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EXPERIMENTS ON THE PHARMACOLOGIC ACTION OF SUCCINCHLORIMIDE [1]

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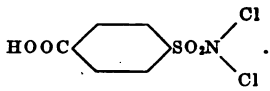
In 1928 C. B. Wood (*1*) proposed the use of succinchlorimide  for the purification of water to render contaminated water potable. The need for such a compound arising from the present war conditions has created new interest in this subject. Since Wood's work, also supported by some more recent unpublished data, indicates the antibacterial superiority of this compound, it seemed desirable to make a pharmacologic study of it in comparison with the better known and generally accepted Halazone NNR (p-sulfonedichloramidobenzoic acid)  . The latter, first introduced by Dakin and Dunham (*2*) for disinfection of drinking water, was shown to be nontoxic when fed to rabbits "for many weeks in doses of 100 to 200 mg. per day, without observable symptoms, and repeated doses of 500 mg. were also without effect" (*3*). No further work on the toxicity of halazone seems to be available in the literature, nor have any toxicological data on succinchlorimide been found.

Experimental.—The sample of succinchlorimide was supplied by the Lambert Pharmacal Company, St. Louis. The halazone used in this work was obtained from Abbott Laboratories, Chicago. Parallel experiments were run to determine the acute toxicity of these compounds in rats on oral and intravenous administration; the chronic toxicity in rats when fed at different levels in the diet; the chronic toxicity in rabbits when administered orally in daily doses of 200 mg. per kg. of body weight; and lastly the pharmacodynamic action of the

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

compounds was studied in cats on intravenous infusion of solutions of the drugs in physiologic saline carefully adjusted to a pH of from 6.2 to 7.0. Succinchlorimide, which is moderately soluble in water, is acid in reaction and must be neutralized. Solutions of halazone, which is only slightly soluble in water, were prepared with the aid of N sodium hydroxide, approximately 13.0 cc. per gram of material.

Results.—The data in table 1 indicate a minimum lethal dose of 400 mg. per kg. for succinchlorimide and about 800 mg. per kg. for halazone when injected intravenously in rats. The irregularities in the results are believed to be due to the variable amount of free chlorine which both compounds yield in solutions made suitable for intravenous injection. Obviously succinchlorimide is about twice as toxic as halazone when administered by this route. The symptomatology is similar with both compounds. Dyspnea, labored respiration, and death follow within 30 minutes to 18 hours, with pulmonary congestion and edema at necropsy.

TABLE 1.—*Acute toxicity in rats on intravenous injection*

Number	Dose (mg. per kg.)	Mortality (percent)
SUCCINCHLORIMIDE		
16	200	19
8	350	12
10	400	90
HALAZONE		
12	300	25
15	400	40
9	500	22
13	600	39
8	800	100

TABLE 2.—*Acute toxicity in rats, oral administration*

Number	Dose (gm per kg.)	Mortality (percent)
SUCCINCHLORIMIDE		
8	1.0	12
10	1.5	40
10	2.0	50
13	2.7	92
HALAZONE		
9	1.0	22
9	1.5	33
11	2.0	27
15	3.0	60
11	3.5	100

The acute oral toxicity in rats is shown in table 2. In this, too, succinchlorimide appears to be the more toxic compound since at a dose of 2.0 gm. per kg. 50 percent died as compared with only 27 percent from halazone. The MLD of succinchlorimide appears to be

2.7 gm., while that of halazone 3.5 gm. per kg. Lesions of the gastric mucosa were conspicuous at necropsy in this series of experiments. No noticeable differences could be seen in the systemic effects of the two compounds.

The chronic toxicity in rats is shown in figure 1. In these experiments succinchlorimide and halazone were incorporated in concentrations of 0.1, 0.5, and 1.0 percent each in a semisynthetic diet consisting of 18 percent casein, 5 percent dried brewers' yeast, 4 percent McCollum's salt mixture No. 185, 2 percent cod liver oil, 8 percent olive oil, and the balance cornstarch. The rations were fed *ad libitum* and

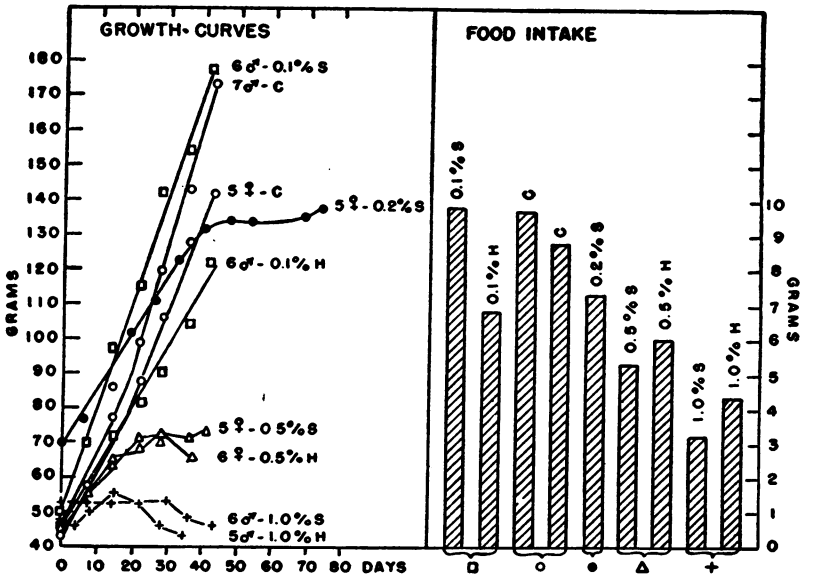


FIGURE 1.—Growth curve and food intake of groups of rats fed succinchlorimide (S) and halazone (H) in an adequate semisynthetic diet. Curves marked C represent controls. Curve 0.2 percent S represents a group of rats receiving 0.2 percent succinchlorimide in the drinking water.

the amount of food consumed noted. In one group (0.2 percent S in the chart) succinchlorimide was given in the drinking water at a concentration of 0.2 percent. Controls, animals of about the same age and weight, were fed the diet alone. All the animals were weighed weekly. At the conclusion of the experiment hemoglobin determinations were made and necropsies performed to determine the presence of gross parenchymatous lesions. In some of the experiments the retention of intravenously injected rose bengal, 25 mg. per kg., was determined at 1 hour as a measure of liver function. A glance at the chart will show that at a level of 1.0 and 0.5 percent both compounds were markedly toxic causing inhibition of growth, reduced food intake and some deaths within 30 to 40 days. At these levels no difference between the two compounds was discernible. At a level of 0.1 percent succinchlorimide exhibited no toxicity while

halazone appeared to retard growth and food intake somewhat. Two-tenths percent of succinchlorimide in the drinking water produced no demonstrable toxic effects other than some retardation of growth and reduction in food intake. At the termination of this experiment the hemoglobin levels were within the normal range and no abnormality was noted in the rose bengal clearance when tested by the method previously described (*4*). Post-mortem findings were negative. The average estimated intake of succinchlorimide per day in this experiment was a little over 200 mg. per kg.

The results of an experiment on the chronic toxicity of the two compounds in rabbits are shown in table 3. In this experiment the drugs were given by stomach tube in doses of 0.2 gm. per kg. daily, except Sundays, until a total of from 20 to 29 doses had been given. The animals were on a diet of oats and cabbage throughout. At the termination of the experiment hemoglobin determinations were made and rose bengal retention at 30 minutes following an intravenous injection of 5.0 mg. per kg. was determined. Normally the concentration of the dye in the plasma under these experimental conditions does not exceed 0.3 to 0.6 mg. percent (*5*). The bladder urine was tested for albumin and gross post-mortem findings were noted.

TABLE 3.—*Chronic toxicity in rabbits. Dose 0.2 gm. per kg. daily*

Number	Total dose (gm. per kg.)	Weight (kg.)		Hemoglobin (gm. /100 cc.)		Rose bengal (mg. per-cent at 30 min.)	Urine albumin
		Initial	Final	Initial	Final		
SUCCINCHLORIMIDE							
1	2.6	1.6	1.2	16.0			None.
2	4.0	1.3	1.3	14.5	11.9	0.2	Do.
3	4.0	1.3	1.3	15.6	14.3	.3	Do.
4	4.4	1.5	1.2	16.6	9.7	.9	Trace.
5	5.0	1.4	1.2	14.6	10.3	.5	None.
HALAZONE							
6	5.8	1.2	1.6	15.5	14.2	0.7	Trace.
7	4.0	1.0	1.0	15.9	11.0	.8	Positive.
8	4.8	1.2	1.4	14.2	13.9	.8	None.
9	4.4	1.0	1.3	14.2	11.9	.8	Do.
10	4.8	1.3	1.6	13.2	12.8	1.3	Positive.

One of the animals in the succinchlorimide group refused food during the greater part of the treatment and died in an emaciated state. Two others also showed moderate loss of weight. The animals in the halazone group maintained their weight much better. Marked reduction in hemoglobin was noted in three of the four surviving animals in the succinchlorimide group and in two of the five animals in the halazone group. One of the animals in the succinchlorimide group showed a subnormal dye clearance while four in the halazone group showed some evidence of abnormal retention of dye. Albuminuria was present in two of the halazone animals only. Inflamma-

