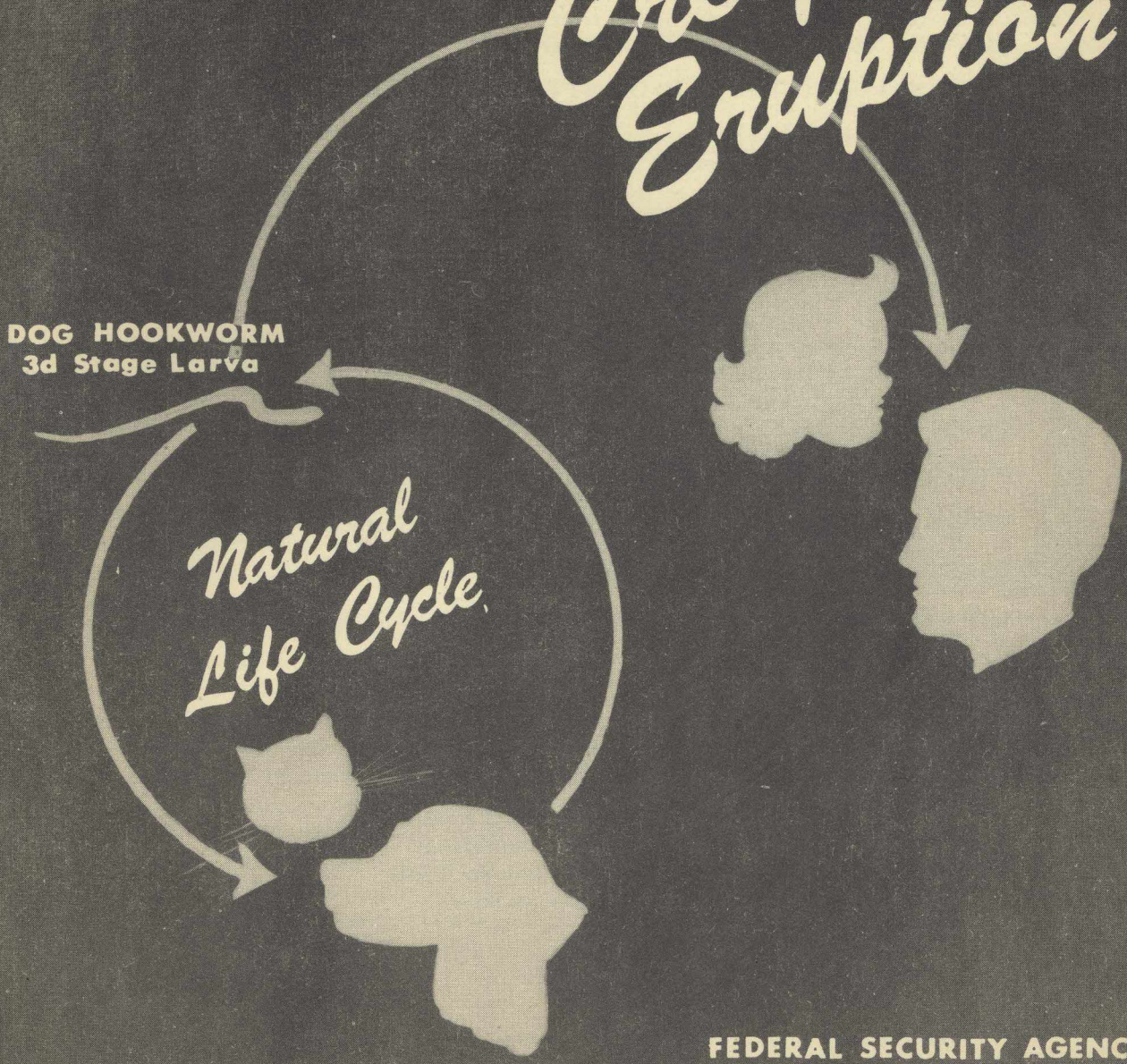
CDC BULLETIN

FEBRUARY-1951

Creeping Eruption



FEDERAL SECURITY AGENCY
Public Health Service
Communicable Disease Center
Atlanta, Ga.

