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STATE PLANNING FOR PARTICIPATION IN THE NATIONAL MENTAL HEALTH ACT¹

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A year ago, at the Seventy-third Annual Meeting of the National Conference of Social Work, you were presented with a blueprint for a nation-wide mental health program.² Today those plans are about to be realized. Now that the National Mental Health Act has become law, we here today at last have an opportunity to cope on a broad, nation-wide scale with one of America's major public health problems—mental illness.

The concept of mental illness as a public health problem, while not new, has been rather slow in gaining general acceptance since people are inclined to think of mental disorders as phenomena peculiar to isolated individuals. However, the prevalence of mental illness, let alone its costliness, certainly qualifies it as a public health problem, necessitating public responsibility for its eradication and prevention.

This group needs no reminder of the facts about our nation's mental health. Most of you are confronted with their grim reality in the course of your daily work. The 600,000 patients in mental hospitals—occupying more than half of all the hospital beds in the country; the 125,000 new patients entering mental hospitals every year; the millions of everyday citizens suffering from psychosomatic or other neurotic symptoms which hamper them from leading fully useful and satisfying lives; the countless children showing behavior problems or turning delinquent as a result of emotional disturbances—all attest to the crying need for a public health program to improve the mental health of our people, and to the wisdom of the Congress in passing legislation which would make such a program possible.

¹ Presented before the Seventy-fourth National Conference of Social Work, San Francisco, Calif., April 1947.

² Proceedings of the Seventy-third National Conference of Social Work, 1946.

For those who are unfamiliar with the provisions of the National Mental Health Act, a brief resumé may be in order.

Research.—Under the National Mental Health Act the United States Public Health Service is authorized to make grants-in-aid for research directly to universities, hospitals, laboratories, and other public and private institutions, and to qualified individuals. Research projects must first be recommended by the National Advisory Mental Health Council, which is composed of six persons, selected without regard to civil service laws from the leading authorities in the field of mental health. This authorization, it is hoped, will do much to stimulate research which otherwise might remain in the idea stage.

The Act also authorizes the establishment of a National Institute of Mental Health in the Washington area, where coordinated studies will be conducted in the many sciences which bear upon the problem of mental health. There will be a full-time staff plus advanced students representing all the sciences which may reasonably be expected to help solve the enigmas of mental illness. For clinical observation the Institute will include a hospital unit, the patients to be selected on the basis of the studies being conducted.

The law further provides for the appointment of research fellows in the various sciences related to mental health. The fellowship program will make it financially possible for capable students to contribute to science while enhancing their own value and professional prestige.

Training.—The shortage of well-trained personnel in the mental health field is one of the most serious handicaps in the development of an adequate health program. To promote training in this field the Act authorizes the Public Health Service to make grants to public and other nonprofit institutions for developing and improving their training facilities. In this way institutions that already provide training in mental health fields can expand to accommodate more students, and potential training centers—hospitals, clinics, schools of social work, medical schools, and others—can be developed. Grants may not be used, however, for the construction of buildings.

Training stipends will also be available to selected students in psychiatry, psychology, psychiatric social work and psychiatric nursing. The number of trainees who may receive stipends is determined by the National Advisory Mental Health Council. At its last meeting the Council authorized the United States Public Health Service to grant a limited number of stipends during the next fiscal year to graduate students in the four mental health specialty fields. These annual stipends will range in size from \$1,200 through \$2,400 for clinical psychologists, psychiatric social workers, and psychiatric nurses and up to \$3,600 for psychiatrists, depending upon the level of training for which the applicant is eligible. These awards will be

made through the institutions collaborating in this phase of the training program of the United States Public Health Service.

Grants to States.—The third category of mental health activity which the Act seeks to promote is the expansion and improvement of mental health services at the State and community level. It is this aspect of the Public Health Service program which is probably of most concern to this group, and the one to which the rest of this paper shall be devoted.

Under the National Mental Health Act the amount authorized to be appropriated annually for grants to States for general health purposes is increased by \$10,000,000. This is the maximum sum that can be made available to States for assistance in the development and expansion of mental health programs at the State and community level. It is not anticipated that the full amount will be utilized during the first year of the program³.

Grants will be made on a matching basis and will take into account the population, financial need, and the extent of the mental health problem in the State. They will be made through the State Mental Health Authority. This will be the only State agency with which the Federal Government will deal in this aspect of the program. In the Act the State Mental Health Authority is defined as "the State health authority, except that, in the case of any State in which there is a single State agency other than the State health authority charged with responsibility for administering the mental health program of the State, it means such other State agency."

As in obtaining grants for other public health programs, in order to secure a grant under the National Mental Health Act, the State Mental Health Authority will be required to submit a plan for approval by the Surgeon General for the development of mental health services in the State, together with budget estimates. It is obvious that the State Mental Health Authority will need the close cooperation of interested State and local organizations in the preparation of plans in order that existing needs may be pointed out and potential resources fully utilized.

In order further to encourage the development of mental health programs in the States, the Act also provides that the Service may utilize up to \$1,000,000 of the general health funds to set up demonstrations. They will serve as valuable means of inaugurating State programs where existing organization and facilities are absent or inadequate. Such demonstrations could be made in the establishment of all-purpose psychiatric out-patient clinics, hospital organization, and similar facilities.

The types of activities that might be included in the State plans for the development of a mental health program, with the assistance of

³ Since this paper was presented, Congress appropriated \$3,000,000 for this aspect of the program.

Federal funds available under the Mental Health Act, will vary, of course, with the special needs of each State. A program which may be best for one State may not prove useful to another. Hence what is to be said here should be evaluated in the light of the needs and resources of your particular State.

In general, there are four basic activities which State plans should include:

(1) There should be provision for an appraisal of the State's mental health needs and resources, on the basis of which immediate and long-range plans should be developed. State and community organizations, particularly community welfare councils, can be of immeasurable assistance by surveying the needs and resources of their own communities and presenting their findings and recommendations to the State Mental Health Authority.

(2) Where needed, staff in the central office of the State Mental Health Authority should be enlarged to carry out the functions incumbent upon that office. Most important of these functions are:

(a) The promotion and development, subsidy, or operation of psychiatric clinical services for adults and for children. (This will be discussed more fully later.)

(b) The training of professional personnel—psychiatrists, psychologists, and psychiatric social workers—for State and local mental health work.

(c) The education of other professional health workers, particularly public health nurses, in mental hygiene in order that they may contribute to mental health in the performance of their regular duties.

(d) The development of a well-rounded and practical program of mental health education of the public.

(e) Liaison or consultation with other departments, such as education, welfare, correction, civil service, and so forth.

(f) The licensure and inspection of private mental hospitals.

(g) The development of research in the field of mental diseases and emotional disorders.

(h) The development of State-wide records of the incidence of mental diseases and emotional disorders.

(3) After a central staff is developed, training programs for mental health workers could be established in the field. For example, a section on training might be set up to stimulate and coordinate in-service and out-service training programs for social workers, mental hospital staff physicians, nurses, attendants, and other mental health personnel. A training program for the psychiatric orientation of the general practitioner should also be given serious consideration in the State plans. In mental illness, as in others, he is the first line of defense. Properly trained and sensitized to the presence of psychiatric disturbances, he can deal effectively with the milder, less deep-seated cases, and, through an understanding of psychosomatic medicine, he can give more comprehensive attention to all of his patients.

(4) We turn now to what is perhaps the core of the State's program—*the establishment and expansion of community mental health clinics*. Those who have tried to obtain psychiatric consultation or treatment for their clients can feelingly testify that there is a great scarcity of out-patient mental health facilities in this country. According to the latest available information, there is provided in the entire United States only about one-fifth the needed clinic services, and the existing ones are for the most part concentrated in the larger population centers. Approximately thirteen States are entirely without mental health clinic services, and there are large areas in other States where no psychiatric facilities whatsoever are provided.

The present goal of the Public Health Service in the grants-to-States program is the establishment by the States of at least one out-patient mental health clinic for each 100,000 of the population. Although this goal is not immediately attainable, due to the shortage of personnel, it may eventually prove to be quite conservative in terms of the need.

There is a time-proven formula for providing mental health clinic services to the community. However, there is no reason why it need be followed; it may be that in a given State another approach would yield better results. Following is the standard pattern:

According to best present estimates, a full-time, all-purpose mental health clinic should be provided for each 100,000 of the population, as stated above. It is preferable that this service be integrated with other health services in the community. The basic staff of the clinic should consist of one psychiatrist, one psychologist, two psychiatric social workers, and the necessary clerical assistance. One psychiatrically trained public health nurse when added to the clinic staff can extend amazingly the service rendered by the clinic. The clinic should be available to all segments and all ages of the population.

State plans should include the provision of mental health clinic services to sparsely settled and rural areas. This could be done by means of traveling clinic teams, emanating from a central office strategically located in the State, which would visit rural or small communities at regular intervals. A nucleus of local persons, perhaps in or associated with a health or welfare agency, should serve to carry out the recommendations made by the traveling team, and to establish some sense of continuity between visits. Early in the program, one member of the central clinic staff, preferably the psychiatric social worker, should be permanently located in the branch office, the other members coming at frequent intervals to provide a more complete service.

These clinics, whether mobile or stationary, should serve three broad functions: as a psychiatric treatment clinic; as an auxiliary

service to the mental hospital; and as an agency for community mental health education.

