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REGULATING THE PRODUCTION, HANDLING, AND DISTRIBUTION OF MILK

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There are two important reasons why it is both desirable and necessary that the State and its local subdivisions should regulate the production, handling, and distribution of milk (1). The first reason is perhaps the more obvious. This is the protection of the public health. The second is that of protection of the purchasers of milk against fraud.

PUBLIC HEALTH REASONS FOR MILK CONTROL

Milk is a difficult food to produce and distribute to the consumer with safety. It is practically the only animal food that is used without being cooked, and it is subjected to many possibilities of contamination during its production and handling. Experiments show that milk is one of the best media for the growth of bacteria. When drawn from the cow, milk contains a very small number of these organisms unless the cow is not healthy, but there are many sources of possible contamination after the milking operation is completed. Studies of epidemics show that milk may serve as a medium for the transmission of typhoid fever, scarlet fever, diphtheria, and septic sore throat. It is also responsible for many of the thousands of deaths from diarrheal diseases which occur annually in the United States among children under 2 years of age. Eighty per cent of infant deaths from diarrheal diseases are among babies where cows' milk has been substituted for breast milk. Tuberculosis is one of the common diseases of dairy cows. It is universally recognized that tuberculosis in cows is directly transmissible to man through milk. Approximately 7 per cent of all tuberculosis in human beings, and as much as 25 per cent of that in children under 16 years of age, has been shown to be contracted from the use of milk obtained from tuberculous cows. Not all the bacteria, however, which will grow in milk are dangerous to human health. It is to exclude those which are dangerous that regulation is necessary.

Certain milk products, such as cottage cheese, ice cream, butter, and cheese, may also be means of transmitting diseases; but as the

conditions of manufacture and sale of these products are usually dealt with apart from the regulation of milk and cream, they will not be considered here.

PROTECTION FROM FRAUD IN MILK CONTROL

While the food value of milk may be impaired by adulteration and thus affect the public health, one principal reason for control of the quality of milk is to protect the public against possible fraud. The definition of milk formulated by the United States Public Health Service requires that it shall contain not less than 8½ per cent of solids not fat and not less than 3¼ per cent of milk fat. The amount of fat contained in milk is ascertained by the so-called Babcock test.

The principal regulations to protect the public against fraud are designed to eliminate the watering of milk to increase the quantity (2), or introduction of preservatives (3) or coloring matter (4). Watering naturally decreases the percentage of solids and fats in the milk. Standards may also be fixed for cream, requiring that it shall contain not less than a certain percentage of milk fat. The percentage usually adopted is 18 per cent, although several dairy States use 20 per cent instead. Some ordinances require that the capacity of milk containers be plainly shown upon them (5). Such regulations have been uniformly upheld as a proper exercise of the police power.

TYPES OF CONTROL

There are three general types of control which are used in the enforcement of statutes and ordinances regulating the production and handling of milk. The first method of control is to require that no milk be sold by any person who does not possess a license from the State or municipality to sell or distribute milk (6). As a condition precedent to the granting of the license, the plant and equipment of the applicant usually are inspected to ascertain whether or not they comply with the provisions of the ordinance or statute (7). For certain specific violations of the statute or ordinance the license may be revoked or suspended, thus making it impossible for the producer or distributor to sell or distribute milk during the suspension or revocation.

The second method, which is used in some States, is to provide for the grading of milk. Under this method milk is divided into several different types, with varying degrees of desirability as food products. If a producer fails to maintain the standard of production required by the ordinance, his milk may be placed in a lower grade, thus affecting its sale value (8). There are very few ordinances which do not define at least two classes of milk—raw milk and Pasteurized milk. Many of them add certified milk to the types included in the definitions.

A third method of control is penal. Practically every ordinance uses this method and most of them use it in conjunction with one or the other of the methods mentioned in the two preceding paragraphs. For example, ordinances which depend upon the granting and revoking of the license for their enforcement impose a penalty for selling milk without a license, and ordinances which depend principally upon grading for their enforcement impose a penalty for selling milk of a lower grade (or in some cases of a different grade) than that indicated by the cap or label. The most widely used type of ordinance is that which combines the grading and penal methods.

SPECIFIC REGULATIONS

1. *Against adulteration or misbranding.*—A standard such as that suggested above, namely, that milk shall contain not less than 3¼ per cent of milk fat and not less than 8½ per cent of solids not fat, the remainder being water, has been upheld in a number of cases (10). An ordinance is not unconstitutional because it prescribes a quality standard and forbids the sale of milk which does not comply with it, although the milk sold may be wholesome and may be sold exactly as drawn from the cow (11). This is true even though such an ordinance tends to discourage the use of certain breeds of cows (12). A standard of 20 per cent fat for cream has been upheld as a proper exercise of the police power. Adulteration may be forbidden even though the standards of adulteration may be arbitrary. Coloring matter and preservatives may be excluded from milk. A statute or ordinance may require that milk be branded or otherwise identified by the cap or label upon the bottle or by a tag attached to a sealed can, and may further provide that in case milk is misbranded it may not be sold.

2. *Uncleanly conditions in production and handling.*—This heading includes the major portion of police regulations which may be, and generally are, imposed upon the business of producing milk. The first requisite is that the cows themselves shall be in good health. This may be determined by tuberculin tests and by physical examinations made by qualified veterinarians (13). The prohibition of the sale of milk from cows which have not been tested and found free from tuberculosis has been sustained (14). Closely allied to the health of the animal are the foods which it receives. Statutes and ordinances may provide that cows shall be properly fed on wholesome food and prescribe standards of wholesomeness where the same are not arbitrary or unreasonable (15).

The second requisite in the production of clean milk is that the milker shall be in good health (16). This may be ascertained by the means of medical examinations made by the health authorities. This is a very necessary regulation, because persons otherwise in good health may be carriers of germs of certain communicable diseases.

These germs multiply rapidly in milk, and if deposited there may cause serious epidemics.

A third requisite in the production of clean milk is proper housing for the animals. Most of the standard ordinances which have been framed by national and State authorities provide that cows must be kept in stables which afford adequate ventilation and light and the standards for these are usually set forth. Cow yards which are used by the animals for exercise must usually be kept clean. Manure must be removed at frequent intervals from both the stable and yard in order to prevent the breeding of flies.

A fourth requisite is that properly constructed and sterilized utensils shall be used in the milking operation. In order to prevent germ-laden dust and dirt from falling into the milk pail, a pail with a small top is usually prescribed. The regulations usually provide that the udder, teats, and flanks of the cow shall be clean at the time of milking and that the milker himself shall wear clean clothing and shall do the milking with clean, dry hands. Some ordinances even go so far as to prescribe that the milk stool shall be kept clean in order to prevent contamination by grasping the stool during the process of milking and then resuming the operation (17).

The requirement is usually made that the milk should be removed to a milk room which is a place used exclusively for the cooling, separating, and bottling of milk and the sterilization of milk containers (18). There the milk is cooled to a temperature of 50° F. and maintained at or below that temperature until it is delivered to the consumer. This cooling process greatly retards the multiplication of bacteria and has uniformly been upheld as a proper regulation (19). Not only are milkers required to be medically examined, but all persons involved in the handling of the milk in the milk room before it is placed in the containers and sealed are given the same medical examination and for the same purpose. The cleanliness of clothes and hands is made quite as essential in the milk room as in the dairy barn. The water used in the washing and sterilizing of utensils is required to be of safe, sanitary quality. The ordinances state that the milk room itself must be so constructed as to exclude flies, and the apparatus used should be such as can be easily cleaned, as the retention of particles of milk in these machines between milkings results in the rapid multiplication of organisms and greatly increases the bacterial count of the milk. The final operation in the milk room is the placing of milk or cream in containers which should be sealed to protect the milk from contamination until its delivery to the consumer or to a Pasteurization plant or dairy for bottling or Pasteurization (20).

3. *Pasteurization.*—However close the supervision of the production of milk may be, and however strictly the regulations are enforced, it is practically impossible to exclude entirely all possible contamina-

tion. For this reason sanitarians are agreed that it is highly desirable in order to provide an additional factor of safety that milk should be Pasteurized (21). The machinery now used in most Pasteurization plants is so constructed that milk does not come in contact with human hands after the Pasteurization process. The milk is automatically bottled and the caps are placed upon the bottles, thus sealing the milk in its final containers for delivery to the consumer. A separate room usually is required for the washing and sterilizing of returned containers (22). It is not customary to require employees in Pasteurization plants who do not come into contact with the raw or Pasteurized milk to be subjected to medical examination, nor is it usual that the drivers of the milk wagons should be required to undergo this test (23). The wagons, however, are to be kept clean and so constructed that milk transported in them can be maintained at or below a temperature of 50° F., until it is delivered to the consumer (24).

SALE OF MILK

All milk is not delivered to homes. Much milk is sold through other dispensing agencies, such as soda fountains, grocery stores, restaurants, hotels, hospitals, schools, etc. In order to protect the milk in its final journey to the consumer, many ordinances provide that no milk may be sold to the consumer except in sealed containers (25). This prohibits the dipping of milk from cans in restaurants and hotels, a practice which was frequently followed before regulations were introduced to prevent it (26). Numerous opportunities for contamination were present when the can was left open and milk was dipped out and poured into glasses. Part of the milk would drip back into the can over the fingers of the person who was filling the glass.

Most municipal and State regulations exempt from their provisions regarding the sale of milk in sealed containers that milk which is produced from a single cow the milk of which is used principally by the family owning the cow. Although the surplus milk from such cow is sold to neighbors, the usual requirements for cleanliness are almost impossible to maintain unless a larger volume of milk is produced. The exemption of such cows has not been uniformly upheld by the courts. Such exemptions have been held to make the regulations discriminatory as against the other milk producers (27).

BACTERIAL, PHYSICAL, AND CHEMICAL TESTS

In the enforcement of milk regulations it is difficult to determine the quality of the milk produced without resorting to bacterial, physical, and chemical tests. At the present time these tests are usually made in accordance with accepted standards formulated by the American Public Health Association and the Association of Official Agricultural Chemists. The bacterial count in milk, of itself,

is not a conclusive index of the quality of the milk tested. It is agreed, however, among sanitarians that a high bacterial count is usually indicative of defective methods in production and handling. The making of bacterial counts and the prohibition of the sale of milk having a bacterial count exceeding a fixed maximum is, therefore, a customary police regulation (28).

Samples which are needed for testing purposes may be taken by the health authorities at any point in the process of production or distribution without the payment of compensation to the person from whom they are taken. The giving of samples for tests is not unconstitutional as requiring a person to give evidence against himself (29).

ENFORCEMENT OF MILK REGULATIONS

Milk regulations are usually enforced by the local board of health or the local health officer (30). Although the States sometimes have statutes imposing certain duties, the State usually relies upon the locality for the enforcement. The problem which the health officer must solve is how to prevent the sale of milk (as milk) for human consumption which does not conform to the requirements of the ordinance. When he has ascertained that a particular dairy does not conform to the requirements of the ordinance, he frequently issues an order requiring the dairy to make such changes in its plant, equipment, or manner of operation as will enable it to conform with the general requirements of the ordinance, if this be of the license type, or with the requirements of the particular grade, if the ordinance be of the grading type.

If the alterations ordered are not made within a reasonable time, the health officer may revoke the license if a license is required by the terms of the ordinance. Some ordinances provide that where the orders of the health officer are not complied with that officer is empowered to require the owner of the dairy to change the labels on his milk to those required by the ordinance for the next lowest grade. This is called "de-grading." If milk is sold by a licensee whose license has been revoked or is sold under the wrong labels, in case the dairy has been de-graded, the milk may summarily be destroyed.

CITATIONS

(1) **A city may pass such ordinances under a general welfare clause of its charter.**

Kansas City *v.* Henri, (1915) 96 Kan. 794, 153 Pac. 548.

See also—

Owensboro *v.* Evans, (1916) 172 Ky. 831, 189 S. W. 1153.

Bellows *v.* Raynor, (1913) 207 N. Y. 389, 101 N. E. 181.

Rigbers *v.* Atlanta, (1909) 7 Ga. App. 411, 66 S. E. 991.

Salt Lake City *v.* Howe, (1910) 37 Utah 170, 106 Pac. 705, Ann. Cas. 1912C 189.

Gardenhire *v.* State, (1923) 26 Ariz. 14, 221 Pac. 228.

Power to require a milk license held included in power to tax privileges and occupations.

State *v.* Smith, (1912) 62 Fla. 93, 57 So. 426.

Such ordinances may prescribe a higher standard than that fixed by statute.

See—

Re Hoffman, (1909) 155 Cal. 114, 132 A. S. R. 75, 99 Pac. 517.

Kansas City *v.* Henri, (1915) 96 Kan. 794, 153 Pac. 548.

Also a lower standard may be provided.

See—

St. Louis *v.* Klausmeier, (1908) 213 Mo. 119, 112 S. W. 516.

St. Louis *v.* Scheer, (1911) 235 Mo. 721, 139 S. W. 434.

St. Louis *v.* Schulte, (1911) 235 Mo. 734, 139 S. W. 449.

Cases holding that a higher standard than that fixed by statute is invalid as in conflict with the statute.

See—

St. Louis *v.* Klausmeier, (1908) 213 Mo. 119, 112 S. W. 516.

Re Desanta, (1908) 8 Cal. App. 295, 96 Pac. 1027.

(2) Prohibition of adulteration upheld in—

Peo. *v.* Cipperly, (1885) 37 Hun. (N. Y.) 319, 101 N. Y. 634, 4 N. E. 107.

Com. *v.* Waite, (1865) 11 Allen (Mass.) 264, 87 Am. Dec. 711.

Arbitrary definition of adulteration not unconstitutional.

See—

State *v.* Smyth, (1883) 14 R. I. 100, 51 Am. Rep. 344.

State *v.* Groves, (1885) 15 R. I. 208, 2 Atl. 384.

Peo. *v.* Cipperly, supra.

Peo. *v.* Beaman, (1905) 102 App. Div. 152, 92 N. Y. S. 295.

Peo. *v.* Eddy, (1891) 35 N. Y. S. R. 146, 12 N. Y. S. 628.

State *v.* Newton, (1883) 45 N. J. L. 469.

Com. *v.* Evans, (1882) 132 Mass. 11.

Com. *v.* Wheeler, (1910) 205 Mass. 384, 137 A. S. R. 456, 91 N. E. 415, 18 Ann. Cas. 319.

Peo. *v.* Justices, (1876) 7 Hun. (N. Y.) 214.

Peo. *v.* Koster, (1907) 121 App. Div. 852, 106 N. Y. S. 793.

Peo. *v.* Bowen, (1905) 182 N. Y. 1, 74 N. E. 489.

Polinsky *v.* Peo., (1878) 73 N. Y. 65.

St. Louis *v.* Meyer, (1911) 235 Mo. 699, 139 S. W. 438.

St. Louis *v.* Ameln, (1911) 235 Mo. 669, 139 S. W. 429.

St. Louis *v.* Kruempeler, (1911) 235 Mo. 710, 139 S. W. 446.

State *v.* Campbell, (1887) 64 N. H. 402, 10 A. S. R. 419, 13 Atl. 585.

Weigand *v.* Dist. of Col., (1903) 22 App. Cas. D. C. 559.

State *v.* Fourcade, (1893) 45 La. Ann. 717, 40 A. S. R. 249, 13 So. 187.

State *v.* Dupaquier, (1894) 46 La. Ann. 577, 26 L. R. A. 162, 49 A. S. R. 334, 15 So. 502.

State *v.* Stone, (1894) 46 La. Ann. 147, 15 So. 11.

Deems *v.* Baltimore, (1894) 80 Md. 164, 26 L. R. A. 541, 45 A. S. R. 339, 30 Atl. 648.

Blazier *v.* Miller, (1877) 10 Hun. (N. Y.) 435.

Norfolk *v.* Flynn, (1903) 101 Va. 473, 62 L. R. A. 771, 99 A. S. R. 918, 44 S. E. 717.

State *v.* Smith, (1903) 69 Ohio St. 196, 68 N. E. 1044.

Com. *v.* Tobias, (1886) 141 Mass. 129, 6 N. E. 217.

Com. *v.* Proctor, (1895) 165 Mass. 38, 42 N. E. 335.

State *v.* Nelson, (1896) 66 Minn. 166, 34 L. R. A. 318, 61 A. S. R. 399, 68 N. W. 1066.

Peo. *v.* Kibler, (1887) 106 N. Y. 321, 12 N. E. 795.
State *v.* Schlenker, (1900) 112 Ia. 642, 51 L. R. A. 347, 84 A. S. R. 360, 84 N. W. 698.
Sanchez *v.* State, (1889) 27 Tex. Crim. App. 14.
Com. *v.* Luscomb, (1880) 130 Mass. 42.
Com. *v.* Bowers, (1886) 140 Mass. 483.

Adulteration of cream held forbidden by a statute forbidding adulteration of milk.
Com. *v.* Elm Farm Milk Co., (1915) 221 Mass. 68, 108 N. E. 911.

Ordinance is not unreasonable which places on the dairyman the duty of ascertaining whether the milk he purposes to sell is wholesome and unadulterated.
New Orleans *v.* Vinci, (1923) *153* La. *528*, 96 So. 110.

Bacterial count of over 4,000,000 per cubic centimeter held conclusive evidence of adulteration by consisting in part of a filthy, decomposed, and putrid animal and vegetable substance when B. Coli and streptococci were present.
Dade *v.* U. S., (1913) 40 App. D. C. 94.

Manufacture of concentrated milk not within purview of statute concerning adulteration.
Com. *v.* Boston, etc., Milk Co., (1911) 209 Mass. 30, 95 N. E. 85, Ann. Cas. 1912B 386.

Contra—
State *v.* Tetu, (1906) 98 Minn. 351, 107 N. E. 953.

(3) **Introduction of preservatives prohibited and upheld in**—
St. Louis *v.* Schuler, (1905) 190 Mo. 524, 1 L. R. A. (N. S.) 928, 89 S. W. 621 (formaldehyde).
State *v.* Schlenker, (1900) 112 Iowa 642, 51 L. R. A. 347, 84 Am. S. R. 360, 84 N. W. 698 (boracic acid).
Isenour *v.* State, (1901) 157 Ind. 517, 87 A. S. R. 228, 62 N. E. 40 (formaldehyde).
St. Louis *v.* Wortman, (1908) 213 Mo. 131, 112 S. W. 520.
Hebe Co. *v.* Shaw, (1919) 248 U. S. 297, 63 L. ed. 255.
Gardenhire *v.* State, (1923) 26 Ariz. 14, 221 Pac. 228 (boric acid).
Com. *v.* Gordon, (1893) 159 Mass. 8, 38 N. E. 709 (boric acid).

(4) **Addition of coloring matter prohibited and regulation upheld in**—
St. Louis *v.* Polinsky, (1905) 190 Mo. 516, 89 S. W. 625.
St. Louis *v.* Jud, (1911) 236 Mo. 1, 139 S. W. 441.
Com. *v.* Schaffner, (1888) 146 Mass. 512, 16 N. E. 280.
Com. *v.* Wetherbee, (1891) 153 Mass. 159, 26 N. E. 414.