CDC BULLETIN
Vol. X, No. 2 FEBRUARY 1950

Contents

FEDERAL SECURITY AGENCY
Public Health Service
Communicable Disease Center
Atlanta, Georgia

The printing of this publication has been approved by the Director of the Bureau of the Budget, January 19, 1950.

Creeping Eruption

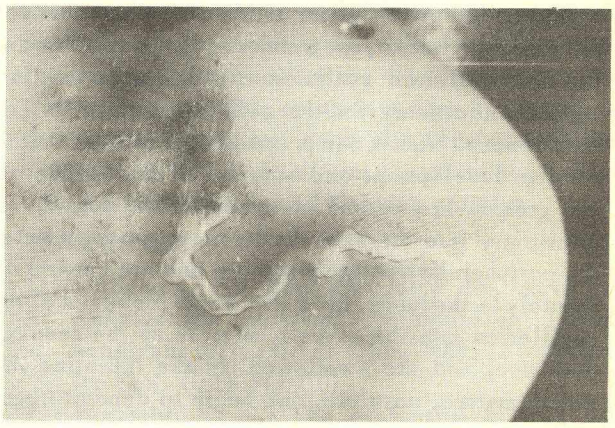
ALAN W. DONALDSON, Scientist*
JAMES H. STEELE, Veterinary Director**

Creeping eruption is a skin disease which occurs in at least 12 of the southeastern States, particularly in coastal areas, where it is associated with a damp-sand type of soil. The greatest number of cases have occurred in Georgia, Florida, and Texas with reported infections as far north as Maryland and New Jersey. Although creeping diseases of the skin reportedly have been caused by fly larvae (*Gastrophilus, Hypoderma*), by ants, by mites, and by certain larval nematodes (*Gnathostoma*), the most common causative agent in the United States appears to be the third stage or filariform larva of the dog hookworm, *Ancylostoma braziliense*. Early workers recommended, therefore, that the term "creeping eruption" be used specifically for this infection.

CLINICAL ASPECTS

Clinical descriptions of creeping eruption by various authors are remarkably similar. Invasion usually takes place on the hands or feet, but lesions may be found on any part of the body. Plumbers and carpenters frequently are infected on the back and buttocks. At the site of penetration of the larvae, reddish itching papules develop within a few hours. In 2 or 3 days, erythematous tracks which mark the paths traversed by the worms extend out from the papules. Later these tortuous or serpiginous subepithelial tunnels are indicated by slightly elevated lines which become vesicular and then develop dry and crusty surfaces. Because of the typical linear lesions, physicians have stated there is little difficulty in differentiating creeping eruption from scabies, ground itch, ringworm, and other inflammatory conditions of the skin. Intense itching of these lesions leads to scratching and thus often to complicating secondary bacterial infection. In severe cases the itching may result in loss of appetite, insomnia, and reduced vitality. The rate of migration of the larvae in the skin varies from a fraction of an inch to several inches daily and may continue for days, weeks, and even months.

Some individuals may experience self-cures in a relatively short time without specific treatment. In others, however, the lesions continue to develop for long periods of time and often are quite refractory to treatment of any sort. It has been observed that injudiciously repeated topical treatments may cause irritation and even necrosis of the skin, resulting in conditions which are even more severe than the original infection. Successful treatment of creeping eruption seems best accomplished by local freezing with ethyl chloride spray or carbon dioxide snow. There is no evidence that the systemic administration of heavy metal drugs such as fuadin or tartar emetic has any specific action on the larvae.



Typical lesions of creeping eruption. For photographs of creeping eruption exhibits, see CDC Bulletin IX (9), 6-7, September 1950.