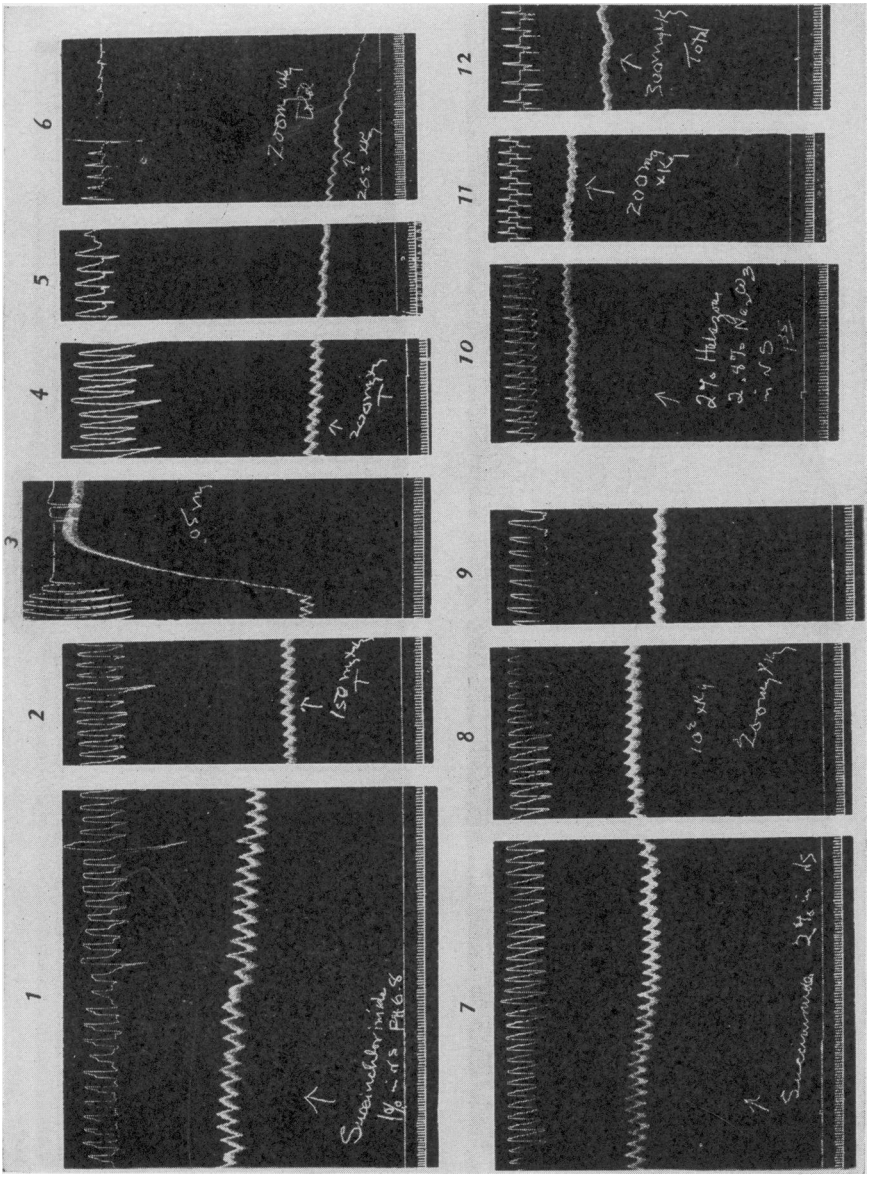


FIGURE 2.—Tracing showing the effects of continuous intravenous infusion of succinchlorimide, succinimide, and halazone in the cat. Amytal anesthesia, vagi intact. Top tracing, respiration; second, blood pressure; third, base line and injection signal; bottom, time in seconds. Tracings 1 to 6 show the effects of succinchlorimide as follows: 1, 50 mg. per kg.; 2, a total of 150 mg. per kg.; 4, 200 mg. per kg.; 5, a total of 250 mg. per kg. Tracing 3 shows the response to epinephrine after 150 mg. per kg. of succinchlorimide had been injected. Tracing 6 shows the simultaneous paralysis of respiration and circulation in another cat following the continuous intravenous infusion of 200 mg. per kg. of succinchlorimide. Tracings 7 to 9 show the absence of any effects following the intravenous infusion of succinimide, 200 mg. per kg. at 8 and a total of 900 mg. per kg. at 9. The effects of halazone are shown in tracings 10 to 12, 200 mg. per kg. at 11 and a total of 300 mg. per kg. at 12.

tion of the gastric mucosa was present in all the animals in the succinchlorimide group; it was not noticeable in the halazone group. Thus the effects were generally alike in both groups, although succinchlorimide appeared to be the more toxic and the more irritant of the two.

Microscopic examination of the stomach in the animals of the succinchlorimide group revealed focal subepithelial hemorrhages, edema, and fibroblast proliferation in the mucosa, and perivascular lymphocyte infiltration in the submucosa. The animals of the halazone group showed no definite microscopic changes. One of the livers of the animals in the halazone group with a rose bengal retention of 1.3 mg. percent showed slight centrolobular atrophy and fatty degeneration. The others with slightly elevated rose bengal retention had varying degrees of coccidiosis. For the microscopic examination of the tissues the authors are indebted to Senior Surgeon R. D. Lillie of the Pathology Laboratory.

In cats under amytal anesthesia the intravenous infusion of a 1 percent solution of succinchlorimide produced a progressive fall in blood pressure. The respiration was augmented in amplitude at first, later it was slowed and decreased in amplitude. Paralysis of the respiration and circulation appears to take place almost simultaneously. Usually 100 to 150 mg. per kg. is sufficient to produce a marked and sustained fall in blood pressure while 200 to 250 mg. per kg. produces complete circulatory collapse. The vasoconstrictor response to epinephrine when tested at frequent intervals during the infusion of succinchlorimide is not abolished. Indeed, the pressor action of epinephrine is progressively augmented. This potentiation of the epinephrine vasoconstrictor response suggests inhibition of oxidative destruction of the sympathomimetic amine, a matter which will have to be investigated further. Tracings 1 to 6 in figure 2 illustrate the respiratory and circulatory effects of succinchlorimide. Succinimide, as shown in tracings 7 to 9, has no such action, while halazone although depressing to the circulation and respiration in large doses is not nearly as effective as succinchlorimide (tracings 10 to 12). Moreover, it lacks the primary stimulating action of succinchlorimide on the respiration.

CONCLUSIONS

Succinchlorimide is more toxic than halazone. In rats on intravenous injection it is about twice as toxic as halazone. The acute oral toxicity of succinchlorimide in rats is also greater than that of halazone.

The chronic toxicity of succinchlorimide when fed at tolerated levels to rats or rabbits is not demonstrably greater than that of halazone, though it appears to be more of a gastric irritant. One-tenth percent of succinchlorimide fed in the diet to rats over a period of 40 days

produced no demonstrable toxic effects. Two-tenths percent of this compound in the drinking water of rats over a period of 75 days produced only some retardation of growth and a diminished food intake.

The intravenous infusion of succinchlorimide lowers the blood pressure, first stimulates then depresses the respiration, and finally kills by almost simultaneous paralysis of the circulation and the respiration. The peripheral vasomotor mechanism does not appear to be affected by succinchlorimide since the pressor action of epinephrine is not abolished. Potentiation of the pressor action has been noted, the mechanism of which remains to be determined.

Unless succinchlorimide possesses markedly superior antibacterial properties, its use as a substitute for halazone in water disinfection is not recommended.

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THE PATCH TEST IN CONTACT DERMATITIS [1]

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The patch test was devised by Jadassohn (*1*) almost 50 years ago for demonstrating the causes of contact dermatitis. In the United States the test was not widely used in industry, nor was its practical value appreciated until attention was called to the prevalence of occupational dermatitis and the chemicals causing it, and to the value of the patch test in differentiating between occupational and other sources of contact dermatitis.

The test was first used as a means of determining the actual causative irritant in cases of contact dermatitis. Since dermatitis has on many occasions been found to be caused by irritant chemicals contained in wearing apparel and cosmetics, manufacturers have taken advantage of the patch test to determine the possible skin-irritating or sensitizing properties of new products before placing them on sale to the public.

[1] From Dermatoses Section, Industrial Hygiene Division, Bureau of State Services.

Some enthusiasts have even proposed the inclusion of the patch test as part of the pre-employment examination with the idea of weeding out those workers who might develop occupational dermatitis. The fallacy of this proposal lies in the fact that most workers develop occupational dermatitis by contact with a primary irritant or by acquiring an allergy while actually employed. Pre-employment patch testing, therefore, could not weed out those who would become sensitized,

It is now universally accepted that the patch test, if properly performed and interpreted, is a valuable diagnostic procedure. Its value in preventing possible outbreaks of dermatitis from the use of materials containing new chemicals before they are put into general use is just becoming recognized.

This study is based on years of experience in investigating outbreaks of dermatitis and in testing chemicals and articles for possible skin-irritating properties. The authors have performed thousands of patch tests and have had the opportunity in many instances to correlate the results of tests with the occurrence of dermatitis when substances tested were put into actual use.

TECHNIQUE

Before an attempt is made to describe the methods used for patch testing, clear distinction must be made between substances which are primary skin irritants and those which will be called sensitizers. It is obvious that a concentrated solution of a strong acid or alkali will burn or inflame any skin, the degree of injury depending on the concentration of the irritant, the amount applied, the duration of its action, and the area of skin to which it is applied. Such chemicals actually form chemical combinations with the skin. They may precipitate the skin protein, dissolve the keratin, dehydrate the skin, oxidize the skin, etc. There is another class of chemicals which, because they dissolve out the fat and cholestrol, will cause inflammation of the skin if applied for a sufficient length of time. In this class are the strong solvents, gasoline, carbon tetrachloride, chloroform, carbon bisulfide, etc. All these are primary irritants.

A group of dermatologists acting as consultants to the Public Health Service have defined a primary skin irritant as follows:

> A primary cutaneous irritant is an agent which will cause dermatitis by direct action on the normal skin at the site of contact if it is permitted to act in sufficient intensity or quantity for a sufficient length of time

Many chemicals which are primary irritants are also sensitizers, for instance, formaldehyde, alkaline bichromates, mercuric salts, phenols, etc.

It is obvious that patch testing with strong concentrations of known primary irritants will result in reactions on any skin. This does not

mean that patch tests should not be performed with dilute solutions of chemicals which in strong concentration are primary irritants. There are published lists of concentrations of chemicals which dermatologists have used to determine hypersensitivity; these concentrations, together with the time they are to remain on the skin, are recommended in an attempt to avoid the primary irritant action of the chemical.

According to the records received from State compensation boards, the majority of occupational dermatoses are caused by primary irritants. Only about 20 percent are caused by substances which do not have a primary irritant action on the skin. These chemicals which are not primary irritants are responsible for the great majority of cases of contact dermatitis caused by wearing apparel, cosmetics, ornaments, etc. They induce a specific skin allergy and thus cause dermatitis. They may be called sensitizers and were defined as follows by the group of consultant dermatologists referred to above:

> A cutaneous sensitizer is an agent which does not necessarily cause demonstrable cutaneous changes on first contact but may effect such specific changes in the skin that, after 5 to 7 days or more, further contact on the same or other parts of the body will cause dermatitis.

The diagnostic patch test consists in applying a small portion of the suspected substance to a site of normal skin of the patient. This is covered with innocuous impermeable material which is then sealed to the skin by adhesive plaster. There have been many modifications proposed in order to overcome certain objections.