(5) **Such regulations have been upheld in**—
Chicago *v.* Bowman Dairy Co., (1908) 234 Ill. 294, 17 L. R. A. (N. S.) 684, 123 A. S. R. 100, 84 N. E. 913, 14 Ann. Cas. 700.
Thompson *v.* District of Columbia, (1903) 21 App. D. C. 395.

(6) **Licensing specifically upheld as a regulatory procedure in**—
St. Louis *v.* Grafeman Dairy Co., (1905) 190 Mo. 492, 1 L. R. A. (N. S.) 936, 89 S. W. 617.
Littlefield *v.* State, (1894) 42 Neb. 223, 28 L. R. A. 588, 47 A. S. R. 697, 60 N. W. 724.
Norfolk *v.* Flynn, (1903) 101 Va. 473, 62 L. R. A. 771, 99 A. S. R. 918, 44 S. E. 717.
New York *v.* Van de Carr, (1905) 199 U. S. 552, 50 L. ed. 305, 26 Sup. Ct. Rep. 144, (1903) 175 N. Y. 440, 108 A. S. R. 781.
Peo. *v.* Mulholland, (1880) 19 Hun. (N. Y.) 548, 82 N. Y. 324, 37 Am. Rep. 568.

Salt Lake City *v.* Howe, (1910) 37 Utah 170, 106 Pac. 705, Ann. Cas. 1912C 189.

Chicago *v.* Bartee, (1881) 100 Ill. 57.

Cofman *v.* Osterhous, (1918) 40 N. D. 390, 168 N. W. 826, 18 A. L. R. 219.

State *v.* Smith, (1917) 62 Fla. 93, 57 So. 426.

Reading *v.* Miller, (1911) 45 Pa. Super. Ct. 28.

St. Louis *v.* Kellman, (1922) 295 Mo. 71, 243 S. W. 134.

Power to revoke license without notice or hearing upheld in—

Peo. *v.* Health Dept., (1907) 189 N. Y. 187, 13 L. R. A. (N. S.) 894, 82 N. E. 197.

But a public officer can not revoke a license to sell milk merely because satisfied that licensee is unable properly to conduct the business.

See—

Peo. *v* Wilson, (1917) 179 App. Div. 416, 166 N. Y. S. 211.

A statute imposing a license tax only upon such dealers as used vehicles for the delivery of milk to consumers held void for discrimination in—

Read *v.* Graham, (1907) 31 Ky. L. R. 569, 102 S. W. 860.

A classification for the purpose of a license fee, to be exacted from persons selling milk, may be based upon the number of cows in the dairy.

See—

State *v.* McKinney, (1904) 29 Mont. 375, 74 Pac. 1095, 1 Ann. Cas. 579.

Birmingham *v.* Goldstein, (1907) 151 Ala. 473, 12 L. R. A. (N. S.) 568, 44 So. 113.

Peo. *v.* Mulholland, (1880) 19 Hun. (N. Y.) 548, 82 N. Y. 324, 37 Am. Rep. 568.

Asheville *v.* Nettles, (1913) 164 N. C. 315, 80 S. E. 236.

Ridgeway *v.* Bessemer, (1914) 9 Ala. App. 470, 64 So. 189.

Constitutional provisions as to uniformity of taxation held not to apply to milk license taxes in—

Birmingham *v.* Goldstein, (1907) 151 Ala. 473, 12 L. R. A. (N. S.) 568, 1 5 A. S. R. 33, 44 So. 113.

Exemption of grocers who sell milk from license tax not discrimination.

See—

Newport *v.* French Bros. Bauer Co., (1916) 169 Ky. 174, 183 S. W. 532.

Venders of milk may be classified for licensing purposes, but an ordinance is not unconstitutional which employs such a classification but under which the city authorities do not enforce the payment of a tax by all persons who were within its terms.

Weyman *v.* Newport, (1913) 153 Ky. 487, 156 S. W. 109.

Under a constitutional provision requiring uniform taxation an ordinance is invalid which levies a tax on each cow kept in a dairy within only a portion of the territory to which the jurisdiction of the levying authority extends.

Parish of Orleans *v.* Nougues, (1856) 11 La. Ann. 739.

A license tax is not a property tax and may be lawfully imposed on a person residing outside of a city who brings his milk into the city for sale.

Ridgeway *v.* Bessemer, (1914) 9 Ala. App. 470, 64 So. 189.

Arbitrary power to grant or withhold license to milk dealers can not be conferred upon a board of health.

Bear *v.* Cedar Rapids, (1910) 147 Ia. 341, 27 L. R. A. (N. S.) 1150, 126 N. W. 324.

Licenses may be exacted to cover the cost of inspections regardless of a statute which makes it unlawful for any person or city to charge a license fee to a person selling the products of his own farm.

Carpenter *v.* Little Rock, (1911) 101 Ark. 238, 142 S. W. 162.

Norfolk *v.* Flynn, (1903) 101 Va. 473, 62 L. R. A. 771, 99 A. S. R. 918, 44 S. E. 717.

See also—

Blanke *v.* Bd. of Health, (1899) 64 N. J. L. 42, 44 Atl. 847.

But an inspection fee which is a license fee to all intents and purposes, which a city has no right to exact, will not be upheld.

St. Paul *v.* Peck, (1900) 78 Minn. 497, 81 N. W. 389.

State *v.* Elofson, (1902) 86 Minn. 103, 90 N. W. 309.

The power to impose a license tax on vendors of milk can not be inferred from a general-welfare clause.

Mayher *v.* Lexington, (1880) 8 Ky. L. Rep. 138.

Gray *v.* Wilmington, (1896) 2 Marv. (Del.) 257, 43 Atl. 94.

State *v.* Tyrrell, (1900) 73 Conn. 407, 47 Atl. 686.

Discretion to refuse a license to sell milk not reviewable by courts unless arbitrarily exercised.

Walker *v.* Birmingham, (1927) 112 So. 823.

State *v.* Kirkpatrick, (1920) 179 N. C. 747, 103 S. E. 65.

Dairymen need not secure milk licenses from city if ordinance is in irreconcilable conflict with a State statute on the same subject granting superior power to a State board.

New Orleans *v.* Ernst, (1924) 155 La. 426, 99 So. 391.

Ordinance prohibiting sale of milk without a permit not invalid as tending to create a monopoly.

State *v.* Kirkpatrick, (1920) 179 N. C. 747, 103 S. E. 65.

Power to revoke milk license may be delegated by city council to health commissioner.

State *v.* Milwaukee, (1909) 140 Wis. 38, 121 N. W. 658.

(7) **Care must be taken, however, not to delegate discretion to ministerial officers in providing for such inspections.**

See—

Hudson *v.* Flemming, (1910) 139 App. Div. 327, 123 N. Y. S. 1065.

(8) **Grading upheld in—**

Herkimer *v.* Potter, (1924) 124 Misc. 57, 207 N. Y. S. 35.

(9) **The legislature may make the sale of milk below the standard criminal, regardless of the intent.**

See—

Peo. *v.* Kibler, (1887) 106 N. Y. 323, 12 N. E. 795.

A statute is not unconstitutional as providing two penalties for the same offense because it provides a forfeiture of a specified sum for each offense, and in addition makes the sale a misdemeanor punishable by fine and imprisonment.

Peo. *v.* McDermott Dairy Co., (1910) 122 N. Y. S. 294.

There is no double jeopardy when punishment is imposed for the violation of a municipal ordinance and a State law covering the same subject matter.

State *v.* Labatut, (1887) 39 La. Ann. 513, 2 So. 550.

State *v.* Fourcade, (1893) 45 La. Ann. 717, 40 A. S. R. 249, 13 So. 187.

(10) **Statutes and ordinances prescribing standards for milk upheld in—**

State *v.* Newton, (1883) 45 N. J. L. 469.
Peo. *v.* Bowen, (1905) 182 N. Y. 1, 74 N. E. 489.
Peo. *v.* Koster, (1907) 121 App. Div. 852, 106 N. Y. S. 793.
Peo. *v.* Abramson, (1910) 137 App. Div. 549, 122 N. Y. S. 115.
Com. *v.* Wheeler, (1910) 205 Mass. 384, 137 A. S. R. 456, 91 N. E. 415, 18 Ann. Cas. 319.
Peo. *v.* Kibler, (1887) 106 N. Y. 323, 12 N. E. 795.
St. John *v.* New York, (1906) 201 U. S. 633, 50 L. ed. 896, 26 Sup. Ct. Rep. 554, 5 Ann. Cas. 909.
St. Louis *v.* Bippen, (1906) 201 Mo. 528, 100 S. W. 1048.
St. Louis *v.* Schottell, (1907) Mo. 100 S. W. 1049.
Com. *v.* Evans, (1882) 132 Mass. 11.
State *v.* Smyth, (1883) 14 R. I. 100, 51 Am. Rep. 344.
State *v.* Campbell, (1887) 64 N. H. 302, 10 A. S. R. 419, 13 Atl. 585.
State *v.* Stone, (1894) 46 La. Ann. 147, 15 So. 11.
Kansas City *v.* Cook, (1890) 38 Mo. App. 660.
Peo. *v.* West, (1887) 106 N. Y. 293, 60 Am. Rep. 452, 12 N. E. 610.
Peo. *v.* Cipperly, (1885) 37 Hun. 319, 101 N. Y. 634, 4 N. E. 107
Hebe Co. *v.* Shaw, (1919) 248 U. S. 297, 63 L. ed. 255.
Com. *v.* Waite, (1865) 11 Allen (Mass.) 264, 87 Am. Dec. 711.
State *v.* Meyer, (1915) 94 Kan. 647, 146 Pac. 1007.
Com. *v.* Bowes, (1886) 140 Mass. 483.
Peo. *v.* Martin, (1915) 88 Misc. 519, 151 N. Y. S. 69.

Standards for cream upheld in:

Peo. *v.* Hills, (1901) 64 App. Div. 584, 72 N. Y. S. 340.
Peo. *v.* Laesser, (1903) 79 App. Div. 384, 79 N. Y. S. 470.
State *v.* Crescent Cry. Co., (1901) 83 Minn. 284, 86 N. W. 167, 54 L. R. A. 466, 85 A. S. R. 464.
State *v.* Tetu, (1906) 98 Minn. 351, 107 N. W. 953.
St. Louis *v.* Reuter, (1905) 190 Mo. 514, 89 S. W. 628.

(11) **See—**

St. Louis *v.* Scheer, (1911) 235 Mo. 721, 139, S. W. 434.
St. Louis *v.* Liessing, (1905) 190 Mo. 464, 1 L. R. A. (N. S.) 918, 109 A. S. R. 774, 89 S. W. 611, 4 Ann. Cas. 112.
St. Louis *v.* Grafeman Dairy Co., (1905) 190 Mo. 507, 1 L. R. A. (N. S.) 926, 89 S. W. 627.
St. Louis *v.* Bippey, (1907) 201 Mo. 528, 100 S. W. 1048.
St. Louis *v.* Schottell, (1907) Mo. 100 S. W. 1049.
St. Louis *v.* Reuter, (1905) 190 Mo. 514, 89 S. W. 628.
State *v.* Campbell, (1887) 64 N. H. 402, 10 A. S. R. 419, 13 Atl. 585.
Peo. *v.* Kibler, (1887) 106 N. Y. 323, 12 N. E. 795.
Peo. *v.* Schaffer, (1886) 41 Hun. (N. Y.) 23.
Com. *v.* Farren, (1864) 9 Allen (Mass.) 489.
Com. *v.* Warren, (1894) 160 Mass. 533, 36 N. E. 308.

(12) **See—**

State *v.* Campbell, (1887) 64 N. H. 402, 10 A. S. R. 419, 13 Atl. 585.

(13) **City may require applicants for license and licensees to submit to such inspections even though their herds are not kept within the city.**
State *v.* Davis, (1911) 1 Tenn. C. C. A. 550.
State *v.* Nelson, (1896) 66 Minn. 166, 34 L. R. A. 318, 61 A. S. R. 399, 68 N. W. 1066.
Re Taylor, (1897) 12 Manitoba L. R. 18.
Re Elliott, (1896) 11 Manitoba L. R. 358.

(14) **Requirement of tuberculin test as a valid police regulation upheld in—**
State *v.* Nelson, (1896) 66 Minn. 166, 34 L. R. A. 318, 61 Am. S. R. 399, 68 N. W. 1066.
Nelson *v.* Minneapolis, (1910) 112 Minn. 16, 29 L. R. A. (N. S.) 260, 127 N. W. 445.
Adams *v.* Milwaukee, (1911) 144 Wis. 371, 43 L. R. A. (N. S.) 1066, 129 N. W. 518, affirmed in (1913) 228 U. S. 572, 57 L. ed. 971, 33 S. C. R. 610.
New Orleans, *v.* Charouleau, (1908) 121 La. 890, 18 L. R. A. (N. S.) 368, 126 A. S. R. 332, 46 So. 911, 15 Ann. Cas. 46. (This ordinance further provided for the summary destruction of tuberculous animals—which was also upheld.)
Hawkins *v.* Hoye, (1914) 108 Miss. 282, 66 So. 741.
State *v.* Broadbelt, (1899) 89 Md. 565, 45 L. R. A. 433, 73 A. S. R. 201, 43 Atl. 771.
State *v.* Davis, (1911) 1 Tenn. C. C. A. 550.
State *v.* Bd. of Health, (1911) 81 N. J. L. 218, 80 Atl. 30.
Owensboro *v.* Evans, (1916) 172 Ky. 831, 189 S. W. 1153.
St. Louis *v.* Liessing, (1905) 190 Mo. 464, 89 S. W. 611, 1 L. R. A. (N. S.) 918, 109 A. S. R. 774, 4 Ann. Cas. 112.
Herkimer *v.* Potter, (1924) 124 Misc. 57, 207 N. Y. S. 35.

(15) **Regulations against feeding of cows on still slop upheld in—**
Sanders *v.* Com., (1903) 117 Ky. 1, 1 L. R. A. (N. S.) 932, 111 Am. S. R. 219, 77 S. W. 358.
Johnson *v.* Simonton, (1872) 43 Cal. 242.

(16) **Requirement in a municipal ordinance that cows be cared for by persons free from disease upheld in—**
Walton *v.* Toledo, (1902) 23 Ohio C. C. 547.
Peo. *v.* Hamilton, (1916) 97 Misc. 437, 161 N. Y. S. 425.
Hoar *v.* Lancaster, (1927) 290 Pa. 117, 137 Atl. 664.

(17) **An ordinance making the requirements included in this and the following paragraphs upheld in—**
Ownesboro *v.* Evans, (1916) 172 Ky. 831, 189 S. W. 1153.
State *v.* Broadbelt, (1899) 89 Md. 565, 45 L. R. A. 433, 73 Am. S. R. 201, 43 Atl. 771.

(18) **The requirement of a separate room for this purpose upheld in—**
State *v.* Davis, (1911) 1 Tenn. C. C. A. 550.
Peo. *v.* Owen, (1909) 66 Misc. 24, 116 N. Y. S. 502.

(19) **Requirements of low temperatures for milk transportation and storage upheld in—**
Kaiser *v.* Walsh, (1906) 4 Ohio N. P. N. S. 507, 17 Ohio Dec. 324.
Adams *v.* Milwaukee, (1911) 144 Wis. 371, 43 L. R. A. (N. S.) 1066, 129 N. W. 518, affirmed (1913) 228 U. S. 572, 57 L. ed. 971, 33 S. C. R. 610.

Contra—as to common carriers:
See—
Chicago *v.* Chicago & N. W. Ry., (1916) 275 Ill. 30, 113 N. E. 849, L. R. A. 1917C 238.

(20) **Cases holding it within the police power of a municipality to provide for the inspection of dairies from which milk is brought to the city for sale include—**

Hill *v.* Fetherolf, (1912) 236 Pa. 70, 84 Atl. 677.
Walton *v.* Toledo, (1902) 23 Ohio C. C. 547.
Creaghan *v.* Baltimore, (1918) 132 Md. 442, 104 Atl. 180.

Such inspections beyond the city limits held not to be an extraterritorial exercise of power by a city in—

State *v.* Nelson, (1896) 66 Minn. 166.

Statute requiring registration and inspection of herds from which milk was sold to cities, towns, and villages, but not applying to herds from which the milk was sold elsewhere, upheld as not discriminatory, and not a denial of due process or equal protection in—

State *v.* Broadbelt, (1899) 89 Md. 565, 45 L. R. A. 433, 73 A. S. R. 201, 43 Atl. 771.

(21) **Pasteurization has been upheld in—**

Koy *v.* Chicago, (1914) 263 Ill. 122, 104 N. E. 1104, Ann. Cas. 1915C 67.
Pfeffer *v.* Milwaukee, (1920) 171 Wis. 514, 177 N. W. 850, 10 A. L. R. 128.
Peo. *v.* McGowan, (1921) 118 Misc. 828, Aff. 200 App. Div. 836, 191 N. Y. S. 946.
Moll *v.* Lockport, (1921) 194 N. Y. S. 250.
State *v.* Edwards, (1924) 187 N. C. 259, 121 S. E. 444.

Contra:

See—

State *v.* Kinsey, (1926) 314 Mo. 80, 282 S. W. 437.

(22) **Such a requirement upheld in—**

State *v.* Davis, (1911) 1 Tenn. C. C. A. 550.

(23) **But a regulation requiring such a test for drivers of milk wagons upheld in—**

Peo. *v.* Hamilton, (1916) 97 Misc. 437, 161, N. Y. S. 425.

(24) **Requirements for cleanliness of wagons upheld—**

Owensboro *v.* Evans, (1916) 172 Ky. 831, 189 S. W. 1153.

License fee based on number of wagons upheld in—

Walton *v.* Toledo, (1902) 23 Ohio C. C. 547.
Peo. *v.* Mulholland, (1880) 19 Hun. (N. Y.) 548, 82 N. Y. 324, 37 Am. Rep. 568.

(25) **Requirement that such containers be clean before distributor could repossess himself of them upheld in—**

Peo. *v.* Freudenberg, (1913) 209 N. Y. 218, 103 N. E. 166.

(26) **Prohibition of dipping milk and requirement of sale only in sealed containers upheld in—**

Mannix *v.* Frost, (1917) 100 Misc. 36, 164 N. Y. S. 1050, Aff. in (1917) 181 App. Div. 961, 168 N. Y. S. 1118.
State *v.* Stokes, (1916) 91 Conn. 67, 98 Atl. 294.
Bd. of Health *v.* Kollman, (1913) 156 Ky. 351, 41 L. R. A. (N. S.) 354, 160 S. W. 1052.
Staas *v.* State, (1896) 15 Ohio C. C. (N. S.) 189, 81 Ohio St. 497, 91 N. E. 1139.
Herkimer *v.* Potter, (1924) 124 Misc. 57, 207 N. Y. S. 35.
Milwaukee *v.* Childs Co., (1928) 217 N. W. 703.

(27) **For a case holding such a discrimination invalid see—**

Pierce *v.* Aurora, (1899) 81 Ill. App. 670.

Such practice held not to constitute discrimination in—

State *v.* Kirkpatrick, (1920) 179 N. C. 747, 103 S. E. 65.

