fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within 15 days before and 6 days after calving, and contains not less than 8.5 per cent of solids not fat, and not less than 3.4 per cent of milk fat.

Subdivision 6. *Skimmed milk.*—Skimmed milk is milk from which a part or all of the cream has been removed and contains not less than 9.25 per cent of milk solids.

Subdivision 7. *Condensed milk.*—Condensed milk, or evaporated milk, is milk from which a considerable portion of water has been evaporated and contains not less than 28 per cent of milk solids of which solids not less than 27.5 per cent is milk fat.

Subdivision 8. *Sweetened condensed milk.*—Sweetened condensed milk is milk from which a considerable portion of water has been evaporated and to which sugar (sucrose)

has been added, and contains not less than 28 per cent of milk solids, of which solids not less than 27.5 per cent is milk fat.

Subdivision 9. *Condensed skimmed milk*.—Condensed skimmed milk is skimmed milk from which a considerable portion of water has been evaporated.

Subdivision 10. *Buttermilk*.—Buttermilk is the product that remains when butter is removed from milk or cream in the process of churning.

Subdivision 11. Goat's, ewe's milk, or milk of other animals than cows, is the fresh, clean, lacteal secretion, free from colostrum, obtained by the complete milking of healthy animals other than cows, properly fed and kept, and conforms in name to the species of animal from which they are obtained.

Subdivision 12. *Cream*.—Cream is that portion of milk, rich in milk fat, which rises to the surface of milk on standing, or is separated from it by centrifugal force, is fresh and clean and contains not less than 18 per cent of milk fat and a ratio of solids not fat to 100 parts of water normally contained of not less than 8 and not more than 11.

Subdivision 13. Evaporated cream, clotted cream, is cream from which a considerable portion of water has been evaporated.

Subdivision 14. *Milk fat or butter fat*.—Milk fat or butter fat is the fat of milk and has a Reichert-Meissel number not less than 24 and a specific gravity not less than 0.905 (40° C.).

Subdivision 15. *Butter*.—Butter is the clean, nonrancid product made by gathering in any manner the fat of fresh or ripened milk or cream into a mass, which also contains a small portion of the other milk constituents, with or without salt, and contains not less than 82.5 per cent of milk fat. (By acts of Congress approved Aug. 2, 1898, and May 9, 1902, butter may also contain added coloring matter.)

Subdivision 16. *Cheese*.—Cheese is the sound, solid, and ripened product made from milk or cream by coagulating the casein thereof with rennet or lactic acid, with or without the addition of ripening ferments and seasoning, and contains in the water-free substance not less than 50 per cent of milk fat. (By act of Congress approved June 6, 1896, cheese may also contain added coloring matter.)

Subdivision 17. Skimmed-milk cheese is the sound, solid, and ripened product, made from skimmed milk by coagulating the casein thereof with rennet or lactic acid, with or without the addition of ripening ferments and seasoning.

Subdivision 18. Goat's-milk cheese, ewe's-milk cheese, or cheese made from the milk of any other animals is the sound, ripened product made from the milk of the animals specified, by coagulating the casein thereof with rennet or lactic acid, with or without the addition of ripening ferments and seasoning.

Subdivision 19. *Ice cream*.—Ice cream is a frozen product made from cream and sugar, with or without a natural flavoring, and contains not less than 14 per cent of milk fat.

Subdivision 20. Fruit ice cream is a frozen product made from cream, sugar, and sound, clean, mature, fruits, and contains not less than 12 per cent of milk fat.

Subdivision 21. Nut ice cream is a frozen product made from cream, sugar, and sound, nonrancid nuts, and contains not less than 12 per cent of milk fat.

Subdivision 22. *Miscellaneous milk products; whey*.—Is the product remaining after the removal of fat and casein from milk in the process of cheese making.

Subdivision 23. Kumiss is the product made by the alcoholic fermentation of mare's or cow's milk.

Subdivision 24. *Adulterated, impure, unhealthful, and unwholesome*.—The terms adulterated, impure, unhealthful, and unwholesome, when applied to milk, as used in this ordinance, mean:

First. Milk containing less than 3.4 per cent of milk fats and less than 8.5 per cent of solids not fat.

Second. Milk drawn from cows within 15 days before or within 6 days after parturition.

Third. Milk drawn from cows fed on any unhealthful or unwholesome food.

Fourth. Milk drawn from cows kept in an unhealthy or insanitary condition, or from cows affected with any form of disease, or from cows which are supplied with water which is impure or unwholesome.

Fifth. Milk from which any part of the cream has been removed.

Sixth. Milk which has been diluted with water or with any other fluid, or to which has been added or into which has been introduced any foreign substance whatever.

Seventh. Milk drawn from cows or by milkers that are themselves in a condition of filth or uncleanness.

Eighth. Any milk which is shown by analysis to contain any substance or substances of any character whatsoever not natural or normal constituents of milk, or to have been deprived either wholly or in part of any constituent naturally or normally contained in milk.

Subdivision 25. *Adulterated products of milk.*—The products of milk enumerated in section 2 of this ordinance shall be deemed adulterated within the meaning of this ordinance if it or they shall not conform to the definitions and standards of the United States Department of Agriculture, when not otherwise specified.

Subdivision 26. *Certified milk.*—Certified milk is milk produced and certified to by the milk commission of the San Francisco County Medical Society as required by section 10 of this ordinance. It must come from a dairy herd that shall consist solely of cows which have passed the tuberculin test in the manner prescribed by said milk commission. It must not contain more than 10,000 germs of all kinds per cubic centimeter of milk, which standard must be attained solely by measures directed toward cleanliness, proper cooling, and prompt delivery. Certified milk must contain not less than 3.5 per cent butter fat, and a minimum of solids not fat of 8.5 per cent. Certified milk must be handled and delivered in sealed containers and on ice within 30 hours after its production in the manner directed by said milk commission. The dairy farm, milk room, milkers, and dairy methods, utensils, etc., must all conform to the requirements of the said milk commission.