As a *psychiatric treatment clinic* it would provide out-patient psychiatric treatment or psychological counselling for patients not in need of hospitalization. The integration of mental health services with other medical services should do much to encourage the referral of patients in the early stage of illness, particularly as physicians and other clinic workers become more aware of the emotional implications of the disease processes with which they are dealing. I am thinking, for example, not only of those psychological factors which so often play an important role in such conditions as peptic ulcer or colitis, but also of the deep emotional disturbances which may accompany or follow in the wake of serious organic disabilities. An illustration is the psychic trauma following the discovery by a patient that he has tuberculosis. Such a patient may need emotional support, which the clinic can work with the chest specialist in supplying. In some cases serious emotional disturbances may be avoided by proper psychiatric care which would be available through the clinic. Too, a physician aware of the emotional implications often underlying promiscuity may refer for psychiatric diagnosis treatment a venereally infected girl who might otherwise be unconsciously propelled to further promiscuity and repeated infection. And you are all very familiar with those mothers and children seen in well-baby or pediatric clinics who would profit by the cooperative efforts of psychiatric and pediatric personnel.

As an *auxiliary service to the mental hospital*, the clinic would provide prehospital service to those in need of institutional care, including the preparation of the patient and his family for the new situation; would carry out follow-up treatment of patients on provisional discharge; and would supervise care-and-custody and boarded-out cases from the hospital. In this connection too great emphasis cannot be given to the need for a closer working relationship between the clinic or other community agency and the hospital. All too often social workers have little knowledge of or interest in what goes on in their State hospitals and of the trials and tribulations which confront workers in the hospital. Local social work organizations might consider ways to gain a better understanding of the problems inherent in their mental hospitals and to help meet them.

The *mental health education function* of the clinic would include active case-finding programs; the study and control of mental diseases from an epidemiological standpoint; and the dissemination of information about mental health principles and practices.

If we are ever to reduce the volume of mental illnesses, we must go out and find the people who need help, bring them in contact with

clinic facilities, and treat them as promptly as possible. It must be admitted, in all honesty, that our present methods of case-finding are still in a very primitive stage. It is time that we began to think in terms of broad case-finding programs and of developing case-finding techniques comparable to those which have proved so successful in tuberculosis and other public health problems. We need to develop case-finding procedures which would highlight those individuals who might be "susceptible" to emotional difficulties. As in tuberculosis, the "positive reactors" would then be given intensive examination to determine whether they were in need of treatment. If fifty percent of the individuals identified by such screening methods were found to be in need of definitive treatment, the value of such a procedure would be great, since it is unlikely that these individuals would otherwise be identified until much later in their illness. Just as the stigma attached to tuberculosis has gradually dwindled in the wake of community education and mass-survey programs, so, it is believed, mental illness will come to be accepted with better grace as the public becomes better informed about it and accepts mental health case-finding programs as a logical part of community health services.

There are certain fields in community life where incipient cases of mental illness may be looked for profitably and where good opportunities for preventive psychiatry exist. These include the schools, courts, health and welfare agencies, and so forth. If incipient cases are to come to the attention of the clinic early, the personnel of these agencies need to be able to recognize early symptomatic behavior.

The staff of the clinic can help to orient these personnel to mental hygiene concepts. This can perhaps best be done through participation in staff conferences on patients in whom they are mutually interested. Here interpretation of the patient's condition, causative factors, and plan of treatment, explained in comprehensible language, will not only help the worker to gain a better grasp of the patient's problems, but will also help him in applying this knowledge to similar cases, which as a consequence may need never be referred. Seminars on mental health might also be held under clinic auspices for workers attached to these agencies.

It is particularly in the field of mental health education that community social work groups can make an invaluable contribution. Mental health education, not only of the clinic patient and his family, but of the community at large, is of fundamental importance in combatting mental illness. Obviously if patients suffering from milder disorders are to have an opportunity for treatment while the chance for recovery is greatest, they must come for aid. The ignorance and misconceptions which make patients reluctant to seek treatment must be overcome. In the public mind mental illness is largely an all-or-

none affair, as expressed in the established legal fiction that a person is either sane or insane. Under a system which in general makes little provision for psychiatric treatment until the patient is committed to an institution, it is scarcely surprising that this view has endured.

Health and welfare agencies can do much by the dissemination of facts which will dispel the notion that mental illness is a mysterious, incurable, or disgraceful affliction. At every opportunity they can impress upon the public that, if treated early, many types of mental illness offer good hope of cure or material improvement.

To acquaint others with the truth about mental illness, social workers must themselves be familiar with the facts and able to recognize symptoms of mental disturbances even in their incipiency. Because of their intimate contact with the community, they are in an especially strategic position to refer persons in need of psychiatric treatment at the earliest possible moment, thus performing an invaluable service both to the patient and to a community case-finding and preventive program. Agencies whose workers are not psychiatrically oriented should, if at all feasible, offer in-service training courses to their workers which would keep them informed about mental health principles and practices and make them aware of whatever psychiatric implications may be present in their client's problems.

In developing a community program, advantage should be taken of whatever clinical facilities are at present available. They should be carefully scrutinized to determine whether or how they might be expanded to provide more or better service. Similarly, thoughtful consideration should be given to the possibility of utilizing agencies with qualified supervisory personnel for training programs. Under the Mental Health Act it will be possible for qualified public and non-profit agencies to receive assistance through the State Mental Health Authority in order to permit their wider utilization as training facilities.

While the establishment of an all-purpose clinic for each community is the eventual goal, special problems frequently make themselves felt in a community before the need for an all-purpose clinic is appreciated. For example, there may be a pressing need for a child guidance clinic or for psychiatric services in the school or in the court. It would be logical, in that case, to initiate the community mental health program by establishing first those services most urgently needed. The program, however, should not stop there. It should logically and progressively be expanded to include the provision of mental health services for the whole community.

The cooperation of State and community professional and lay organizations with the State Mental Health Authority both in the

preparation of plans and in carrying them out is so important that it cannot be too strongly emphasized. It would be well, for example, when possible, to have a representative of the State Mental Health Authority as an active member of welfare councils or on advisory boards. In this way there can be greater assurance of having a co-ordinated State program, eliminating duplication of effort and making the best possible use of community resources.

Lest hope is aroused that the millenium in psychiatric services is around the corner, it must be pointed out that the need for mental health services is very great almost everywhere and that the shortage of personnel makes the provision of the full quota of services not immediately possible. This means that, at least in the initial years of the program, the need for mental health services may go unmet in many localities. It also means that State and community cooperation is essential from the very start if an equitable State-wide program is eventually to be realized.

The acceptance by your Federal Government of greatly increased responsibilities in the field of mental health is of tremendous significance. But it does not mean that the responsibility of the individual States has been lessened in any degree. Quite to the contrary. The success of the program depends upon the type of teamwork which has proved so effective in other fields of public health—the cooperation and participation of the States, communities, and the public and private professional and lay organizations. With such teamwork this nation can look forward with confidence to a successful conquest of one of mankind's worst afflictions—mental illness.

DDT IN OIL AS A MOSQUITO LARVICIDE ¹

By HENRY A. JOHNSON, *Senior Sanitary Engineer*, and WILLIS L. GOODMAN, *General Mechanic, United States Public Health Service*

Since the discovery of the high toxicity of DDT (dichloro-diphenyl-trichloroethane) for mosquito larvae there have been many investigations dealing with its possible effectiveness as a larvicide. (1, 2)

In the usual larviciding programs for the control of mosquitoes, 60 to 80 percent of the total cost is for labor. It has long been known that if a more toxic larvicide could be produced which would spread well, a large reduction in the cost of larviciding programs could be realized and the particularly arduous duties of the crews greatly lightened because of the reduced amount of larvicide necessary.

In the usual oil-larviciding programs as heretofore practiced it has

¹ From Office of Malaria Investigations (Memphis, Tenn.), United States Public Health Service, National Institute of Health.

been found necessary to apply from 20 to 40 gallons of oil per acre of water surface. The oil has been applied from a knapsack or hand-pressure spray in a more or less solid stream. This precludes effective action of the larvicide at a distance from the point of liberation and does not allow the breaking up of the material into a mist form which is of material aid in uniform distribution.

The use of small amounts of DDT dissolved in an oil larvicide suggests a means of greatly reducing the amount of larvicide necessary and at the same time accomplishes the desired results.

Mixtures of oil, a spreader, and DDT, together with methods of application have been developed at the Carter Memorial Laboratory of the United States Public Health Service at Savannah, Ga., (3) and have proved successful in preliminary trials. The present report deals with tests carried out in the field under such conditions as would normally be encountered by a larviciding crew.

The experiments herein reported were conducted under field conditions in typical areas. In order to check results, a large number of dippings were made in the water of the area under test before each application of the larvicide and were repeated 24 hours after larvicide application. The average number of larvae per dip was calculated in each case and the percentage of reduction figured, this being the method of judging results that is customarily carried out in malaria control programs.

PRELIMINARY TESTS, 1944

During 1944 several preliminary experiments were carried out on large areas of water near Stuttgart, Ark., which were producing *Anopheles quadrimaculatus*. The areas are described as follows:

Deep Bayou: The part of the bayou under test was 2,800 feet long and averaged 40 feet wide; the area was 2.69 acres. There was no flow. Growth consisted of button bush shrubs, marginal growths of smartweed and other semi-aquatic grasses, and large patches of duckweed and other floating aquatic plants and debris.