(28) **An ordinance prohibiting sale of milk containing over 300,000 bacteria per cubic centimeter or any pathogenic bacteria held not invalid as unreasonable in the absence of evidence tending to show that it is impossible for dairymen to furnish milk of that quality.**

See—

Owensboro *v.* Evans, (1916) 172 Ky. 831, 189 S. W. 1153.

(29) **See—**

St. Louis *v.* Liessing, (1905) 190 Mo. 464, 1 L. R. A. (N. S.) 918, 109 A. S. R. 774, 89 S. W. 611, 4 Ann. Cas. 112.

State *v.* Dupaquier, (1894) 46 La. Ann. 577, 26 L. R. A. 162, 49 A. S. R. 334, 15 So. 502.

Com. *v.* Carter, (1882) 132 Mass. 12.

State *v.* Stone, (1894) 46 La. Ann. 147, 15 So. 11.

D. C. *v.* Garrison, (1905) 25 App. D. C. 563.

Contra—

Re Taylor, (1897) 12 Manitoba L. R. 18.

(30) **The delegation of the power of control over milk to boards of health has been upheld.**

N. Y. *v.* Van de Carr, (1905) 199 U. S. 552, 50 L. ed. 305, 26 S. C. R. 144.

(31) **Refusing of permits when proper standards are not maintained upheld in—**

Creaghan *v.* Baltimore, (1918) 132 Md. 442, 104 Atl. 180.

An exemption from a statute providing a punishment for selling milk below a specified standard of producers unless they failed to bring their product up to standard in 20 days after notice to do so held not discriminatory in—

Com. *v.* Titcomb, (1917) 229 Mass. 14, 118 N. E. 328.

A city may prevent unsafe milk from entering.

See—

Reed *v.* Colorado, (1902) 187 U. S. 137.

Leontas *v.* Savannah, (1927) 164 Ga. 278, 138 S. E. 154.

(32) **As to the constitutionality of summary destruction of milk, see—**

Nelson *v.* Mpls., (1910) 112 Minn. 16, 29 L. R. A. (N. S.) 260, 127 N. W. 445.

Deems *v.* Baltimore, (1894) 80 Md. 164, 26 L. R. A. 541, 45 A. S. R. 339, 30 Atl. 648.

State *v.* Newton, (1883) 45 N. J. L. 469.

Blazier *v.* Miller, (1877) 10 Hun. (N. Y.) 435.

Kaiser *v.* Walsh, (1906) 4 Ohio N. P. N. S. 507, 17 Ohio Dec. 324.

Adams *v.* Milwaukee, (1911) 144 Wis. 371, 43 L. R. A. (N. S.) 1066, 129 N. W. 518, Affirmed (1913) 228 U. S. 572, 57 L. ed. 971, 33 Sup. Ct. Rep. 610.

BIOLOGICAL PRODUCTS

ESTABLISHMENTS LICENSED FOR THE PROPAGATION AND SALE OF VIRUSES, SERUMS, TOXINS, AND ANALOGOUS PRODUCTS

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

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

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

Establishments Licensed and Products for which Licenses have been Issued

AMERICAN ESTABLISHMENTS

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

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

H. K. Mulford Co., Broad and Wallace Streets, Philadelphia, Pa.—License No. 2:

Diphtheria antitoxin; erysipelas streptococcus antitoxin; perfringens antitoxin; scarlet fever streptococcus antitoxin; tetanus antitoxin; antianthrax serum; antidysenteric serum; antigonococcic serum; antimelitensis serum; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; antivenin (Nearctic crotalidae); antivenin Bothropic; normal horse serum; vaccine virus; rabies vaccine (Pasteur); rabies vaccine (killed virus); tuberculin old; tuberculin T. R.; tuberculin B. E.; tuberculin B. F.; tuberculin proteose-free (Lyons); bacterial vaccines made from acne bacillus, cholera vibrio, colon bacillus, dysentery bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, micrococcus melitensis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, plague bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; sensitized bacterial vaccines made from acne bacillus, cholera vibrio, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; pollen extract; animal epidermal extract; animal food extract; vegetable food extract; poison ivy extract; pneumococcus antibody solution; bacterial antigen made from streptococci.

The Cutter Laboratory, Berkeley, Calif.—License No. 8:
Diphtheria antitoxin; scarlet fever streptococcus antitoxin; tetanus antitoxin; antistreptococcic serum; normal horse serum; vaccine virus; rabies vaccine (Pasteur); rabies vaccine (killed virus); tuberculin old; tuberculin B. F.; bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; diphtheria toxin for Schick test; pollen extract; poison ivy extract; poison oak extract.

Bureau of Laboratories, Department of Health, foot East Sixteenth Street, New York City.—License No. 14:
Diphtheria antitoxin, scarlet fever streptococcus antitoxin, tetanus antitoxin; antimeningococcic serum; antipneumococcic serum; normal horse serum; vaccine virus; rabies vaccine (Pasteur); rabies vaccine (killed virus); tuberculin old; bacterial vaccines made from gonococcus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; diphtheria toxin for Schick test.

Lederle Antitoxin Laboratories, Pearl River, N. Y.—License No. 17:
Diphtheria antitoxin; erysipelas streptococcus antitoxin; perfringens antitoxin; scarlet fever streptococcus antitoxin; tetanus antitoxin; vibrion septique antitoxin; antianthrax serum; antidysenteric serum; antigonococcic serum; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; measles immune serum; normal horse serum; vaccine virus; rabies vaccine (Pasteur); rabies vaccine (killed virus); tuberculin old; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from acne bacillus, cholera vibrio, colon bacillus, Friedländer bacillus, gonococcus, influenza baccillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, plague bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; pollen extract; poison ivy extract; poison oak extract.

Bacterio-Therapeutic Laboratory, Asheville, N. C.—License No. 23:
Watery extract of tubercle bacilli (von Ruck); modified tubercle bacillus derivative (von Ruck).

G. H. Sherman, M. D., Inc., 14600 East Jefferson Avenue, Detroit, Mich.—License No. 30:
Bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, nonvirulent tubercle bacillus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; pollen extract.

The Abbott Laboratories, Fourteenth Street and C.-W. Interurban Railroad tracks, North Chicago, Ill.—License No. 43:
Bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; pollen extract.

St. Louis Pasteur Institute, 3514 Lucas Avenue, St. Louis, Mo.—License No. 50:
Rabies vaccine (killed virus).

The Upjohn Co., Kalamazoo, Mich.—License No. 51:
Bacterial vaccines made from colon bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; pollen extract.

E. R. Squibb & Sons' Research and Biological Laboratories, New Brunswick, N. J.—License No. 52:
Diphtheria antitoxin, erysipelas streptococcus antitoxin, scarlet fever streptococcus antitoxin; tetanus antitoxin; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; normal horse serum; vaccine virus; rabies vaccine (Pasteur); rabies vaccine (killed virus); bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, streptococcus, and typhoid bacillus; leucocytic extract from the horse; diphtheria toxin-antitoxin mixture; diphtheria toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; pollen extract; poison ivy extract; poison oak extract; arsphenamine, neoarsphenamine, sulpharsphenamine, solution of arsphenamine.

Dr. James McI. Phillips, 2057 North High Street, Columbus, Ohio.—License No. 54:
Rabies vaccine (dilution method).

Eli Lilly & Co., Indianapolis, Ind.—License No. 56:
Diphtheria antitoxin; erysipelas streptococcus antitoxin; scarlet fever streptococcus antitoxin; tetanus antitoxin; antimeningococcic serum; antistreptococcic serum; normal horse serum; vaccine virus; rabies vaccine (Harris); tuberculin old; tuberculin T. R.; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from acne bacillus, cholera vibrio, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, plague bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial vaccine made from partially autolized pneumococci; diphtheria toxin-antitoxin mixture; diphtheria toxin for Schick test; ricinoleated antigen made from scarlet fever streptococci.

Swan Myers Co., 219 North Senate Avenue, Indianapolis, Ind.—License No. 58:
Bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, micrococcus tetragenus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; pollen extract.

Gilliland Laboratories, Marietta, Pa.—License No. 63:
Diphtheria antitoxin; scarlet fever streptococcus antitoxin; tetanus antitoxin; antimeningococcic serum; antipneumonococcic serum; antistreptococcic serum; normal horse serum; vaccine virus; rabies vaccine (Pasteur); rabies vaccine (killed virus); tuberculin old; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from acne bacillus, gonococcus, influenza, bacillus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumonococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization.

Antitoxin and Vaccine Laboratory, Department of Public Health, Commonwealth of Massachusetts, 375 South Street, Jamaica Plain, Boston 30, Mass.—License No. 64:
Diphtheria antitoxin; scarlet fever streptococcus antitoxin; antimeningococcus serum; antipneumococcus serum; vaccine virus; bacterial vaccines made from paratyphoid bacillus A, paratyphoid bacillus B, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxin for Schick test.

United States Standard Products Co., Woodworth, Wis.—License No. 65:
Diphtheria antitoxin; scarlet fever streptococcus antitoxin; tetanus antitoxin; normal horse serum; rabies vaccine (killed virus); bacterial vaccines made from acne bacillus, colon bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization.

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

The Arlington Chemical Co., Yonkers, N. Y.—License No. 67:
Bacterial vaccines made from colon bacillus, micrococcus tetragenus, pneumococcus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, streptococcus; pollen extract; animal epidermal extract; animal food extract; vegetable food extract.

Dermatological Research Laboratories, 1720 Lombard Street, Philadelphia, Pa. (branch of Abbott Laboratories, Chicago, Ill.)—License No. 68:
Arsphenamine; neoarsphenamine; sulpharsphenamine; bismuth arsphenamine sulphonate.

H. A. Metz Laboratories, 122 Hudson Street, New York City.—License No. 69.
Arsphenamine; neoarsphenamine; sodium arsphenamine; silver arsphenamine; neosilver arsphenamine; sulpharsphenamine.

Synthetic Drugs and Diarsenol Laboratories, Buffalo, N. Y.—License No. 70:
Arsphenamine; neoarsphenamine; sodium arsphenamine; sulpharsphenamine.

Mallinckrodt Chemical Works, St. Louis, Mo.—License No. 77:
Arsphenamine; neoarsphenamine; sulpharsphenamine.

Merck & Co. (Inc.), 916 Parish Street, Philadelphia, Pa.—License No. 82:
Arsphenamine; neoarsphenamine; sulpharsphenamine; a compound of glucose with arsphenamine base.

Terrell Laboratories, Texas National Bank Building, Fort Worth, Tex.—License No. 84:
Rabies vaccine (killed virus).

Jensen-Salsbury Laboratories, Kansas City, Mo.—License No. 85:
Botulinus antitoxin; rabies vaccine (killed virus).

Cook Laboratories, 536 Lake Shore Drive, Chicago, Ill.—License No. 86:
Bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrahalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus.

The Neosol Co., 72 Kingsley St., Buffalo, N. Y.—License No. 90:
Solution of neoarsphenamine; solution of sulpharsphenamine.

Hollister Stier Laboratories, 312 Old National Bank Bldg., Spokane, Washington.—License No. 91:
Bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, typhoid bacillus, and xerosis bacillus; pollen extract.

DePree Laboratories, Holland, Michigan.—License No. 93:
Arsphenamine; neoarsphenamine; sulpharsphenamine.

Medical Arts Laboratory, Medical Arts Bldg., Oklahoma City, Oklahoma.—License No. 98:
Rabies vaccine (killed virus).

Bureau of Laboratories, Department of Health, Lansing, Mich.—License No. 99:
Diphtheria antitoxin; scarlet fever streptococcus antitoxin; bacterial vaccine made from paratyphoid bacillus A, paratyphoid bacillus B, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization.

Messrs. G. D. Searle & Co., 4735 Ravenswood Avenue, Chicago, Ill.—License No. 100; Arsphenamine; neoarsphenamine; sulpharsphenamine.

National Drug Co., 5109 Germantown Avenue, Philadelphia, Pa.—License No. 101:
Diphtheria antitoxin; tetanus antitoxin; antistreptococcic serum; normal horse serum; vaccine virus; rabies vaccine (killed virus); bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture.

American Chemical Laboratories, 5109 Germantown Avenue, Philadelphia, Pa.—License No. 102:
Poison ivy extract; poison oak extract.

FOREIGN ESTABLISHMENTS

Institut Pasteur de Paris, Paris, France.—License No. 11. Selling agents for the United States: Pasteur Laboratories of America, 366 West Eleventh Street, New York City:
Diphtheria antitoxin; tetanus antitoxin; antianthrax serum; antidysenteric serum; antiplague serum; antistreptococcic serum; bacterial vaccines made from cholera vibrio, plague bacillus, staphylococcus albus and staphylococcus aureus.

Farbwerke Hoechst, vorm. Meister Lucius und Brüning, Hoechst am Main, Germany.—License No. 24. Selling agents for the United States: H. A. Metz Laboratories, 122 Hudson St., New York City:
Diphtheria antitoxin; tetanus antitoxin; antistreptococcic serum; normal horse serum; tuberculin old; tuberculin T. R.; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from cholera vibrio gonococcus, staphylococcus albus, staphylococcus aureus, and staphylococcus citreus; typhoid bacillus; sensitized bacterial vaccine made from typhoid bacillus; arsphenamine; neoarsphenamine; sodium arsphenamine; silver arsphenamine; neosilversphenamine; sulphoxylarsphenamine.

E. Merck, Darmstadt, Germany.—License No. 31. Selling agents for the United States: Merck & Co. 45–47 Park Place, New York City: Tuberculin Ointment (Moro).

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

Les Etablissements Poulenc Frères, 92 Rue Vieille-du-Temple, Paris, III, France.—License No. 74. Selling agents for the United States: Geo. J. Wallau, 6 Cliff St., New York City:
Bacterial vaccines made from gonococcus, micrococcus tetragenus, pertussis bacillus, staphylococcus albus, staphylococcus aureus, and synococcus.

Laboratoire de Biochimie Médicale, 92 Rue Michel-Ange, Paris, France.—License No. 83. Selling agents for the United States: Anglo-French Drug Co., 1270 Broadway, New York City. Selling agents for Porto Rico: Chas. Vere, Box 216, San Juan, P. R.: Sulpharsphenamine.

Istituto Sieroterapico Milanese, Milan, Italy.—License No. 87. Selling agents for the United States: Opo-Pharmacal Co., 27 Cleveland Place, New York City:
Antianthrax serum; bacterial vaccines made from gonococcus, pneumococcus, staphylococcus albus, staphylococcus aureus, staphyloccus citreus and streptococcus; neoarsphenamine.

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

Etablissements Mouneyrat, Villaneuve-la-Garenne, Seine, France.—License No. 94. Selling agents for the United States: G. J. Wallau, 6 Cliff Street, New York City: Phospharsphenamine.

Institut National de Vaccinotherapie, 26 Rue Pages, Suresnes (Seine), near Paris, France.—License No. 95. Selling agents for the United States: Lee S. Smith Manufacturing Co., Pittsburgh, Pa.:
Bacterial vaccines made from colon bacillus, enterococcus, Friedländer bacillus, micrococcus catarrhalis, micrococcus tetragenus, pneumococcus, staphylococcus albus, staphylococcus aureus and streptococcus.

Behringswerke, A. G., Marburg-am-Lahn, Germany.—License No. 97:
Bacterial vaccines made from gonococcus, staphylococcus albus, and staphylococcus aureus.

Laboratorio di Terapia Sperimentale, Corso Torino 26 Rosso, Genoa, Italy.—License No. 38:
Bacterial vaccines made from colon bacillus, enterococcus, gonococcus, pneumococcus, prodigiosus, bacillus, pseudodiphtheria bacillus, pseudogonococcus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus and streptococcus.

THE SEPTIC SORE THROAT OUTBREAK AT LEE, MASS.

The epidemic of septic sore throat which recently occurred in Lee, Mass., has been officially traced to infected raw milk, according to information received from Dr. George H. Bigelow, State commis-

sioner of public health. Cultures of hemolytic streptococci have been obtained from one of the cows and from a number of milk handlers. Whether the cow infected the milk handlers or whether some individual was responsible for the infection of the cow has not yet been determined.

This outbreak was exceedingly explosive in nature. The first case was reported July 1, and within two weeks there occurred approximately 600 cases, with 36 deaths, in a population of about 4,000. The epidemic terminated abruptly following the enforcement of a local ordinance of July 7 requiring the Pasteurization of all milk. The latest new case was reported July 14 and was due to contact infection, received by the person while caring for a patient. Contact cases, however, were remarkably few, contrary to the usual experience with the disease.

Doctor Bigelow remarks that while widespread apprehension has been caused by this epidemic, it is now safe to say that, as a result of it, the milk supply of the Berkshires was never more adequately supervised than it is to-day, and that part of the country can be visited with as much safety as ever. The moral, he says, is that "raw milk is a very potent vehicle for the transmission of disease."

CONGRESS OF GERMAN SCIENTISTS AND PHYSICIANS

Information received through the Department of State contains an announcement that the Ninetieth Congress of the Association of German Naturalists and Physicians will be held at Hamburg from September 15 to 22, 1928. This is the first time since 1901 that the meeting has been held at Hamburg. The eighty-ninth congress met in Dusseldorf.

The program of the natural science section will include papers from the various departments of the natural sciences. Among the papers of the medical section are the history of the development of anatomy and histology, physiology and physiological chemistry, universal pathology and pathological anatomy, Röntgenology, surgery, ophthalmology, obstetrics and gynecology, pediatrics, neurology and psychiatry, dentistry, medical law, and social medicine.

In connection with the congress there will also be an exhibit relating to medical and natural science in the new exhibition hall of the zoological gardens, and numerous inspections will be made of modern technical and domestic plants, such as incinerators, sewerage systems, gas works, and waterworks.

Further information regarding the congress and the association may be had by addressing the secretary, Gustav-Adolf-Str. 12, Leipzig C 1, Germany.

COURT DECISIONS RELATING TO PUBLIC HEALTH

City held liable for water-borne typhoid fever.—(New York Supreme Court, Appellate Division; Wiesner *v.* City of Albany, 229 N. Y. S. 622; decided June 22, 1928.) An action was brought against the city of Albany to recover damages for illness caused by typhoid fever. It was claimed that the disease had its inception in unwholesome water furnished by the city, that this condition arose through the negligence of those in charge of the water system in failing to purify the water delivered to consumers, and that the authorities neglected to give warning although they had notice that dangers existed. The city water supply was taken from the Hudson River, and to purify the supply the city had a system of filtration and chlorination. After chlorination the water went into a "pure water" or "clear water" well, and from there was conducted through a conduit 8,000 feet long to a pumping station whence it was distributed through the city mains. The conduit for the greater part of its distance was under the bed of the old Erie Canal. The walls of the conduit had become rusted and broken, so that there were holes therein, of which the city had notice and which permitted external waters to seep into the conduit. There was evidence that the waters remaining in the canal basin were polluted. On nearly every day between April 7 and 23, 1924, colon bacilli were found in increasing numbers in the city water supply, indicating some definite source of pollution not eliminated by filtration, but the city took no preventive measures until an epidemic had broken out. A jury returned a verdict for the plaintiff and the judgment thereon was affirmed by the appellate division of the supreme court. The following are excerpts from the appellate division's opinion:

* * * The officials in charge of the water department had notice of the defective condition of the conduit, the sudden pollution of the water, and of the outbreak of diseases traceable to impure water, but the warnings were ignored. It was a time for prompt and decisive action. There were two possible sources of contamination—one by impure water passing the filters into the well; the other by introduction of polluted water into the conduit. The exercise of vigilance would have led to discovery of the dangerous condition and reasonable diligence would have provided the remedy. It was possible, by greater chlorination before the water went into the clear-water well, to eliminate all dangerous bacilli which had passed the filter, and there was a chlorination plant at the Quackenbush Street pumping station which would have removed the new pollution occurring in the conduit, but this was not put in use, at least during the first 10 days in April. Common prudence would have suggested a notice to citizens that the water had become polluted, and a recommendation that all water intended for human consumption should be boiled. But no preventive measures were taken until an epidemic had broken out.