The diagnostic patch test is performed in the following manner:

With liquids.—Saturate a piece of 4-ply gauze ¼-inch square and apply it to uninflamed skin on the arm or back. The liquid from the gauze should not be permitted to trickle from the patch site. For insulation a 1-inch square of nonwaterproof cellophane is used. (Waterproof cellophane consists of regenerated cellulose coated with a water insoluble resin.) This is sealed to the skin with adhesive plaster about 2 inches square. When smaller pieces of adhesive plaster are used, patches are often lost or there is insufficient contact between the test substance and the skin. The reactions which may result from the adhesive plaster are separated from those resulting from the test substance by the uninflamed skin which is in contact only with the cellophane. In performing a number of patch tests, care should be taken to avoid overlapping of adhesive plaster as this will cause intensification of the adhesive plaster reaction.

With powders.—In performing patch tests with powders the powder is placed on a piece of gauze in order to keep the reaction localized. If the gauze is moistened, it holds the powder better than when dry.

With solids.—When solids insoluble in water are used, it has been found best to dissolve them in a solvent, making a saturated solution, and wetting a piece of gauze with this solution. The gauze is then

allowed to dry before being placed on the skin in order to eliminate the action of the solvent. This procedure deposits the precipitated, finely divided substance on the gauze, and brings about better contact with the skin.

When the insoluble solid is of a resinous character, the solution may be painted directly on the skin, the solvent allowed to evaporate, and the cellophane and adhesive plaster applied. If the resin adheres firmly to the skin, it is not necessary to cover it with the cellophane and adhesive.

With ointments.—The technique of testing with ointments is the same as with liquids.

While solvents are primary skin irritants they sometimes also act as sensitizers. When it is desired to determine whether a solvent is causing dermatitis by its action as a sensitizer, patch tests may be performed as follows: Mix equal parts of the solvent and a bland oil such as liquid petrolatum or corn oil, in order to buffer the fat solvent action of the solvent, and patch as for liquids.

It is usually sufficient to leave the patch on for 24 hours but sometimes when patching with low concentrations or with weak sensitizers it may be necessary to leave the patch on for 3 or 4 days, but not for more than 5 days as the patient may by that time become sensitized to the patch itself. This is especially true of fabrics which contain no strong irritants and to which most people do not react. The reactions should be read not only upon the removal of the patches but every day for at least 5 days thereafter. This is of special importance in testing fabrics. A late reaction indicates a lesser degree of sensitivity than an early reaction.

MODIFICATION OF THE PATCH TEST

Rokstad (*2*) has suggested a modification of the patch test for testing the primary irritant effect of volatile substances. A celluloid chamber is fixed to the skin with adhesive tape, or, in the case of sensitivity to adhesive, with a paste made of 15 gm. zinc oxide, 15 gm. gelatin, 25 gm. glycerin, and 45 cc. distilled water. The irritant solvent to be tested is placed on the skin and covered with the chamber. When applied correctly the chamber should be airtight and a papule formed by the underlying skin protruding into the chamber. The edematous papule which is thus formed facilitates absorption of the test substance.

Grolnick (*3*) advocated the use of nonmoistureproof cellophane held in place by collodion in order to avoid a possible adhesive tape reaction.

The so-called window patch test was suggested by Guild (*4*) in 1939, so that constant observation could be made and a controlled alkalinity or acidity could be maintained. A microscopic slide is cut into 1-inch squares, the edges are made smooth, and the glass square is fixed to the

skin by adhesive on three sides. The substance to be tested is introduced at the open end and then it too can be closed off.

Wedroff (*5*) has suggested that primary irritants containing volatile solvents as diluents should be painted directly on the skin or various concentrations in alcohol can be placed dropwise on the skin and left uncovered.

Sulzberger (*6*), as well as others, has advocated Scotch cellulose tape as a covering to increase the visibility.

It is often advisable to use a so-called artificial perspiration to moisten the test substance because the pH of the perspiration, especially in such areas as the axilla, may play a role in the solubility of the irritant under investigation. The pH of axillary sweat is usually on the alkaline side and that on the body proper is on the acid side; pH can vary from 5 to about 8. To approximate the pH of the perspiration, acidify the liquid used for moistening with dilute acetic acid or alkalinize with dilute ammonia.

INTERPRETATION AND READING OF PATCH TESTS

It requires considerable experience to interpret correctly reactions to patch tests. It is of practical importance to have a common basis for grading reactions. If the relative sensitivity of a worker to the chemical causing the dermatitis could be clearly indicated by the report of the patch test reaction, it could be determined by repeated patch tests whether an employee is becoming more or less sensitive in cases where there is continued contact with the sensitizing chemical. The authors are convinced that "hardening" or hyposensitization takes place in most workers exposed continually to the offending chemical (*7*).

Since the patch test was first employed, gradations of the reaction have been recorded by the symbols 1+, 2+, 3+, and 4+. By this method an erythema on the area of skin to which the chemical was applied is indicated by 1+; erythema and edema by 2+; an erythema, edema, papules, and a few vesicles by 3+; erythema, edema, many vesicles, and, in some cases, ulceration are recorded as a 4+ reaction.

Such a method of recording a positive patch test is useful perhaps in indicating the degree of sensitivity to the specific concentration and amount of the chemical used. Additional information can be obtained if patches with differing concentrations are applied. The degree of reaction will be greatest at the site of greatest concentration. It is for this reason that weak concentrations of sensitizers must be left on longer and observed for at least 5 days after the patches are removed. A reaction not present when the patch is removed but which becomes manifest less than 5 days after the patch is applied is considered a delayed reaction. The delayed reaction indicates that a low degree of specific sensitivity is present or that a weak concentration of the sensitizer was used. To report a

patch test reaction properly there should be given (1) concentration of the chemical tested; (2) amount of the chemical used; (3) area of skin contacted; (4) site of application; (5) number of days patch test was left on; (6) periods after removal of the patch that the readings were made. In this way a more comprehensive appraisal of the reaction in terms of the degree of sensitivity can be made.

The true allergic reaction as a rule increases rather than decreases in intensity for 24 to 48 hours after the patch test is removed. Reactions of primary irritation with few exceptions tend to subside after the removal of the irritant.

The evaluation of a weakly positive reaction (1+) depends a great deal on the experience of the one making the patch test. In dealing with a fabric or other substance containing a weak concentration of a sensitizer, a 1+ or 2+ reaction is very significant. This is especially true in industry where dermatitis may not only be due to contact with the sensitizer in low concentration but there may be the added factor of friction, with exposure to large amounts of the chemical which is not present in the patch test.

A positive reaction which cannot be reproduced later with the same technique indicates that at the time the patch test was performed the patient was sensitive to the concentration and quantity of the chemical applied. A 1+ reaction which does not persist for 24 hours is probably a false positive or is caused by a mild primary irritant.

A negative patch test does not necessarily rule out the test substance as a causative agent. The negative reaction might be due to one of three causes: (1) Under the condition of the patch test the actual mechanism which produces the dermatitis is lacking, i.e., patch test does not equal working conditions; (2) the patient is no longer sensitive; (3) the actual sensitizer was not applied.

PROPHETIC PATCH TEST

The use of the patch test for the purpose of foretelling whether a substance will or will not produce dermatitis is a recent development and may be called the "prophetic patch test." It was introduced by one of the authors to determine possible irritant qualities of new chemicals used in the manufacture of wearing apparel (*8*), cosmetics, or other articles coming in contact with the skin. The patch test is made on 200 or more individuals in the usual way. Since the chemicals or compounds to be tested are new ones, it is presumed that there has been no previous contact with them.

Two series of patch tests are carried out on the same individuals 10 to 14 days apart. The first series of tests would give reactions only with a primary irritant, or with people who have been sensitized by previous contact with the chemical. The second series shows the

number sensitized by the first series. Experience has shown that even one positive reaction among the second series may indicate that the test substance is a sensitizer which might lead to outbreaks of dermatitis if allowed to be used by large groups of people.

WHEN AND WHERE TO PERFORM PATCH TESTS

The impression seems widespread that patch tests should not be performed while an eruption is still present because a flare-up of the dermatitis might take place. The period most favorable to a positive reaction is at the time when the dermatitis is still present and active. A relative hyposensitivity may develop when the dermatitis is disappearing, or after it has disappeared, with the result that the patch test would tend to be negative. Here, too, experience and judgment are necessary in choosing the proper time for performing the tests. Obviously when dealing with a patient who has a generalized dermatitis it is better either to wait until the eruption has improved or, if the test is carried out while the eruption is present, to use a low concentration of the suspected chemical.

A generalized eruption following the patch test indicates a high degree of sensitivity. Such eruptions are exceedingly rare. Flare-ups of quiescent eruptions are not uncommon following patch tests. These also indicate high degrees of sensitivity.

In cases of true allergic dermatitis, the skin all over the body is sensitive and patch tests can be applied at any convenient site. The most rapid reaction, all other factors being equal, will take place on the areas of skin where the keratin is thinnest. The thick keratin layer of the palms and soles not only explains the negative patch test which results at these sites but is the main reason why contact dermatitis is rarely seen in these locations.

COMPLICATIONS OF PATCH TESTS

Unless inadvertently a patch test is made with a primary irritant, even strongly positive reactions do not leave a scar. In the presence of marked hypersensitivity, patch testing with a fairly high concentration of the allergen may produce a skin reaction which spreads beyond the area of application of the patch or may even elicit a generalized reaction. This may manifest itself as a flare-up of existing lesions, reappearance of lesions which have already faded, or the appearance of a generalized eruption. Such a complication may even occur when a standard concentration of the sensitizing chemical is used for the patch test, although this is rare. Toxic symptoms from absorption of the test material are unlikely because of the small amounts of chemical used and the relatively small area of skin through which absorption is possible. However, rare instances have been

reported, and systemic symptoms such as a rise in temperature, adenopathy, and pain have sometimes occurred after patch testing.

MEDICO-LEGAL ASPECTS

Downing (*9*) has reported instances of lawsuits and claims due to harmful effects resulting from the use of patch tests. However, if the tests are properly carried out by a qualified physician possessing training and necessary knowledge, they should be no more open to criticism and lawsuits than any other diagnostic procedure performed by the physician.

Patch tests are of established value in finding the etiologic agents in dermatitis venenata and dermatitis medicamentosa, and are accepted by many insurance companies and compensation boards as necessary steps in establishing a causal relationship.

Patch tests should not be performed with allergens with which the patient has not already come in contact and which he may encounter later in the course of his daily life, because of the possibility of inducing a hypersensitivity (with a resultant dermatitis when he comes in contact with the allergen).