Subdivision 27. *Inspected milk.*—Inspected milk is milk produced from a dairy herd that consists solely of cows which have passed the tuberculin test successfully, in the manner set forth in this ordinance. Said milk must not contain over 50,000 nonpathogenic bacteria per cubic centimeter. It shall contain not less than 3.4 per cent of milk fats, nor less than 8.5 per cent of solids not fat, nor shall said milk be altered by the removal of milk fat or addition of water or any other foreign substance whatsoever. All milk containing blood, mucus, and all milk from cows 45 days before or 6 days after calving shall be discarded, and said milk shall in addition conform to all the provisions of the ordinance regulating the sale of milk in the city and county of San Francisco. Inspected milk must be cooled on the dairy farm to 45 degrees Fahrenheit and must not exceed 55 degrees Fahrenheit when it reaches the consumer. Nor shall said inspected milk be shipped from said dairy farm to any consumer except in sealed tanks covered with insulating jacket, or on ice. All seals on said tank must show permit number and bear the legend: "Inspected, Board of Health, San Francisco."

Subdivision 28. *Pasteurized milk.*—Pasteurized milk shall consist of clean, raw milk drawn from cows free from disease, as determined by physical examination at least once in two months by a qualified veterinarian of the board of health.

Subdivision 29. *Raw milk, bacteria, and butter fat.*—Raw milk shall contain less than 200,000 bacteria per cubic centimeter before pasteurization and less than 10,000 bacteria per cubic centimeter after pasteurization. Said milk shall contain not less than 3.4 per cent of milk fats, nor less than 8.5 per cent of solids not fat, nor shall said milk be otherwise altered by the removal of fat or addition of water or any other foreign substance whatsoever. All milk containing blood, mucus, and all milk from cows 45 days before or 6 days after calving shall be discarded, and said milk shall in addition conform to all the provisions of the ordinance regulating the sale of milk in the city

and county of San Francisco. Said milk must come from a dairy farm scoring at least 65 per cent on the official score adopted by the board of health. Said milk before delivery to the ultimate consumer must be pasteurized at a point approved of and in the manner prescribed in this ordinance.

SEC. 3. Subdivision 1. *Permits required by vendors of milk.*—No person, firm, or corporation by themselves, or through their agents, servants, or employees, shall produce, ship, or send into, bring into, or offer for sale, or expose for sale, or sell or deliver for distribution, sale, use or consumption within the city and county of San Francisco, any milk without first having obtained from the board of health of the city and county of San Francisco a permit so to do. One permit shall be required for each dairy, dairy farm, or place of general sale or storage of milk.

Subdivision 2. *Permits, application for, issuance, transfer, renewal, revocation.*—To procure permits required by section 2 [3(?)] of this ordinance, the applicant shall present to said board of health a written application, and shall state therein the name, and business and residence address of the applicant or applicants, the source or sources from which said applicant or applicants obtain or will obtain supplies of milk, the number of cows in the possession of such applicant, the average quantity of milk procured, and the average quantity disposed of by said applicant, and the manner and character of such disposition, and such other matters as may be required by the board of health, such application to be made to the said board of health upon printed blanks to be provided by the board of health for such purpose. Such application shall further state the specific brand or business name, if any, under which such milk is to be imported, sold, exchanged, or distributed.

Subdivision 3. If the board of health is satisfied with the statement of the applicant, it shall be its duty to issue the permit without cost. If the board of health, upon such application and such investigation and inspection as it may make, shall determine that the statements therein made are true, and that the applicant does not intend to bring into, sell, expose, or offer for sale, exchange, deliver or distribute, within the city and county of San Francisco, any unwholesome milk as food for any human being, and that the production, transportation, storage, and handling of the same is to be under sanitary conditions and in conformity with the regulations, adopted as a part of this ordinance, it shall issue the appropriate permit therefor according to the nature of the business to be transacted or conducted by the applicant.

Subdivision 4. *No permits shall be sold, assigned, or transferred; board of health empowered to revoke permits.*—No permits shall be sold or assigned or transferred. Permits shall be subject at all times to revocation by said board of health in its discretion upon sufficient cause therefor shown: *Provided, however,* That no such permit shall be revoked until after a hearing given by said board of health in the matter of the revocation of such permit after five days' notice in writing has been served on the owner of such permit in the manner prescribed for the service of notice by section 1011 of the Code of Civil Procedure of the State of California, which notice shall state the ground of complaint against such owner and the time and place where such hearing shall take place: *Provided, however,* That when the holder of any permit shall have been convicted in any court of any violation of this ordinance or of any law relating to the production, transportation, storage, sale, or distribution of milk such permit may be revoked without notice.

Subdivision 5. *Procedure to follow for renewal of a permit revoked for cause.*—When a permit shall have been revoked by the board of health no further permit shall be granted by said board to the same person, firm, or corporation until he, they, or it shall file with said board a bond in the sum of \$500 with two sureties approved by the board, conditioned for the faithful observance of all the regulations of the law and of said board relating to the production, importation, sale, delivery, and distribution of milk.

Subdivision 6. *Holders of permits to make statements to board of health.*—As often as required by the board of health and at least once each year, every person or per-

sons, firm, or corporation maintaining a dairy, or dairy farm in, or bringing milk into the city and county of San Francisco and holding a permit so to do, shall furnish the board of health a full and true statement of the sources and amounts of the supply of the milk imported, sold, or distributed by him or them, with the names and addresses of the persons from whom the same is obtained and the amount from each source, and such other information as is required by applicants for permits as hereinbefore provided, and all applications for permits, and all such written statements required as aforesaid shall be registered by the said board of health.