* * * * * * *

* * * The evidence supports and justifies the verdict that those performing duties so closely related to the public health were negligent in failing to exercise reasonable and commensurate care in providing wholesome water. * * *

Provisions of New York City sanitary code relating to sweetening of nonalcoholic carbonated drinks held void.—(New York Supreme Court, Appellate Division; People, on Complaint of Holborow, *v.* Jacobowitz, 229 N. Y. S. 369; decided June 8, 1928.) The defendant was convicted of violating section 139–b of the sanitary code of the city of New York. Said section provided in part:

> Nonalcoholic carbonated drink or beverage as herein defined shall be deemed to be adulterated: (1) If when sweetened it contain less than 7 per cent by weight of sugar (sucrose) in the finished product, except dry ginger ale which shall contain not less than 5 per cent of sugar (sucrose). (2) If it contain more than 0.004 per cent by weight of saccharin or other synthetic sweetening agent in the finished product.

The defendant had admittedly offered for sale certain nonalcoholic carbonated drinks sweetened with sugar, but containing a little less than 7 per cent by weight of sugar. There was no evidence that it contained any saccharin whatever, and it appeared affirmatively that the drink was not made either harmful or unpalatable by the failure to use the full requirement of 7 per cent by weight of sugar. The above-quoted provisions were attacked as being arbitrary and an unreasonable attempt to exercise the police power, and, therefore, unconstitutional and void. In a prior decision the court had said that, while the board of health could regulate the use of saccharin, both as to reasonable amount and as to branding, it could not prohibit the use thereof. The court pointed out that the present regulation was shrewdly designed to require the introduction of so much sugar that it would be impossible to add saccharin without causing the beverage to be unpalatably oversweetened, and correlatively a maximum content of saccharin alone was prescribed, insufficient to sweeten palatably. In deciding against the regulation the court stated:

> The department has thus accomplished deliberately by indirection what it has been forbidden to do, and has practically made it impossible to use saccharin in carbonated beverages. Under the guise of regulation, there has been factual prohibition. There is no question here of the deception of the public. There are specific provisions in the sanitary code requiring statement upon the label when saccharin is used. The validity of these provisions is not here questioned, and their transgression is not here involved. The only issue here is whether there is justification for compelling a manufacturer of carbonated beverages to introduce at least 7 per cent of sugar into his product, if he uses any sugar at all. There is no consideration of health, safety, or public interest suggested to give such justification.

City held liable for nuisance caused by septic tank.—(Kansas City, Mo., Court of Appeals; Newman *v.* City of Marceline, 6 S. W. (2d) 659; decided May 21, 1928.) An action was brought against the city of Marceline to recover damages for the maintenance of a nuisance. The plaintiff alleged that a septic tank, constructed and maintained by the city near her residence, which she owned, emitted foul and offensive odors which deprived her of the comfort and enjoy-

ment of her home. The city's contention was that, if the septic tank was a nuisance, it was a public one, and, for that reason, it was incumbent on the plaintiff both to allege and to prove that she sustained special injuries or damages different in kind or character from those suffered by the public generally. In affirming a judgment for the plaintiff, the court of appeals said:

While the petition does not specifically allege that the injuries suffered by plaintiff were different in kind or character from those suffered by the public generally, it does allege that the septic tank, filled with sewage from defendant city, was maintained *near* her residence, and that foul, dangerous, and offensive odors came from said sewage onto plaintiff's premises and into her dwelling house, and deprived her of the comfort and enjoyment of her home, rendered same unsalable, and caused her to lose the reasonable rental value thereof. It may be true that the stench from the septic tank affected alike all who came in contact with it, but the fact that plaintiff owned and lived in property located near the tank, and was disturbed in the comfort and enjoyment of her home, by reason of the foul and offensive odors coming from the sewage in said tank, entitled her to maintain an action for said injuries. This tank was peculiarly injurious to plaintiff on account of its close proximity to her home. This being true, a petition alleging such facts states a cause of action, although it may not specifically allege that the injuries sustained by plaintiff were different in kind from those suffered by the public generally. * * *

PUBLIC HEALTH ENGINEERING ABSTRACTS

Ventilation of Buildings. B. A. Smith. *Health Bulletin*, Department of Public Health, State of Victoria, Australia, No. 12, October–December, 1927, pp. 377–388. (Abstract by Leonard Greenburg.)

For the most part this paper is devoted to a mathematical discussion of the relation between the temperature, moisture content, and carbon dioxide content of the air of inclosed spaces, the theme of the paper being based on the theory that the problem is "to introduce a constant supply of fresh air into a building in such a way as to keep the air in a suitable condition for breathing without causing discomfort to the occupants."

The paper discusses the interrelationships between these qualities of the air in preparation for a rather intricate mathematical computation designed for the purpose of calculating the proportion per liter of any of the component gases in the air of the room after any given period of time, t, elapsing since the occupation of the room began, assuming instantaneous and uniform diffusion of the gases throughout the room.

The final conclusion is that the size of the room does not affect the permanent condition of the air; it only has a bearing on the length of time which must elapse before the room air attains its final condition of impurity.

The paper closes with some valuable comments on the precautions required in ventilation, pointing out—(1) That the temperature of the incoming air should, as nearly as possible, be equal to that which it is desired to maintain. If the fresh air is hotter it must be cooled, and if colder it should be warmed and moistened; (2) if the air is dusty or smoke laden it should be filtered; (3) the fresh air should be introduced at a sufficiently low velocity to prevent drafts; this velocity should be between 2 and 3 feet per second; (4) ample provision must be made for the escape of air.

Finally, the report suggests that where a mechanical system is not adopted, a possible alternative course would be to provide ample and well distributed

window surfaces, the windows to be open in the summer time. In the winter time the temperature of the room may be maintained by the use of suitably placed radiators.

Measurement of Atmospheric Pollution, Visible and Invisible. G. T. Moore. Mech. Eng. 49, 1067–8 (1927). (Abstract by Foster D. Snell in *Chemical Abstracts*, vol. 21, No. 22, Part I, November 20, 1927, p. 4000.)

"The methods for solid matter include 'soot-fall,' Owens automatic air filter, and a jet dust counter. Acid is measured by the condition of water exposed to the air sample. Germs are collected by drawing air through sterile sand, experimenting with water, and plating out. A characteristic salivary organism serves as indicator in the same way as *B. coli* indicates sewage pollution."

Grand Haven, Michigan, Gets New Water Works. Anon. *Water Works*, vol. 67, No. 5, May, 1928, pp. 191–196. (Abstract by R. C. Beckett.)

Grand Haven, Mich., population 7,205, replaces old well system with filtration of Lake Michigan water. The plant is designed for a population of 17,500 in 1960. Summer colony causes water demand to increase 160 per cent above the average monthly demand.

Pumping equipment consists of three units: One 2,000,000, one 1,500,000, and one 1,000,000 gallon pump. The filter plant, which has a capacity at normal rate of 2,000,000 gallons per day, consists of dry-feed chemical equipment, spray nozzle aerators, reaction chamber equipped with stirring devices and baffles, two sedimentation basins, four filters, and a clear well of 100,000 gallons capacity located under and supporting the filter units.

Special lighting devices have been installed in order to observe conditions of flocculation. The reaction chamber has a retention period of 15 minutes, which includes 5 minutes of controlled mixing by variable speed stirring devices, followed by under-and-over baffles.

Arrangements have been made to permit prechlorination of the raw water if necessary. The sedimentation basins have a retention period of four hours.

Elimination of errors in the O-Tolidine Method. T. R. McCrumb. J. New Engl. Water Works Assn., 41, 386–98 (1927) (Abstract by D. K. French in *Chemical Abstracts*, vol. 22, No. 10, May 20, 1928, p. 1819.)

"Because of the use of Cl treatment in swimming pools, sewage plant effluents, and industrial wastes, it has been necessary to modify the o-tolidine method to avoid errors due to interfering conditions and materials. Comparator and standard color tubes are recommended for physical differences. The pH at the time of color formation is very important and should be not over 2.0; not over 98 g. per 1 HCl can be incorporated with 1 g. of o-tolidine. The subject is thoroughly discussed."

An Improved Method for Phenol Determinations. John R. Baylis. *Journal American Water Works Association*, vol. 19, No. 5, May, 1928, pp. 597–604. (Abstract by H. F. Ferguson.)

This article gives the method in detail for making phenol determinations, as suggested by Gibbs, by use of two 6-dibromoquinonechloroimide. Reagent is sensitive to five parts per billion of phenol—the most sensitive yet developed. Method for concentrating the phenols so that quantities less than five parts per billion may be determined is also given. Para cresol can not be determined with this reagent.

Water Consumption and Sewage Discharge at Denver. S. T. Weller. *Engineering News-Record*, vol. 100, No. 14, April 5, 1928, pp. 556–560. (Abstract by P. S. Fox.)

This is evidently the most complete study of the relative amounts of water supplied to a city and removed therefrom by its sewerage system that has ever been made. Briefly, the study shows that 95 per cent of the water supplied to the city is removed by the sewerage system. Leakage loss in 762.5 miles of pipe line is 0.5 m. g. d., or less than 1 per cent of the daily consumption.

These studies were instigated by litigation fostered by irrigation interests, which sought to compel the city to increase the amount of stored water which was sent down the river.

The article describes in detail the methods used in making the survey.

The Relation of the Type of Soils of Alabama to the Distribution of Hookworm Disease. D. L. Augustine and W. G. Smillie. *American Journal of Hygiene*, vol. 6, March (supplement), 1926, pp. 36–62. (Abstract by N. R. Stoll.)

Earlier experimentation with soils in Porto Rico and Maryland had demonstrated distinct differences in the percentage of hookworm ova that develop to infective larvæ in humus, sand, loam, and clay. With this work as a clue, soils, representative of the different soil belts in Alabama, were tested in the laboratory to determine their effectiveness in rearing larvæ. Typical sandy soils permitted a yield of infective hookworm larvæ averaging 43 per cent of the ova introduced, whereas for clay soil the average was closer to 5 per cent, the degree of efficiency of the soils being "directly related to their textures." Hookworm surveys on children from different parts of Alabama showed that the incidence is greatest in the two sandy districts, the Upper and Lower Coastal Plains, and that hookworm disease is largely limited to the latter. Light infestations were constantly encountered among children who had lived all or nearly all their lives in soil provinces in which fine, heavy clay soils predominate, but in no instance did these children have heavy infestations.

"It is recommended that health officers in the hookworm belt determine, by culture methods, whether the soil predominating in their communities or general districts is favorable or unfavorable for hookworm development."

A Stream-flow Sewage Treatment Process. H. N. Jenks and Max Levine. *Engineering News-Record*, vol. 100, No. 21, May 24, 1928, pp. 808–813. (Abstract by H. B. Foote.)

This article describes experimental work on wastes from a packing plant at Mason City, Iowa. An attempt was made to simulate conditions of a flowing stream accentuated through return of sludge to the series and resulting in the fore-shortening of time for treatment over that of a stream, and more economical use of air.

The plant consisted of areas over which the sewage flowed in thin sheets, absorbing the oxygen from the air, tanks in which the oxygen thus absorbed was utilized, provision for drawing off and re-introducing activated sludge, and provision for final disposal.

The article gives the mathematical and theoretical relationships between the elements involved in the problem, gives brief reference to closely related work of Streeter, Phelps, Theriault, and others, and shows the efficacy and economy of the system used.

This work illustrates the many opportunities still open for intensive study of sewage and industrial waste treatment, for which both more effective and more economical means are desired.

Notes on Achorutes Viaticus in Sprinkling Filters. Daggmar H. Peterson. Report of Department of Sewage Disposal of New Jersey Agricultural Experiment Station year ending June 30, 1927, pp. 294–295. (Abstract by H. E. Hargis.)

Achorutes viaticus, a purplish black insect (pink and white also occur in fewer numbers), is 2 millimeters long and hatches from the egg in about 28 days. These insects are found numerous from 3 to 6 inches below the surface of filters. They are known to feed on larvæ of *Psychoda* and to keep the filter stones clean by eating the slimy molds and fungi. Experiments were made with them in September 1926, when a bed was inoculated and in six weeks the *Achorutes* had migrated throughout the bed. It is thought that as long as the slimy molds remain they will not eat *Psychoda* larvæ. This has been found true at Plainfield (N. J.) Station.

Technical Problems in Waste Utilization and Stream Improvement. C. M. Baker. *Paper Trade Journal* 86, No. 8, pp. 159–71 (1928); *Paper Mill* 51, No. 8, pp. 138–48, 152 (1928). (Abstract by A. Papineau-Coutre in *Chemical Abstracts*, vol. 22, No. 10, May 20, 1928, p. 1818.)

"A theoretical discussion of the technical problems involved in the effect of wastes upon streams, with a description of sanitary analyses of the wastes and water of the stream. Application of the theoretical discussion of the effect of pollution on streams is illustrated by surveys of the Lower Fox and Wisconsin Rivers, in Wisconsin, made by the Bureau of Sanitary Engineering of the Wisconsin State Board of Health and by the pulp and paper industry of that State, chemists of 14 pulp and paper mill laboratories cooperating in the work."

Contribution to the Study of Activated Sludges. Lucien Cavel. Compt. rend. 186, pp. 433–36 (1928). (Abstract by A. Papineau-Coutre in *Chemical Abstracts*, vol. 22, No. 10, May 20, 1928, p. 1819.)

"Aeration of activated sludge for five months caused a loss of 4.32 per cent of the C content and 67.17 per cent of the organic nitrogen content; determination of total organic matter (by loss on ignition) of the dry sludge before and after the five-month aeration showed a reduction of approximately 67 per cent. Loss of organic matter by aeration is therefore due almost entirely to the loss of organic nitrogen. On utilizing activated sludge without aerating it, the nitrogen content rises and at the same time the activity falls to 0; aeration for several days reduces the nitrogen content and restores the activity."

DEATHS DURING WEEK ENDED JULY 28, 1928

Summary of information received by telegraph from industrial insurance companies for the week ended July 28, 1928, and corresponding week of 1927. (From the Weekly Health Index, Aug. 1, 1928, issued by the Bureau of the Census, Department of Commerce)

	Week ended July 28, 1928	Corresponding week, 1927
Policies in force	71, 255, 710	68, 130, 779
Number of death claims	12, 346	11, 862
Death claims per 1,000 policies in force, annual rate	9. 1	9. 1

Deaths from all causes in certain large cities of the United States during the week ended July 28, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927. (From the Weekly Health Index, Aug. 1, 1928, issued by the Bureau of the Census, Department of Commerce)

City	Week ended July 28, 1928		Annual death rate per 1,000, corresponding week, 1927	Deaths under 1 year		Infant mortality rate, week ended July 28, 1928 [2]
	Total deaths	Death rate [1]		Week ended July 28, 1928	Corresponding week, 1927	
Total (68 cities)	6,226	10.7	10.5	652	649	54
Akron	39			7	5	76
Albany [3]	23	10.0	17.0	3	4	61
Atlanta	68	13.9	15.3	10	11	
White	32		11.3	3	5	
Colored	36	(4)	24.7	7	6	
Baltimore [3]	184	11.6	11.1	24	22	76
White	139		9.9	15	13	60
Colored	45	(4)	18.2	9	9	141
Birmingham	70	16.5	15.3	13	9	111
White	28		9.0	6	1	83
Colored	42	(4)	25.2	7	8	158
Boston	168	11.0	13.6	35	27	97
Bridgeport	21			2	2	37
Buffalo	94	8.8	8.5	8	9	34
Cambridge	14	5.8	10.9	0	4	0
Camden	39	15.1	7.8	7	7	112
Canton	21	9.4	11.5	4	3	95
Chicago [3]	617	10.2	9.8	51	66	44
Cincinnati	121	15.3	14.4	11	16	66
Cleveland	161	8.3	8.5	17	8	46
Columbus	63	11.1	12.3	4	10	37
Dallas	32	7.7	8.4	4	7	
White	21		7.4	1	6	
Colored	11	(4)	15.2	3	1	
Dayton	34	9.6	11.5	9	6	149
Denver	46	8.2	12.1	3	7	
Des Moines	29	10.0	9.1	1	2	17
Detroit	212	8.0	9.0	33	32	51
Duluth	14	6.3	8.6	1	2	23
El Paso	30	13.3	12.4	8	3	
Erie	16			2	2	41
Fall River [3]	17	6.6	9.8	3	2	51
Flint	17	6.0	6.6	2	5	26
Fort Worth	33	10.3	9.2	4	2	
White	27		8.3	3	2	
Colored	6	(4)	16.0	1	0	
Grand Rapids	23	7.3	12.2	3	0	45
Houston	80			11	4	
White	55			8	3	
Colored	25	(4)		3	1	
Indianapolis	90	12.3	14.5	10	9	76
White	80		13.0	10	9	87
Colored	10	(4)	25.6	0	0	0
Jersey City	68	10.9	8.8	14	6	105
Kansas City, Kans	24	10.6	12.4	2	2	42
White	20		9.7	2	0	49
Colored	4	(4)	24.6	0	2	0
Kansas City, Mo	99	13.2	12.0	11	6	78
Knoxville	34	16.9	16.9	1	4	22
White	30		18.0	0	3	0
Colored	4	(4)	8.5	1	1	213
Los Angeles	249			26	32	74
Louisville	139	22.1	11.7	11	7	92
White	109		10.2	9	5	86
Colored	30	(4)	20.3	2	2	138
Lowell	22	10.4	13.7	2	4	42
Lynn	22	10.9	11.4	4	1	101
Memphis	74	20.3	20.4	9	9	105
White	30		14.0	5	5	94
Colored	44	(4)	32.1	4	4	125
Milwaukee	96	9.2	9.0	22	12	98
Minneapolis	67	7.7	10.2	4	8	24
Nashville	50	18.9	21.9	8	6	126
White	28		19.0	5	4	107
Colored	22	(4)	29.5	3	2	182
New Bedford	17	7.4	8.3	1	5	24
New Haven	29	8.1	9.6	1	3	10

See footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended July 28, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927—Continued