Flat Bayou: The part of this bayou under study was 1,270 feet long and averaged 114 feet wide; the area was 3.33 acres. There was no flow. Vegetation consisted of willow, locust, button bush, and other shrubs. There were many floating and half-submerged logs and stumps with attached clumps of grasses and weeds. About 70 percent was covered with duckweed. Spray paths had to be cut.

LaGrue Bayou: The part utilized for these experiments was the upper end of an impoundment where the water overflowed large borrow pits adjacent to a highway. The section used was 2,800 feet long; the average width was 70 feet; the area, 4.77 acres. Vegetation consisted of smartweed beds, marsh grasses, and water lilies.

Larvicide was applied to all areas by means of a hand-pressure spray with atomizing nozzle. At each of these areas a comparison (untreated) area was chosen on which comparable estimates of *Anopheles* density were made for purposes of record. The percentages of reduction (appearing in the summary of tests) are averages of from 200 to 500 dips in the respective areas.

When DDT was used, it was dissolved at a ratio of 1.25 percent in kerosene. The results of these tests show:

1. When applied at the rate of 2 to 4 gallons per acre of water surface, the DDT-kerosene larvicide gave a high kill, around 95 to 100 percent. The DDT dosage per acre was 77 to 150 grams.

2. When applied at a rate of less than 2 gallons per acre (67 grams or less of DDT per acre) the percentage of kill was much reduced (from 40 to 80 percent).

When kerosene alone was applied at a rate of 2 to 2.25 gallons per acre, no significant changes in larvae population resulted.

Results are based only on larvae dippings 24 hours after application of the larvicide, as in several instances the lateness of the season had considerable effect in influencing the return of larvae production.

FIELD STUDIES, 1946

During the mosquito season of 1946 the experimental work was developed further for the purpose of determining the proper amount of oil and DDT which inexperienced labor, such as is used on larviciding crews, could consistently apply and obtain desired results.

The following *Anopheles*-producing areas were selected for study:

Dead Pig Creek: This creek is spring fed and has a water surface width of approximately 6 feet. The flow of the feeding springs is very small, yet sufficient to maintain a nearly constant depth throughout the year. The edges are covered with dense overhanging grass which provides ideal shelter for mosquito larvae. The surface of the water remains clear of vegetation but often becomes covered with a light organic scum. Two 100-foot-long sections of this creek were laid off and used for test purposes. The margins of this creek are known to have produced *Anopheles* for many seasons past. The water is always turbid from colloidal clays.

Bailey Pond: This pear-shaped stock pond was approximately 150 feet long and 50 feet wide at the widest point. Vegetation consisted entirely of a 10-foot-wide margin growth of water lilies (*Nelumbo*). The pond had neither inlet nor outlet and the level fluctuated greatly with rainfall. A moderate number of *Anopheles* were produced in the edge vegetation until approximately September 15.

Rossville Pond: This was a seepage-fed area covered with a swampy growth of primrose willow (*Jussiaea diffusa*). The pond

TABLE 1.—*Summary of tests—1944*

Test number	Area	Date	Larvicide used and rate per acre	Percentage reduction observed and basis of reduction	Comparison (untreated) area	Remarks
A-1.....	Deep Bayou...	Sept. 6....	1.25 percent DDT in kerosene. Rate 3.35 gal./acre. 126 gm. DDT.	99 percent—2.1 larvae/dip before treatment.	Slight increase.....	Area 2.69 acres.
A-4.....	Deep Bayou...	Oct.....	1.25 percent DDT in kerosene. Rate 2.05 gal./acre. 77 gm. DDT.	98 percent—3.6 larvae/dip before treatment.	No appreciable change.....	
B-1.....	Flat Bayou...	Sept.....	1.25 percent DDT in kerosene. Rate 1.65 gal./acre. 62 gm. DDT.	40 percent—8.6 larvae/dip before treatment.	Increase.....	Area 3.33 acres. Rate apparently too low.
B-4.....	Flat Bayou...	Oct.....	1.25 percent DDT in kerosene. Rate 1.8 gal./acre. 67 gm. DDT.	80 percent—6.3 larvae/dip before treatment.	20 percent reduction.....	Rate of application apparently too low.
A-2.....	Deep Bayou...	Sept.....	Kerosene. Rate 1.75 gal./acre.....	50 percent—2.8 larvae/dip before treatment.	No appreciable change.....	Area 2.3 acres.
B-3.....	Flat Bayou...	Oct.....	Kerosene. Rate 2.25 gal./acre.....	No appreciable change. 3.2 larvae/dip before treatment.	100 percent increase.....	No significant changes in larval density in treated area.
C-1.....	LaGrue Bayou	Sept.....	1.25 percent DDT in kerosene. Rate 1.9 gal./acre. 89.5 gm. DDT.	80 percent 5.8 larvae/dip before treatment.	No appreciable change.....	Area 4.77 acres.

was 150 feet long and 25 feet wide. *Anopheles* and non-*Anopheles* were produced rather uniformly over the area at intervals. The area was used to study the effect of wind-carried larvicidal sprays, and in the summary of tests is referred to as a "distance test area."

Capleville Pond: Late in the season this area, about 50 feet long and 30 feet wide and similar to the Rossville Pond, also became available for use in testing the effects of wind-carried larvicidal spray. The tests carried out here are designated "distance" tests.

In April 1946, the Office of Malaria Control in War Areas recommended (3) a coverage for larvicidal operations as low as 1 gal. per acre. The spray recommended was composed of 0.625 percent, DDT and 0.5 percent B1956 (a spreader) in No. 2 diesel oil. This was to be delivered from a hand-pressure spray can through a very fine misting nozzle (Marley 1-H-41). It was established that with this equipment a lethal swath 30 feet wide would be covered, and walking at a rate of 100 feet per minute, an oiler would make an approximate application of 1 gallon of oil per acre and 25 grams of DDT per acre.

These data served as a basis for the experiments here reported. A hand-pressure spray was used equipped with a Marley 1-H-41 nozzle and several tests were run substantially as outlined above. When larger coverages per acre were used (over 2 gal. per acre) nozzle No. 8001 of Spraying Systems Inc. was substituted. As this nozzle delivers oil three times as fast as 1-H-41, the rate of walking was correspondingly adjusted. For instance, when applying 3 gallons of larvicidal oil per acre, the rate of walking was 100 feet per minute. If 1½ gal. per acre were used the walking rate would be 200 feet per minute. In the tests either plain kerosene, or No. 2 fuel oil plus 0.5 percent B1956 was used as the vehicle. The amount of DDT added was varied in the different tests.

The results of the tests were measured just as they would be on a routine larviciding program except that a larger number of dips were made than is normally the case (50 to 300). A representative number of dips was made in the water of the area just previous to the larvicidal application and the larvae counted and classified into instars. This was repeated 24 hours after applying the larvicide. The percentage-reduction in larvae prevalence was then figured.

Reports of the tests appear in "Summary of Tests." For the sake of clearness, the tests are reported in grouped form, those in the same area and where the same larvicide was used being together.

DISCUSSION

The use of wind-drifted atomized oil sprays for mosquito control is not new, having been used by Griffiths (4) in 1925. By means of a compressed air supply, Griffiths was able to apply kerosene as a fine