PROVOCATIVE PATCH TEST

When patch testing with a dilute concentration of allergens such as are found in fabrics, the reaction in some cases may be negative even though from the history and by actual exposure the allergen seems to be the precipitating cause. If, however, at the same time the test is performed with the dilute concentration a second patch of a strong concentration is applied, positive reactions will develop at both sites if the actual allergen has been used. This phenomenon has been called the "provocative patch test" by the authors.

PATCH TEST WITH VARIOUS SUBSTANCES

Fabrics.—Though dermatitis from fabrics is usually an allergic contact dermatitis, primary irritants, such as antimildews, impregnated into fabrics have been encountered occasionally. The allergen may be the dye (rarely), the fabric itself, or the finish containing an antimildew, an antiseptic, an antiwrinkle, or a waterproofing compound.

A piece of the fabric about 1 inch square may be left on for 2 to 5 days. The reaction should be read up to 3 days after the removal of the patch. Best results are obtained while the dermatitis is still present. If the result is positive, the substances incorporated in the material can be ascertained from the manufacturer and tests performed with the various chemicals. If this is not possible, various steps can be taken to determine to some extent the class of allergens involved.

Soak the fabric in warm, slightly acid water for 24 hours to see if the

dye bleeds. If it does, the water extract can be concentrated in vacuo and then a patch test can be made with the concentrated dye.

To remove the finish, soak the fabric in ether for a few hours, allow the ether extract to evaporate on a watch crystal, and test with the residue.

If possible, perform a patch test with the grey goods, i.e., cloth before any dye or finish is applied. This is important to pick up the rare cases of sensitivity to wool, cotton, or silks. At the same time as the patch test for the cloth itself is performed, it may be necessary to carry out a provocative test as described above.

Furs.—In patch testing with fur, the test should be carried out with the hairy side of the fur. If it is positive, rub the fur vigorously with a piece of gauze and should the gauze become discolored, the fur is so-called "dirty fur." A patch test should then be carried out with the gauze discolored by the dye. While most cases of fur dermatitis are due to dye, a dermatitis due to fur itself may be found occasionally.

Leather.—Dermatitis among leather workers is rather frequent since many primary irritants are used in processing the leather, in the removal of the hair from the hide, in the tanning process, and in leather dyeing. Dermatitis has also been reported frequently from the wearing of leather wristwatch straps, hat bands, and gloves. The most frequent causes of dermatitis among the wearers were the dyes and tanning agents. These chemicals may be dissolved out of the leather by water or perspiration and cause dermatitis in sensitive individuals. However, the number of individuals affected is small compared to the millions of users.

The first step in carrying out the patch test is to determine whether the leather is real or artificial. This can often be determined by tearing the leather. To test the leather, moisten a piece about ½-inch square with the patient's own perspiration from the axilla or with a solution approximating the sweat in pH, and patch test in the usual way. A positive patch test indicates a sensitivity to something in the leather.

To determine whether the dye is the cause of the dermatitis, soak a piece of the suspected material in water having the same pH as perspiration. The material is left in the solution for about an hour and if the solution is dissolved it is said to "bleed." Evaporate in vacuo and patch test with concentrated dye. If this reaction is negative the previously positive reaction indicates that there is a sensitivity to the tanning agents or other chemicals, which are not easily dissolved out with water.

To test the finishing oils or fats as possible causes of dermatitis, soak the leather in ether for 15 minutes, pour off the ether into a

water glass, evaporate to dryness, smear a piece of gauze with the fatty deposit, and apply to the skin.

The other chemicals in the leather can be traced by patch testing with the leather in different stages of manufacture.

If the leather is artificial the celluloid, plasticizer, dye, or synthetic resin may be dissolved out by a solvent and used for patch tests.

Shoes.—In investigating suspected cases of dermatitis due to footwear, it is useless to patch test with the material on the outside of the shoe. It is difficult to conceive how contact between the skin of the foot and the outer surface of the leather could take place through the leather, the backing, interlining, and the stocking. Dermatitis from shoe polish can occur on the hands of the bootblack but not on the foot of the wearer of the shoes.

The backing in the shoes has in it adhesive, antimildews, fungicides, and other chemicals which are sensitizers. In investigating a shoe dermatitis patch tests should be made with the backing. In some instances the leather on the inside of the shoe, such as the tongue, the inner sole, and the sock lining, may be the cause of the dermatitis, but not the outside leather. The material which causes the dermatitis must get through the sock or the stocking. Therefore, it is worth while to patch test with the sock or stocking (before washing) which should contain the eliciting agent.

Rubber.—Dermatitis due to natural rubber is more frequent among those coming in contact with Pará rubber than those working with sheet rubber, because in the process of coagulating and curing the latex there are more of the products of combustion in the former. Crepe rubber is not smoked and causes very little dermatitis.

Rubber must be vulcanized or cured to make it serviceable. Various chemicals are used in this process. In order to accelerate the vulcanization, chemicals called accelerators are used. There are also incorporated chemicals known as antioxidants to prevent decomposition or oxidization of the rubber. It is the antioxidants and accelerators which are the chief causes of dermatitis. To determine the actual cause of dermatitis due to rubber, patch tests should be done with rubber, the antioxidants, accelerators, and other compounds.

In patch testing with sponge rubber, care must be taken to test with both the spongy and smooth surfaces, as in many instances there are differences in reactions obtained from these surfaces.

The dermatitis due to dress shields is often caused by the rubber which they contain; the active irritant is usually the chemical formed on the surface as a result of the acid or vapor cure.

Cosmetics.—Before placing a new formula on the market, closed patch tests should be performed by a competent dermatologist on at least 200 subjects with the new formula, using as a control an old formula which has been on the market for years and which has caused

no unusual number of complaints. The closed patches should remain on for 48 hours, after which the reactions should be read each day for 3 days in order to observe late reactions. The number of reactions obtained from the new formula should not exceed the number obtained from the old.

Ten days after the last reading of the reactions new closed patches of both new and old formulas should be applied on the same 200 subjects and allowed to remain for 48 hours, and the reactions again read each day for 3 days after removal of the patches. If the number of subjects showing sensitization reactions from the new formula exceeds the number showing sensitization reactions from the old formula, the formula is unsafe. These tests will give an idea of the relative skin-irritating and sensitizing properties of the new formulas as compared with the old one but do not give an accurate idea of what may happen under conditions of actual use. Therefore, the following additional tests should be performed;

The same 200 people should actually use the old and the new cosmetics each day on opposite sides of the body for a period of 4 weeks. If no cases of dermatitis result from the new formula it is safe to place on trial sale. If only one case results, then another group of 200 people should be subjected to the actual-use test. If no cases of dermatitis result among these, it is safe to place the cosmetic on trial sale. If more than one case of dermatitis occurs among the first 200 subjects after 4 weeks of actual use the cosmetic is unsafe.

By trial sale is meant the sale for a period of not less than 1 month (if no cases of dermatitis are reported before this time) in only one community where between 5, 000 and 10, 000 packages of the cosmetic are to be sold. If no cases of dermatitis are reported during the trial sale then the cosmetic is safe. If cases are reported during the trial sale the manufacturer should employ a competent dermatologist to investigate and determine the actual cause. The continued sale of the cosmetic or its withdrawal from the market should depend on such an investigation.

In trying to ascertain whether a cosmetic is the cause of dermatitis, it is better to apply the cosmetic daily to the same test site of skin for at least 4 days in the manner in which the cosmetic is actually used, rather than in the form of a patch test. This is because cosmetics when used are not covered and usually a large part of the substance disappears from the skin by evaporation. Covered patch tests do not permit such evaporation and many cosmetics which are harmless in actual use may give positive patch tests when applied in the form of a covered patch.

In performing patch tests with cosmetics which may contain photosensitizing materials such as lipstick and dyes, the test should be performed on uncovered portions of the body such as the wrist, the V of

the neck, etc., because the photosensitization is only manifest on parts which are exposed to light.

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INCIDENCE OF HOSPITALIZATION, MARCH 1944

Through the cooperation of the Hospital Service Plan Commission of the American Hospital Association, data on hospital admissions among about 10,000,000 members of Blue Cross Hospital Service Plans are presented monthly. These plans provide prepaid hospital service. The data cover about 60 hospital service plans scattered throughout the country, mostly in large cities.

Item	March	
	1943	1944
1. Number of plans supplying data	64	68
2. Number of persons eligible for hospital care	9,281,942	11,605,270
3. Number of persons admitted for hospital care	79,699	98,151
4. Incidence per 1,000 persons, annual rate, during current month (daily rate × 365)	101.0	99.5
5. Incidence per 1,000 persons, annual rate for the 12 months ended March 31	107.0	104.6

DEATHS DURING WEEK ENDED APRIL 15, 1944

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

	Week ended Apr. 15, 1944	Corresponding week, 1943
Data for 92 large cities of the United States:		
Total deaths	9,558	9,836
Average for 3 prior years	9,216	
Total deaths, first 15 weeks of year	150.771	151,699
Deaths under 1 year of age	699	625
Average for 3 prior years	607	
Deaths under 1 year of age, first 15 weeks of year	9,494	10,610
Data from industrial insurance companies:		
Policies in force	66,388,406	66,503,260
Number of death claims	13,668	12,628
Death claims per 1,000 policies in force, annual rate	10.8	9.9
Death claims per 1,000 policies, first 15 weeks of year, annual rate	11.2	10.7

PREVALENCE OF DISEASE

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

UNITED STATES

REPORTS FROM STATES FOR WEEK ENDED APRIL 22, 1944

Summary

After a decline in each of the 4 preceding weeks, the incidence of meningococcus meningitis increased during the current week. A total of 491 cases was reported, as compared with 466 for the preceding week and a 5-year (1939–43) median of 55 cases. Increases were recorded in 5 of the 9 geographic areas, namely, the New England, Middle Atlantic, East North Central, South Atlantic, and West South Central divisions, although decreases were recorded in some States in these areas. Ten States reporting 18 or more cases each for the current week (last week's figures in parentheses) are as follows: *Increases*—New York 56 (40), New Jersey 23 (18), Ohio 35 (22), Illinois 53 (42), North Carolina 20 (9), South Carolina 18 (1), Louisiana 18 (8), Texas 23 (12); *decreases*—California 23 (40); *no change*—Pennsylvania 33 (33). The cumulative figure for the year to date is 8,634 cases, as compared with 7,621 for the same period last year and a 5-year median of 814.