City	Week ended July 28, 1928		Annual death rate per 1,000, corresponding week, 1927	Deaths under 1 year		Infant mortality rate, week ended July 28, 1928 [2]
	Total deaths	Death rate [1]		Week ended July 28, 1928	Corresponding week, 1927	
New Orleans	122	14.9	15.8	10	21	48
White	63		11.5	6	7	44
Colored	59	(4)	28.4	4	14	58
New York	1,141	9.9	10.1	113	120	46
Bronx Borough	147	8.1	7.1	10	4	30
Brooklyn Borough	414	9.4	8.9	49	56	49
Manhattan Borough	423	12.6	14.0	43	47	51
Queens Borough	110	6.7	6.7	7	8	28
Richmond Borough	47	16.3	16.7	4	5	72
Newark, N. J	90	9.9	7.7	11	5	57
Oakland	56	10.7	11.1	2	2	22
Oklahoma City	39			9	7	
Omaha	41	9.6	7.6	2	3	23
Paterson	23	8.3	14.1	1	1	17
Philadelphia	461	11.7	9.3	46	35	62
Pittsburgh	129	10.0	10.0	10	14	33
Portland, Oreg	76			2	6	21
Providence	61	11.1	8.0	5	7	41
Richmond	55	14.8	12.8	8	4	104
White	28		8.4	3	0	61
Colored	27	(4)	23.4	5	4	184
Rochester	61	9.7	10.0	5	4	41
St. Louis	232	14.3	12.1	25	19	84
St. Paul	41	8.5	8.8	2	4	19
Salt Lake City [3]	32	12.1	13.1	1	5	16
San Diego	35	15.3	17.2	3	4	57
San Francisco	142	12.7	10.9	7	7	44
Schenectady	18	10.1	5.0	2	1	63
Seattle	81	11.1	9.4	4	3	41
Somerville	14	7.1	8.2	2	1	69
Spokane	32	15.3	11.0	0	2	0
Springfield, Mass	18	6.3	8.8	1	1	16
Syracuse	38	10.0	10.3	8	7	97
Tacoma	31	14.7	11.7	1	1	26
Toledo	62	10.4	8.9	4	7	38
Trenton	26	9.8	10.7	2	3	34
Washington, D. C	115	10.9	12.2	11	10	63
White	61		9.9	4	7	33
Colored	54	(4)	18.8	7	3	129
Waterbury	11			3	2	87
Wilmington, Del	25	10.2	5.8	2	3	53
Worcester	37	9.8	9.6	2	6	24
Yonkers	17	7.3	5.3	1	2	23
Youngstown	29	8.7	9.8	3	1	40

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Deaths for week ended Friday, July 27, 1928.
[4] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

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

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended August 4, 1928, and August 6, 1927

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 4, 1928, and August 6, 1927

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 4, 1928	Week ended Aug. 6, 1927	Week ended Aug. 4, 1928	Week ended Aug. 6, 1927	Week ended Aug. 4, 1928	Week ended Aug. 6, 1927	Week ended Aug. 4, 1928	Week ended Aug. 6, 1927
New England States:								
Maine	1	0		1	40	14	0	0
New Hampshire	1		10		11		0	
Vermont		1		0	15	24	0	0
Massachusetts	29	43	4	2	133	85	3	0
Rhode Island	7	3	2	0	176	0	0	0
Connecticut	16	17	4	1	67	19	1	0
Middle Atlantic States:								
New York	134	150	[1]3	[1]2	363	135	15	4
New Jersey	52	61	2	1	98	4	3	1
Pennsylvania	103	121			487	140	7	3
East North Central States:								
Ohio	23		7		195		4	
Indiana	11	20		3	30	10	0	0
Illinois	72	59	24	1	49	38	4	8
Michigan	61	33		2	63	39	4	1
Wisconsin	17	35	15	7	18	116	2	10
West North Central States:								
Minnesota	23	14	1	0	1	8	5	2
Iowa	9	15			6	5	1	1
Missouri	15	14		2	11	11	4	1
North Dakota	9	7			4	10	1	1
South Dakota	1	2	32	0	20	21	0	0
Nebraska	8	1		0	7	35	0	0
Kansas	7	4		8	14	37	2	3
South Atlantic States:								
Delaware		0		0		0		0
Maryland [2]	14	17	3	3	15	11	1	0
District of Columbia	13	10		0	19	0	0	0
Virginia								
West Virginia	8	9	7	0	9	23	1	0
North Carolina	14	34			13	130	1	2
South Carolina	11	29	154	119	8	84	0	0
Georgia		16	47	24	9	7	2	1
Florida	15	4	46	8	13	3	2	0
East South Central States:								
Kentucky	6				13		0	
Tennessee	5	9	10	4	12	13	0	1
Alabama	10	17	37	7	6	32	0	0
Mississippi	3	7					0	0

[1] New York City only.

[2] Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 4, 1928, and August 6, 1927—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 4, 1928	Week ended Aug. 6, 1927	Week ended Aug. 4, 1928	Week ended Aug. 6, 1927	Week ended Aug. 4, 1928	Week ended Aug. 6, 1927	Week ended Aug. 4, 1928	Week ended Aug. 6, 1927
West South Central States:								
Arkansas	1	4	7	0	5	14	0	0
Louisiana	8	18	4	1	16	5	0	1
Oklahoma [3]	3	14	44	8	6	63	1	1
Texas	15	23	4	35	6	14	2	1
Mountain States:								
Montana	3	3	----	0	28	3	2	2
Idaho	----	0	----	0	----	0	0	0
Wyoming	1	1	----	0	----	4	0	0
Colorado	6	13	----	0	10	16	2	1
New Mexico	2	12	1	0	----	14	0	0
Arizona	2	1	----	0	8	2	0	0
Utah [2]	1	6	1	0	----	1	0	0
Pacific States:								
Washington	10	10	----	0	16	75	0	1
Oregon	6	6	5	2	14	6	0	0
California	49	72	10	2	20	58	4	6

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 4, 1928	Week ended Aug. 6, 1927	Week ended Aug. 4, 1928	Week ended Aug. 6, 1927	Week ended Aug. 4, 1928	Week ended Aug. 6, 1927	Week ended Aug. 4, 1928	Week ended Aug. 6, 1927
New England States:								
Maine	1	0	10	13	0	0	2	1
New Hampshire	2	----	6	----	0	----	1	----
Vermont	0	0	0	4	0	0	0	1
Massachusetts	25	10	84	82	0	0	9	6
Rhode Island	0	0	4	9	0	0	0	4
Connecticut	3	11	10	10	0	0	0	1
Middle Atlantic States:								
New York	51	25	75	115	0	3	36	26
New Jersey	4	17	19	31	0	0	13	12
Pennsylvania	4	5	103	112	1	1	54	52
East North Central States:								
Ohio	4	----	35	----	14	----	51	----
Indiana	0	2	25	18	16	28	13	12
Illinois	3	6	61	72	7	9	21	37
Michigan	1	3	64	77	14	15	6	9
Wisconsin	2	2	72	44	9	18	3	6
West North Central States:								
Minnesota	4	1	46	32	0	0	1	9
Iowa	1	0	19	13	11	10	3	1
Missouri	0	15	12	22	2	0	12	13
North Dakota	20	0	22	22	0	0	1	2
South Dakota	0	0	11	14	10	6	1	0
Nebraska	1	0	19	9	11	5	3	1
Kansas	0	4	32	27	12	6	19	21
South Atlantic States:								
Delaware	----	0	----	0	----	0	----	1
Maryland [2]	5	0	15	13	0	0	19	24
District of Columbia	1	0	5	1	0	1	0	5
Virginia	4	2	----	0	0	2	0	0
West Virginia	2	0	11	15	1	8	0	30
North Carolina	3	0	26	16	12	13	83	70
South Carolina	4	2	0	14	3	10	93	89
Georgia	0	1	4	13	0	1	53	93
Florida	1	0	5	3	0	0	4	9
East South Central States:								
Kentucky	3	----	22	----	0	----	4	----
Tennessee	2	1	5	15	0	3	69	144
Alabama	1	0	2	15	6	4	66	92
Mississippi	1	0	4	1	0	2	29	20
West South Central States:								
Arkansas	0	1	0	1	0	2	42	48
Louisiana	0	3	10	5	0	6	34	26
Oklahoma [3]	1	8	12	8	13	12	57	101
Texas	0	10	7	11	2	10	23	28

[2] Week ended Friday.

[3] Exclusive of Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 4, 1928, and August 6, 1927—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 4, 1928	Week ended Aug. 6, 1927	Week ended Aug. 4, 1928	Week ended Aug. 6, 1927	Week ended Aug. 4, 1928	Week ended Aug. 6, 1927	Week ended Aug. 4, 1928	Week ended Aug. 6, 1927
Mountain States:								
Montana	0	1	2	14	10	3	8	7
Idaho	0	0	1	1	2	2	0	4
Wyoming	0	1	2	2	0	1	0	0
Colorado	3	0	15	20	0	2	1	6
New Mexico	2	9	6	12	0	0	5	8
Arizona	0	0	0	1	1	0	3	1
Utah [1]	0	1	7	8	0	1	0	3
Pacific States:								
Washington	24	0	13	18	3	16	7	4
Oregon	2	2	8	7	17	5	12	4
California	6	56	49	68	12	6	16	12

[1] Week ended Friday.

Report for Week Ended July 28, 1928

DISTRICT OF COLUMBIA	Cases
Diphtheria	19
Measles	17
Scarlet fever	6
Typhoid fever	1

Report for Week Ended July 21, 1928

NEW HAMPSHIRE	Cases
Diphtheria	2
Influenza	7
Measles	17
Meningococcus meningitis	1
Scarlet fever	5

Report for Week Ended July 7, 1928

NEW HAMPSHIRE	Cases
Influenza	4
Measles	33
Poliomyelitis	4
Scarlet fever	4

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
June, 1928										
Kansas	3	26	3	3	282	-------	1	171	266	14
Mississippi	1	24	2,691	9,766	1,484	2,869	5	18	17	149
New Hampshire	0	2	42	-------	-------	-------	1	51	0	0
Oklahoma [1]	6	41	138	398	493	112	4	107	278	84
Oregon	0	25	34	-------	174	1	4	49	127	12
Virginia	6	44	925	87	1,513	61	4	78	20	79
Washington	9	46	25	-------	264	-------	4	99	84	25

[1] Exclusive of Oklahoma City and Tulsa.

June, 1928

	Cases
Anthrax:	
Mississippi	1
Chicken pox:	
Kansas	156
Mississippi	326
Oklahoma [1]	26
Oregon	133
Virginia	282
Washington	330
Dengue:	
Mississippi	15
Dysentery:	
Mississippi (amebic)	383
Mississippi (bacillary)	4,429
Oklahoma [1]	106
Virginia	594
Washington	1
German measles:	
Kansas	38
Washington	35
Hookworm disease:	
Mississippi	322
Virginia	3
Impetigo contagiosa:	
Oregon	3
Washington	5
Leprosy:	
Washington	1
Lethargic encephalitis:	
Oregon	1
Washington	7
Mumps:	
Kansas	230
Mississippi	557
Oklahoma [1]	60
Oregon	53
Washington	164
Ophthalmia neonatorum:	Cases
Mississippi	9
Oklahoma [1]	1
Paratyphoid fever:	
Oregon	1
Puerperal septicemia:	
Mississippi	87
Rabies (in animals):	
Mississippi	14
Rocky Mountain spotted or tick fever:	
Oregon	4
Scabies:	
Oklahoma [1]	1
Oregon	4
Washington	2
Septic sore throat:	
Kansas	1
Oklahoma [1]	7
Oregon	7
Tetanus	
Oklahoma [1]	1
Trachoma:	
Mississippi	7
Oklahoma [1]	8
Tularaemia:	
Oregon	1
Undulant (Malta) fever:	
Kansas	4
Oregon	(2)
Vincent's angina:	
Kansas	5
Whooping cough:	
Kansas	375
Mississippi	1,390
Oklahoma [1]	139
Oregon	11
Virginia	361
Washington	68

[1] Exclusive of Oklahoma City and Tulsa.

[2] A number of cases reported.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 100 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,470,000. The estimated population of the 94 cities reporting deaths is more than 30,775,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Week ended July 21, 1928, and July 23, 1927

	1928	1927	Estimated expectancy
Cases reported			
Diphtheria:			
42 States	786	1,026	----------
100 cities	418	546	530
Measles:			
41 States	3,298	2,281	----------
100 cities	987	640	----------
Poliomyelitis, 42 States	65	146	----------
Scarlet fever:			
42 States	883	1,173	----------
100 cities	341	380	317
Smallpox:			
42 States	363	308	----------
100 cities	23	61	43
Typhoid fever:			
42 States	698	1,055	----------
100 cities	109	116	129
Deaths reported			
Influenza and pneumonia, 94 cities	360	341	----------
Smallpox:			
94 cities	0	1	----------
St. Joseph, Mo	0	1	----------

City reports for week ended July 21, 1928

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible but no year earlier than 1919 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population, July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	76,400	2	1	2	0	0	0	5	1
New Hampshire:									
Concord	[1] 22,546	0	0	0	0	0	1	0	0
Vermont:									
Barre	[1] 10,008	0	0	0	0	0	0	0	0
Massachusetts:									
Boston	787,000	12	33	9	6	3	17	0	10
Fall River	131,000	0	2	0	0	0	31	0	1
Springfield	145,000	1	1	2	1	1	6	2	1
Worcester	193,000	0	2	0	0	0	17	5	1
Rhode Island:									
Pawtucket	71,000	0	0	1	0	0	0	0	1
Providence	275,000	0	3	3	0	0	103	0	3
Connecticut:									
Bridgeport	[2]	2	3	0	0	0	14	0	0
Hartford	164,000	1	2	2	0	0	24	0	3
New Haven	182,000	0	1	1	0	0	6	1	3
MIDDLE ATLANTIC									
New York:									
Buffalo	544,000	5	7	4	----	0	3	9	10
New York	5,924,000	35	137	127	0	4	236	11	74
Rochester	321,000	2	5	6	----	0	39	3	3
Syracuse	185,000	18	3	2	----	0	22	3	0
New Jersey:									
Camden	131,000	0	3	3	0	0	2	1	1
Newark	459,000	12	7	18	1	0	16	2	6
Trenton	134,000	2	1	1	0	0	7	0	0
Pennsylvania:									
Philadelphia	2,008,000	19	40	15	0	4	80	8	16
Pittsburgh	637,000	6	13	6	0	1	10	11	11
Reading	114,000	0	1	2	0	0	2	0	2
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	411,000	1	4	6	5	0	5	0	4
Cleveland	960,000	17	20	9	0	1	90	11	9
Columbus	285,000	7	2	3	1	1	21	0	0
Toledo	295,000	5	3	0	0	0	13	0	1
Indiana:									
Fort Wayne	99,900	2	1	2	0	0	0	0	3
Indianapolis	367,000	6	3	2	0	0	15	9	4
South Bend	81,700	0	0	0	0	0	1	1	1
Terre Haute	71,900	0	0	1	0	0	0	0	2
Illinois:									
Chicago	3,048,000	67	49	54	3	2	34	10	41
Springfield	64,700	0	0	0	0	0	0	1	0
Michigan:									
Detroit	[3] 1,242,044	32	30	27	1	1	42	3	11
Flint	136,000	0	3	1	0	0	4	0	3
Grand Rapids	156,000	0	2	0	0	0	6	1	2

[1] Estimated, July 1, 1925 [2] No estimate made. [3] Special census.

City reports for week ended July 21, 1928—Continued

Division, State, and city	Population, July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued									
Wisconsin:									
Kenosha	52,700	4	1	1	0	0	0	1	0
Milwaukee	517,000	24	9	11	0	3	4	3	6
Racine	69,400	2	1	0	0	0	0	0	1
Superior	[1] 39,671	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	113,000	5	0	0	0	0	0	0	1
Minneapolis	434,000	12	10	4	0	1	4	2	3
St. Paul	248,000	2	7	2	0	0	1	1	7
Iowa:									
Davenport	[1] 52,469	20	0	0	0	-------	0	0	-------
Des Moines	146,000	0	1	0	0	-------	0	0	-------
Sioux City	78,000	0	1	0	0	-------	0	1	-------
Waterloo	36,900	9	0	0	0	-------	3	1	-------
Missouri:									
Kansas City	375,000	2	2	2	0	0	4	1	0
St. Joseph	78,400	0	1	0	0	0	2	0	1
St. Louis	830,000	1	18	18	0	0	12	4	-------
North Dakota:									
Fargo	[1] 26,403	0	0	0	0	0	0	0	0
Grand Forks	[1] 14,811	0	0	0	0	-------	0	1	-------
South Dakota:									
Aberdeen	[1] 15,036	1	0	0	0	-------	0	0	-------
Sioux Falls	[1] 30,127	0	0	0	-------	-------	1	0	-------
Nebraska:									
Lincoln	62,000	1	0	2	0	0	1	2	0
Omaha	216,000	0	2	1	0	0	0	0	1
Kansas:									
Topeka	56,500	3	1	0	0	0	6	1	0
Wichita	92,500	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Delaware:									
Wilmington	124,000	0	0	1	0	0	6	0	1
Maryland:									
Baltimore	808,000	12	11	7	1	0	6	14	12
Cumberland	[1] 33,714	1	0	0	0	0	1	0	0
Frederick	[1] 12,035	0	0	0	0	0	1	0	1
District of Columbia:									
Washington	528,000	1	4	11	0	0	28	0	5
Virginia:									
Lynchburg	30,500	0	0	0	0	0	0	0	0
Norfolk	174,000	0	1	0	0	0	0	0	3
Richmond	189,000	0	2	3	0	0	3	0	0
Roanoke	61,900	2	0	0	0	0	0	0	1
West Virginia:									
Charleston	50,700	0	1	0	0	0	1	0	0
Wheeling	[1] 56,208	3	0	0	0	0	2	1	0
North Carolina:									
Raleigh	[1] 30,371	0	0	0	0	0	1	0	0
Wilmington	37,700	2	0	0	0	0	0	0	0
Winston-Salem	71,800	0	0	0	0	0	0	1	2
South Carolina:									
Charleston	74,100	0	0	0	30	0	2	0	0
Columbia	41,800	0	0	0	0	0	0	5	1
Greenville	[1] 27,311	0	0	0	0	0	0	0	0
Georgia:									
Atlanta	[2]	0	2	2	4	1	0	0	0
Brunswick	[1] 16,809	0	0	0	0	0	0	0	1
Savannah	94,900	0	1	1	3	1	0	0	0
Florida:									
Miami	[3] 131,286	0	2	0	8	0	0	0	1
St. Petersburg	47,629	-------	0	-------	-------	0	-------	-------	0
Tampa	102,000	1	0	1	24	2	0	0	2

[1] Estimated, July 1, 1925. [2] No estimate made. [3] Special census.