BIOLOGY OF THE DOG HOOKWORMS

The adults of *A. braziliense* are intestinal parasites of dogs and cats where they are frequently associated with another hookworm, *Ancylostoma caninum*. Although intestinal infections of man with *A. braziliense* have been reported, particularly in the Orient, such infections are extremely rare in this country. Because of the occurrence of cases of creeping eruption which appear to have been acquired in areas where dogs and cats are prohibited,

*Laboratory Services, CDC.
**Chief, Veterinary Public Health Services, CDC.

A Plan for Revising Morbidity Reporting by States*

(The following committee report is published for the benefit of the many readers of the CDC Bulletin to whom the nationally reported communicable diseases are of interest. The report includes recommendations with respect to procedures for the reporting of communicable disease morbidity through the National Office of Vital Statistics; revision of the minimum list of diseases to be reported nationally; and a new proposal that a regular procedure for the reporting of epidemics be established.

The committee report was submitted to the Association of State and Territorial Health Officers at their annual meeting in the fall of 1950 and has been distributed to the State Health Officers.

The Public Health Service Committee on Communicable Disease Reporting was composed of the following: Dr. Joseph A. Bell, National Health Institutes; Dr. Selwyn D. Collins, Division of Public Health Methods; Dr. G. L. Dunnahoo, Division of Foreign Quarantine; Dr. Paul W. Kabler, Environmental Health Center; Dr. Alexander Langmuir, Communicable Disease Center; Dr. Robert E. Serfling, Communicable Disease Center; and Dr. Halbert L. Dunn, Chairman, National Office of Vital Statistics.)

INTRODUCTION

During the forty-eighth annual conference of the State and Territorial Health Officers held October 19-22, 1949, in Washington, D.C., the Infectious Disease Committee made a number of recommendations to the Public Health Service. This document was prepared in response to two of these recommendations:

1. Proceedings, Page 65, Paragraph IIc – "That the U.S. Public Health Service and the American Public Health Association study the diseases which are now reportable in the various States and territories and make recommendations concerning the diseases which should be made reportable."

2. Proceedings, Page 65, Paragraph IVa – ".... the U.S. Public Health Service study and survey present morbidity reporting requirements for all notifiable diseases and that recommendations be made concerning any changes which may be deemed advisable."

The recommendations presented here cover three aspects of the morbidity reports and statistics problem – a minimum list of diseases for reporting by the States to the Public Health Service, a revision of the periodic statistical reports now being made to the Public Health Service, and the minimum content of a general morbidity case report form.

These recommendations have been developed by the Public Health Service Committee on Communicable Disease Reports, representing the various parts of the Service concerned with this problem. It is believed that they constitute a first step toward the achievement of more comparable and useful reports on the incidence of communicable diseases throughout the country and the occurrence of epidemic outbreaks. They will also provide some of the epidemiological information which would be needed in an emergency war-time situation.

It will be recognized that these recommendations are only a beginning. The most important uses of morbidity reports are found in the local and State health departments. It is, therefore, proposed that the States and the Public Health Service also cooperate in the development of minimum procedures for the collection and processing of morbidity reports which can be recommended for use throughout the country.

SUMMARY OF MAJOR RECOMMENDATIONS

1. Universal national reporting by States to the National Office of Vital Statistics should be encouraged as follows:

   a. Immediate telegraphic reports of the five diseases now required by international convention.

**A report of the Public Health Service Committee on Communicable Disease Reports.*

b. Immediate weekly reports (current preliminary figures) of State totals for a minimum list of notifiable diseases.

c. Weekly mail reports (current preliminary figures) of the same diseases by county.

d. Annual reports (corrected final figures) of an expanded list of diseases, giving State totals by week and county totals for the year.

2. The minimum list of diseases recommended for national reporting should be reviewed at intervals for additions, deletions, and appropriate changes in terminology.