A slight increase occurred during the week in the incidence of measles, while a decline was recorded for that of scarlet fever. Totals reported are 30,935 for measles and 6,807 for scarlet fever, as compared with 5-year medians of 24,725 and 4,031 respectively. The totals for the year to date are approximately 43 percent and 54 percent above the respective 5-year medians.

Current totals reported for diphtheria, influenza, smallpox, typhoid fever, and whooping cough are lower in each instance than for the corresponding week in any of the past 5 years. A total of 26 cases of poliomyelitis was reported, as compared with 20 cases last week, 23 for the corresponding week of last year, and a 5-year median of 16.

A total of 9,288 deaths was recorded for the week in 93 large cities of the United States, as compared with 9,572 last week and a 3-year (1941–43) average of 8,755. The total for the year to date is 160,440, as compared with 161,465 for the same period last year.

Telegraphic morbidity reports from State health officers for the week ended April 22, 1944, and comparison with corresponding week of 1943 and 5-year median

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

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus.		
	Week ended		Median 1939–43	Week ended		Median 1939–43	Week ended		Median 1939–43	Week ended		Median 1939–43
	Apr. 22, 1944	Apr. 24, 1943		Apr. 22, 1944	Apr. 24, 1943		Apr. 22, 1944	Apr. 24, 1943		Apr. 22, 1944	Apr. 24, 1943	
NEW ENGLAND												
Maine	0	2	2	5	------	------	0	2	135	3	10	0
New Hampshire	0	0	0	------	1	------	123	23	23	1	1	0
Vermont	0	0	0	------	------	------	118	347	73	0	1	0
Massachusetts	4	1	2	------	------	------	817	1,524	884	15	27	2
Rhode Island	1	2	0	44	1	------	140	24	49	2	14	0
Connecticut	1	------	1	------	2	2	622	447	447	9	11	0
MIDDLE ATLANTIC												
New York	16	18	18	[1] 2	[1] 30	[1] 16	2,314	3,066	1,782	56	76	8
New Jersey	5	2	9	7	9	9	1,667	1,545	663	23	23	1
Pennsylvania	4	11	[1] 1	6	1	------	966	1,765	1,419	33	29	7
EAST NORTH CENTRAL												
Ohio	1	9	7	7	20	16	1,087	1,084	342	35	6	2
Indiana	4	6	6	6	21	21	256	572	171	2	14	0
Illinois	8	19	19	15	9	21	1,139	1,414	601	53	22	2
Michigan [2]	8	2	4	3	61	7	944	2,878	671	15	38	6
Wisconsin	1	1	0	37	24	62	2,821	1,620	1,020	10	6	1
WEST NORTH CENTRAL												
Minnesota	8	0	1	1	1	2	983	285	285	6	3	0
Iowa	1	6	3	2	6	8	191	336	290	2	1	0
Missouri	0	0	4	1	4	4	375	415	415	15	14	1
North Dakota	1	1	1	52	------	6	120	70	32	3	0	0
South Dakota	1	0	0	------	------	------	15	68	13	0	0	0
Nebraska	3	0	2	5	------	5	198	198	198	1	3	0
Kansas	1	3	3	------	11	11	432	576	638	2	6	0
SOUTH ATLANTIC												
Delaware	1	0	0	------	------	------	15	331	5	0	1	0
Maryland [2]	10	1	2	2	3	6	895	107	378	10	20	4
District of Columbia	0	1	1	3	3	3	238	78	112	3	2	1
Virginia	6	3	7	111	284	284	903	425	425	13	24	3
West Virginia	3	1	2	21	11	42	431	176	176	4	2	2
North Carolina	6	7	8	40	6	6	1,305	191	761	20	15	2
South Carolina	4	3	4	288	385	416	552	372	143	18	11	1
Georgia	3	7	7	5	63	63	65	238	201	5	2	1
Florida	1	6	2	23	9	8	301	82	171	14	8	0
EAST SOUTH CENTRAL												
Kentucky	6	4	4	24	16	16	198	334	77	6	26	2
Tennessee	7	3	3	40	86	86	219	381	154	13	15	2
Alabama	5	0	5	95	114	148	351	288	143	9	15	4
Mississippi	5	7	7	------	------	------	------	------	------	6	6	1
WEST SOUTH CENTRAL												
Arkansas	4	4	4	70	19	95	254	131	83	3	20	0
Louisiana	1	2	3	8	2	9	116	197	184	18	9	1
Oklahoma	3	6	5	65	43	156	324	43	106	2	1	0
Texas	27	17	18	562	868	555	3,636	611	1,140	23	3	3
MOUNTAIN												
Montana	1	2	1	------	2	4	132	251	127	0	1	0
Idaho	1	10	0	------	3	1	62	87	87	1	6	0
Wyoming	0	0	0	------	23	------	100	153	54	0	3	0
Colorado	2	5	7	19	26	26	511	738	366	1	5	0
New Mexico	0	0	2	3	5	2	229	16	41	0	1	1
Arizona	3	0	2	57	68	84	273	64	104	0	4	0
Utah [2]	0	1	0	24	2	10	37	228	228	2	5	0
Nevada	0	0	0	100	------	------	1	0	0	0	0	0
PACIFIC												
Washington	1	3	1	1	2	------	262	393	393	7	5	1
Oregon	9	2	2	18	17	17	120	346	346	4	6	0
California	18	20	16	43	78	78	4,077	842	842	23	48	2
Total	195	198	219	1,815	2,339	2,339	30,935	25,362	24,725	491	569	55
16 weeks	3,783	4,340	4,687	326,447	66,304	134,670	398,573	288,308	279,676	8,634	7,621	814

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended April 22, 1944, and comparison with corresponding week of 1943 and 5-year median—Con.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever [3]		
	Week ended—		Median 1939–43	Week ended—		Median 1939–43	Week ended—		Median 1939–43	Week ended—		Median 1939–43
	Apr. 22, 1944	Apr. 24, 1943		Apr. 22, 1944	Apr. 24, 1943		Apr. 22, 1944	Apr. 24, 1943		Apr. 22, 1944	Apr. 24, 1943	
NEW ENGLAND												
Maine	0	0	0	55	8	9	0	0	0	1	0	0
New Hampshire	0	0	0	15	13	10	0	0	0	1	2	0
Vermont	0	0	0	13	12	12	0	0	0	0	0	0
Massachusetts	0	2	0	386	588	181	0	0	0	2	5	0
Rhode Island	0	0	0	27	25	19	0	0	0	0	0	0
Connecticut	0	0	0	88	139	94	0	0	0	0	1	1
MIDDLE ATLANTIC												
New York	0	1	1	569	643	531	0	0	0	6	5	5
New Jersey	1	0	0	231	148	156	0	0	0	2	2	2
Pennsylvania	1	0	0	664	321	379	0	0	0	4	8	8
EAST NORTH CENTRAL												
Ohio	0	0	0	434	228	258	0	23	0	1	4	3
Indiana	0	0	0	190	89	154	0	0	1	0	0	0
Illinois	1	0	0	571	166	413	1	0	1	0	1	4
Michigan [3]	0	0	0	334	133	323	0	0	3	0	5	3
Wisconsin	0	0	0	329	380	162	0	0	5	0	0	0
WEST NORTH CENTRAL												
Minnesota	0	0	0	206	63	63	0	0	3	1	0	0
Iowa	0	0	0	195	53	53	1	0	1	1	2	0
Missouri	1	1	0	191	116	91	0	0	1	1	2	2
North Dakota	0	0	0	38	3	7	0	0	1	0	0	0
South Dakota	0	0	0	38	14	19	0	0	0	0	1	0
Nebraska	0	0	0	87	36	16	0	0	0	0	0	0
Kansas	0	0	0	95	49	50	0	1	1	2	1	1
SOUTH ATLANTIC												
Delaware	0	0	0	22	4	10	0	0	0	0	0	0
Maryland [3]	0	0	0	250	74	50	0	0	0	1	2	1
District of Columbia	0	0	0	137	20	15	0	0	0	0	0	0
Virginia	0	0	0	130	39	33	0	0	0	1	4	1
West Virginia	1	2	1	110	23	29	0	0	0	9	8	3
North Carolina	2	0	0	42	38	20	0	0	0	2	1	1
South Carolina	0	0	2	10	4	4	1	0	0	0	1	1
Georgia	0	0	0	11	11	11	0	0	0	5	1	2
Florida	1	0	1	11	7	5	0	0	0	[3] 1	3	4
EAST SOUTH CENTRAL												
Kentucky	1	1	1	99	47	71	0	0	0	2	0	2
Tennessee	0	1	0	106	58	58	0	0	0	2	0	2
Alabama	1	0	0	12	13	10	0	0	0	0	0	2
Mississippi	0	1	1	3	9	7	0	0	1	0	4	2
WEST SOUTH CENTRAL												
Arkansas	1	1	0	0	4	4	0	1	1	0	1	1
Louisiana	1	0	0	9	6	6	0	0	0	4	4	4
Oklahoma	2	1	1	2	19	16	0	0	0	0	2	2
Texas	2	3	2	71	46	36	1	1	3	9	5	6
MOUNTAIN												
Montana	1	0	0	41	6	22	0	0	0	0	0	0
Idaho	0	0	0	34	28	4	0	0	0	0	0	0
Wyoming	0	0	0	8	70	9	0	0	0	1	0	0
Colorado	1	0	0	79	52	36	0	0	0	0	1	0
New Mexico	0	0	0	19	9	9	0	0	0	3	0	1
Arizona	0	3	0	39	10	5	1	0	0	1	0	0
Utah [3]	0	1	0	72	30	16	0	0	0	0	1	0
Nevada	0	0	0	0	0	0	0	0	0	0	0	0
PACIFIC												
Washington	4	0	0	325	35	35	0	1	0	0	0	1
Oregon	0	0	0	139	24	11	0	2	2	3	0	0
California	4	5	1	270	118	118	0	0	0	2	3	3
Total	26	23	16	6,807	4,031	4,031	5	29	36	68	80	90
16 weeks	357	401	384	98,157	63,798	63,798	189	424	706	[3] 1,146	882	1,216

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended April 22, 1944, and comparison with corresponding week of 1943 and 5-year median—Con.