City reports for week ended July 21, 1928—Continued

Division, State, and city	Population, July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,500	0	1	0	0	0	0	0	1
Louisville	311,000	0	1	0	1	0	5	0	2
Tennessee:									
Memphis	177,000	1	1	1	0	0	1	2	2
Nashville	137,000	1	1	1	0	0	4	1	3
Alabama:									
Birmingham	211,000	3	1	2	0	0	6	0	2
Mobile	66,800	0	0	1	1	0	0	0	0
Montgomery	47,000	0	0	0	0	-------	0	0	-------
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	[1] 31,643	0	0	0	0	-------	0	1	-------
Little Rock	75,900	1	0	0	0	0	1	0	0
Louisiana:									
New Orleans	419,000	0	4	11	2	1	0	0	8
Shreveport	59,500	1	1	0	0	0	0	1	0
Oklahoma:									
Oklahoma City	[2]	0	1	0	3	1	0	0	1
Texas:									
Dallas	203,000	0	2	1	0	0	0	0	1
Fort Worth	159,000	0	2	0	0	0	0	0	1
Galveston	49,100	0	0	0	1	0	0	0	0
Houston	[1] 164,954	0	2	2	0	0	0	0	4
San Antonio	205,000	0	1	0	0	0	0	0	0
MOUNTAIN									
Montana:									
Billings	[1] 17,971	1	0	0	0	0	0	0	2
Great Falls	[1] 29,883	0	1	0	0	0	6	0	0
Helena	[1] 12,037	0	0	0	0	0	0	0	0
Missoula	[1] 12,668	1	0	0	0	0	0	0	0
Idaho:									
Boise	[1] 23,042	0	0	0	0	0	0	0	0
Colorado:									
Denver	285,000	9	9	4	-------	1	8	11	4
Pueblo	43,900	3	1	0	0	0	7	0	1
New Mexico:									
Albuquerque	[1] 21,000	0	1	1	1	0	0	0	0
Utah:									
Salt Lake City	133,000	13	2	0	0	0	0	0	2
Nevada:									
Reno	[1] 12,665	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	[2]	16	3	0	0	-------	2	1	-------
Spokane	109,000	6	0	1	0	-------	0	0	-------
Tacoma	106,000	3	2	0	0	0	0	8	1
California:									
Los Angeles	[2]	19	33	14	3	0	2	11	17
Sacramento	73,400	2	2	3	0	1	1	1	3
San Francisco	567,000	13	9	3	1	0	3	1	9

[1] Estimated, July 1, 1925.

[2] No estimate made.

City reports for week ended July 21, 1928—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	0	1	0	0	0	0	0	1	0	1	18
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	8
Vermont:											
Barre	0	8	0	0	0	1	0	0	0	0	1
Massachusetts:											
Boston	21	14	0	0	0	7	2	0	0	18	171
Fall River	1	1	0	0	0	1	1	0	0	2	16
Springfield	2	1	0	0	0	2	0	0	0	0	44
Worcester	2	2	0	0	0	2	0	0	0	4	46
Rhode Island:											
Pawtucket	1	2	0	0	0	0	0	0	0	0	14
Providence	3	2	0	0	0	8	0	0	0	2	75
Connecticut:											
Bridgeport	2	0	0	0	0	2	0	2	0	7	26
Hartford	2	3	0	0	0	1	0	0	0	5	29
New Haven	1	0	0	0	0	2	0	0	0	7	29
MIDDLE ATLANTIC											
New York:											
Buffalo	7	6	0	0	0	11	0	1	0	0	120
New York	44	34	0	0	0	90	21	12	1	112	1,262
Rochester	3	2	0	0	0	2	0	0	0	3	60
Syracuse	2	1	0	0	0	1	0	0	0	5	40
New Jersey:											
Camden	1	0	0	0	0	2	0	0	0	1	30
Newark	6	1	0	0	0	10	1	0	0	49	85
Trenton	0	1	1	0	0	5	0	4	0	2	34
Pennsylvania:											
Philadelphia	25	18	0	0	0	32	6	2	1	91	418
Pittsburgh	11	4	0	0	0	6	2	6	2	26	146
Reading	0	0	0	0	0	2	0	0	0	24	23
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	4	7	1	0	0	14	1	0	0	7	137
Cleveland	13	7	1	0	0	14	2	2	0	74	198
Columbus	2	1	0	0	0	0	1	0	0	1	59
Toledo	3	4	1	0	0	2	1	0	1	33	64
Indiana:											
Fort Wayne	1	0	0	0	0	1	1	0	0	0	22
Indianapolis	2	1	2	1	0	5	0	0	0	1	80
South Bend	0	0	0	0	0	0	0	0	0	3	7
Terre Haute	1	1	0	1	0	0	0	3	0	0	15
Illinois:											
Chicago	34	53	1	0	0	53	5	2	0	79	691
Springfield	0	3	0	1	0	1	0	1	0	17	18
Michigan:											
Detroit	27	38	2	0	0	27	4	1	0	106	250
Flint	2	8	1	1	0	0	0	1	0	5	24
Grand Rapids	4	1	0	0	0	0	0	0	0	7	23
Wisconsin:											
Kenosha	2	0	0	0	0	0	0	0	0	3	11
Milwaukee	8	10	1	0	0	6	0	0	0	87	94
Racine	1	0	0	0	0	1	0	0	0	4	12
Superior	1	5	1	0	0	0	0	0	0	0	-------
WEST NORTH CENTRAL											
Minnesota:											
Duluth	3	7	0	0	0	0	1	1	0	0	15
Minneapolis	11	5	2	0	0	1	0	0	0	1	78
St. Paul	6	0	2	0	0	1	1	0	0	27	51
Iowa:											
Davenport	0	0	1	3	-------	-------	0	0	-------	0	-------
Des Moines	1	1	0	0	-------	-------	0	0	-------	0	27
Sioux City	1	0	0	0	-------	-------	0	0	-------	2	-------
Waterloo	1	3	0	0	-------	-------	0	0	-------	2	-------

City reports for week ended July 21, 1928—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST NORTH CENTRAL—CON.											
Missouri:											
Kansas City	2	8	0	0	0	7	1	3	0	11	106
St. Joseph	0	3	0	1	0	1	1	0	0	0	24
St. Louis	6	9	1	2	0	7	5	0	0	23	203
North Dakota:											
Fargo	0	0	0	0	0	0	0	1	0	0	6
Grand Forks	0	2	0	0	---	---	0	0	---	0	---
South Dakota:											
Aberdeen	1	0	0	0	---	---	0	0	---	0	---
Sioux Falls	0	0	0	0	---	---	0	0	---	0	6
Nebraska:											
Lincoln	0	2	0	0	0	0	1	1	0	2	11
Omaha	1	2	1	0	0	2	0	0	0	1	44
Kansas:											
Topeka	0	0	1	2	0	1	0	0	0	2	19
Wichita	0	0	0	2	0	2	0	1	0	0	27
SOUTH ATLANTIC											
Delaware:											
Wilmington	0	1	0	0	0	1	0	0	1	1	22
Maryland:											
Baltimore	7	4	0	0	0	11	6	5	0	108	198
Cumberland	1	0	0	0	0	1	1	1	0	0	17
Frederick	0	0	0	0	0	0	0	0	0	0	2
District of Columbia:											
Washington	4	4	0	0	0	9	3	0	0	7	115
Virginia:											
Lynchburg	0	0	0	1	0	0	1	0	0	3	20
Norfolk	0	1	0	0	0	6	1	1	0	2	9
Richmond	1	0	0	0	0	7	2	1	0	2	60
Roanoke	1	1	1	0	0	0	2	1	0	0	16
West Virginia:											
Charleston	0	2	1	0	0	0	1	2	0	0	16
Wheeling	1	0	0	0	0	1	0	0	0	0	16
North Carolina:											
Raleigh	0	0	0	0	0	0	0	1	0	9	12
Wilmington	0	0	0	2	0	0	0	0	0	1	6
Winston-Salem	1	0	1	0	0	0	2	1	0	3	23
South Carolina:											
Charleston	0	0	1	0	0	2	1	1	0	1	25
Columbia	0	0	0	0	0	0	1	0	0	0	16
Greenville	0	0	1	0	0	0	2	0	0	0	5
Georgia:											
Atlanta	1	3	1	0	0	6	3	2	0	6	74
Brunswick	0	0	0	0	0	0	0	1	0	0	3
Savannah	0	0	0	0	0	0	2	0	1	0	30
Florida:											
Miami	0	1	0	0	0	0	0	1	0	0	20
St. Petersburg	0	---	0	---	0	0	0	---	0	---	13
Tampa	0	0	0	0	0	1	1	0	0	0	35
EAST SOUTH CENTRAL											
Kentucky:											
Covington	0	0	0	1	0	2	0	0	0	0	17
Louisville	1	7	0	0	0	3	5	0	1	0	76
Tennessee:											
Memphis	1	0	0	0	0	13	7	6	0	12	87
Nashville	0	1	0	1	0	4	6	5	0	0	52
Alabama:											
Birmingham	1	0	0	0	0	4	4	8	2	3	63
Mobile	0	0	0	0	0	1	1	1	0	0	25
Montgomery	0	1	0	0	---	---	2	0	---	0	---

City reports for week ended July 21, 1928—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0	----	----	0	0	----	3	----
Little Rock	0	0	0	0	0	3	1	0	0	0	----
Louisiana:											
New Orleans	2	4	0	0	0	8	4	2	0	0	130
Shreveport	0	1	0	0	0	2	1	5	0	3	37
Oklahoma:											
Oklahoma City	0	1	0	1	0	1	3	3	0	0	32
Texas:											
Dallas	1	0	1	1	0	0	4	3	0	22	45
Fort Worth	0	2	0	0	0	2	1	3	0	0	35
Galveston	0	0	0	0	0	2	0	0	0	0	12
Houston	1	0	1	0	0	5	1	0	1	4	61
San Antonio	0	3	0	0	0	12	1	3	0	0	67
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	0	0	0	0	0	7
Great Falls	0	0	0	1	0	0	0	0	0	4	4
Helena	0	0	0	0	0	0	0	0	0	0	6
Missoula	0	0	1	0	0	1	0	0	0	0	4
Idaho:											
Boise	0	0	1	0	0	0	0	0	0	0	3
Colorado:											
Denver	5	3	1	0	0	7	1	0	0	41	62
Pueblo	1	1	1	0	0	1	0	0	0	0	5
New Mexico:											
Albuquerque	0	0	0	0	0	3	0	0	0	0	11
Utah:											
Salt Lake City	1	1	1	1	0	4	0	0	0	10	----
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	4
PACIFIC											
Washington:											
Seattle	3	0	2	0	----	----	0	1	----	4	----
Spokane	1	8	3	4	----	----	0	0	----	0	----
Tacoma	1	0	2	0	0	0	0	0	0	0	24
California:											
Los Angeles	9	7	4	0	0	30	4	3	0	75	236
Sacramento	1	5	0	0	0	3	2	1	1	1	23
San Francisco	4	11	1	0	0	7	1	2	1	11	152

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	1	0	0	0	0	1	1	0
Connecticut:									
Hartford	0	0	0	0	0	0	0	1	0
MIDDLE ATLANTIC									
New York:[1]									
New York	29	11	5	3	0	0	4	17	5
New Jersey:									
Newark	1	0	2	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	0	0	1	1	0	0	1	0	0

[1] Typhus fever: 1 case at New York City, N. Y., 1 at Atlanta, Ga., 4 cases and one death at Savannah, Ga., and 2 cases at Miami, Fla.

City reports for week ended July 21, 1928—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cleveland	3	1	1	0	0	0	0	5	0
Toledo	1	0	0	0	0	0	0	0	0
Indiana:									
Indianapolis	0	1	0	0	0	0	0	0	0
Illinois:									
Chicago [2]	6	0	0	0	2	2	1	2	1
Michigan:									
Detroit	2	2	1	0	0	0	0	0	0
Wisconsin:									
Superior	1	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	1	0	0	0	0	0	0	0	0
St. Paul	1	1	0	0	0	0	0	0	0
Missouri:									
Kansas City	1	1	0	0	0	0	1	0	0
St. Louis	2	1	0	0	0	0	0	1	0
North Dakota:									
Fargo	0	1	0	0	0	0	0	1	0
Kansas:									
Topeka	0	0	0	1	0	0	0	0	0
SOUTH ATLANTIC [1]									
Maryland:									
Baltimore	0	0	0	0	0	0	1	3	0
Virginia:									
Lynchburg	0	0	0	0	0	1	0	1	0
Richmond	0	0	0	0	0	1	0	0	0
North Carolina:									
Raleigh	0	0	0	0	0	1	0	0	0
Winston-Salem	0	0	0	0	1	1	0	0	0
South Carolina:									
Columbia	0	0	0	0	0	1	0	0	0
Greenville	0	0	0	0	0	1	0	0	0
Georgia:									
Atlanta [1]	0	0	0	0	3	2	0	0	0
Brunswick	0	0	0	0	0	1	0	0	0
Savannah [1]	0	0	0	0	3	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	0	0	0	0	1	0	0	0	0
Nashville	0	0	0	0	3	1	0	0	0
Alabama:									
Birmingham	0	0	0	0	3	2	0	0	0
Mobile	0	0	0	0	2	1	0	0	0
Montgomery	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	1	1	0	0	0
Louisiana:									
New Orleans	1	0	0	0	3	1	0	0	0
Shreveport	0	0	0	0	0	3	0	0	0
Oklahoma:									
Oklahoma City	0	0	0	1	0	0	0	0	0
Texas:									
Dallas	0	0	0	0	1	1	1	0	0
Fort Worth	0	0	0	0	0	2	0	0	0
Houston	0	0	0	0	1	0	0	1	0
MOUNTAIN									
New Mexico:									
Albuquerque	0	0	0	1	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	0	0	0	0	0	0	0	1	0
Tacoma	1	1	0	0	0	0	0	0	0
California:									
Los Angeles	1	0	0	0	1	0	1	0	0
San Francisco	2	1	1	0	0	0	1	0	0

[1] Typhus fever: 1 case at New York City, N. Y., 1 at Atlanta, Ga., 4 cases and 1 death at Savannah, Ga., and 2 cases at Miami, Fla.
[2] Rabies (in man); 1 case and 1 death at Chicago, Ill.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended July 21, 1928, compared with those for a like period ended July 23, 1927. The population figures used in computing the rates are approximate estimates as of July 1, 1928 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 31,657,000 in 1928 and 31,050,000 in 1927. The 95 cities reporting deaths had nearly 30,961,000 estimated population in 1928 and nearly 30,370,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, June 17 to July 21, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	June 23, 1928	June 25, 1927	June 30, 1928	July 2, 1927	July 7, 1928	July 9, 1927	July 14, 1928	July 16, 1927	July 21, 1928	July 23, 1927
101 cities	117	161	[2] 114	140	86	121	[3] 84	114	69	[4] 92
New England	78	116	[5] 65	88	62	91	80	133	46	63
Middle Atlantic	185	269	186	212	147	196	116	164	90	105
East North Central	118	132	116	119	79	102	82	93	77	108
West North Central	62	46	53	59	29	38	53	53	53	53
South Atlantic	58	106	37	143	51	85	58	83	46	[4] 87
East South Central	25	35	10	20	15	41	[3] 7	35	25	25
West South Central	52	66	48	120	16	50	40	70	56	124
Mountain	35	152	[6] 18	126	27	108	71	81	35	99
Pacific	72	112	[7] 86	76	49	86	72	112	54	65

MEASLES CASE RATES

101 cities	653	301	[2] 498	271	322	198	[3] 265	154	163	[4] 108
New England	933	328	[5] 898	342	722	300	777	242	503	198
Middle Atlantic	1,102	247	653	200	455	154	349	122	203	92
East North Central	424	213	474	206	266	182	215	110	145	90
West North Central	341	216	382	204	171	93	117	105	62	48
South Atlantic	470	529	361	446	235	276	124	220	89	[4] 140
East South Central	449	132	150	81	65	76	[3] 233	61	80	25
West South Central	44	128	32	149	20	112	24	103	4	54
Mountain	336	448	[6] 406	493	354	134	239	170	186	99
Pacific	143	841	[7] 104	773	38	538	26	447	20	279

SCARLET FEVER CASE RATES

101 cities	143	189	[2] 105	128	74	99	[3] 52	84	56	[4] 64
New England	170	237	[5] 197	221	122	174	87	130	78	100
Middle Atlantic	146	222	100	148	58	123	37	91	33	50
East North Central	181	209	116	131	96	91	71	89	88	75
West North Central	138	158	113	89	90	91	35	71	72	79
South Atlantic	93	96	84	81	60	54	35	56	28	[4] 40
East South Central	85	81	65	56	75	46	[3] 51	30	45	30
West South Central	44	37	40	17	36	41	28	37	32	45
Mountain	27	439	[6] 72	287	27	117	62	224	44	99
Pacific	161	138	[7] 75	86	61	60	74	50	79	91

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1928 and 1927, respectively.
[2] Hartford, Conn., Helena, Mont., and San Francisco, Calif., not included.
[3] Louisville, Ky., not included.
[4] Norfolk, Va., not included.
[5] Hartford, Conn., not included.
[6] Helena, Mont., not included.
[7] San Francisco, Calif., not included.

Summary of weekly reports from cities, June 17 to July 21, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927—Continued

SMALLPOX CASE RATES

	Week ended—									
	June 23, 1928	June 25, 1927	June 30, 1928	July 2, 1927	July 7, 1928	July 9, 1927	July 14, 1928	July 16, 1927	July 21, 1928	July 23, 1927
101 cities	7	16	[2] 10	18	6	16	[3] 7	9	4	[4] 10
New England	0	0	[5] 0	0	0	0	0	0	0	0
Middle Atlantic	0	0	0	0	0	0	0	0	0	0
East North Central	9	12	9	21	6	15	7	17	3	13
West North Central	23	57	31	38	16	34	12	14	14	12
South Atlantic	4	29	2	18	7	23	0	9	5	[4] 12
East South Central	20	56	10	35	5	51	[3] 7	25	10	35
West South Central	24	12	8	12	4	0	4	8	4	8
Mountain	9	90	[6] 144	63	44	45	88	36	18	117
Pacific	15	21	[7] 29	73	15	73	31	13	10	21

TYPHOID FEVER CASE RATES

101 cities	7	11	[2] 16	15	14	16	[3] 17	21	18	[4] 20
New England	9	2	[5] 25	7	9	14	14	19	7	16
Middle Atlantic	1	4	8	6	9	8	9	11	12	8
East North Central	2	6	6	5	4	5	11	8	7	9
West North Central	4	6	12	8	8	10	16	16	12	14
South Atlantic	12	40	33	22	19	34	32	43	30	[4] 50
East South Central	40	61	100	132	70	162	[3] 73	152	100	122
West South Central	28	21	40	74	64	17	64	74	88	54
Mountain	0	18	[6] 27	9	9	18	9	27	0	27
Pacific	15	8	[7] 11	16	26	10	23	8	18	16

INFLUENZA DEATH RATES

95 cities	6	7	[2] 7	3	8	3	[3] 5	3	5	[4] 3
New England	5	5	[5] 5	5	9	2	5	5	9	0
Middle Atlantic	9	6	6	2	10	4	3	2	4	4
East North Central	6	5	5	3	3	3	4	1	5	2
West North Central	0	10	8	2	8	0	4	2	2	2
South Atlantic	7	2	5	5	5	4	7	5	7	[4] 2
East South Central	5	27	37	0	21	16	[3] 8	5	0	16
West South Central	4	4	12	4	25	0	25	8	4	0
Mountain	0	27	[6] 18	9	18	0	18	9	9	9
Pacific	3	10	[7] 5	3	0	3	10	7	3	3

PNEUMONIA DEATH RATES

95 cities	85	74	[2] 75	73	70	59	[3] 60	56	56	[4] 56
New England	90	86	[5] 67	60	51	60	67	56	55	56
Middle Atlantic	110	85	89	71	89	63	72	61	60	59
East North Central	60	71	63	80	67	49	54	45	57	55
West North Central	43	52	47	77	37	54	26	31	26	21
South Atlantic	93	45	72	56	56	58	[3] 49	61	51	[4] 73
East South Central	78	58	110	101	68	85	78	69	52	48
West South Central	86	42	70	72	57	64	70	68	53	64
Mountain	115	54	[6] 63	90	53	99	62	63	80	45
Pacific	84	131	[7] 103	69	78	55	54	97	81	72

[2] Hartford, Conn., Helena, Mont., and San Francisco, Calif., not included.
[3] Louisville, Ky., not included.
[4] Norfolk, Va., not included.
[5] Hartford, Conn., not included.
[6] Helena, Mont., not included.
[7] San Francisco, Calif., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1928, and 1927, respectively

Groups of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1928	1927	1928	1927
Total	101	95	31,657,000	31,050,300	30,960,700	30,369,500
New England	12	12	2,274,400	2,242,700	2,274,400	2,242,700
Middle Atlantic	10	10	10,732,400	10,594,700	10,732,400	10,594,700
East North Central	16	16	7,991,400	7,820,700	7,991,400	7,820,700
West North Central	12	10	2,683,500	2,634,500	2,566,400	2,518,500
South Atlantic	21	21	2,981,900	2,890,700	2,981,900	2,890,700
East South Central	7	6	1,048,300	1,028,300	1,000,100	980,700
West South Central	8	7	1,307,600	1,260,700	1,274,100	1,227,800
Mountain	9	9	591,100	581,600	591,100	581,600
Pacific	6	4	2,046,400	1,996,400	1,548,900	1,512,100

FOREIGN AND INSULAR

THE FAR EAST

Report for the week ended July 14, 1928.—The following report for the week ended July 14, 1928, was transmitted by the eastern bureau of the health section of the secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Plague, cholera, or smallpox was reported present in the following ports:

PLAGUE

Inaia.—Bassein, Rangoon.