Subdivision 7. *Official number of permits.*—When a permit is granted, the board of health will give the holder thereof an official number and this number shall be used to mark the products of the dairy or dairy farm as hereinafter prescribed.

Subdivision 8. *More than one dairy or dairy farm under the same ownership or control.*—Two or more dairies or dairy farms under the same ownership or control may use the same permit numbers, provided a serial letter is added in each case to designate the dairy or dairy farm, and to enable its products to be identified.

Subdivision 9. *Owners' names on wagons.*—All wagons, vehicles, or carts from which market milk, cream, butter, ice cream, buttermilk, or ice milk are sold, marketed, delivered, or peddled, shall have the names and address of the owner and permit number plainly painted thereon in letters at least 3 inches high and 1½ inches wide on both sides of such vehicle, or if such milk is sold or exposed or offered for sale, delivery, distribution, or exchange within a store or house, then such permit number shall also be constantly exposed in some conspicuous manner at the place wherever such milk is sold, or kept, so as to be plainly apparent.

Subdivision 10. *Production of a lower grade of milk prohibited.*—Inspected milk shall not be produced upon a dairy farm for which a permit has been issued to produce a lower grade of milk other than that known as "inspected milk." Dairy farms applying for a permit to produce inspected milk must score not less than 80 per cent on the official score card adopted by the board of health. Any applicant receiving and holding such a permit shall make application for the renewal of the same between July 1 and July 15 of each year, and said permit shall be renewed, provided the applicant complies and conforms to all of the provisions as set forth in this ordinance.

SEC. 4. Subdivision 1. *Milk for human consumption must be pasteurized or come from cows that have passed the tuberculin test.*—It shall be unlawful for any person, firm, or corporation, except in bulk to the distributor, to distribute, sell or exchange, or offer or expose for sale or exchange for human consumption in the city and county of San Francisco any milk from cows that have not passed the tuberculin test, until and unless it has been pasteurized by the holding process at a temperature and in the manner set forth in subdivision 4 of this section. It shall further be unlawful for any person, firm, or corporation to sell or exchange or offer or expose for sale or exchange any milk-food products except cheese, into the composition of which any milk enters other than that permitted in this section of this ordinance to be sold at retail. For the purpose of this section milk shall be construed to include cream.

Subdivision 2. *Milk must be pasteurized in the city and county of San Francisco.*—It shall be unlawful for any person, firm, or corporation, either by himself, or through his agents, servants, or employees to ship or send into, or bring into the city and county of San Francisco, or to offer or expose for sale, or sell or deliver for human consumption milk that has been pasteurized outside of said city and county of San Francisco.

Subdivision 3. *Pasteurized milk.*—No person, firm, or corporation shall sell, exchange, or expose, or have in its possession for sale or exchange, any milk, cream, skimmed milk, ice cream, butter, buttermilk, cheese, or other milk products as and for pasteurized milk, cream, skimmed milk, ice cream, butter, buttermilk, cheese, or other milk product, as the case may be, nor use the word "pasteurized" or any of its derivatives in connection with the sale, designation, advertising, labeling, or

billing of any milk, cream, skimmed milk, ice cream, butter, buttermilk, cheese, or other milk products unless the same and all products of milk contained therein or used in the manufacture thereof consists exclusively of milk, skimmed milk, or cream which has been treated by the process of pasteurization as defined and regulated in subdivision 4 of this section.

Subdivision 4. *Method of pasteurization.*—The pasteurizing of milk consists of the heating of every portion of the milk to not less than 140° F., maintaining same at that temperature for at least 20 minutes and immediately cooling the same to at least 45° F.

Such pasteurizing plant shall be equipped with a self-registering device for record of the time and temperature of pasteurizing. Said device must be of a type that the same may be kept locked by the board of health. Such records shall be kept for two months and be available for inspection by the State veterinarian or any of his agents or the State dairy bureau.

Subdivision 5. *Pasteurized milk.*—Pasteurized milk shall be marked "Pasteurized." No person, firm, or corporation shall sell or exchange, or offer or expose for sale or exchange, as and for pasteurized milk, any milk that does not conform to the rules and regulations and the methods and standards for production, pasteurization, and distribution of pasteurized milk as set forth in this ordinance.

Subdivision 6. *Utensils, fitness, care.*—All utensils used in the production and handling of pasteurized milk must be properly cleaned and sterilized each time before using, and shall be so constructed that all parts are absolutely free from places where dirt can accumulate or soak in, so that it can not be removed by simple washing, and the surface coming in contact with the milk or cream must be smooth and free from rust.

Subdivision 7. *Repasteurization prohibited.*—It shall be unlawful to repasteurize any milk or to mix with raw milk any milk which has been previously pasteurized.

SEC. 5. *Impure and unwholesome milk.*—All milk, except certified milk, inspected milk, and pasteurized milk, is hereby declared impure, unhealthful, and unwholesome and must not be sold for human consumption.

SEC. 6. *No person shall bring into the city, sell or offer for sale any impure, adulterated, or unwholesome milk.*—It shall be unlawful for any person or persons, firm, or corporation, by themselves or by their agents, servants, or employees, to bring, or cause to be brought within, sell, offer for sale, exchange, deliver, distribute, or have in his, its, or their possession with intent to sell, expose, or offer for sale or exchange or to distribute for human consumption within the city and county of San Francisco any impure, adulterated, unhealthy, or unwholesome milk.