TABLE 2.—Summary of tests, 1946

Test number	Area	Date	Larvicide used and rate per acre	Percent reduction observed and basis of reduction	Remarks
1-7, inclusive	Dead Pig Creek	June 12 to July 17	No. 2 fuel oil plus 0.5 percent B1956. Rate 1 gal./acre.	0-62.5 percent—2.5 larvae/dip before test.	Light organic scum prevented spread in tests 6 and 7, resulting in a zero reduction in larvae.
8	Bailey Pond	July 3	No. 2 fuel oil plus 0.5 percent B1956. Rate 1 gal./acre.	76 percent—1.3 larvae/dip before test.	Oil was 100 percent effective close to point of liberation. 76 percent effective over a 15-ft.-wide area. Test under ideal conditions. No scum.
9	Dead Pig Creek	Aug. 14	No. 2 fuel oil plus 0.5 percent B1956. Rate 2 gal./acre.	70 percent—5.0 larvae/dip before treatment.	
10 and 11	Bailey Pond	Aug. 13 and Aug. 15	No. 2 fuel oil plus 0.5 percent B1956. Rate 2 gal./acre.	65 percent—3.7 larvae/dip before treatment.	
12, 13, 14 and 15	Dead Pig Creek	July 23 to Aug. 12	No. 2 fuel oil plus 0.5 percent B1956 plus 0.625 percent DDT. Rate 1 gal./acre, 25 gm. DDT per acre.	88-93 percent—23.6 larvae/dip before treatment.	Lethal distance only 10 ft. from liberation point—no effect beyond. Results in test 11 very irregular due to spotty wind interfering with application. These tests were carried out under ideal conditions. No surface scum. Excellent coverage noted.
16 and 17	Bailey Pond	July 23 to Aug. 7	No. 2 fuel oil plus 0.5 percent B1956 plus 0.625 percent DDT. Rate 1 gal./acre, 25 gm. DDT.	80 percent—3.9 larvae/dip before treatment.	Zero reduction in test 16 due to wind shift. Test 17 gave 80 percent reduction up to 10 ft. from point of liberation. None farther away.
18	Dead Pig Creek	Aug. 21	No. 2 fuel oil plus 0.5 percent B1956 plus 0.315 percent DDT. Rate 2 gal./acre, 25 gm. DDT.	90 percent—7.1 larvae/dip before treatment.	Heavy scum at downstream end of test area—practically all surviving larvae picked up there.
19	Bailey Pond	Aug. 20	No. 2 fuel oil plus 0.5 percent B1956 plus 0.315 percent DDT. Rate 2 gal./acre, 25 gm. DDT.	72 percent—3.9 larvae/dip before treatment.	This was a "Distance test." Approx. 80 percent mortality up to 40 ft. from point of liberation. Fell off rapidly thereafter to an average of 72 percent.
20	Rossville	Aug. 28	No. 2 fuel oil plus 0.5 percent B1956 plus 0.315 percent DDT. Rate 2 gal./acre, 25 gm. per acre.	81 percent—17.3 larvae/dip before treatment.	A "distance test" in an area 150 ft. x 25 ft. wide. The reduction over the area was uniform. Reduction in <i>Anopheles</i> larvae much higher than Culex. Anophelene reduction about 92 percent.
21	Bailey Pond	Sept. 11	No. 2 fuel oil plus 0.5 percent B1956 plus 0.16 percent DDT. Rate 4 gal./acre, 50 gm. DDT.	Variable	100 percent kill up to 40 feet distance from point of liberation. Relatively poor test due to wind shifting.
22	Capleville	Sept. 4	No. 2 fuel oil plus 0.5 percent B1956 plus 0.16 percent DDT. Rate 4 gal. acre, 50 gm. DDT.	75 percent—4.1 larvae/dip before treatment.	A "distance test" in an area 20 ft. wide by 50 ft. long. Reduction was 75 percent average over area. No good of 100 percent reduction observed.
23	Dead Pig Creek	Sept. 18	No. 2 fuel oil plus 0.5 percent B1956, 0.16 percent DDT. Rate 4 gal./acre, 50 gm. DDT.	75 percent—5.1 larvae/dip before treatment.	Good coverage but oil did not film well, remaining in small droplets. No apparent scum present.
24 and 25	Dead Pig Creek	Sept. 25	Kerosene plus DDT. Rate 3 gal./acre, 75 gm. DDT.	95-100 percent—5.9 larvae/dip before treatment.	Water scum free but muddy. Weather cool—60° to 80° F. Excellent visible film spread.
26 and 27	Dead Pig Creek	Oct. 3	Kerosene plus DDT. Rate 3 gal./acre, 75 gm. DDT.	100 percent—1.6 larvae/dip before treatment.	A "distance test," 100 percent mortality up to a distance of 50 ft. from point of liberation. Anophelies production very heavy at the time.

mist, and he successfully larvicided a 200-acre pond with 125 gallons of kerosene.

The principle of applying oil in a fine spray has not become popular because its application is dependent on air currents, and for efficient application its low toxicity necessitates a higher class of labor than has been generally available for larviciding crews.

The use of DDT to step up the toxicity of an oil vehicle to a high degree gives additional emphasis to the feasibility of reducing larvicidal costs and difficulties and extends the useful range of operation by offering more attractive employment to a higher and more efficient type of labor.

The use of different atomizing nozzles in these tests was a measure of convenience, and it was found that the use of the No. 8001 nozzle, combined with a comfortable walking rate of approximately 100 feet per minute was an efficient arrangement when 2 or more gal. of larvicide per acre were being applied.

SUMMARY AND CONCLUSIONS

It is apparent from the 1944 tests that kerosene containing 1.25 percent of DDT is toxic to *Anopheles* larvae when applied at a rate of 2 to 4 gallons per acre. It gives an excellent spread and therefore appears to be an effective larvicide.

It is also evident that kerosene with or without 1.25 percent DDT is not an effective larvicide when used at a rate of less than 2 gallons per acre.

The 1946 tests employed No. 2 fuel oil plus a spreader, and also kerosene, as the vehicle. When DDT was added to either of these the following results were attained:

1. In a series of tests No. 2 fuel oil plus spreader without DDT gave unsatisfactory results ranging from 0 to 76 percent mortality to *Anopheles* larvae with a coverage rate up to 2 gallons per acre.

2. When applied at rates from 1 to 4 gallons per acre with 25 to 50 grams DDT per acre, the mortality was higher (58–93 percent) but still considered unsatisfactory.

3. When used as a "distance" spray or wind-carried spray the No. 2 fuel oil vehicle plus 25–50 grams DDT gave kills of 75–81 percent in a swath up to 25 feet away from the line of liberation. The action was spotty and no 100 percent lethal swath was observed even close to the sprayer. This seems unsatisfactory.

4. A mixture of kerosene and DDT when applied at the rate of 3 gallons of kerosene and 75 grams of DDT per acre was approximately 95–100 percent lethal to *Anopheles* larvae up to a distance of 40 feet from line of liberation. This was the most satisfactory larvicide tested.

As a result of these experiments it appears that under the conditions encountered No. 2 fuel oil plus a spreader and DDT did not give satisfactory control of anophelene larvae when applied up to rates of 4 gallons of fuel oil, and 50 grams of DDT per acre.

Kerosene plus DDT at the rate of 3 gallons of kerosene and 75 grams DDT per acre gave excellent results and was simple to apply.

The cost of larvicide is only 20–30 percent of the cost of a larviciding program. Hence the small additional cost of kerosene over No. 2 fuel oil is greatly overshadowed by the savings in labor when rates of coverage not in excess of 5 gallons per acre of water surface can be utilized.

Furthermore, with unskilled labor, it appears desirable to employ simple mixtures of recognized consistency rather than to attempt to adjust variable oils not directly suitable for the work.

It is not the contention of the authors that 75 grams of DDT per acre of water surface are necessary, and it may be that 25 or 50 grams in kerosene would produce satisfactory results even though this amount of DDT in fuel oil was not satisfactory. It is felt however that kerosene plus DDT in amounts used in these tests, and distributed in an atomized spray, has proved to be extremely toxic to mosquito larvae, easily distributed, and an efficient larvicide which will aid materially in reducing the costs of larviciding programs and at the same time overcome many of the labor difficulties heretofore experienced in this type of operations.

It is a well recognized fact that even small quantities of DDT are detrimental to fish life. During the entire series of experiments a careful watch was maintained for evidence of such damage. Although gambusia, perch, and catfish were present in large numbers in the areas under study there was no visible evidence of damage to fish life.

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LOSS OF VIRULENCE OF *TREPONEMA PALLIDUM* DURING PROCESSING OF DRIED BLOOD SERUM¹

By T. F. PROBEY, *Pharmacologist, United States Public Health Service*

In the development of a blood-bank program it has been necessary to give careful consideration to safeguards for the prevention of transfusion syphilis (1, 2, 3). Considerable laboratory work (4, 5, 6, 7, 8, 9) has been done to determine the virulence of the treponemes under conditions which obtain in blood banks, and the processing (by freezing and desiccation) of blood products.

In 1941 Turner and Diseker (6) demonstrated that *Treponema pallidum* undergoes deterioration in the storage period, with a corresponding reduction in the risk of transmitting syphilis by transfusion. Their evidence indicates that after 72 hours the organisms lose their virulence and are probably no longer able to cause infection. This work demonstrated, as had the work of others, that the probability of transmitting syphilis by transfusion is greatest when use is made of citrated whole blood, stored for less than 72 hours under blood-bank conditions.

In a previous study, Turner (4) reported that *T. pallidum*, when frozen in a mixture of solid carbon dioxide and alcohol and maintained at approximately -78°C ., upon thawing exhibited normal morphologic characteristics and motility, and that virulence for rabbits was not altered appreciably when the mixture was kept frozen for at least 1 year. He also demonstrated that freezing at -10°C . or -20°C . did not adversely affect the treponemes, but that maintenance at these temperatures for 2 months caused their death. It is apparent therefore that transfusion of frozen blood products is not without danger of transfusion syphilis, especially if the products are administered soon after freezing.

Turner, Bauer, and Kluth (8) studied the influence of freezing in carbon dioxide and alcohol and desiccation on *T. pallidum* and reported that the organisms were killed by the process. It was their conclusion that transfusion of desiccated blood serum or plasma is probably without risk as regards the transmission of syphilis, even though the material be obtained from an infected donor.

The probability that transfusion syphilis would be eliminated by the processing of dried human plasma or serum was of particular importance to the development of the dried plasma program for the military forces. For however rigidly the safeguards may have been enforced, the possibility of occasionally using blood containing virulent treponemes could not be eliminated in such a gigantic program.

¹ From the Biologics Control Laboratory, National Institute of Health.

Since the control of the processed blood products is the responsibility of the Biologics Control Laboratory of the National Institute of Health, it was deemed advisable to repeat the study of Turner et al. in order to obtain confirmatory evidence that the use of restored dried human plasma or serum products was safe as regards transfusion syphilis. Restudy was also indicated since the observation period in the Turner study for evidence of syphilitic infection in rabbits was only 90 days. In the study of experimental syphilis in rabbits, an observation period longer than 90 days is definitely indicated, especially for negative tests (10, 11).