Division and State	Whooping cough			Week ended Apr. 22, 1944								
	Week ended		Median 1939–43	Anthrax	Dysentery			Encephalitis, infectious	Leprosy	Rocky Mt. spotted fever	Tularemia	Typhus fever
	Apr. 22, 1944	Apr. 24, 1943			Amebic	Bacillary	Unspecified					
NEW ENGLAND												
Maine	24	25	25	0	0	0	0	0	0	0	0	0
New Hampshire	0	11	6	0	0	0	0	1	0	0	0	0
Vermont	2	11	23	0	0	0	0	0	0	0	0	0
Massachusetts	65	114	151	0	0	0	0	1	0	0	0	0
Rhode Island	2	34	16	0	0	0	0	0	0	0	0	0
Connecticut	24	29	44	0	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC												
New York	164	253	369	0	1	19	0	4	0	0	0	0
New Jersey	20	117	117	1	6	0	0	1	0	0	0	0
Pennsylvania	52	231	273	0	0	0	0	1	0	0	0	1
EAST NORTH CENTRAL												
Ohio	66	99	148	0	1	0	0	0	0	0	0	0
Indiana	7	93	55	0	1	0	15	0	0	0	0	0
Illinois	26	104	104	0	2	2	0	4	0	0	0	0
Michigan [2]	80	319	215	0	0	1	0	0	0	0	0	0
Wisconsin	24	213	154	0	0	0	0	1	0	0	0	0
WEST NORTH CENTRAL												
Minnesota	29	58	48	0	2	0	0	0	0	0	0	0
Iowa	8	48	32	0	0	0	0	0	0	0	0	0
Missouri	10	26	22	0	0	0	1	0	0	0	0	0
North Dakota	0	6	6	0	0	0	0	0	0	0	0	0
South Dakota	2	4	4	0	0	0	0	0	0	0	0	0
Nebraska	21	6	6	0	0	0	0	0	0	0	0	0
Kansas	12	97	33	0	1	0	0	0	0	0	0	0
SOUTH ATLANTIC												
Delaware	0	1	2	0	0	0	0	0	0	0	0	0
Maryland [2]	18	91	81	0	0	0	2	0	0	0	0	0
District of Columbia	2	17	13	0	0	0	0	0	0	0	0	0
Virginia	30	76	84	0	0	0	17	1	0	0	0	0
West Virginia	26	75	38	0	0	0	0	0	0	0	0	0
North Carolina	139	162	162	0	2	0	0	0	0	0	0	0
South Carolina	135	44	62	0	0	10	0	0	0	0	1	2
Georgia	6	126	29	0	0	2	0	0	0	0	4	4
Florida	46	13	14	0	3	4	0	0	0	0	0	2
EAST SOUTH CENTRAL												
Kentucky	58	36	80	0	0	0	0	0	0	0	0	0
Tennessee	7	59	33	0	1	0	0	0	0	0	0	1
Alabama	16	88	34	0	0	0	0	0	0	0	1	3
Mississippi	------	------	------	0	0	0	0	0	0	0	5	2
WEST SOUTH CENTRAL												
Arkansas	4	28	11	0	0	1	0	0	0	0	1	1
Louisiana	0	5	9	0	2	0	0	0	0	0	1	1
Oklahoma	14	20	20	0	0	0	0	0	0	0	0	0
Texas	231	701	229	0	11	208	0	1	0	0	0	18
MOUNTAIN												
Montana	4	18	6	0	0	0	0	0	0	0	0	0
Idaho	8	3	3	0	0	0	0	0	0	2	0	0
Wyoming	5	13	4	0	0	0	0	0	0	0	0	0
Colorado	102	34	34	0	1	5	0	0	0	0	0	0
New Mexico	6	19	20	0	0	0	1	0	0	0	0	0
Arizona	16	13	24	0	0	0	29	1	0	0	0	0
Utah [2]	47	81	73	0	0	0	0	0	0	0	0	0
Nevada	0	0	0	0	0	0	0	0	0	0	0	0
PACIFIC												
Washington	50	22	67	0	0	0	0	0	0	0	0	0
Oregon	12	13	30	0	0	0	0	0	0	0	0	0
California	98	319	354	0	0	6	0	1	0	0	0	0
Total	1,718	3,975	3,749	1	34	258	65	17	0	2	13	35
16 weeks	28,914	64,183	64,183	17	428	3,345	1,023	168	9	7	163	604
16 weeks, 1943	------	------	------	23	472	3,119	729	176	8	17	269	756

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

[3] Including paratyphoid fever cases reported separately, as follows: New York, 1; Georgia, 1; Florida, 1 (later information: Week ended Mar. 25, no case of paratyphoid fever, instead of 1 as previously reported); Arizona, 1.

WEEKLY REPORTS FROM CITIES

City reports for week ended April 8, 1944

This table lists the reports from 86 cities of more than 10,000 population distributed throughout the United States, and represents a cross section of the current urban incidence of the diseases included in the table.

	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
NEW ENGLAND												
Maine:												
Portland	0	------	------	0	34	0	1	0	7	0	0	0
New Hampshire:												
Concord	0	0	------	0	5	0	0	0	0	0	0	0
Massachusetts:												
Boston	2	0	------	0	114	13	21	0	108	0	1	18
Fall River	0	0	------	0	13	0	3	0	2	0	0	2
Springfield	0	0	------	0	36	0	1	0	55	0	0	13
Worcester	0	0	------	0	2	1	8	0	70	0	0	8
Rhode Island:												
Providence	0	0	1	0	166	1	4	0	8	0	0	3
Connecticut:												
Bridgeport	0	0	1	1	47	0	3	0	3	0	0	1
Hartford	0	0	------	0	6	3	2	0	22	0	0	0
New Haven	0	0	------	0	64	0	4	0	0	0	0	0
MIDDLE ATLANTIC												
New York:												
Buffalo	0	0	------	2	2	0	6	0	18	0	0	0
New York	11	0	5	3	1,718	38	81	1	370	0	3	27
Rochester	0	0	------	0	6	0	5	0	2	0	0	4
Syracuse	0	0	------	0	4	1	2	0	8	0	0	0
New Jersey:												0
Camden	0	0	------	1	6	0	4	0	51	0	0	0
Newark	0	0	4	2	214	4	5	0	39	0	0	4
Trenton	0	0	------	0	4	1	0	0	6	0	0	0
Pennsylvania:												
Philadelphia	3	0	3	0	47	12	23	0	100	0	0	10
Pittsburgh	0	0	2	2	21	8	18	0	25	0	0	1
Reading	0	0	------	0	1	0	2	0	2	0	0	2
EAST NORTH CENTRAL												
Ohio:												
Cincinnati	0	0	1	0	35	8	2	0	44	0	0	1
Cleveland	0	0	4	2	234	9	14	0	104	0	0	5
Columbus	0	0	1	1	118	2	2	0	5	0	0	7
Indiana:												
Fort Wayne	0	0	------	0	1	0	3	0	2	0	0	0
Indianapolis	3	0	------	4	49	1	8	0	60	0	0	0
South Bend	0	0	------	0	1	0	0	0	2	0	0	1
Terre Haute	1	0	------	0	6	0	0	0	2	0	0	0
Illinois:												
Chicago	0	0	------	0	145	28	30	0	196	0	0	10
Springfield	0	0	------	0	48	1	3	0	4	0	0	0
Michigan:												
Detroit	3	0	1	0	112	15	12	0	148	0	1	21
Flint	0	0	------	0	9	2	3	0	2	0	0	4
Grand Rapids	0	0	------	1	95	1	0	0	11	0	0	0
Wisconsin:												
Kenosha	0	0	------	0	97	0	0	0	5	0	0	0
Milwaukee	1	1	------	0	208	1	4	0	70	0	0	4
Racine	0	0	------	0	23	0	1	0	1	0	0	5
Superior	0	0	------	0	2	0	0	0	36	0	0	1
WEST NORTH CENTRAL												
Minnesota:												
Duluth	0	0	------	0	32	0	4	0	23	0	0	4
Minneapolis	0	0	------	0	166	1	7	0	36	0	0	2
St. Paul	0	0	------	0	452	1	13	0	28	0	0	3
Missouri:												
Kansas City	2	0	------	1	70	3	7	0	67	0	0	3
St. Joseph	0	0	------	0	0	1	0	0	7	0	0	0
St. Louis	0	0	1	1	137	12	7	0	49	0	0	3
North Dakota:												
Fargo	0	0	------	0	2	0	0	0	3	0	0	0
Nebraska:												
Omaha	2	0	------	0	32	0	3	0	35	0	0	0
Kansas:												
Topeka	0	0	------	0	37	0	3	0	4	0	0	1
Wichita	0	0	------	0	52	0	5	0	14	0	0	0

City reports for week ended April 8, 1944—Continued

	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
SOUTH ATLANTIC												
Delaware:												
Wilmington	1	0	------	0	5	1	2	0	1	0	0	0
Maryland:												
Baltimore	5	0	7	1	730	7	13	0	104	0	0	34
Cumberland	0	0	------	0	0	0	0	0	0	0	0	0
Frederick	0	0	------	0	6	0	1	0	3	0	0	0
District of Columbia:												
Washington	0	0	------	0	155	0	11	0	149	0	0	5
Virginia:												
Lynchburg	0	0	------	0	2	0	2	0	0	0	0	4
Richmond	0	0	1	1	122	3	1	1	5	0	1	1
Roanoke	0	0	------	0	39	0	1	0	0	0	0	9
West Virginia:												
Charleston	0	0	------	0	2	0	0	0	14	0	0	0
Wheeling	0	1	------	0	46	0	2	0	13	0	0	1
North Carolina:												
Winston-Salem	0	0	------	0	35	0	0	0	2	0	0	2
South Carolina:												
Charleston	0	0	19	0	10	0	1	0	2	0	0	0
Georgia:												
Atlanta	0	1	5	0	17	1	4	0	9	0	0	0
Brunswick	0	0	------	0	3	2	0	0	0	0	0	0
Savannah	0	0	3	3	4	0	1	0	0	0	0	0
Florida:												
Tampa	0	0	1	0	4	1	2	0	2	0	0	0
EAST SOUTH CENTRAL												
Tennessee:												
Memphis	0	0	3	1	28	5	3	0	7	0	0	3
Nashville	0	0	------	1	20	0	3	0	8	0	0	0
Alabama:												
Birmingham	0	0	1	1	6	0	6	0	3	0	0	0
Mobile	0	0	------	1	4	1	2	0	0	0	0	0
WEST SOUTH CENTRAL												
Arkansas:												
Little Rock	0	0	------	0	5	0	0	0	0	0	0	1
Louisiana:												
New Orleans	3	0	4	2	41	5	3	2	6	0	2	0
Texas:												
Dallas	0	0	------	0	175	0	4	0	3	0	0	2
Galveston	0	0	------	0	2	1	0	0	1	0	0	0
Houston	0	0	------	0	23	1	4	0	3	0	0	0
San Antonio	1	0	------	0	24	3	3	0	1	0	1	0
MOUNTAIN												
Montana:												
Billings	0	0	------	0	8	0	0	0	0	0	0	1
Great Falls	0	0	------	0	14	0	0	0	12	0	0	0
Helena	0	0	------	0	1	0	0	0	1	0	0	0
Missoula	0	0	------	0	0	0	0	0	2	0	0	0
Idaho:												
Boise	0	0	2	0	10	0	0	0	3	0	0	0
Colorado:												
Denver	1	0	2	0	92	1	6	0	25	0	0	10
Pueblo	1	0	------	0	30	0	0	0	3	0	0	0
Utah:												
Salt Lake City	0	0	------	0	11	0	1	0	32	0	0	1
PACIFIC												
Washington:												
Seattle	1	0	------	1	51	0	6	0	62	0	0	2
Spokane	0	0	2	2	60	0	1	0	16	0	0	2
Tacoma	0	0	------	0	21	0	2	0	52	0	0	0