SEC. 7. *Unlawful to sell skimmed milk not properly labeled.*—It shall be unlawful for any person, firm, or corporation to sell, exchange, or deliver, or to offer for sale, exchange, or delivery, or to cause or permit to be sold, exchanged, or delivered, or to be offered for sale, exchange, or delivery, or to have in possession for sale, exchange, or delivery in the city and county of San Francisco any milk from which any part of the cream shall have been removed, or any skimmed milk unless the same be offered for sale and sold as skimmed milk, or unless there shall be attached to the outside of every vessel, can, or package from or in which such skimmed milk is sold or held for exchange or delivery, a tag upon which shall be printed in black letters at least 1 inch in height the word "skim" or the words "skimmed milk."

SEC. 8. *Manner in which milk for industrial purposes may be prepared, transported, and sold.*—Milk not suitable for human consumption may be sold for industrial purposes, provided it be heated to a higher temperature than necessary for pasteurization, and delivered in a distinctive container, plainly marked with the words "Not suitable for human consumption," in letters not less than one-quarter inch in length and one-twelfth inch stroke. Such milk must not be transported on a vehicle carrying milk for human consumption.

SEC. 9. *Condensed milk, buttermilk, and sour milk may be sold if found to be wholesome.*—Nothing herein contained shall be construed to prevent or prohibit the use, sale, or manufacture of what is known as condensed milk, or what is known as buttermilk, or what is known as sour milk, provided the same are made, compounded, or prepared from pure, clean, fresh, wholesome, and unadulterated milk within the meaning of this ordinance, and are in sound and wholesome condition; and provided also that, in the case of condensed milk, it shall conform to the requirements and standards prescribed by the Secretary of the United States Department of Agriculture.

SEC. 10. *Certification of milk.*—No person, firm, or corporation shall sell, or exchange, or offer, or expose for sale or exchange, as and for certified milk any milk which does not conform to the regulations prescribed by and bear the certification of a milk commission appointed by the County Medical Society of San Francisco, organized under and chartered by the Medical Society of the State of California. All milk sold as certified milk shall be conspicuously marked with the name of the commission certifying thereto.

SEC. 11. *Inspected milk.*—No person, firm, or corporation shall expose for sale, sell, or exchange as and for "inspected milk" any milk which does not conform to the regulations prescribed by the board of health of the city and county of San Francisco for the production and sale of inspected milk, and bear the legend "Inspected, Board of Health, San Francisco."

SEC. 12. *Persons suffering from communicable disease.*—No person suffering from a communicable disease, or who is a "contact," or who has been recently exposed to any contagious or infectious disease shall be permitted to milk, handle milk or milk utensils upon the dairy or dairy farm, nor shall any milk be brought into, sold, or offered for sale from any dairy farm when a contagious or infectious disease exists on said dairy farm, until such time as said premises have been inspected and declared in writing free of contagion by an employee of the board of health of the city and county of San Francisco.

SEC. 13. *Powers of officers, agents, and employees or board of health with regard to inspection of premises of any vendor of milk.*—In order to carry out the purposes and provisions of this ordinance, the said board of health and all its officers, agents, and employees shall have the right at any time and all times to enter upon or into the premises of any producer or vendor or distributor of milk authorized under the provisions of this ordinance, and any refusal upon the part of such producer, vendor, or distributor to allow such entry and such inspection as may be required and directed by the said board of health may be punished by the revocation of the permit of such producer, distributor, or vendor by the said board of health.

SEC. 14. *Rights and duties of board of health and their employees to enter all premises for the purpose of inspecting milk.*—The board of health and all its officers, agents, and employees shall have the right and it shall be their duty to enter and have full access, egress, and ingress to all places where milk is stored or kept for sale, and to all wagons, carriages, or other vehicles, railroad cars, steamboats, or conveyances of every kind used for the conveyance or transportation or delivery of milk for the purpose of consumption in the city and county of San Francisco.

SEC. 15. *Inspection of dairies the duty of board of health.*—It shall be the duty of the said board of health to cause the dairies, dairy farms, and other establishments from which milk brought into the city and county of San Francisco is obtained to be inspected from time to time to satisfy such board that the provisions and requirements of this ordinance and of the board of health are constantly complied with.

SEC. 16. *Interference with officers of board of health in performance of their duty prohibited.*—It shall be unlawful for any person or persons, firm or corporation to obstruct or interfere with the said board of health, or any officer, agent, or employee of said board, in the performance of any of the duties required by this ordinance.

SEC. 17. *Owners of dairies to report to board of health any knowledge they may have as to impurity of milk.*—It shall be the duty of the owner, agent, or manager of any dairy or dairy farm in the city and county of San Francisco, or of any dairy or dairy farm from which milk is brought into this city and county, to forthwith report to the board of health of said city and county in writing, anything of which he has knowledge or notice tending to render milk obtained from such dairy unwholesome, impure, or unhealthy.

SEC. 18. *Board of health and employees may take samples of milk; mode of disposition of the same.*—The board of health and all its officers, agents, and employees shall have the right at any time to take samples of milk and cream from any person selling, exposing for sale, offering for sale, exchanging, delivering, or distributing in the city and county of San Francisco, or shipping into said city and county, milk or cream: *Provided*, That such samples shall not exceed in quantity 1 quart of milk and 1 quart of cream at any one time. Such samples shall be taken and sealed in full view of and in the presence of any person in charge of such milk or cream, and to said person shall be given at such time one-half of said sample or samples, hermetically sealed by the said board of health or its officers, agents, or employees. The other half of said sample shall be likewise hermetically sealed and delivered to said board of health by the officer, agent, or employee of said board taking said sample. It shall be the duty of said officer, agent, or employee, at the time said sample is taken, to attach to the bottle or container containing each half of said sample a statement showing the number of the permit of the board of health displayed upon the tanks or cans or bottles or wagons from which such milk or cream was taken, and the date of the obtainment of the sample, and the name of the person by whom it was taken, and a memorandum thereof shall be made by the person obtaining such sample in a book kept for that purpose in the office of the board of health.