3. In addition to the minimal list, States are encouraged to include other diseases reportable within the State. The National Office of Vital Statistics will publish annually the additional disease reports submitted by the States.

4. A new mechanism will be established for the weekly reporting of epidemics and outbreaks as they occur in the Nation and for their appropriate publication in brief narrative form.

THE BASIS FOR NATIONAL MORBIDITY REPORTING

In addition to State and local needs for morbidity reporting in communicable disease control, there are several reasons for national morbidity reporting.

1. Immediate control procedures may be necessary to meet "international or interstate quarantine obligations."

2. The national interest will be served by the rapid and systematic dissemination of information to health officials, practicing physicians, and the general public.

3. Civil defense against biological warfare requires immediate central notification of outbreaks of disease.

4. Comprehensive statistical data are needed for epidemiological research and for administrative planning of long-range programs.

The first three of these reasons justify immediate reporting on a daily, or at least weekly, basis with rapid dissemination of information as the primary objective. This rapidity inherently limits the accuracy and correctness of such data, but it is essential if control measures are to be instituted with minimum delay.

On the other hand, the fourth reason demands the most accurate and complete data possible. Corrected and specific information is needed for the diseases requiring immediate reporting and, in addition, data on a number of other diseases not requiring immediate control action are necessary in planning and directing long-range investigation and control programs. Such information can become available only after a period of weeks or months when supplemental data have been accumulated. Hence, an annual report giving these corrected and more complete data is recommended. This report should be submitted by April 30 of the following year.

However, definite limitations must be placed on the list of nationally reportable diseases. Inclusions should be restricted to diseases of recognized national importance that can be reasonably well diagnosed by clinical means alone or by generally available laboratory services.

The minimum list should be considered flexible. The present revisions of morbidity reporting are proposed for experimental trial during 1951. The procedures adopted at the close of 1951 will be reviewed thereafter at 5-year intervals. However, under emergency conditions, revisions may be made at any time.

An intrinsic feature of the plan is that States will be encouraged to report all diseases which are public health hazards within the States. It is recommended, however, that national reporting be requested only for the minimum list of diseases.

RECOMMENDED MINIMUM LIST OF DISEASES FOR NATIONAL REPORTING

In preparing the list in table 1 and subsequent tables, a number of sources were consulted:

1. Report of Subcommittee on Communicable Disease Control, Committee on Research and Standards, APHA, 1950.

2. Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death, Sixth Revision of the International Lists of Diseases and Causes of Death, 1948.

3. Diseases presently defined as "communicable" in Interstate Quarantine Regulations, PHS Reg. Par. 72.2.

4. *Morbidity Reporting Requirements,* Division of Public Health Methods, USPHS, July 1, 1948.

5. Lists of notifiable diseases in the States.

None of these have been accepted without qualification or suggested changes. Brief justifications are presented for additions or deletions from the established lists at present in general use.

The relations of venereal disease and tuberculosis reporting to general communicable disease reporting have been considered. However, these diseases present special reporting problems because of the intensive control programs which they

involve. It is believed that the extent to which the reporting of these diseases should be coordinated with other communicable disease reporting requires further investigation during the proposed trial year.

Weekly Reporting. The modified list of 25 diseases, recommended for weekly reporting by the States, is given in table 1. The APHA Subcommittee recommends reporting of all these diseases except infectious encephalitis. Recognized international or interstate quarantine obligations exist for 14 of them. The five diseases, cholera, plague, smallpox, epidemic typhus (louse-borne), and yellow fever are immediately reportable by telegram in accordance with international convention.

Weekly State totals for these diseases should be reported promptly, and in addition, county totals should be submitted by mail. The former will be published by the National Office of Vital Statistics; the latter will be available at one central point to public health officials and any interested citizen.

While the weekly report by county represents a substantial body of statistical data, it is recommended because almost all States now regularly make these tabulations for local purposes and submit them to the National Office of Vital Statistics.