The study of Turner et al. also indicated the necessity of low moisture content of dried blood products. Incomplete dehydration of the specimen was, in their opinion, the cause of the single instance of survival of virulent treponemes in their experiments. Restudy, therefore, was indicated to determine if the requirement that the "final dried product shall contain not more than 1.0 percent of moisture" (12) affords adequate protection against transfusion syphilis.

EXPERIMENTAL

The experimental procedure followed in this study is that used in studies of the spirocheticidal activity of the trivalent organic arsenicals in experimental syphilis in rabbits (10). No therapy was employed.

The inoculum was prepared from rabbits with well-developed syphilitic orchitis rich in treponemes of the Nichols strain. The saline suspension of the emulsified testicular tissue was filtered through sterile gauze, and an equal amount of normal horse serum was added. A small portion was used for immediate inoculation as the control, and the remainder was processed.

Two- and five-ml. amounts of the treponema suspension (in ampoules) were frozen under vacuum in a bath of carbon dioxide and cellusolve for approximately 30 minutes; the pan of freezing mixture was lowered, and drying under vacuum was continued for approximately 20 hours, with the ampoules exposed to ordinary room temperature. The ampoules were sealed off with a flame while still under vacuum.

Although moisture determinations were not made on the processed material because of the small residue, experience with National Institute of Health standards, antitoxins, serums, etc., processed in larger quantities by the same procedure has shown that the amount of moisture is consistently under 1 percent.

The animal experiments were done in three stages, with three rabbits in each group. Two groups were inoculated with dried material, and the control group received the unprocessed suspension of spirochetes. Each rabbit was inoculated with approximately 0.5 ml. of the test material in each testicle.

The control group was inoculated immediately after the inoculum was prepared, thereby establishing the virulence of the treponemes in the saline-serum mixture. Dark-field examination of this material showed numerous actively motile spirochetes.

The dried material was resuspended in distilled water to approximately its original volume immediately before inoculation. The first group receiving restored dried material was inoculated soon after the completion of the drying cycle. The second group was inoculated 2 days after the drying cycle had been completed. Dark-field examination of the resuspended material showed some atypical forms of what appeared to be nonmotile treponemes.

All animals were examined periodically during the observation period for evidence of syphilis. This examination consisted of routine inspection of the testes, glands, etc., and dark-field examination of all animals irrespective of evidence or suspicion of lesions. It has been our experience that lesions have frequently developed in the traumatized area caused by the puncture for dark-field material, and it is our opinion that had the procedure not been followed, rabbits in several instances would have been discharged without developing evidence of the infection (10).

The results of the animal virulence tests are detailed in the following table. The infectivity of the treponema-saline-horse serum suspension was established by the control group. The three inoculated rabbits developed dark-field positive syphilitic lesions within 42 days. None of the rabbits inoculated with restored processed material developed evidence of syphilis during the observation period of approximately 140 days.

Infectivity of Treponema pallidum in horse serum before and after deep-freezing and drying

Material	Number of rabbits inoculated	Results		Observation period (in days)	Sub-transfers	Number of rabbits inoculated	Results		Observation period
		Positive	Negative				Positive	Negative	
<i>T. pallidum</i> in normal horse serum.	3	3	0	42	None				
Immediately after processing.	3	0	3	141	First	3	0	3	13 months (1 died after 11 months). 7 months. 9 months. 13 months. 7 months (1 died after first month). 9 months.
					Second	2	0	2	
					Third	4	0	4	
Two days after processing.	3	0	3	139	First	3	0	3	
					Second	2	0	2	
					Third	3	0	3	

To eliminate the possibility of asymptomatic syphilitic infection in the two groups receiving the processed material, subtransfers of pooled popliteal lymph glands and pooled testicles were made into

the right and left testicles, respectively, of normal rabbits. Both groups were carried through three successive subtransfers, the first being observed for 13 months, the second for 7 months, and the third for 9 months. All rabbits receiving the tissue transfers remained negative throughout the observation period.

SUMMARY AND CONCLUSION

Treponema pallidum suspended in saline-blood serum becomes avirulent and is apparently killed during the deep-freezing and drying process.

Rabbits inoculated with restored dried material failed to develop evidence of syphilitic infection during approximately 140 days' observation. Three successive subtransfers, observed for 13, 7, and 9 months, respectively, also remained negative.

The results obtained in this study not only confirm the results of Turner et al., but offer more conclusive evidence by reason of the longer observation periods and greater number of subtransfers.

The danger of transfusion syphilis appears to be eliminated with the use of processed (frozen and dried) human plasma or of serum containing not more than 1 percent of moisture.

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DEATHS DURING WEEK ENDED JULY 19, 1947

[From the Weekly Mortality Index, issued by the National Office of Vital Statistics]

	Week ended July 19, 1947	Correspond- ing week, 1946
Data for 93 large cities of the United States:		
Total deaths.....	8,287	8,087
Median for 3 prior years.....	7,783	
Total deaths, first 29 weeks of year.....	275,895	273,266
Deaths under 1 year of age.....	653	653
Median for 3 prior years.....	609	
Deaths under 1 year of age, first 29 weeks of year.....	22,025	18,098
Data from industrial insurance companies:		
Policies in force.....	67,258,171	67,231,494
Number of death claims.....	10,580	11,331
Death claims per 1,000 policies in force, annual rate.....	8.2	8.8
Death claims per 1,000 policies, first 29 weeks of year, annual rate.....	9.6	10.1

INCIDENCE 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 JULY 26, 1947

Summary

Only a slight seasonal increase was recorded in the incidence of poliomyelitis during the current week. A total of 167 cases was reported currently, as compared with 152 last week, 391 for the 5-year (1942-46) median, and 910 for the corresponding week last year. States reporting the largest increases are Nebraska (from 1 last week to 13), New Jersey (0 to 8), and Tennessee (6 to 10). In California, where 290 cases have been reported since March 15 (more than one-fourth the total for the entire country for the period), a decrease was reported (from 24 to 16, the third decrease in the past 4 weeks). The 11 States reporting more than 12 cases during the 4 weeks since June 28 are as follows (figures for the corresponding period last year in parentheses): New York 44 (77), New Jersey 14 (21), Pennsylvania 29 (23), Ohio 34 (72), Illinois 32 (144), Michigan 13 (32), Minnesota 17 (345), Nebraska 22 (67), Tennessee 16 (11), Texas 28 (212), California 93 (132). A total of 1,125 cases has been reported since March 15 (average date of seasonal low incidence), as compared with 3,699 for the corresponding period last year and a 5-year median of 2,042.

One case of smallpox, the first case reported in the United States since the week ended July 5, occurred in Minnesota, and 2 cases of psittacosis were reported in California.

For the year to date, 902 cases of tularemia have been reported, as compared with 571 for the same period last year and a 5-year median of 548. The total to date for undulant fever is 3,458 cases, as compared with 2,877 and 2,844, respectively, for the corresponding periods of 1946 and 1945; 292 cases of Rocky Mountain spotted fever have been reported, as compared with 302 for the same period last year. Both the current and cumulative figures for whooping cough are the largest reported since 1943. Both current and cumulative figures for diphtheria, infectious encephalitis, meningococcus meningitis, scarlet fever, smallpox, typhoid and paratyphoid fever, and endemic typhus fever are below the respective 5-year medians.

Deaths registered during the week in 93 large cities of the United States totaled 8,113, as compared with 8,287 last week, 8,266 and 8,346, respectively, for the corresponding weeks of 1946 and 1945, and a 3-year (1944-46) median of 8,266. The total for the year to date is 284,008, as compared with 281,532 for the corresponding period last year.