SEC. 19. *Milk coming from outside the city and county to be exposed for inspection.*—It shall be the duty of all owners or consignees of milk brought into the city and county of San Francisco by any water craft to have the same tendered and exposed for inspection by the said board of health, its officers, agents, or employees according to the requirements of said board of health: *Provided*, That said milk shall not be detained for inspection for a longer period than one hour. It shall be the duty of the owner or consignee of milk brought into the city and county of San Francisco by land and over any road or railroad leading into the peninsula of San Francisco, to cause the same to be tendered and exposed for inspection according to the requirements of said board of health: *Provided*, That said milk shall not be detained for inspection a longer period than one hour.

SEC. 20. *Milk coming from outside of the city and county to be plainly marked with the shipper's name, address, permit number, and number of tanks or cans contained in shipment.*—It shall be the duty of all owners or consignees of milk brought into the city and county of San Francisco by any water craft, railroad or by land over any road to attach to one tank or can of each shipment a tag setting forth the following facts in a clear and legible manner:

Name of shipper.....	Permit No.....
Address.....	
Number tanks.....	Milk..... Cream.....

SEC. 21. *Milk to be tightly covered.*—It shall be unlawful to sell, offer for sale, expose for sale, or ship into the city and county of San Francisco for human consumption any milk, or cream in any tank or container, holding more than 3 gallons, which is not provided with a proper and tight-fitting mushroom cover.

SEC. 22. *Sale of milk and cream in quantities of 1 quart or less.*—It shall be unlawful for any person, firm or corporation to distribute, sell, offer for sale, or keep with the intention of selling any milk or cream in quantities of 1 quart or less, in stores or any other

place (except where the milk or cream is consumed upon the premises) unless the milk or cream is contained in tightly closed sterile bottles or receptacles of a similar character.

SEC. 23. *Milk and cream bottles to be capped and marked.*—All bottles, or receptacles of a similar character, in which milk and cream are distributed or sold must have stamped or printed on the cap or covers, in a conspicuous and legible manner the name, address and permit number of the person, firm or corporation bottling said milk or cream, and the specific kind of milk or cream contained therein.

SEC. 24. *Names or brands on bottles and caps or covers must not differ.*—It shall be unlawful to distribute, sell, offer for sale, or expose for sale, any milk or cream in any bottle, or receptacle bearing in any manner thereon the name or names of any person, firm, or corporation other than or different from the name or names printed or inscribed upon said cover or cap of such bottle or receptacle.

SEC. 25. *Transfer of milk on street.*—No person shall transfer any milk from one can, bottle or receptacle on any street, alley, or thoroughfare, or upon a delivery wagon, or other vehicle, or in any place in the city and county of San Francisco, except in a dairy or dairy farm, the sanitary condition of which has been approved by the board of health.

REGULATIONS REGARDING THE SANITATION OF THE DAIRY FARM; THE LOCATION, CONSTRUCTION, MAINTENANCE, AND CLEANSING OF ALL DAIRY FARM BUILDINGS; THE SANITATION OF WASH ROOMS, UTENSILS, BOTTLES, AND DAIRY EQUIPMENT; THE HEALTH, FEEDING, AND TESTING OF THE DAIRY HERD; THE CARE AND DELIVERY OF MILK, THE MANNER OF MILKING, AND THE HEALTH AND CONDUCT OF EMPLOYEES.

SEC. 26. Regulation 1. *The dairy farm; location of buildings.*—No buildings used for dairy purposes shall be within 200 yards of marshy ground, stagnant water, abattoir or other place or class of business detrimental to the production of sanitary milk, and no chicken coop, hogpen, or horse stable shall be adjacent to the buildings used for the drawing, keeping, or handling of milk.

Regulation 2. *Surroundings to be clean.*—The surroundings of all buildings shall be kept clean and in good order. The accumulation of dirt, rubbish, manure, or decayed matter shall not be permitted.

Regulation 3. *Water supply.*—The dairy shall be supplied with an abundance of pure water, the source of which shall not be within 250 feet of the stable or any barnyard, privy, or other possible source of contamination. Water from wells or springs which are not protected against the entrance of flood and surface water shall not be used for cooling milk or cleaning utensils.

Regulation 4. *Examination of water.*—A sample of the water shall be furnished the board of health at any time requested. The water supply on dairies supplying "inspected milk" shall be examined once each year.

Regulation 5. *Plans and specifications.*—When required plans and specifications in duplicate of the plants for which application for inspection is made, also of new plants and plants to be remodeled, must be submitted to the board of health for approval.

Regulation 6. *Construction of stables, milk houses; erection, alteration, maintaining of insanitary structures prohibited.*—No person shall in any dairy, or dairy farm, erect or cause or permit to be erected by alteration, or maintain any stable, milk house, or any other building or structure which, or any part of which, shall be inadequate or defective in respect to strength, ventilation, light, sewerage, or any other usual, proper or necessary provision or precaution for the security of health or life.

Regulation 7. *Cubic air space per cow.*—Milking sheds and cow barns in which cows are milked and not otherwise kept must have not less than 500 cubic feet of air space in the clear for each and every animal milked therein. If said sheds and barns are used for stables for housing of the cattle during the day or night, or at other times

than the regular milking hours, then each animal must have not less than 1,000 cubic feet of air space in the clear.

Regulation 8. *Light and ventilation; light.*—The side walls of all milking sheds and cow barns must be provided with windows or openings of not less than 4 square feet for each cow. ***Skylights in roof.***—Sheds or barns so constructed as to provide for two or more central milking strings shall be required to install skylights of a size and at such locations as to furnish light equivalent to 2 square feet of window space for each cow to be accommodated in said central milking strings.

All windows in side walls of milking sheds or cow barns must open inward at the top for a distance of not less than 10 inches, securely fastened at the bottom.