Six diseases have been eliminated from the list included in the 1948 edition of *Morbidity Reporting Requirements*. Three of these six are presently included in the list of defined "communicable" diseases in Public Health Service Regulations, Paragraph 72.2. These are favus, ringworm of the scalp, and trachoma.

Favus is so rare and so local a problem in this country that routine national reporting is no longer justified.

Ringworm of the scalp is a very common, mild disease of purely local concern. Morbidity reporting on an individual case basis has no validity.

Trachoma is now a sufficiently uncommon and localized problem that reporting on an annual basis should suffice.

The other three diseases, previously reported weekly by telegram, that have been deleted are influenza, pneumonia, and paratyphoid fever.

Reports of influenza are notoriously inaccurate and more useful data regarding the occurrence of this disease will be obtained by the proposed plan for reporting of epidemics.

Pneumonia is so grossly underreported that morbidity statistics of this disease have been totally valueless. Since there is no hope of changing this situation, the disease should be dropped from the list.

Paratyphoid fever is a vague clinical entity and has usually

Table 1
DISEASES RECOMMENDED FOR WEEKLY REPORTING BY STATES TO PHS
State Totals by Telegram, County Totals by Mail

Name of Disease	Presently Included in International or Interstate Quarantine Regulations	Reporting Recommended by APHA Subcommittee, 1950
1. Anthrax	x	x
2. Botulism		x
3. Brucellosis		x
4. Cholera	x	x
5. Dengue	x	x
6. Diphtheria	x	x
7. Encephalitis, infectious	x	
8. Infectious jaundice (including infectious hepatitis, serum hepatitis, and leptospirosis)		x
9. Malaria		x
10. Measles		x
11. Meningococcal meningitis and meningococcemia	x	x
12. Pertussis		x
13. Plague	x	x
14. Poliomyelitis	x	x
15. Psittacosis	x	x
16. Rabies in man		x
17. Rabies in animals		x
18. Rocky Mountain spotted fever		x
19. Smallpox	x	x
20. Streptococcal infections including scarlet fever	x	x
21. Trichinosis		x
22. Tularemia		x
23. Typhoid Fever	x	x
24. Typhus Fever	x	x
25. Yellow Fever	x	x

been grouped with cases of typhoid fever. The newly added provision for annual reports of salmonellosis should provide more useful information.

The following diseases have been added to the weekly list: botulism, brucellosis, dengue, infectious jaundice (including infectious hepatitis, serum hepatitis, and leptospirosis), malaria, rabies in man, trichinosis, and endemic typhus (flea-borne).

Botulism is a rare type of food poisoning that has in the past resulted from nationally distributed canned food. Its occurrence is of national interest.

Brucellosis is a disease for which increasing control activities on a national scale are being attempted. Epidemics traced to raw milk have occurred occasionally. These might well involve more than one State.

Dengue is not known to be present in this country but its introduction should be known immediately.

Infectious jaundice is a general term encompassing at least three specific entities that can be distinguished only by careful and often prolonged investigation. These entities are:

a. Infectious hepatitis, an endemic and epidemic disease communicable from man to man and through water and possibly other means. It was of major importance to the military forces overseas in World War II. Occurrence of epidemics is of national interest.

b. Serum hepatitis is transmitted by blood transfusions, blood serum or plasma, through biological products containing human blood serum, and by contaminated needles and syringes. Occurrence of cases in different States might be traceable to one lot of a nationally distributed product. Routine weekly reporting would facilitate bringing such an epidemic to light so that control measures could be instituted.

c. Leptospirosis is a specific spirochetal disease that occurs endemically and epidemically and is of increasing national interest.

While routine reports of jaundice will not distinguish these three entities, their normal incidence is low. Any increase above expectancy would warrant special investigations.

Malaria as an endemic disease is rapidly disappearing from the country but the prevention of its possible re-establishment is a Federal responsibility for which current information is required.