Telegraphic morbidity reports from State health officers for the week ended July 26, 1947, and comparison with corresponding week of 1946 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 1942-46	Week ended—		Median 1942-46	Week ended—		Median 1942-46	Week ended—		Median 1942-46
	July 26, 1947	July 27, 1946		July 26, 1947	July 27, 1946		July 26, 1947	July 27, 1946		July 26, 1947	July 27, 1946	
NEW ENGLAND												
Maine.....	1	0	0				11	35	11	0	0	1
New Hampshire.....	0	0	0					53	4	0	1	1
Vermont.....	0	0	0				16	58	20	0	0	0
Massachusetts.....	4	3	3				76	319	164	1	0	5
Rhode Island.....	0	0	0				3	14	14	0	1	1
Connecticut.....	0	2	1		1	1	88	51	44	1	2	2
MIDDLE ATLANTIC												
New York.....	17	7	7	13	11	12	208	493	211	4	9	10
New Jersey.....	2	1	1	1	2	2	185	165	58	2	0	4
Pennsylvania.....	7	8	7	(?)	2	(?)	56	202	85	2	3	10
EAST NORTH CENTRAL												
Ohio.....	10	8	3	2	1	1	87	238	43	2	5	5
Indiana.....	2	3	3				22	16	8	1	0	1
Illinois.....	3	3	5	2	3	3	111	69	69	2	5	8
Michigan ¹	0	4	4	1	1		108	84	84	3	1	4
Wisconsin.....	1	8	5		4	7	500	262	196	1	1	1
WEST NORTH CENTRAL												
Minnesota.....	7	5	4				60	23	23	0	2	2
Iowa.....	1	3	1				59	39	18	0	2	1
Missouri.....	2	3	2				29	5	6	3	3	5
North Dakota.....	2	0	0				17	8	4	0	0	0
South Dakota.....	2	0	0				2	2	2	0	1	0
Nebraska.....	0	1	3			1	2	2	7	0	0	0
Kansas.....	4	3	2	1	1		7	10	11	0	0	1
SOUTH ATLANTIC												
Delaware.....	0	1	0				1	3		0	0	0
Maryland ²	3	4	1	8			9	81	27	1	0	3
District of Columbia.....	0	0	0				2	20	6	0	0	1
Virginia.....	2	9	3	90	71	45	77	49	13	2	3	3
West Virginia.....	1	2	3	12	1	1	11	24	4	0	3	3
North Carolina.....	4	3	6				28	27	22	2	0	3
South Carolina.....	4	3	4	144	98	73	17	46	15	0	0	0
Georgia.....	1	2	3			2	5	10	7	2	0	1
Florida.....	1	6	3			1	6	4	12	0	2	4
EAST SOUTH CENTRAL												
Kentucky.....	2	3	4				2	55	10	3	0	1
Tennessee.....	1	4	2	5	4	5	4	15	5	1	2	2
Alabama.....	3	6	6	47	12	12	17	28	13	3	2	2
Mississippi ³	3	0	3	3			2			1	2	2
WEST SOUTH CENTRAL												
Arkansas.....	1	3	3	1	20	14	13	16	4	1	1	1
Louisiana.....	3	1	3		13	3	7	35	4	3	0	1
Oklahoma.....	6	1	2	4		4	2	18	5	0	4	0
Texas.....	19	15	27	198	222	197	58	107	82	5	5	5
MOUNTAIN												
Montana.....	0	1	1	4			13	36	18	0	0	0
Idaho.....	1	0	0	9	5		4	2	5	0	0	0
Wyoming.....	0	0	1	1			1	6	8	1	0	0
Colorado.....	4	1	4	7		15	7	34	16	1	0	0
New Mexico.....	3	13	2		1	2	4	12	9	0	0	0
Arizona.....	0	3	1	24	32	29	9	14	14	0	1	0
Utah ⁴	0	0	0				10	15	25	0	0	0
Nevada.....	0	0	0				1			0	0	0
PACIFIC												
Washington.....	2	2	3				13	19	41	1	0	3
Oregon.....	4	1	1	1		3	4	17	25	1	1	1
California.....	7	18	11	3	8	8	84	213	292	1	13	9
Total.....	140	164	164	571	503	503	2,058	3,054	1,863	51	75	111
30 weeks.....	6,688	9,232	6,915	301,513	190,197	80,073	180,798	633,780	531,495	2,327	4,274	5,881
Seasonal low week ⁴	(27th) July 5-11			(30th) July 26-Aug. 1			(35th) Aug. 30-Sept. 5			(37th) Sept. 13-19		
Total since low.....	391	604	479	334,488	552,445	115,553	203,685	569,904	569,508	3,299	5,778	8,333

¹ New York City only.

² Period ended earlier than Saturday.

³ Philadelphia only.

⁴ Dates between which the approximate low week ends. The specific date will vary from year to year.

Telegraphic morbidity reports from State health officers for the week ended July 26, 1947, and comparison with corresponding week of 1946 and 5-year median—Con.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Week ended—		Median 1942-46	Week ended—		Median 1942-46	Week ended—		Median 1942-46	Week ended—		Median 1942-46
	July 26, 1947	July 27, 1946		July 26, 1947	July 27, 1946		July 26, 1947	July 27, 1946		July 26, 1947	July 27, 1946	
NEW ENGLAND												
Maine.....	0	0	0	3	12	9	0	0	0	0	1	1
New Hampshire.....	0	8	1	2	0	0	0	0	0	0	0	0
Vermont.....	1	0	0	0	3	2	0	0	0	0	0	0
Massachusetts.....	3	4	4	37	41	41	0	0	0	6	5	4
Rhode Island.....	0	0	0	2	1	1	0	0	0	0	0	0
Connecticut.....	0	6	6	5	4	8	0	0	0	0	2	0
MIDDLE ATLANTIC												
New York.....	15	30	30	62	57	73	0	0	0	3	2	7
New Jersey.....	8	5	5	8	14	15	0	0	0	1	2	2
Pennsylvania.....	9	11	11	29	31	52	0	0	0	11	6	6
EAST NORTH CENTRAL												
Ohio.....	10	38	14	52	73	51	0	0	0	1	6	8
Indiana.....	0	11	2	11	5	11	0	1	0	2	12	4
Illinois.....	9	66	12	28	18	31	0	0	0	4	2	3
Michigan ¹	5	13	8	37	29	33	0	0	0	4	15	5
Wisconsin.....	0	18	1	13	22	31	0	0	0	0	0	0
WEST NORTH CENTRAL												
Minnesota.....	5	188	2	10	8	20	1	0	0	0	0	0
Iowa.....	2	17	2	7	8	9	0	1	0	0	0	0
Missouri.....	2	38	2	9	8	8	0	0	0	1	5	4
North Dakota.....	1	11	0	1	1	3	0	0	0	0	1	1
South Dakota.....	0	5	0	1	3	3	0	0	0	2	0	0
Nebraska.....	13	32	1	2	5	5	0	0	0	1	0	0
Kansas.....	6	36	9	6	9	14	0	0	0	2	2	1
SOUTH ATLANTIC												
Delaware.....	4	1	0	1	1	1	0	0	0	0	1	0
Maryland ²	3	6	6	7	9	9	0	0	0	0	5	3
District of Columbia.....	0	0	0	0	4	5	0	0	0	0	0	0
Virginia.....	1	6	6	4	12	16	0	0	0	4	4	4
West Virginia.....	2	2	2	3	12	13	0	0	0	5	3	3
North Carolina.....	3	1	2	3	12	13	0	0	0	0	3	7
South Carolina.....	1	1	2	7	1	3	0	0	0	4	3	4
Georgia.....	1	15	4	2	4	10	0	0	0	5	4	10
Florida.....	0	20	3	1	3	3	0	0	0	2	2	3
EAST SOUTH CENTRAL												
Kentucky.....	2	4	11	9	4	16	0	0	0	8	7	8
Tennessee.....	10	6	10	11	9	9	0	0	0	3	5	6
Alabama.....	0	17	9	2	7	8	0	0	0	1	3	5
Mississippi ³	1	25	1	3	3	3	0	0	0	1	4	8
WEST SOUTH CENTRAL												
Arkansas.....	2	18	6	1	5	5	0	0	0	2	4	6
Louisiana.....	3	18	6	0	1	1	0	0	0	6	8	6
Oklahoma.....	2	33	12	8	8	6	0	1	0	8	1	4
Texas.....	10	52	40	13	17	20	0	0	0	15	7	27
MOUNTAIN												
Montana.....	0	3	1	1	5	5	0	0	0	0	0	2
Idaho.....	5	1	0	2	11	4	0	1	0	2	2	1
Wyoming.....	0	4	0	0	0	2	0	0	0	0	0	0
Colorado.....	3	48	1	12	32	15	0	0	0	0	1	1
New Mexico.....	3	6	1	2	4	3	1	0	0	0	2	2
Arizona.....	1	9	1	3	3	3	0	0	0	1	4	3
Utah ⁴	0	5	3	2	7	4	0	0	0	0	0	0
Nevada.....	0	0	0	0	0	0	0	0	0	0	0	0
PACIFIC												
Washington.....	2	11	2	14	4	6	0	0	0	0	4	1
Oregon.....	3	9	4	6	5	6	0	0	0	1	5	1
California.....	16	52	21	24	54	71	0	0	0	17	3	3
Total	167	910	391	466	589	672	1	4	4	123	146	165
30 weeks.....	1,736	4,166	2,439	61,197	85,067	95,462	142	270	287	1,820	2,076	2,661
Seasonal low week ⁴	(11th) Mar. 15-21			(32nd) Aug. 9-15			(5th) Aug. 30-Sept. 5			(11th) Mar. 15-21		
Total since low.....	1,125	3,699	2,042	87,883	123,638	133,783	196	346	404	1,335	1,601	1,931

¹ Period ended earlier than Saturday.

² Dates between which the approximate low week ends. The specific date will vary from year to year.

³ Including paratyphoid fever reported separately, as follows: Massachusetts 5 (salmonella infection); New York 1; New Jersey 1; Michigan 1; Virginia 1; Georgia 2; Tennessee 1; Louisiana 2; Texas 2; Arizona 1; California 16.

Telegraphic morbidity reports from State health officers for the week ended July 26, 1947, and comparison with corresponding week of 1946 and 5-year median—Con.