Louver ventilation must be provided in the roof of all milking sheds and cow barns.

Regulation 9. *Construction of side walls, ceilings, sidewalks.*—The side or area walls of all milking sheds or cow barns hereafter erected must be of concrete or of brick or of stone laid in cement mortar, and shall extend from the footings below the floor line upward to a height of not less than 4 feet above the finished floor level, and shall be at least 6 inches thick, at top if of concrete and 8 inches thick if of brick or stone.

Interior finish of side wall.—The exposed surfaces of the concrete, brick or stone walls must be covered with a layer of cement troweled to a smooth surface.

The side walls from the top of the concrete to the plate of the milking shed or cow barn if of wood shall be tight and so as to prevent dust from sifting through and so constructed as to be easily cleaned, and kept free from cobwebs and dirt.

Ceilings.—When in the judgment of the dairy inspectors it is deemed necessary and so reported in writing, the health officer shall require the ceiling of milking shed or cow barn to be sheathed with tongue and groove.

Regulation 10. *Construction of floors; floors must be of concrete.*—The floors of all milking sheds and cow barns must be of concrete not less than 6 inches in thickness covered with a finishing layer of cement one-half inch in thickness, troweled so as to leave a "rough finish."

Gutter drains.—Gutter drains shall be constructed in rear of each string of cows at the time the floor is put down and said gutter drains must have a uniform thickness as that of the stable floor and shall not be less than 14 inches in width inside measurement and not less than 6 inches in depth, with sufficient fall to carry off all liquid discharges.

Sewer.—All gutter drains must be properly connected to a sewer or drain so as to efficiently carry off all discharges and wash waters a distance of at least 100 feet.

Regulation 11. *Exceptions for existing sheds and barns on approval.*—In all existing milking sheds and cow barns so situated that by reason of the slope of the ground, or where the floor of said milking shed or cow barn is more than 4 feet above the ground, and which are otherwise approved by the board of health, the said milking shed or cow barns shall comply with the following requirements as to floors, walls, and gutter drains.

Underpinning, supports.—The underpinning or supports of the structure shall be properly strengthened so as to carry the additional load placed upon the floors to comply with regulation 11 of this section.

Floors.—The existing wooden floor of the entire structure shall be covered with a layer of concrete not less than 2½ inches in thickness and covered with a finishing layer of cement one-half inch in thickness, troweled to a "rough finish."

Gutter drains.—Gutter drains shall be constructed in rear of each string at the time the concrete is put down, and must be of a uniform thickness of the floor and comply regarding width, depth, slope and sewer connection as is required and set forth in regulation 11 of this section.

Side walls.—The side walls to the height of 4 feet above the finished floor shall be of concrete not less than 4 inches in thickness, the exposed surface to be troweled to a smooth surface, the top sloped at an angle of 45 degrees toward the sheathing of the barn so as to prevent a ledge, and the bottom where said side wall joins the floor to be cove

finished so that wash waters or discharges can not escape at the point of junction between walls and floors.

In all other respects the walls and ceilings shall comply with the requirements set forth in regulation 9 of this section.

Regulation 12. *Hand basins in stable.*—Each milking shed and cow barn shall be provided with an adequate number of stationary hand basins properly supplied with running water and connected to the stable sewer for the use of milkers.

Water for cleansing stable.—The stable shall further be supplied with stationary lines of pipes having hose-bib outlets located at convenient points so that the stable can be properly hosed down and flushed out after each milking.

Regulation 13. *The milk house; wash room; milk room.*—There shall be a room which shall be used for no other purpose than to provide a place for handling the milk, storing clean milk utensils, and holding fresh milk previous to its removal from the dairy. The milk room shall be within easy access of the stable, but so placed that it can not be easily reached by dust or odors from the stable or yard or other source, and not more than 20 feet distant from the cow barn. If under the same roof with the stable, it shall be separated therefrom by a light, clean, ventilated room or passageway at least 4 feet long and 4 feet wide, with doors kept closed by springs.

Floors of milk and wash rooms.—The floors of the milk room and wash rooms shall be of concrete not less than 3 inches in thickness covered with a finishing layer of cement one-half inch in thickness troweled to a smooth surface.

A floor drain shall be installed in each milk room which shall be properly trapped to a sewer, and the floor of the milk room shall be so put down that all points slope toward the floor drain.

Foundation walls.—The foundation or area walls of all milk and wash rooms shall be of concrete not less than 6 inches in thickness and extend to a height of not less than 1 foot above the finished floor level.

Side walls and ceilings.—The outer walls or sheathing of all milk and wash rooms shall be tight, the inside shall be lined with tongue and groove lumber put on in a workmanlike manner and must be painted two coats of lead and oil paint of a light color or an approved waterproof paint. Whitewash is strictly prohibited.

Windows and ventilation.—The milk and wash rooms shall be well lighted and ventilated with proper sash fitted window and louver vent shafts.

Screening of doors and windows.—All windows, ventilators, or openings of milk and wash rooms shall be securely screened with finely woven wire mesh and all doors leading into said rooms must be provided with tightly closing screen doors having metal springs to prevent the entrance of insects and flies.

Regulation 14. *Equipment, sanitation of wash room, dairy appurtenances, utensils, bottles; size and equipment of wash room.*—Every dairy and dairy farm must provide a properly constructed wash room, separate and apart from a dwelling place and of a size adequate to properly cleanse and sterilize all utensils, cans, and dairy appurtenances.

Cleansing equipment.—All wash rooms in dairies or on dairy farms must be provided with a steam boiler or other approved apparatus capable of producing boiling water and live steam for the cleansing, rinsing, and sterilizing of all utensils and apparatus used in or about the dairy.