City reports for week ended April 8, 1944—Continued

	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
PACIFIC—continued												
California:												
Los Angeles	12	0	8	2	293	3	4	1	31	0	1	2
Sacramento	0	0	------	0	19	1	3	0	4	0	0	7
San Francisco	0	0	5	0	158	2	7	0	63	0	0	6
Total	53	3	87	37	6,947	206	423	5	2,496	0	7	261
Corresponding week, 1943	70	5	121	43	7,856	196	478	2	1,710	1	13	1,135
Average, 1939–43	74	------	255	[1] 39	[2] 5,746	------	[1] 464	------	1,563	6	16	1,102

[1] 3-year average, 1941–43. [2] 5-year median.

Dysentery, amebic.—Cases: New York, 2; Philadelphia, 1; Cleveland, 1.
Dysentery, bacillary.—Cases: New York, 4; Detroit, 2; Charleston, S. C., 1; Nashville, 1; Los Angeles, 4.
Dysentery, unspecified.—Cases: San Antonio, 2; Sacramento, 2.
Rocky Mountain spotted fever.—Cases: Richmond, 1.
Typhus fever.—Cases: Savannah, 1; Tampa, 1; Birmingham, 1; Mobile, 1; New Orleans, 1: Galveston, 1.
Tularemia.—Cases: Billings, 1.

Rates (annual basis) per 100,000 population, by geographic groups, for the 86 cities in the preceding table (estimated population, 1942, 34,567,500)

	Diphtheria case rates	Encephalitis, infectious, case rates	Influenza		Measles case rates	Meningitis, meningococcus, case rates	Pneumonia death rates	Poliomyelitis case rates	Scarlet fever case rates	Smallpox case rates	Typhoid and paratyphoid fever case rates	Whooping cough case rates
			Case rates	Death rates								
New England	5.0	0.0	5.0	2.5	1,219	45.0	117.7	0.0	688	0.0	2.5	113
Middle Atlantic	6.3	0.0	6.3	4.5	905	28.6	65.3	0.4	278	0.0	0.0	22
East North Central	4.7	0.6	4.1	4.7	693	39.8	48.0	0.0	405	0.0	0.6	35
West North Central	7.8	0.0	2.0	3.9	1,920	35.3	96.0	0.0	522	0.0	0.0	31
South Atlantic	10.4	3.5	62.6	8.7	2,050	26.1	71.3	1.7	529	0.0	1.7	97
East South Central	0.0	0.0	23.8	23.8	345	35.7	83.4	0.0	107	0.0	0.0	18
West South Central	12.5	0.0	12.5	6.2	843	31.2	43.7	6.2	44	0.0	9.4	9
Mountain	16.1	0.0	32.2	0.0	1,338	8.1	56.4	0.0	629	0.0	0.0	97
Pacific	22.8	0.0	26.3	8.8	1,055	10.5	40.3	1.8	400	0.0	1.8	33
Total	8.0	0.5	13.2	5.6	1,051	31.0	64.0	0.8	378	0.0	1.1	39

TERRITORIES AND POSSESSIONS

Hawaii Territory

Honolulu—Dengue fever.—For the period March 16–31, 1944, 10 cases of dengue fever were reported in Honolulu, T. H., bringing the total number of cases reported from the beginning of the outbreak to date to 1,456.

Plague (human).—On March 10, 1944, a death from plague occurred in an 8-year old female in Honokaa, Hamakua District, Island of Hawaii, T. H., making a total of 4 deaths reported in this same district for the year to date. Diagnosis has been confirmed.

Plague (rodent).—Rodents proved positive for plague on the dates specified have been reported in Hamakua District, Island of Hawaii, T. H., as follows: Paauhau area—March 14, 1944, 2 mice; March 15, 1 mouse and 1 rat; March 24, 1 mouse; Kapulena area—March 22, 1 rat.

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended March 25, 1944.—During the week ended March 25, 1944, cases of certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Chickenpox	---	11	42	196	416	84	40	69	165	1,023
Diphtheria	1	8	2	26	3	3	3	4	2	52
Dysentery (bacillary)	---	---	---	3	---	---	---	---	---	3
German measles	---	7	---	86	54	16	80	11	42	296
Influenza	---	4	---	---	88	2	---	---	36	130
Measles	1	119	7	960	576	253	91	195	37	2,239
Meningitis, meningococcus	---	---	---	2	6	---	5	---	3	16
Mumps	1	16	54	192	285	94	14	51	38	745
Scarlet fever	2	10	9	57	228	98	29	81	122	636
Tuberculosis (all forms)	---	1	16	91	58	12	---	26	76	280
Typhoid and paratyphoid fever	---	---	---	13	1	---	---	18	---	32
Undulant fever	---	---	---	3	1	---	---	---	1	5
Whooping cough	---	11	---	21	25	9	1	36	24	127

CUBA

Habana—Communicable diseases—4 weeks ended April 1, 1944.—During the 4 weeks ended April 1, 1944, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis	1	---	Scarlet fever	1	---
Diphtheria	22	1	Tuberculosis	15	---
Malaria	2	1	Typhoid fever	26	3
Measles	43	---			

Provinces—Notifiable diseases—4 weeks ended March 25, 1944.—During the 4 weeks ended March 25, 1944, cases of certain notifiable diseases were reported in the Provinces of Cuba as follows:

Disease	Pinar del Rio	Habana[1]	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer	1	---	3	2	---	10	16
Cerebrospinal meningitis	---	1	---	---	---	---	1
Chickenpox	---	14	1	---	---	5	20
Diphtheria	---	31	3	2	---	2	38
Hookworm disease	---	15	---	---	---	---	15
Leprosy	---	1	---	---	---	---	1
Malaria	18	7	16	10	---	208	259
Measles	---	64	28	---	---	---	92
Scarlet fever	---	1	---	---	---	---	1
Tetanus, infantile	---	---	---	---	---	1	1
Tuberculosis	16	23	18	15	4	46	122
Tularemia	---	---	---	---	---	1	1
Typhoid fever	9	66	8	24	1	28	136
Yaws	---	---	---	---	---	1	1

[1] Includes the city of Habana.

SALVADOR

Vital statistics—Year 1943.—The following table shows the numbers of deaths by cause reported in the Republic of Salvador for the year 1943:

Cause	Deaths	Cause	Deaths
All causes	38,406	Influenza	1,533
Appendicitis	23	Malaria	4,645
Arteriosclerosis	54	Measles	1,712
Avitaminosis	485	Motor car accidents	432
Bronchitis	715	Nephritis	853
Cancer and other malignant tumors	372	Pernicious anemia	205
Cirrhosis of the liver	90	Pneumonia (all forms)	1,901
Congenital debility	742	Rheumatic fever	443
Diabetes	54	Scarlet fever	1
Diarrhea and enteritis (under 2 years of age)	2,993	Senility	506
Diphtheria	39	Suicide	45
Dysentery	509	Syphilis	371
Heart disease	794	Tuberculosis (all forms)	852
Hernia and intestinal obstruction	92	Typhoid and paratyphoid fever	52
Homicide	480	Whooping cough	738
		Ill-defined causes	6,024

NOTE.—Population, 1,880,000.

SWEDEN

Notifiable diseases—January 1944.—During the month of January 1944, cases of certain notifiable diseases were reported in Sweden as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	10	Poliomyelitis	79
Diphtheria	246	Scarlet fever	2,994
Dysentery	82	Syphilis	89
Gonorrhea	1,667	Typhoid fever	2
Hepatitis, epidemic	727	Undulant fever	8
Paratyphoid fever	11	Weil's disease	2

WORLD DISTRIBUTION OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Health, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables 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]

NOTE.—Since many of the figures in the following tables are from weekly reports, the accumulated totals are for approximate dates.

Place		January–December 1943	January–February 1944	March 1944—week ended—			
				4	11	18	25
ASIA							
Ceylon	C	50	2				
China: Kwangsi Province	C	[1] 1,100					
India	C	323,270	33,678				
Bombay	C	28					
Calcutta	C	7,007	389	55	94	106	
Chittagong	C	391	60				
Cochin	C	192					
Madras	C	1,219	36				
Negapatam	C	21	15				
Vizagapatam	C	68					
India (French)	C	55					
Chandernagor	C	8					
Karikal	C	30					
Pondichery	C	17					

[1] Cases reported up to Sept. 8, 1943, with a mortality rate of over 25 percent.