Division and State	Whooping cough			Week ended July 26, 1947							
	Week ended—		Median 1942- 46	Dysentery			En- ceph- alitis, infecti- ous	Rocky Mt. spot- ted fever	Tula- remia	Ty- phus fever, en- demic	Un- du- lant fever
	July 26, 1947	July 27, 1946		Ame- bic	Bacil- lary	Un- speci- fied					
NEW ENGLAND											
Maine.....	18	33	33								
New Hampshire.....	1	4	2								
Vermont.....	10	20	23								1
Massachusetts.....	111	119	119				1	1			2
Rhode Island.....	30	14	6								
Connecticut.....	100	34	52								5
MIDDLE ATLANTIC											
New York.....	242	117	260	4	1		1	2		2	4
New Jersey.....	204	136	169		1			3			2
Pennsylvania.....	190	109	244				1	3			3
EAST NORTH CENTRAL											
Ohio.....	316	104	192	2		1					3
Indiana.....	64	28	28					2			
Illinois.....	106	198	179	2				4	6		16
Michigan *.....	256	193	193	16			1				6
Wisconsin.....	213	204	204								13
WEST NORTH CENTRAL											
Minnesota.....	60	12	29	2	1						5
Iowa.....	47	43	33	1				2	3		25
Missouri.....	45	28	28					6			8
North Dakota.....	4	1	5								
South Dakota.....	6	1	1								5
Nebraska.....	10	5	6	1			1				2
Kansas.....	108	30	41					1			3
SOUTH ATLANTIC											
Delaware.....	3	5	2								
Maryland *.....	104	16	76					7	2	1	1
District of Columbia.....	11	9	10					1			
Virginia.....	130	132	99			144		6	1		6
West Virginia.....	23	20	28								
North Carolina.....	90	120	120					6	1	1	
South Carolina.....	127	60	67	1	12			1	1		3
Georgia.....	12	16	1	1	2			3	1	18	7
Florida.....	40	18	18							3	1
EAST SOUTH CENTRAL											
Kentucky.....	29	140	76					4		1	
Tennessee.....	53	25	33	1		1		3			
Alabama.....	40	20	20						1	9	8
Mississippi *.....	11			6					1	2	2
WEST SOUTH CENTRAL											
Arkansas.....	37	10	14	7		5			5		2
Louisiana.....	15	18	5	12						2	1
Oklahoma.....	34	14	14	2		3		1	7		1
Texas.....	422	173	173	6	378	29			2	17	11
MOUNTAIN											
Montana.....	6	6	24				1				
Idaho.....	9	36	6	1					1		
Wyoming.....	3	2	2								
Colorado.....	71	11	28						1		4
New Mexico.....	11	10	7								
Arizona.....	46	10	10			47					
Utah *.....	17	11	37						1		2
Nevada.....											
PACIFIC											
Washington.....	30	35	34								2
Oregon.....	9	35	25	1							2
California.....	198	70	144	6	4		3				2
Total.....	3,722	2,428	3,115	72	399	230	9	48	41	56	159
Same week, 1946.....	2,428			59	351	219	15	42	25	107	100
Median, 1942-46.....	3,115			48	558	343	15	28	17	130	* 108
30 weeks: 1947.....	92,159			1,713	9,439	5,980	212	292	903	1,139	3,458
1946.....	57,712			1,342	10,720	3,941	319	302	571	1,776	2,877
Median, 1942-46.....	76,405			1,077	10,720	3,941	319	284	548	1,776	* 2,861

* Period ended earlier than Saturday.

* 2-year average, 1945-46.

Alaska, week ended July 24: Chickenpox 1; diphtheria 1; influenza 1; pneumonia 2; mumps 1.

Territory of Hawaii, week ended July 26: Bacillary dysentery 2; poliomyelitis 2; endemic typhus fever 1; whooping cough 29. June-July poliomyelitis totals highest since 1939.

Psittacosis: California 2 cases.

WEEKLY REPORTS FROM CITIES ¹

City reports for week ended July 19, 1947

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

Division, State, and City	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	1	0	1	0	2	0	0	0	0	3
New Hampshire:												
Concord.....	0	0		0		0	0	0	0	0	0	
Vermont:												
Barre.....	0	0		0	2	0	0	0	0	0	0	
Massachusetts:												
Boston.....	1	0		0	18	0	8	1	1	0	1	30
Fall River.....	0	0		0	3	0	0	0	0	0	0	5
Springfield.....	0	0		0	1	0	0	0	0	0	0	6
Worcester.....	0	0		0	6	0	3	0	1	0	1	3
Rhode Island												
Providence.....	0	1		0	13	0	2	1	4	0	0	17
Connecticut:												
Bridgeport.....	0	0		0	2	0	0	0	1	0	0	
New Haven.....	0	0		0	2	0	0	0	0	0	0	
MIDDLE ATLANTIC												
New York:												
Buffalo.....	0	0		0	1	0	0	0	1	0	1	20
New York.....	11	2	3	0	174	5	38	6	17	0	2	73
Rochester.....	0	1		0		0	4	2	6	0	0	9
Syracuse.....	0	0		0		0	0	0	1	0	0	27
New Jersey:												
Camden.....	0	0		0	1	0	3	0	0	0	0	1
Newark.....	0	0		0	6	1	1	1	4	0	0	23
Trenton.....	0	0	1	1		0	1	0	0	0	0	2
Pennsylvania:												
Philadelphia.....	1	0	2	0	7	0	7	2	3	0	0	83
Pittsburgh.....	1	0		0	3	0	0	1	4	0	1	24
Reading.....	0	0		0	2	0	0	0	0	0	0	
EAST NORTH CENTRAL												
Ohio:												
Cincinnati.....	2	0		0		0	2	0	2	0	0	6
Cleveland.....	0	0		0	20	0	6	5	10	0	0	129
Columbus.....	0	0		0	34	0	0	1	2	0	1	28
Indiana:												
Fort Wayne.....	0	0		0	3	0	1	0	0	0	0	1
Indianapolis.....	0	1		0	6	0	3	0	2	0	0	21
South Bend.....	0	0		0	2	0	0	1	0	0	0	3
Terre Haute.....	0	0		0		0	1	0	0	0	0	
Illinois:												
Chicago.....	0	0		0	33	3	14	6	7	0	0	34
Michigan:												
Detroit.....	2	0		1	3	1	7	1	11	0	0	79
Flint.....	0	0		0	3	1	1	0	2	0	1	3
Grand Rapids.....	0	0		0	29	0	0	0	2	0	0	29
Wisconsin:												
Kenosha.....	0	0		0	7	0	0	0	0	0	0	7
Milwaukee.....	0	0		0	13	0	4	1	4	0	0	40
Racine.....	0	0		0	3	0	1	0	4	0	0	14
Superior.....	0	0		0		0	0	0	0	0	0	4
WEST NORTH CENTRAL												
Minnesota:												
Duluth.....	0	0		0	3	1	1	0	1	0	0	14
Minneapolis.....	2	0		0	58	2	1	0	4	0	0	17
St. Paul.....	0	0		0	56	0	3	1	0	0	0	41
Missouri:												
Kansas City.....	0	0		0		0	3	0	0	0	0	3
St. Joseph.....	0	0		0		0	0	1	0	0	0	5
St. Louis.....	3	0		0	12	1	9	2	3	0	0	39

¹ In some instances the figures include nonresident cases.

City reports for week ended July 19, 1947—Continued

Division, State, and City	Diphtheria cases	Epidemiology infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Polomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
WEST NORTH CENTRAL—continued												
North Dakota:												
Fargo.....	0	0	0	0	3	0	0	0	0	0	0	0
Nebraska:												
Omaha.....	1	0	0	0	1	0	1	0	0	0	0	0
Kansas:												
Topeka.....	0	0	0	0	0	0	0	0	1	0	0	4
Wichita.....	0	0	0	0	0	0	3	0	0	0	0	9
SOUTH ATLANTIC												
Delaware:												
Wilmington.....	0	0	0	0	0	0	0	0	1	0	0	5
Maryland:												
Baltimore.....	0	0	0	0	3	1	4	0	4	0	0	89
Frederick.....	0	0	0	0	0	0	0	0	0	0	0	0
District of Columbia:												
Washington.....	0	0	0	1	0	0	4	0	3	0	0	15
Virginia:												
Lynchburg.....	0	0	0	0	2	0	2	0	1	0	0	3
Richmond.....	0	0	0	0	6	0	0	0	1	0	0	1
Roanoke.....	0	0	0	0	2	0	0	0	0	0	0	0
West Virginia:												
Charleston.....	0	0	0	0	2	0	0	0	0	0	0	0
Wheeling.....	0	0	0	0	0	0	1	0	1	0	1	2
North Carolina:												
Raleigh.....	0	0	0	1	0	0	1	0	0	0	0	3
Wilmington.....	0	0	0	2	0	0	0	0	0	0	0	0
Winston-Salem.....	0	0	0	3	0	0	3	0	0	0	0	4
South Carolina:												
Charleston.....	0	0	1	0	1	0	0	0	0	0	0	4
Georgia:												
Atlanta.....	0	0	0	0	0	1	1	0	1	0	1	5
Brunswick.....	0	0	0	0	0	0	0	0	0	0	0	0
Savannah.....	0	0	0	0	0	0	0	0	0	0	0	1
Florida:												
Tampa.....	0	0	1	0	1	0	2	0	2	0	2	1
EAST SOUTH CENTRAL												
Tennessee:												
Memphis.....	0	0	0	0	2	0	6	1	1	0	0	8
Nashville.....	0	0	0	0	0	0	1	3	0	0	0	6
Alabama:												
Birmingham.....	0	0	0	0	1	1	2	0	0	0	0	1
Mobile.....	0	0	0	0	0	0	0	0	0	0	0	1
WEST SOUTH CENTRAL												
Arkansas:												
Little Rock.....	0	0	0	0	0	0	1	0	0	0	0	2
Louisiana:												
New Orleans.....	1	0	2	0	3	1	4	1	1	0	1	4
Shreveport.....	0	0	0	0	0	1	4	2	0	0	1	0
Oklahoma:												
Oklahoma City.....	0	0	0	0	0	0	0	0	0	0	0	4
Texas:												
Dallas.....	0	0	0	0	4	0	1	0	1	0	0	9
Galveston.....	3	0	0	0	0	0	0	0	0	0	0	0
Houston.....	1	0	0	0	0	0	5	2	0	0	0	0
San Antonio.....	0	0	0	0	1	0	5	0	0	0	0	4
MOUNTAIN												
Montana:												
Billings.....	0	0	0	0	1	0	0	0	0	0	0	0
Great Falls.....	0	0	0	0	1	0	0	0	0	0	0	1
Helena.....	0	0	0	0	1	0	0	0	0	0	0	0
Missoula.....	0	0	0	0	0	0	0	0	0	0	0	0
Colorado:												
Denver.....	1	0	0	0	0	0	2	1	2	0	0	15
Pueblo.....	0	0	0	0	1	0	0	0	0	0	0	13
Utah:												
Salt Lake City.....	0	0	0	0	3	0	0	0	3	0	0	3