Racks and shelves and wash trays.—Wooden racks, pegs, and shelves and wooden wash trays are prohibited in wash rooms. Racks and shelves must be of metal and wash trays may be of metal, enamel iron, cement, or other similar nonabsorbing materials.

Cleansing of utensils.—In dairies and milk depots all cans, bottles, and other utensils, after being used shall be thoroughly washed in water containing lye or sodium carbonate (sal soda), or some substance containing a mixture of these with or without soap.

Water to be changed.—Not more than 20 cans or 50 bottles shall be washed in a tank or tub containing less than 10 gallons of water, unless said tank or tub is filled with a fresh solution as provided herein.

Regulation 15. Rinsing and sterilizing after washing.—After being washed off all cans, bottles, and other utensils shall be thoroughly rinsed in a tank or tub having a constant inflow of clean fresh water. The rinsing tank or tub while in use must have a constant inflow and outflow of water. After being rinsed all cans, bottles, and other milking utensils shall be effectively sterilized by the action of live steam. After being so subjected to live steam said cans, bottles, or other milk utensils shall not be allowed to stand in any place where they are exposed to dirt, dust, flies, or other contamination, but shall be placed upon metal racks and said racks shall be at least 3 feet from the floor.

Wash trays.—Wash trays and rinsing tanks used for the cleansing of cans, bottles, and other milking utensils shall not be used for any other purpose.

Cleaning of brushes.—All brushes, scrapers, and other appliances used in cleaning cans, bottles, and other utensils must be sterilized daily, and at all times must be free from incrustations and dirt.

Daily cleansing of wash tanks and floors.—Wash trays and tanks for cleansing and rinsing milk utensils and the floors of the wash room must be cleaned daily.

Regulation 16. The dairy herd; testing inspected herds.—The dairy herd on any dairy farm receiving a permit to produce or ship inspected milk into the city and county of San Francisco shall undergo an annual physical examination which shall include the testing of said herd with tuberculin, and every bovine on the farm over six months of age shall be required to submit to said physical and tuberculin test under the direction and supervision of the board of health of San Francisco. The tuberculin shall be furnished by the owners of herds tested.

Reacting animals.—All animals reacting to said tuberculin test shall be branded T. B., and removed from said dairy farm within 15 days.

Additions to dairy herd.—All additions made to said dairy herd shall undergo the physical and tuberculin test under the direction or supervision of the board of health before said additions are admitted to the herd.

Animals passed to be tagged.—All bovines passed shall be tagged with a numbered metal tag bearing date of test and the words "Tested and Passed, Board of Health, San Francisco."

Retesting of herd annually.—The entire herd and every bovine on said farm over six months of age shall be annually retested prior to the reissuance of a permit.

Regulation 17. Dairy herd producing milk for pasteurization.—The dairy herd, or any farm receiving a permit to produce, or ship milk into the city and county of San Francisco shall be free from disease as determined by physical examination at least once in two months, by a qualified veterinarian of the board of health.

Regulation 18. Care of herd.—All long hairs about udders and flanks must be clipped and tails of cows must be kept short enough to clear the ground, and all flanks, udders, tails, and teats must be washed and dried before each milking.

Sick animals.—Sick cows, or cows showing signs of tuberculosis, contagious abortion, mammitis, mammary abscess, disease of the udder or teat, or actinomycosis (lump-jaw), or other evidence of ill health, or suspected of being ill shall be at once removed from the main stable and the milk of all such shall be discarded from the market milk.

Regulation 19. Men and animals must be clean.—No milk shall be taken from any cow, goat, or other milk producing animal unless such animal shall be in a clean condition; nor shall any such milk be taken from any animal except by an employee or other person who is himself in a cleanly, wholesome, and healthy condition.

Regulation 20. Feeding and watering the herd.—The food provided for dairy herd must be sweet and clean and of such a nature as to give no odor to, or otherwise affect

the taste or character of the milk. Fermented beet pulp, vegetable refuse, or swill are positively prohibited.

Manner and time of feeding.—Cows shall be fed liberally and regularly; that is, in the same way and at the same hour every day.

Selection of ration.—The selection of the ration shall be supervised and any change therein approved by the board of health.

Dry and dusty feed.—No dry or dusty food shall be given within one hour previous to milking. If its use is necessary, it must be sprinkled before it is fed.

Feed to be separated from herd.—All foodstuffs must be kept in an apartment separate from the animals.

Drinking water.—Pure water shall be given at regular and frequent intervals.

Regulation 21. Care and delivery of milk; emptying of milk buckets; straining of milk.—Immediately after each receiving pail is filled, the milk may be poured into a properly covered storage pail elevated not less than 3 feet off the floor or the receiving pail shall be taken to the milk room and emptied into a strainer from a platform outside the milk house. It shall be then promptly strained through a fine wire gauze and a layer of absorbent cotton protected on either side by a layer of cheese cloth, or equally good strainer.

Cooling of fresh milk.—The milk after being drawn and strained shall be cooled at once to a temperature of 45° F. Milk intended for consumption in San Francisco must be shipped within four hours after it is drawn.

Mixing of milk prohibited.—Night and morning milk shall not be mixed, nor shall ice be put into the milk.

Storing of milk.—Milk shall be stored, while on the farm, in the regular milk room. When milk is stored in cold water in a tank, the water shall be changed often enough to prevent its having any unpleasant smell or appearance. The storage tank or ice-box shall be thoroughly scrubbed at least once a week. The overflow pipe shall be properly trapped to prevent the entrance of sewer gas and in no instance shall this pipe be connected to a drain or sewer.

Wiring of shipping tanks and cans.—All tanks and cans in which milk is transported from the dairy farm into San Francisco, and all empty containers returned to the dairy farm, shall have the covers securely wired to the handles on each side of the tank or can.