CHOLERA

India.—Calcutta, Madras, Vizagapatam.
French India.—Pondicherry.
Siam.—Bangkok.
French Indo-China.—Pnompenh.
China.—Canton.

SMALLPOX

India.—Bombay, Calcutta, Madras, Rangoon, Negapatam, Moulmein, Vizagapatam.
French India.—Pondicherry.
Dutch East Indies.—Belawan Deli, Palembang.
China.—Hong Kong, Shanghai.
Kwangtung.—Dairen, Port Arthur.

Returns for the week ended July 14 were not received from Colombo, Ceylon; Pontianak, Dutch East Indies; Haiphong, French Indo-China; nor Tamatave, Madagascar.

CANADA

Provinces—Two weeks ended July 14, 1928.—The Canadian Ministry of Health reports cases of certain communicable diseases in Canada for the weeks ended July 7 and July 14, 1928, as follows:

WEEK ENDED JULY 7, 1928

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Alberta	Total
Cerebrospinal fever			2	2			4
Influenza	23				1		24
Poliomyelitis				1		2	3
Smallpox			26	1			27
Typhoid fever		2	6	7		3	18

WEEK ENDED JULY 14, 1928

Disease	Nova Scotia	New Brunswick	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever			1				1
Influenza	16						16
Poliomyelitis						1	1
Smallpox			6		7	1	14
Typhoid fever	2	2	20	2	4	2	32

IRAQ

Plague—January to June, 1928.—Plague cases were reported in Iraq during the first six months of 1928 as follows:

	Cases
January	3
February	4
March	3
April	8
May	14
June	10
Total	42

The last case was notified on June 27. The total number of persons inoculated up to June 30, 1928, was 46,675, or 18.6 per cent of the population.

This year's outbreak and inoculations compared with those of previous years were as follows:

Year	Plague cases	Inoculations	Year	Plague cases	Inoculations
1924	214	95,157	1927	17	4,711
1925	18	3,156	1928 (to June 30)	42	46,675
1926	352	141,574			

On July 5 it was said that the Persian authorities still required of all travelers entering Persia from Baghdad an antiplague inoculation certificate at least one week old.

VIRGIN ISLANDS

Communicable diseases—June, 1928.—During the month of June, 1928, cases of communicable diseases were reported in the Virgin Islands of the United States as follows:

St. Thomas and St. John:	Cases
Chicken pox	1
Gonorrhea	5
Hookworm disease	1
Pellagra	3
Syphilis (secondary)	9
Tuberculosis	1
Whooping cough	8

St. Croix:	Cases
Gonorrhea	1
Hookworm disease	1
Syphilis (secondary)	5
Tuberculosis	1

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, health section of the League of Nations, and other sources. The reports contained in the following table must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given:

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Mar. 11–Apr. 7, 1928	Week ended— April, 1928			May, 1928				June, 1928					July, 1928	
					14	21	28	5	12	19	26	2	9	16	23	30	7	14
China:																		
Canton	C			1							1	1	1			1		2
	D			1							1	1	1			1		2
India	C	12,391	13,236	21,279	7,746	7,897	8,176	8,743	8,996	7,386	6,914							
	D	6,750	7,282	11,877	4,920	5,157	4,980	5,375	5,746	4,996	4,733							
Bassein	D	1	2	51	20	6	6	9	9	16	8	7		8				
Bombay	C	1	1	3					1									
	D		1	3													3	
Calcutta	C	203	341	664	163	131	152		200	126								
	D	112	241	442	111	97	105	115	126	102	92	90		85		58	45	
Madras	C	2	14	10	5	5	5	7	7	6	10	4		3	14	12		
	D	4	18	4	4	5	4	5	3	4	5	4	6	1	5	9		
Madras Presidency	C	4,681	2,961	1,483														
	D	2,660	1,618	812														
Negapatam	C	4	4															
	D	6	4		1			1								13		
Rangoon	C	6	29	22	5	10	7	1		4		3	8	2				
	D	2	18	16	2	7	5	1		3		2	5	2				
Tuticorin	C			10	43	45	19	3										
	D			9	26	32	10	3										
India (French):																		
Chandernagor	C	6	5	7														
	D	1	5	6														
Karikal	C	32	6		1													
	D	19	5		1													
Pondicherry	C	12	33	1	2	3	2	1										1
	D	10	19	1	2	3	2	1										1
Indo-China (see also table below):																		
Pnompenh	C																1	2
	D																1	2
Saigon	C	4	16	96	50	28	23	15	10		4	1	5	1				
	D	1	8	59	37	17	12	10	7		2		1					
Tourane	C													1				
	D													1				

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place		Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Mar. 11–Apr. 7, 1928	Week ended— April, 1928 14	21	28	May, 1928 5	12	19	26	June, 1928 2	9	16	23	30	July, 1928 7	14
Kwangchow-Wan (see table below).																		
Persian Gulf.[1]																		
Philippine Islands:																		
Cebu port.[2]																		
Manila[3]	C																	4
Siam	C	200	295	291	120	85	88	56	46	25						60	58	35
	D	139	214	218	84	61	63	26	29	18						48	39	29
Ayudhaya	C												2					
	D												1					
Bangkok	C	101	60	60		30	24	20	17	14	11	8	3	3	1		3	5
	D	66	36	33		13	14	8	6	9	7	4		2	2			2
Trad	C													1				
Straits Settlements: Singapore	C	3		2			1											
	D	1		2			1											
On vessel:																		
S. S. Hawaii Maru at Singapore from Saigon, French Indo-China	C			11														

Place		July–September, 1927	October–December, 1927	January, 1928	February, 1928	March, 1928 1–10	11–20	21–31	April, 1928 1–10	11–20	21–30	May, 1928 1–10	11–20	21–31	June, 1928 1–10	11–20	21–30
Indo-China (French) (see also table above):																	
Annam	C	3,179	370	267	73	18	18	23	17	11	18	4	26	13	22	8	9
Cambodia	C	251	337	54	111	33	22	92	43	102	51	34	47	20	28	82	111
Cochin-China	C	469	391	295	444	206	217	245	277	316	240	140	139	125	143	109	77
Laos	C	246	77														
Tonkin	C	1,297	3	1					1	4	1	9	1	16	8	2	1
Kwangchow-Wan	C	16											16				

[1] A case of cholera was reported, July 19, 1928, on the island of Hengam, in the Persian Gulf.
[2] A case of suspected cholera was reported, July 25, 1928, at the port of Cebu, Philippine Islands.
[3] Another case of cholera was reported at Manila, Philippine Islands, during the week ended August 4, 1928.

Place		Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Mar. 11–Apr. 7, 1928	Week ended— April, 1928			May, 1928				June, 1928					July, 1928		
					14	21	28	5	12	19	26	2	9	16	23	30	7	14	21
Algeria (see also table below):																			
Algiers	C							1											
Oran	C								1				2						
Arabia: Aden	C	178	343	651	108	59	34	13	5	1	1				1				
	D	104	206	529	97	48	30	16	7	1	1				1				
Plague-infected rats		P	P																
Argentina:																			
Avellaneda	C											1							
	D											1							
Buenos Aires	C	2								6									
	D									3				1					
Cordoba Province	C				5														
Entre Rios	C												2	1		2			
Loreto	C											3							
Rosario	C	4	1								1						1		
Santa Fe	C												7	1	1		1		
Santiago del Estero	C		1										9	1			1		
Suardi	C											2							
Azores: St. Michaels Island	C	8	3	3		2	1	2		1			1						
	D	4	1	2		1	1			1			1						
Brazil:																			
Bahia	C	5	8	2	1														
	D	4	5																
Porto Alegre	C		2																
Rio de Janeiro	C	4	3	3															
	D	1	2	3															
Plague-infected rats		1																	
British East Africa (see also table below):																			
Tanganyiki	C	2	3																
	D	2	3		5		5										24		
Uganda	C	23	13								16	78	50						
	D	18	10								16	54	42						
Canary Islands:																			
Arrecife	C									1									
	D									1									
Lanzarote Village	C										1								
Las Palmas	C	1	1	4															
	D	1	1																
Teneriffe	C		10																
	D																		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Mar. 11–Apr. 7, 1928	Week ended— April, 1928			May, 1928				June, 1928					July, 1928		
					14	21	28	5	12	19	26	2	9	16	23	30	7	14	21
Ceylon: Colombo	C	3	11	7				1	1	2		1	2						
	D	2	6	5				1	1	1			2						
Plague-infected rats		5	6																
China:																			
Amoy	C								1	1	2	1							
Hong Kong	C							2							1				
	D														1				
Dutch East Indies:																			
Celebes—Makassar	C	5	1																
	D	5	1																
Java	D	737	454																
Batavia and West Java	C	137	103	80	13	10	14	10	25	17	9	14	22						
	D	135	103	80	13	10	14	10	25	17	9	14	22						
Plague-infected rats				3	1	3	2	1	1	4	2	2	2	1		1			
East Java and Madura	C	7		4	1	2		1											
	D	7		4	1	2		1											
Kedoe Residency	C				P														
Surabaya Residency	C		1				1												
	D			1				1											
Ecuador (see also table below):																			
Alausi	C								1										
Egypt:																			
Alexandria	C	2	1								1						2		
	D	2	1								2								
Assiout Province	C																	1	1
	D																		1
Beni-Souef	C						4	8	4	14	34	17	14	3	4	4	11	3	5
	D						1	2	4	6	8	5	7		2			1	1
Maghagha District	C					1													
	D					1													
Menufia	C										6	5							
	D											2							
Minieh Province	C					32	9	7	13	15	36	12	22	23	21	10	1	11	
	D					5	4		5	2	9	1	9	5	7	3	1	2	
Sidi Barani	C																10	1	
	D																	7	

Suez	C	4	13	14		3	2			1	2								
	D	2	9		9	2	2			1									
Plague-infected rats				2															
Tanta	C									1							1		
	D									1									
Greece:																			
Corfu	C													1	14				
	D														3				
Patras	D																	1	
Hawaii Territory: Hawaii	D		1																
Hamakua—Plague-infected rats													1						
Honokaa—Plague-infected rats													1						
India	C	12,652	23,174	26,079	6,690	5,080	4,143	2,565	1,582	820	616	254	127						
	D	8,521	16,998	20,907	5,911	4,719	3,796	2,648	1,504	805	633	241	143						
Bassein	D	8	12	22	4	5	1	3	2			1	12	1	1			1	
Bombay	C	14	33	69	17		26		17	14	3	5	8	3	3				
	D	9	33	61	15	14	19	21	17	14	1	6	5	1	2				
Calcutta	D	1		2															
Madras Presidency	C	452	271	62	14	6		1	1	3	1	7	4						
	D	256	212	48	7	5						6	1						
Rangoon	C	35	48	30	5	2	5	4	3	3	4	4	3	8					
	D	30	43	26	5	1	3	5	3	3	5	4	3	8	10	7			
Vizagapatam	D															1			
Indo-China (see also table below).																			
Pnompenh	C																3		
	D																3		
Saigon	C													5					
	D													1					
Plague-infected rats														2					
Iraq:																			
Baghdad	C	4	2	5	1	4	4	2	4	3	4	2	3	2	3	1			
	D	2	2	5	1		4	1		1	1	1	1	1	1	1			
Plague-infected rats							4		3										
Dulaim Liwa	C	1			1														
Kwangchow-Wan (see table below).																			
Madagascar (see also table below):																			
Tamatave	C									1			1	6	5	8	3		
	D													4		4	3		
Nigeria (see also table below):																			
Lagos	C	10	8	7	2	6	7	2	4	8	6	10	11	10	14	8	15	14	
	D	11	8	6	2	7	7	2	4	8	6	10	10	10	14	8	15	14	
Paraguay: Asuncion	C													5					
	D													2			2		
Peru (see table below).																			
Portugal: Lisbon	C															1			
Senegal (see also table below):																			
Thies and vicinity	C			8								72	52						
	D			4								40	40						
Siam	C	20	42	33	6	11	8	2	3	6	6		1	3					
	D	12	36	30	4		6	3	2	5	4		2	2					

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Mar. 11–Apr. 7, 1928	Week ended—														
					April, 1928			May, 1928				June, 1928					July, 1928		
					14	21	28	5	12	19	26	2	9	16	23	30	7	14	21
Siam—Continued.																			
Ayudhaya	C												2				2		
	D												1				2		
Bangkok	C	2	1	1		3	1												
	D	2	1	1		2													
Nagara	C											1	2						
Straits Settlements: Singapore	C	1	3	1															
	D	1	2	1															
Syria (see also table below):																			
Beirut	C																2	1	1
Tunisia.[2]																			
Union of South Africa:																			
Cape Province	C	1																	
	D	1																	
Orange Free State	C	5	5	5															
	D	4	1	5															
Union of Soviet Socialist Republics:																			
Astrakhan—Axary District	C													3					
	D													2					
Venezuela: State of Miranda—Tacata and Cua	C		P																
On vessel:																			
S. S. Tymeric, at Barbados, from New Orleans	C										1								

[2] 8 cases of plague with 6 deaths were reported in Bengardane region, Tunisia, Mar. 17 to 27, 1928.

Place		October–December, 1927	January, 1928	February, 1928	March, 1928	April, 1928	May, 1928	June, 1928
Algeria (see also table above):								
Algiers	C	2					1	
Angola	C	3						
British East Africa (see also table above):								
Kenya	C	62	26	24	19	17	11	
	D					5		
Ecuador: Guayaquil	C	18	4	6	10		1	5
	D	5	4	3	1			2
Plague-infected rats		31	23	31	21		1	4
Indo-China (see also table above)	C	10	7		5	9	16	
Kwangchow-Wan	C				18	17	10	
Madagascar (see also table above)	C	692	427	342	171	95		104
	D	605	388	317	159	90		94
Ambositra Province	C	25	105	67	30	25		
	D	17	96	66	29	25		
Antisirabe Province	C	109	117	108	56	35		
	D	108	117	108	54	34		
Itasy Province	C	104	33	19	3	1		
	D	94	29	17	3	1		
Moramanga Province	C	95	19	25	12			
	D	83	19	24	12			

Place		October–December, 1927	January, 1928	February, 1928	March, 1928	April, 1928	May, 1928	June, 1928
Madagascar—Continued.								
Tananarive Province	C	408	155	123	70	34		
	D	354	129	102	61	30		
Nigeria (see also table above)	C	63	16	16				
	D	61	16	16				
Peru	C	34		41	52		20	
	D	11		14	9		4	
Callao	D	3						
Lima	C	7	6				4	
	D	3					2	
Senegal (see also table above)	C		5	17	8	81	216	
	D			13	4	40	115	
Rufisque	C						17	29
	D						9	22
Thies	C					30	72	243
	D					23	40	174
Tivaouane	C					51	105	169
	D					28	57	90
Syria: Beirut (see also table above)	C	2						

PLAGUE RATS ON VESSELS

S. S. *Modemi* at Goteborg, Sweden, from Bahia and Buenos Aires via Cape Verde Islands, December 22, 1927.
S. S. *Gydevore* at Landskrona, Sweden, from Rosario via Canary Islands, January 22, 1928.
S. S. *Dryden* at Liverpool from La Plata River ports, January 20, 1928.
S. S. *Sicily* at Liverpool from Buenos Aires and Rosario, June 8, 1928, 7 plague-infected rats.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place		Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Mar. 11–Apr. 7, 1928	Week ended— April, 1928			May, 1928				June, 1928					July, 1928	
					14	21	28	5	12	19	26	2	9	16	23	30	7	14
Algeria (see also table below)	C	71	72	3	12													
Algiers	C	15	10	5		2		2	1	1	3		1	7	4	3	1	
Oran	C	11	5	12	3	1	2	11	4	1				4				
Angola (see table below).																		
Arabia: Aden	C		1												1			
Brazil (see also table below):																		
Rio de Janeiro	C			1													1	
	D			1														
British East Africa (see also table below):																		
Kenya—Mombasa	C			2				1										
Tanganyiki	D	5																
British South Africa:																		
Northern Rhodesia	C	233	297	67	26	7	4	591	5	3	148	39	5	3	6			
	D	23	42	9	1	1	1	48	1	1	14	1	1					
Southern Rhodesia	C	3	7	7	21	3			13					13	4	19		
	D		1		10											4		
Canada:																		
Alberta	C	27	10	47	4	2	3	3	13	10	18	1	4	1		3		
Calgary	C			1														
Edmonton	C	3	13	20	2			1	12	10				1		2		1
British Columbia—Vancouver	C	26	10	17	11	6	1	6	4	2	5		1					
Manitoba	C	1						7		1	3		10					
Winnipeg	C	2																
New Brunswick	C		1							1				7				
Ontario	C	243	147	83	6	18	18	8	15	12	6	8	5	8	14	6		
Kingston	C	1			2		1											
Ottawa	C	68	22	26		3	1		4	2			1					
Toronto	C	20	14	9	2	4	4	1	2	7		3			3			
Quebec	C	26	54	112	21	25	4	33	13	31	15	19	21	14	14	32	21	9
Montreal	C	8	9	9		6	2	1			1	2	3	2	3	3	3	1
Quebec	C	16	13	10	3	7	5	8	7	17	9	14	17	11	10			
Sherbrooke	C			3										4				
Saskatchewan	C	97	22	33	2	23	15	12	12	13	3			4	3	9		
Moose Jaw	C	11	13	7	3					1							1	
Regina	C			3	3	2		3	1							1		
Saskatoon	C	15	2															