PLAGUE

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

Place		January-December 1943	January-February 1944	March 1944—week ended— 4	11	18	25
AFRICA							
Basutoland	C	[1] 24					
Belgian Congo	C	[2] 51	3				
Plague-infected rats		P					
British East Africa:							
Kenya	C	18	1				
Uganda	C	20		1	1	1	
Egypt	C	163	115				
Port Said	C	10	1				
Suez	C	118	108	1	3	2	3
French West Africa: Dakar	C	32					
Madagascar	C	234					
Morocco (French)	C	299	20				
Rhodesia, northern	C		1				
Senegal	C	251					
Union of South Africa	C	85	20		1		
ASIA							
China: Foochow	C			P			
India	C	10,044	2,836				
Indochina	C	31	10		3		
Palestine	C	13					
EUROPE							
Portugal (Azores)	C	[3] 56					
SOUTH AMERICA							
Ecuador:							
Chimborazo Province	C		1				
Loja Province	C	15					
Peru:							
Ancash Department	C	2					
Ica Department	C	2					
Lambayeque Department	C	2					
Libertad Department	C	26					
Lima Department	C	23					
Lima	C	1					
Plague-infected rats		P					
Piura Department	C	11					
Venezuela: Aragua and Miranda States	C	10					
OCEANIA							
Hawaii Territory:							
Hamakua District	D	7	[4] 3		1		
Plague-infected rats		[5] 93	[5] 22	[6] 5		[6] 4	[7] 2

[1] Includes 12 cases of pneumonic plague in a village south of Mafeteng.
[2] Includes 9 cases of pneumonic plague.
[3] Approximated.
[4] Includes 1 death from pneumonic plague.
[5] Includes 4 plague-infected mice.
[6] Includes 3 plague-infected mice.
[7] Includes 1 plague-infected mouse.

SMALLPOX

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

Place		January–December 1943	January–February 1944	March 1944—week ended— 4	11	18	25
AFRICA							
Algeria	C	1,741	263				
Angola	C	652					
Basutoland	C	146	10				
Belgian Congo	C	4,643	560	42			
British East Africa:							
Kenya	C	3,439	1,346	164	112	121	91
Mombasa	C	75	56	13			
Tanganyika	C	143	285	26	43	24	
Uganda	C	132	498	69	130	103	
Dahomey	C	156	8				
Egypt	C	4,161	2,031				
French Equatorial Africa	C	173	60				
French Guinea	C	378	134				
French West Africa: Dakar	C	4					
Gambia	C				13		
Gold Coast	C	25	4	1			
Ivory Coast	C	160	196				
Mauritania	C	40					
Morocco (French)	C	1,170	423				
Morocco (Spanish)	C	1					
Mozambique	C	1	1				
Nigeria	C	6,132	678	130	375	187	
Niger Territory	C	308	303				
Rhodesia, northern	C	123					
Senegal	C	111	12				
Sierra Leone	C	3					
Sudan (French)	C	3,795	888				
Tunisia	C	4	5				
Union of South Africa	C	963	16	6	2	1	1
ASIA							
Arabia	C	3	[1] 7				
Ceylon	C	85	6	1			
China: Kunming [2]	C					5	2
India	C	76,531	61,354				
India (French)	C	10					
Indochina	C	5,113	827		93		
Iran	C	631					
Iraq	C	272	75				
Palestine	C	104	4				
Syria and Lebanon	C	1,132	71	32	3		
Trans-Jordan	C	19					
EUROPE							
Belgium	C	1					
France	C	2					
Germany	C	1					
Gibraltar	C	1	P				
Great Britain: London	C				[3] 7	4	
Greece	C	800					
Portugal	C	51	8	1			
Scotland	C	[4] 2					
Spain	C	222	7	9	21		
Switzerland	C	17					
Turkey	C	12,400	1,661				
NORTH AMERICA							
British Honduras	C	1					
Canada	C	6					
Guatemala	C	27					
Honduras	C	2					
Mexico	C	419	665				
SOUTH AMERICA							
Brazil	C	57	2			1	3
British Guiana	C	1					
Colombia	C	391	34	11			
Ecuador	C	25					
Peru	D	12	19				
Lima	C		19				
Venezuela	C	110	18				

[1] Includes 4 imported cases.
[2] Yunnan Fu.
[3] Includes 1 imported case from the Middle East.
[4] Includes 1 case on a vessel from North Africa.

TYPHUS FEVER

[C indicates cases; D, deaths]

Place		January–December 1943	January–February 1944	March 1944—week ended— 4	11	18	25
AFRICA							
Algeria	C	8,321	210				
Basutoland	C	28					
Belgian Congo	C	39	4				
British East Africa:							
Kenya	C	10	3				1
Mombasa	C	1					
Uganda	C	1					
Egypt	C	40,084	3,053				
French Equatorial Africa	C	3					
French Guinea	C	1					
French West Africa: Dakar	C	32	2		1		
Gold Coast	C	9					
Morocco (French)	C	16,191	446				
Morocco (Spanish)	C	401	1	1			
Mozambique	C	1	2				
Nigeria	C	11		1			
Rhodesia, northern	C	14	5		1		
Senegal	C	2					
Sierra Leone	C	3					
Tunisia	C	356	142			[1] 80	
Union of South Africa	C	4,973	2,503	94	110		
ASIA							
Afghanistan	C	520					
Arabia: Western Aden Protectorate	C		15				
China:							
Kunming [2]	C						4
Shanghai	C	12					
India	C	2,113	2	1			
Iran	C	[3] 12,885	[3] 450				
Iraq	C	1,423	9	16	16		
Palestine	C	340	99	21	15		41
Syria and Lebanon	C	95	28	2	1		
Trans-Jordan	C	17	2				
EUROPE							
Bulgaria	C	1,843	293				
France—Seine Department	C	4					
Germany	C	5,058					
Greece	C	99					
Hungary	C	1,012	442	66	75		
Irish Free State	C	20					
Netherlands	C	4	7				
Portugal	C	11					1
Rumania	C	8,441	3,409				[4] 1,649
Slovakia	C	637	152			[5] 44	
Spain	C	640	38	21	3		
Switzerland	C	1					
Turkey	C	4,234	190				
Yugoslavia	C		273				
NORTH AMERICA [6]							
Cuba	C	1					
Guatemala	C	1,334	317				
Jamaica	C	33					
Mexico	C	1,126	432				
Puerto Rico	C	76	11				6
Virgin Islands	C	9	1				
SOUTH AMERICA							
Brazil	C	1					
Chile	C	258	53	2			
Colombia	D	2					
Curacao	C		1				
Ecuador	C	350	53				
Peru	C	17	1				
Venezuela	C	32	7				
OCEANIA							
Australia	C	123	24	2	6	4	4
Hawaii Territory	C	69	16	3	2		1

[1] For the period Mar. 1-20, 1944.
[2] Yunnan Fu.
[3] Approximated on account of overlapping of dates.
[4] For the month of March 1944.
[5] For 3 weeks.
[6] Cases of typhus fever listed in this area are probably of endemic type.

YELLOW FEVER

[C indicates cases; D, deaths]

Place		January–December 1943	January–February 1944	March 1944—week ended— 4	11	18	25
AFRICA							
Belgian Congo:							
Babeyru	D		1				
Bondo	D	3					
Costermansville Province	D	1					
Kinzao	D	1					
Leopoldville	C	2					
Stanleyville	D	1					
Yanonge	C	1					
British East Africa: Kenya—Kisumu	C	1					
Dahomey:							
Djougou District	C	[1]2					
Natitingou	C	[1]1					
French Guinea:							
Baccoro	C	1					
Dubreka	C	2					
Friguiagbe	C	1					
Matakang Island	D	1					
Gold Coast:							
Asuboi	C	1					
Komenda	C	1					
Takoradi	C	1					
Tamale	C		[1]1				
Ivory Coast:							
Abidjan	C	3					
Aboisso	C	[1]1					
Bonoua	C	1					
Soubre	C	1					
Toumodi	D	[1]1					
Portuguese Guinea	C	3					
Senegal:							
Goudiri	D	1					
Kolda	C	1					
Tambacounda	C	2					
Velingara Casamance	C	1					
Sierra Leone: Galinas	C	[1]1					
EUROPE							
Portugal: Lisbon.[2]							
SOUTH AMERICA							
Brazil:							
Acre Territory	D		1				
Amazonas State	D	1					
Matto Grosso State	D		3				
Para State	D	1					
Colombia:							
Boyaca Department	D	14					
Cundinamarca Department	D	7					
Intendencia of Meta	D	9					
Santander Department	D	1					

[1] Suspected.

[2] According to information dated January 21, 1944, it is reported that a vessel which called at the islands of Sao Tome and Cape Verde arrived at Lisbon, Portugal, with cases of yellow fever on board.

COURT DECISIONS ON PUBLIC HEALTH

City ordinance regulating food carrying vehicles upheld.—(Illinois Supreme Court; *General Baking Co. et al.* v. *City of Belleville*, 51 N.E.2d 546; decided November 19, 1943.) An ordinance of the city of Belleville, Ill., made vehicles carrying and delivering foodstuffs for human consumption in the city subject to daily inspection and required a license fee of $50 a year for each vehicle except those vehicles which were used to deliver foodstuffs from food-dealing establishments in the city, licensed and inspected as such, and which were inspected

under other ordinances. Some baking companies situated in Missouri sought to recover money paid as license fees under the ordinance. The plaintiffs alleged compliance with all of the public health laws of Missouri affecting the manufacture, wrapping, and sealing of all products delivered in Belleville and claimed that the ordinance contravened the commerce, equal protection, and due process clauses of the Federal constitution.

The Supreme Court of Illinois stated that the generally recognized rule was that ordinances to protect public health cannot be said to have so burdened interstate commerce as to render them repugnant to the Federal constitution if the license fees bear a reasonable relation to the cost of enforcement and the terms of the ordinance bear a reasonable relation to the purpose for which passed and are not discriminatory. The fact that the plaintiffs were manufacturers outside of the city, and in no wise subject to other regulations and license fees as were their resident competitors, afforded, according to the court, a reasonable basis for excluding from the general application of the licensing features of the ordinance those who paid license fees under other city ordinances to which the plaintiffs were not subject. It was pointed out that all other provisions of the ordinance attacked were applicable to resident as well as nonresident vendors. The court was of the opinion that there was no unlawful discrimination against plaintiffs and that the requirement that they pay the license fees did not constitute an illegal burden on interstate commerce. The ordinance was not, therefore, open to the constitutional objections urged by the plaintiffs and the lower court's judgment dismissing the complaint was affirmed.

Power of appointment by local board of health in municipality not under commission form of government.—(New Jersey Supreme Court; *Valdes* v. *Baumann*, 34 A.2d 745; decided December 9, 1943.) The relator claimed that he was appointed plumbing inspector of a borough by the mayor and common council. The defendant claimed he held the office by appointment made by the borough board of health. The borough was not governed by the commission government act. By statute the establishment of local boards of health was directed and such boards had the power to appoint officers and agents. The Supreme Court of New Jersey held that the action of the mayor and common council was beyond their power as they could not intrude upon the duties delegated by law to the local board of health in a municipality not governed by the commission government act.

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