Drinking milk from covers prohibited.—No person shall drink from any vessel or utensil, or the cover thereof, which is used for the delivery of milk, nor shall any tank, can, bottle, or utensil used for the purpose of delivering milk be used for any other purpose.

Use of milk tanks or utensils for heating milk prohibited.—It shall be unlawful to place any milk tank, can, or utensil used in the delivery of milk in, on, or about a stove or other heating apparatus.

Milk cans must not be left on sidewalk.—Milk cans containing milk or empty, delivered to or received from grocery stores, bakeries, delicatessen stores, restaurants, depots, or other similar places shall not be left upon the sidewalk or street.

Transit of milk from point of entry to dairy.—The transit of milk from point of entry into San Francisco to the dairy depot shall be made within one hour from the time of arrival.

Care and delivery of milk to consumers.—While awaiting delivery to the city, milk shall be stored at a temperature of not less than 45° F., and kept free from contamination.

Regulation 22. Milkers and milking; personal hygiene of employees.—Milkers and employees shall be clean in habits and appearance.

Outer garments, care of.—A special suit of clean outer garments and cap shall be worn during milking and at no other time; when not in use, these must not be kept in the stable or living room, but in a clean and well ventilated place.

Milkers to wash hands before milking.—Before beginning to milk, the milkers' hands shall be carefully washed with soap and then rinsed in clean water.

Cleaning of udders and flanks.—No milk shall be taken from any cow, goat, or other milk-producing animal unless such animal shall be in a clean condition. The udder and surrounding parts of every cow shall be either hosed off, or brushed and then wiped with clean cloth; if the parts are brushed, they shall be wiped with a clean damp (not dripping) cloth.

All milking stools must be of a type approved by the board of health and must be cleaned after each milking.

Wet milking and use of emollients prohibited.—The milkers' hands shall be kept clean and dry when milking; they shall not come in contact with the milk. The use of vaseline, lard, oil, or other substance is strictly prohibited on cows' teats during the process of milking.

Rejection of fore milk.—The first three or four streams of milk from each teat shall be discarded.

Hours and manner of milking.—Milking shall be done in a quiet, clean and thorough manner, and at the same hours daily.

Bloody and stringy milk.—If the milk from a cow is bloody or stringy or thick, or it has an unnatural appearance, or if manure gets into it, it shall be discarded, and the pail washed and sterilized before it is used again.

Milk of cows separated from herd.—Cows separated from the herd shall be milked after all others are milked, and this milk must not be used except as food for stock.

Domestic animals and others excluded from milk room.—Milkers and other helpers not directly concerned in the straining, separating and filling of containers, shall not be allowed within the milk house, while the milk is being strained or handled; nor shall any domestic animal be allowed therein.

Cleaning of milk room.—The milk house shall be washed and hosed down twice daily with fresh water.

Regulation 23. *Employees' living quarters.*—The living quarters of the employees of all dairies or dairy farms shall be contained within buildings or structures which shall be wholly separate, distinct and disconnected from the buildings or structures wherein the cattle of such dairies may be housed; the beds in all such living quarters, and in every room in which beds are kept or provided for such employees, shall be separated by a passageway of not less than 2 feet, horizontally; and all such beds shall be so arranged that under each of them the air shall freely circulate, and there shall be adequate ventilation; and 500 cubic feet of air space shall be provided and allowed for each bed or employee, and no more beds shall be permitted than those provided for according to the terms of this ordinance, unless free and adequate means of ventilation exists, to be approved by the board of health, and a special permit in writing be granted therefor, specifying the number of beds or the cubic air space which shall under special circumstances be allowed.

Regulation 24. *Owners must keep quarters clean and provide bath and other conveniences.*—Every owner, lessee, tenant, occupant, proprietor or manager of any dairy or dairy farm shall cause every part thereof and its appurtenances to be put and shall thereafter cause the same to be kept in a cleanly and wholesome condition and shall cause every part thereof in which any person may sleep, dwell, or work to be adequately lighted and ventilated according to the direction and to the satisfaction of the board of health; and proper accommodations for urinals, water-closets, bath tubs, and washing utensils shall be provided, according to the directions and to the satisfaction of the board of health.

Regulation 25. *Health of employees.*—The health officer or his representatives shall inspect all buildings connected with the dairy or dairy farm, and all persons who directly or indirectly come in contact with the industry, and where deemed necessary he may demand a certificate of health or make a physical or other examination

to establish the health of any or all persons on a dairy or dairy farm. The dairymen shall keep informed as to the health of all employees and the members of their households. No person connected with the dairy shall enter a house where it is known that there has been an infectious disease until it has been disinfected. No employee or other person who has been in contact with any infectious disease shall be permitted in the dairy.

Regulation 26. *Sale of milk to be stopped when communicable disease occurs.*—No person with throat trouble or who is otherwise ill shall be admitted to the stable or milk room.

The existence of smallpox, typhoid fever, diphtheria, scarlet fever, measles, or other contagious diseases on, or in the vicinity of, the dairy farm shall be promptly reported to the board of health, and the sale of milk shall be stopped until its resumption is authorized by said board.

SEC. 27. *Penalty for violation of provision of this ordinance.*—Any person, firm, or corporation who shall violate any of the provisions of this ordinance shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be punished by a fine not less than \$25 and not more than \$500, or by imprisonment in the county jail for not more than 100 days, or by both such fine and imprisonment.

SEC. 28. Ordinance No. 660 (approved Jan. 21, 1909), ordinance No. 229 (approved Feb. 8, 1901), ordinance No. 1273 (approved Aug. 11, 1904), ordinance No. 2096, N. S. (approved Dec. 11, 1912); ordinance No. 2099,¹ N. S. (approved Dec. 11, 1912); and all orders and ordinances and parts of orders and ordinances in conflict with this ordinance are hereby repealed.

¹Public Health Reports Reprint 199, p. 233.