Ceylon: Colombo	C	4	6	1														
	D	1		1														
China:																		
Amoy	C		1	6	3	2	1	3	1		1	1						
Antung	C					1		2										
Canton	C		2	7	1	1			1		1							
Chefoo	C			P														
	D		1															
Foochow	C	P	P	P	P	P	P	P										
Hong Kong	C	2	7	32	4	4	9	8	8	10	3	9	9	2	2	1	3	3
	D	2	4	19	7	2	10	7	11	5	4	3	12	3		4	2	2
Manchuria—																		
Changchun	C	4			2		1	1	3			3						
Dairen	C	15	13	15	7	3	6		12	10	13		14	11	12	11	4	11
	D	8	7	8									7	4	2	7	4	4
Fushun	C												4	2				1
Harbin	C	5	7	7	2	3	2	3	14		11							
Kwantung	C														14			
Mukden	C	4	21	1		3	1					3	1	3	1	1		
Pensihu	C												1					
	D												1					
Port Arthur	D																	1
South Manchuria Railway Zone	C														5			
Shanghai—																		
Foreigners only	C	5	6	7		1	1	1	2	1	3		4					
Including natives	D	11	19	9	3	1	3	2	1	7	5	6	2	6	3		6	4
Tientsin	C	48	20	13	9	1	3	4	5	1	1	2	2	6				
Chosen (see table below).																		
Curacao (alastrim)	C	2	3															
Dominican Republic: Santo Domingo	C			2				1										
Dutch East Indies:																		
Balikpapan	C																7	
	D																2	
Belawan Deli	C														9	2		2
	D														3			1
Borneo—Pontianak	C		1															
Java—																		
Batavia and West Java	C	4	2	5	1				2									
East Java and Madura	C	2	9		1			1										
	D		1		2													
Sumatra—Medan	C	23	14	7				2		1	5	4		2				
	D	11	2	5	2			1		1	2	2						
Ecuador (see table below).																		
Egypt	C	1	2	52	11		1		1									
	D			33	6		1				1							
Behera Province	C																	1
Cairo	C	1																
France (see table below).																		
Gold Coast (see table below).																		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Mar. 11–Apr. 7, 1928	Week ended— April, 1928			May, 1928				June, 1928					July, 1928	
					14	21	28	5	12	19	26	2	9	16	23	30	7	14
Great Britain:																		
England and Wales	C	1,530	1,473	1,341	321	326	376	321	319	336	258	286	365	282	230	219	182	177
Birmingham	C	44	3	1	1									2				1
Bradford	C	24	12	19	3	2	7	2	2	7	2	8	6		3	1	2	
Bristol	C	3	4	12	1	10	1	5	4	1	4	1	1			1		
Cardiff	C			5			1	2		1		1						
Castleford	C		4	36	27	11	20	11	11	6	4	3	5	4				
Hull	C																1	20
Leeds	C	3	9	14	2	2	1	1					3	4	1			1
Liverpool	C		1															
London	C	4	14	17	7	5	3	27	5	10	5	5	49	24	11	12	4	3
Manchester	C	25	8	14	2	4	2		1	1	2	1	1					
Newcastle-on-Tyne	C	27	12	9			4		1	6	3	2	3	2		1	29	28
Nottingham	C	27	11	13	4	4	6	3	5	10		5	2	1				
Sheffield	C	8	6	1		10	2	2	2			2		1		1	1	
Stoke-on-Trent	C	1	15	12	4	10	5	13	9	8	6	1	4	2	7			
Weymouth	C																	1
Greece (see table below).																		
Hedjaz	C	35	115									6	3		11			
	D	23	46									2			1			
India	C	17,777	18,850	28,034	8,789	8,038	7,398	6,220	6,558	5,978	5,124	3,829	4,608					
	D	3,709	3,826	5,540	1,988	1,739	1,601	1,341	1,334	1,358	1,383	971	1,051					
Bassein	C	1						1										
Bombay	C	61	149	218	56	57	54	33	46	37	26	27	19	15	20	17		27
	D	24	73	120	32	34	27	25	25	22	18	13	15	8	12	11		16
Calcutta	C	58	71	134	49	51	31	40	41	29	31	29		22	23	16		15
	D	34	50	104	32	42	21	35	30	26	23	22		16	20	14		10
Karachi	C		1	1				2			3							
	D		1					1			1							
Madras	C	74	100	183	49	36	60	24	17	22	11	9	6	9	7	13		11
	D	8	19	29	16	8	7	7	5	5	3	5	3	1	2	4		4
Moulmein	C															1		2
	D															1		1
Negapatam	C	8	3		1		5	1	3	4	1			9	4	6		2
	D	3			1		2			1			2	2	2	1		1

Rangoon	C	275	377	320	62	45	37	23	15	8	6	7	5	3	5	17	----	1
	D	64	104	102	24	17	12	16	4	2	2	5	2	1	1	2	----	1
Tuticorin	C	----	----	----	----	----	----	----	3	----	----	----	----	----	----	----	----	----
Vizagapatam	C	10	2	3	----	2	----	----	2	----	1	----	4	4	----	----	----	2
	D	8	----	----	----	----	----	----	----	----	1	----	----	----	3	----	----	1
India (French):																		
Chandernagor	C	----	----	5	----	----	----	5	----	----	----	----	----	----	----	----	----	----
	D	----	----	1	----	----	----	1	----	----	----	----	----	----	----	----	----	----
Pondicherry	C	47	9	18	12	----	15	9	16	----	7	9	6	3	2	2	----	3
	D	47	9	18	12	----	15	9	16	----	6	1	6	3	2	2	----	3
Indo-China (see also table below):																		
Saigon	C	----	3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Iraq:																		
Baghdad	C	19	7	5	1	3	----	1	6	----	3	7	3	3	7	3	7	10
	D	11	4	4	1	1	----	1	1	----	2	3	1	1	7	1	3	6
Basra	C	1	7	5	----	1	1	2	----	1	2	----	----	----	1	1	6	----
	D	----	----	2	----	1	1	----	----	1	2	----	----	----	1	1	2	----
Italy:																		
Leghorn	C	----	1	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Palmero	C	----	----	5	1	3	3	3	2	----	4	----	4	6	----	----	----	----
Rome and vicinity	C	3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Ivory Coast (see table below).																		
Jamaica (outside Kingston) (alastrim)	C	5	10	13	----	1	2	1	----	1	1	----	1	----	2	----	----	----
Japan:																		
Kobe	C	----	----	----	----	----	----	----	----	6	3	2	----	----	----	----	----	----
Nagoya	C	----	----	----	----	----	1	5	2	----	----	----	----	----	----	----	----	----
Osaka	C	----	----	----	----	----	----	----	----	----	----	----	----	----	2	2	----	----
Tokyo City	C	4	4	15	8	----	----	----	----	----	----	----	----	----	----	----	----	----
	D	1	2	1	1	----	----	----	----	----	----	----	----	----	----	----	----	----
Tokyo prefecture (outside city)	C	----	----	24	1	----	----	----	----	----	----	----	----	----	----	----	----	----
	D	----	----	1	1	1	----	----	----	----	----	----	----	----	----	----	----	----
Yokohama	C	----	----	----	----	----	1	1	1	1	1	----	----	----	----	----	----	----
	D	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----
Latvia (see table below).																		
Mauretania	C	----	P	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Mexico (see also table below).																		
Acapulco	C	----	----	----	----	----	----	----	2	----	----	----	----	----	----	----	----	----
	D	----	----	----	----	----	----	----	2	----	----	----	----	----	----	----	----	----
Jalisco (State)	C	----	P	P	P	P	P	----	----	----	----	----	----	----	----	----	----	----
Guadelajara	D	----	1	2	2	1	4	5	7	4	----	2	4	2	2	2	1	1
Manzanillo	D	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Mazatlan	D	----	----	----	----	----	----	----	----	2	----	1	1	1	----	----	----	----
Mexico City and surrounding territory	C	2	1	----	----	----	1	----	1	----	1	----	----	----	----	----	----	----
Saltillo	D	----	----	----	----	----	----	----	1	1	----	----	1	----	1	----	----	----
Tampico	C	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Morocco (see table below).																		
Nigeria (see also table below):																		
Lagos	C	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Southern Provinces	C	----	7	93	----	----	----	----	----	----	----	----	44	7	----	----	----	----
	D	----	----	35	----	----	----	----	----	----	----	----	12	----	----	----	----	----
Palestine: Jerusalem	C	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	D	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Persia (see table below).																		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Mar. 11–Apr. 7, 1928	Week ended— April, 1928			May, 1928				June, 1928					July, 1928	
					14	21	28	5	12	19	26	2	9	16	23	30	7	14
Poland	C	3	1	1		5	2	2				1	1	2				
	D					1												
Portugal (see also table below):																		
Lisbon	C	12	20	5		3	2	1	3		3	1	2		2	3		
	D		1															
Oporto	C						1											
Senegal (see also table below):																		
Dakar	C		34	29	5	11			12	7	5	5	4	1				
	D			20		8			4	3								
Siam	C	35	12	28	1		3	6	1	7				3				
	D	4	3	4	1		1	1				1		1				
Bangkok	C						1											
	D											1						
Spain (see also table below):																		
Valencia	C		1	2									1					
Straits Settlements: Singapore	C	1	1	1	2	1												
Sudan (Anglo-Egyptian)	C	85	109	332	29	18	78	35	39	7	75	47	22	18	93	73	32	63
Sudan (French) (see table below).	D	48	27	100	6	8	4	14	4	1	6	9	7	3	17	10	5	18
Syria (see table below).																		
Taiwan: Keelung	C														1			
Tunisia: Tunis	C	3	14	4		4		2		1		2	1			1	5	
Union of South Africa:																		
Cape Province	C	P																
Natal	C	P	P	P														
Orange Free State	C	P		P					P									
Transvaal	C						P	P										
Union of Soviet Socialist Republics (see table below).																		
Upper Volta	C		5	2	P		4	5										
Venezuela: Maracaibo	C	1																
	D	1	1															
On vessel:																		
S. S. Arendskerk at Singapore, from Amoy, China	C			P														
S. S. Kashgar at Kobe, from Shanghai	C							P										
S. S. Rohna at Penang from Negapatam	C										P							
S. S. Tjileboet at Hong Kong, from Shanghai	C							P										
S. S. Yarmouth at Kingston, Jamaica, from Habana, Cuba	C			1														
S. S. Victoria at Nome, Alaska	C														8			

Place		October-December, 1927	January, 1928	February, 1928	March, 1928			April, 1928			May, 1928			June, 1928		
					1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-30
Algeria (see also table above)	C	682														
Oran	C	11														
Indo-China (French) (see also table above)	C	97	58	171	57	71	69		35		36	6	37	47		36
Ivory Coast	C											7				
Senegal (see also table above)	C								51				20	3	14	2
	D								7				9			
Dakar	C								11		12	7	5	4	1	3
	D								8		4	3				
Sudan (French)	C		4	6	P	5			4		30	P	P	20		
	D										6					
Syria:																
Aleppo	C	1	1												1	
Beirut	C	2	15	37	12	7	4	3	5	1	2	3	2	1	7	
	D						2	1								
Damascus	C	47	13			1										

Place		July-September, 1927	October-December, 1927	January, 1928	February, 1928	March, 1928	April, 1928	May, 1928
Angola	C	51	151	10	36	1		
	D	2						
Congo	C	5	77		36			
Cuanza-Notre	C	1				1		
Cuanza-Sul	C		9	10				
Loanda	C	1						
Zaire	C	3	5					
Brazil (see also table above):								
Porto Alegre	C	11	5		1			
British East Africa (see also table above):								
Zanzibar	C		2					
	D		1					
Chosen	C	21	4	4	21	23		152
	D	6	1	2	8	6		38
Seoul	C					1		
Ecuador: Guayaquil	C	4	6	2	9	24	19	31
	D					1		
France	C	37	25	11	10	13	6	15
Gold Coast	C	7	4		1	3		

Place		July-September, 1927	October-December, 1927	January, 1928	February, 1928	March, 1928	April, 1928	May, 1928
Greece	C	10	9	6	11	19	1	22
	D				2	2		1
Latvia	C		2		1			
Mexico (see also table above)	D	221	346	256				
Morocco	C	180	622	55	47	30	19	25
Nigeria (see also table above)	C	820	316	275	317			
	D	173	81	39	45			
Persia	D		2	7				
Portugal (see also table above)	C			143	115			98
	D			22	8			9
Lisbon	C							8
Spain (see also table above):								
Madrid	D		1					
Union of Soviet Socialist Republics:								
Railways, etc	C	26	33	18	20			
Other territories in Europe	C	366	1,256		998			
Transcaucasus, Siberia, and Central Asia	C	80	81					
Ukraine	C	27	48	6	11			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Mar. 11–Apr. 7, 1928	Week ended— April, 1928 14	21	28	May, 1928 5	12	19	26	June, 1928 2	9	16	23	30	July 7, 1928
Algeria (see also table below):																			
Algeria	C			1	3	9	1	3			1	1	2	9	28	1	2		1
	D				1			2							6				
Oran	C		4	2	10	4	1	6	2	2	1		3		5	1	17		2
	D							1								1	2		
Austria: Vienna	C			1															
Bulgaria (see also table below):																			
Sofia	C	1	6	1		20				1	1		9	10	3	10	1		1
	D													1	2	3	1		
Chile:																			
Talcahuano	D					1													
Valparaiso	C	2	1		1											1			
	D														2	1			
China (see also table below):																			
Manchuria—																			
Dairen	C						7		3										
Harbin	C							1	1										
Kwantung	C															223	181		
South Manchuria Railway Zone	C															7	3		
Tientsin	C												1	2					
Chosen (see table below).																			
Czechoslovakia (see table below).																			
Egypt	C	14	8	9	17	2	2	1				11					7		
	D	8	4	2	8	1						2					3		
Assiout Province	C														1				1
Assouan Province	C														1				1
Behera Province	C					29	23		2	7	5	15	8	15	3		3		
	D						4			3	1		2	4	2				
Cairo	C	3				2	3			1									
	D	3				1	3			1									
Dakalieh	C														1				1
Gharbieh Province	C					23	5		5	4	1	2		2	2				
	D						3		2						1		1		
Keneh Province	C					5	29		9								1		
	D						1		6								1		

Menoufieh Province	C								5	23	5	1	1	2	3		1		
	D								1	2		1	1	1	1		1		
Port Said	C	1																	
Suez	C												1						
	D												1						
Great Britain: London County	C														1	1			
Greece: Piræus	D																1		
Hungary: Budapest	D																2		
Ireland:																			
Belfast	C													2	1				
	D														1				
Irish Free State	C			1			1							4					
Cork County	C	3	1																
Japan (see table below):																			
Yamagata	C												2			2			
Latvia (see table below).																			
Lithuania (see table below).																			
Mexico (see also table below):																			
Guadalajara	D	1											1						
Mexico City, including municipalities in Federal District	C	17	15	5	8	12	4		4		7	4	4	4	4	3	5		
	D	1	5		4	3			1					2					
Monterey	D					1													
Morocco (see also table below)	C		32	1,051	316	748	186	167	136	102	62	63	72	83	40	44	55	75	40
Palestine	C	9	8	5	10	7	3		1	2	2	1	1		2	1	3	2	1
Peru (see table below).																			
Poland	C	93	195	346	265	382	93		71	80	90	49	53	34	28	39	35		3
	D	10	16	19	26	25	8		2	2	7	6	4			3	2		
Portugal (see also table below):																			
Oporto	C			1															1
Rumania	C	35	68	39	68	141	36	38	30	38	39	28		32	36	21			
	D		3	9	5	11		6	5	1	1	3		4	6	4			
Syria (see also table below):																			
Aleppo	C		2													2			
Tunisia	C	1	6	4	1	18		2	16	1	3			4		4	3		
Union of South Africa:																			
Cape Province	C	P	1	1	P		P	P	P	P	P	P							
Natal	C	2	3	1	2		P	P	P	P	1		2						
Orange Free State	C	P		P			P	P	P	P	P	P							
Transvaal	C	P											1						
Union of Soviet Socialist Republics (see table below).																			
Yugoslavia (see table below).																			
On vessel S. S. Gaika at Durban, Natal, from Mauritius	C				1														

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place		1927		January, 1928			February, 1928			March, 1928			April, 1928			May 1–10, 1928
		July–September	October–December	1–10	11–20	21–31	1–10	11–20	21–29	1–10	11–20	21–31	1–10	11–20	21–30	
Algeria (see also table above)	C	110	12													
	D	13	1													
Algiers	C	10	2													
Bulgaria (see also table above)	C	43	4	7	6		8	12	6							26
	D	3	2		1		1	2	2							
Morocco (see also table above)	C	231	123													

Place		July–September, 1927	October–December, 1927	January, 1928	February, 1928	March, 1928	April, 1928	May, 1928
China (see also table above):								
Shanghai	D		1					
Chosen	C	90	80	183	400	313		241
	D	8	6	19	44	25		32
Chemulpo	C	3		1		1		
Gensan	C	2		1				
	D			1				
Seoul	C	5	2			10	28	
	D	1	1			1	2	
Czechoslovakia	C	12	7			25		
Greece: Athens	C	3	1	2	2		13	11
	D						2	2
Japan	C	1	1					21
Latvia	C	6			1	26	4	1
Lithuania	C	69	54	86	137			
	D	14	3	10	12			

Place		July–September, 1927	October–December, 1927	January, 1928	February, 1928	March, 1928	April, 1928	May, 1928
Mexico (see also table above)	D	64	98	46				
Peru:								
Arequipa	D	3	3	2			1	
La Oroya	C			P	P	P		
Lima	C	8						
Turkey	C				17			7
	D				1			1
Union of Soviet Socialist Republics:								
Railways, etc	C	77	102	41	107			
Transcaucasus, Siberia, and Central Asia	C	208	190	7				
Ukraine	C	295	631	533	459			
Other territories in Europe	C	1,839	1,924		1,853			
Yugoslavia	C	20	2	7	24	3	10	19
	D	5		3			1	3

YELLOW FEVER

[C indicates cases; D, deaths; P, present]

Place		Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Mar. 11–Apr. 7, 1928	Week ended—												
							April, 1928			May, 1928				June, 1928					July, 1928
							14	21	28	5	12	19	26	2	9	16	23	30	7	14
Belgian Congo:																			
Boma	C		3																
	D		2																
Matadi	C		29	14	1					2				2					
	D		16	13															
Brazil:																			
Aracaju	D													2					
Bahia	C															1	3		
Estancia	C				1														
Pernambuco	C														1				
Rio de Janeiro	C													2	4	16	14	14	10	12
	D													2			6	9	5	
Dahomey: Grand Popo	C	1													1	2				
	D	1													1	1				
Gold Coast	C											2								
Ivory Coast	C		1														1			
	D		1														1			
Abidjan	C																1		1	
Senegal: Dakar	C	7	2																	
	D	7	2																	

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