City reports for week ended July 19, 1947—Continued

Division, State, and City	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												
Washington:												
Seattle.....	1	0	-----	0	5	1	0	0	1	0	0	4
Spokane.....	0	0	-----	0	-----	0	1	0	0	0	0	1
Tacoma.....	0	0	-----	0	2	0	0	0	2	0	0	-----
California:												
Los Angeles.....	1	0	1	0	9	0	4	7	15	0	0	30
Sacramento.....	1	0	-----	0	1	0	3	0	0	0	0	2
San Francisco.....	1	1	1	0	15	0	4	3	10	0	1	8
Total.....	34	6	13	2	606	21	191	53	148	0	15	1, 108
Corresponding week, 1946*	46	-----	15	4	809	-----	189	-----	169	0	23	596
Average 1942-46*	42	-----	19	* 6	* 815	-----	* 219	-----	243	0	23	947

*Exclusive of Oklahoma City.
 † 3 year average, 1944-46.
 ‡ 5-year median, 1942-46.

Dysentery, amebic.—Cases: New York 9; New Orleans 1; Los Angeles 2.
Dysentery, bacillary.—Cases: New York 2; Charleston, S. C., 2; Los Angeles 1.
Dysentery, unspecified.—Cases: Portland 4; Cincinnati 39; Columbus 1; San Antonio 7.
Rocky Mt. spotted fever.—Cases: Richmond 1; Winston-Salem 2.
Typhus fever, endemic.—Case: Charleston, S. C., 1.

Rates (annual basis) per 100,000 population, by geographic groups, for the 87 cities in the preceding table (latest available estimated population, 34,322,700)

	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.....	2.9	2.9	2.9	0.0	140	0.0	43.0	5.7	20	0.0	5.7	183
Middle Atlantic.....	6.0	1.4	2.8	1.4	90	2.8	25.0	5.6	17	0.0	1.9	121
East North Central.....	2.5	0.6	0.0	0.6	96	3.0	24.5	9.2	28	0.0	1.2	244
West North Central.....	11.9	0.0	0.0	0.0	265	8.0	41.8	8.0	18	0.0	0.0	263
South Atlantic.....	0.0	0.0	3.3	0.0	40	3.3	29.8	0.0	23	0.0	6.8	220
East South Central.....	0.0	0.0	0.0	0.0	18	5.9	53.1	23.6	6	0.0	0.0	94
West South Central.....	12.7	0.0	5.1	0.0	20	5.1	56.8	12.7	5	0.0	5.1	55
Mountain.....	8.3	0.0	0.0	0.0	58	0.0	16.5	8.3	41	0.0	0.0	264
Pacific.....	6.3	1.6	3.2	0.0	51	1.6	19.0	15.8	44	0.0	1.6	76
Total.....	5.2	0.9	2.0	0.3	92	3.2	29.1	8.1	23	0.0	2.3	169

PLAGUE INFECTION IN MONO COUNTY, CALIF.

Plague infection was reported proved, on July 17, in a pool of 29 fleas from 65 ground squirrels, *Citellus beldingi*, taken from Bodie town site, 11 miles east and 4 miles south of Bridgeport, Mono County, Calif.

FOREIGN-REPORTS

CANADA

Provinces—Communicable diseases—Week ended July 5, 1947.—During the week ended July 5, 1947, 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.....		18		92	280	25	32	26	106	579
Diphtheria.....	1	1		24	4		3	1		34
Dysentery, bacillary.....				4						4
German measles.....		4		15	14		5	1	6	45
Influenza.....		6		12	12		10			28
Measles.....		10	1	54	240	58	11	39	35	448
Meningitis, meningococcus.....						1	1		1	3
Mumps.....		18		14	198	6	10	3	51	300
Poliomyelitis.....		1			3	1		1	10	16
Scarlet fever.....	2		3	30	52		6	2	6	101
Tuberculosis (all forms).....		1	21	111	31	15	5		36	220
Typhoid and paratyphoid fever.....			1	6	2				5	14
Undulant fever.....				3	5					8
Venereal diseases:										
Gonorrhoea.....	4	16	17	77	60	27	14	48	75	338
Syphilis.....		5	4	64	40	9	5	7	31	165
Other forms.....									2	2
Whooping cough.....		6		37	56	7		14	32	152

CUBA

Habana—Communicable diseases—4 weeks ended June 28, 1947.—During the 4 weeks ended June 28, 1947, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chickenpox.....	4		Scarlet fever.....	1	
Diphtheria.....	10	1	Tuberculosis.....	6	3
Malaria.....	4		Typhoid fever.....	13	1
Measles.....	20		Undulant fever.....	1	
Poliomyelitis.....	1				

Provinces—Notifiable diseases—4 weeks ended June 28, 1947.—During the 4 weeks ended June 28, 1947, cases of certain notifiable diseases were reported in the Provinces of Cuba as follows:

Disease	Pina del Rio	Habana ¹	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer.....	4	6	12	16	1	20	59
Chickenpox.....	1	5			1		7
Diphtheria.....	1	13	1	5			20
Hookworm disease.....		21					21
Leprosy.....		3			1		4
Malaria.....		5	1		4	69	79
Measles.....		21	3		1	4	29
Poliomyelitis.....		2				1	3
Scarlet fever.....		1					1
Tuberculosis.....	35	34	23	66	5	39	202
Typhoid fever.....	7	33	14	39	18	36	147
Undulant fever.....		1					1
Whooping cough.....		11				1	12

¹Includes the city of Habana.

JAPAN

Notifiable diseases—4 weeks ended June 28, 1947, and accumulated totals for the year to date.—For the 4 weeks ended June 28, 1947, and for the year to date, certain notifiable diseases have been reported in Japan as follows:

Disease	4 weeks ended June 28, 1947		Total reported for the year to date	
	Cases	Deaths	Cases	Deaths
Diphtheria.....	2,189	152	17,313	1,562
Dysentery, unspecified.....	1,703	336	3,961	771
Encephalitis, Japanese "B".....	4	2	5	4
Gonorrhoea.....	18,166	-----	100,661	-----
Influenza.....	462	-----	¹ 1,798	-----
Malaria.....	1,257	1	5,256	14
Measles.....	35,068	-----	¹ 106,581	-----
Meningitis, epidemic.....	237	83	2,438	745
Paratyphoid fever.....	398	14	1,613	90
Pneumonia.....	17,311	-----	¹ 72,420	-----
Scarlet fever.....	245	9	1,455	35
Smallpox.....	34	5	366	36
Syphilis.....	12,661	-----	69,031	-----
Tuberculosis.....	34,718	-----	¹ 103,324	-----
Typhoid fever.....	1,280	155	6,130	766
Typhus fever.....	126	8	869	71
Whooping cough.....	20,025	-----	63,899	-----

¹ For the period Mar. 30 to June 28, 1947.

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

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

A table showing the accumulated figures for these diseases for the year to date is published in the PUBLIC HEALTH REPORTS for the last Friday in each month.

Plague

Brazil.—Plague infection has been reported in Brazil as follows: January 1947, Ceara State—Pacoti, 2 cases, 1 death; Minas Geraes State—Guanhaes, 1 case, Pecanha, 1 case, Serro, 3 cases, 1 death; February 1947, Minas Geraes State—Serro, 2 cases, 2 deaths.

Smallpox

Colombia.—For the month of June 1947, 533 cases of smallpox with 1 death were reported in Colombia.

Ivory Coast.—For the period June 21–30, 1947, 311 cases of smallpox were reported in Ivory Coast.

Rhodesia, Southern.—For the month of April 1947, 118 cases of smallpox with 21 deaths were reported in Southern Rhodesia.

Typhus Fever

Colombia.—For the month of June 1947, 228 cases of typhus fever with 5 deaths were reported in Colombia.

Rumania.—Typhus fever has been reported in Rumania as follows: Weeks ended—May 31, 1947, 951 cases, including 63 cases reported in Bucharest; June 7, 1947, 759 cases, including 44 cases in Bucharest.

Yellow Fever

Colombia.—Yellow fever has been reported in Colombia as follows: Intendencia of Meta—Acacias, Guamal, May 26, 1947, 1 death, Acacias, Umadea, May 28, 1947, 1 death; Tolima Department—Mariquita, Lumbi, June 9, 1947, 1 death.