Rabies in man is rare but is of wide interest when it occurs.

Trichinosis is a disease that occurs in epidemics traceable to infected meat. These may well have interstate implications of importance not only to official health agencies but also to the Bureau of Animal Industry of the Department of Agriculture.

Endemic typhus fever has been subjected to an intensive federally coordinated control program. Immediate knowledge of the occurrence of such cases is needed in the effective execution of the program.

Annual Reporting. The list of diseases that should be reported annually, table 2, differs from the weekly list in several respects:

a. Tabulations are to be corrected for duplicates, changes in diagnosis, and laboratory reports, and allocation by date of onset and to place of residence.

b. Laboratory confirmations are to be requested on certain diseases where clinical diagnosis is often inadequate.

c. Additional diseases are included for which weekly reports are deemed unnecessary.

d. Paralytic cases of poliomyelitis are to be specified.

e. The extent to which "infectious" jaundice has been distinguished into its three components as a result of subsequent investigation is to be indicated.

The corrected tabulations on an annual basis giving State totals by weeks and annual totals by counties will serve the valuable purpose of revealing when, where, and to what extent the current weekly uncorrected reports were in error. These will be of inestimable value for research studies and long-range administrative planning.

The new suggestion of indicating in the annual reports the number of cases of certain diseases confirmed by laboratory examination will be valuable in the interpretation of the validity of the reports. It is an established practice in most States for laboratories to submit reports on examinations for communicable diseases to the State epidemiologist. This practice should be encouraged.

The additional diseases included in the annual list but not on the weekly list are infectious gastro-enteritis (amebiasis – laboratory confirmed only, salmonellosis – laboratory confirmed only, shigellosis – laboratory confirmed only, and unspecified), leprosy, ophthalmia neonatorum,

totals of these diseases is of national value in reflecting local problems. The National Office of Vital Statistics will publish simple annual totals of all notifiable diseases submitted by the States. A partial list of such diseases is presented in table 3.

Table 3

A PARTIAL LIST OF DISEASES OF IMPORTANCE IN COMMUNICABLE DISEASE CONTROL BUT NOT INCLUDED IN THE MINIMUM LIST FOR NATIONAL REPORTING

A. Infectious Diseases

- Actinomycosis
- Ascariasis
- Aseptic meningitis
- Blastomycosis
- Chickenpox
- Coccidioidomycosis
- Colorado tick fever
- Conjunctivitis, acute infectious
- Echinococcosis
- Erysipelas
- Favus
- Filariasis
- Gas gangrene
- Glanders
- Histoplasmosis
- Hookworm
- Impetigo contagiosa
- Influenza
- Keratoconjunctivitis
- Lymphocytic choriomeningitis
- Moniliasis
- Mononucleosis, infectious
- Mumps
- Pediculosis
- Pneumonia
- Puerperal sepsis
- Q fever
- Rat bite fever
- Relapsing fever
- Rheumatic fever, acute
- Rickettsialpox
- Ringworm of the scalp
- Rubella
- Scabies
- Schistosomiasis
- Tapeworm infestation
- Trypanosomiasis, American (Chagas' disease)
- Vincent's infection
- Vulvovaginitis in children

B. Noninfectious Diseases

Dietary deficiency diseases
- Beriberi
- Pellagra
- Scurvy
- Rickets

Toxicological diseases
- Barbiturate poisoning
- Carbon monoxide poisoning
- Lead poisoning
- Other

Occupational diseases
- Dermatitis
- Silicosis
- Other pulmonary fibroses
- Radiation sickness

Metabolic diseases
- Diabetes
- Goiter
- Methemoglobinemia of infants

Complications following various immunization procedures
- Tetanus following smallpox vaccination
- Paralysis following Pasteur treatment
- Anaphylactic reactions following egg vaccines
- Post-vaccinal encephalitis

Miscellaneous
- Accidents
- Blindness
- Cancer
- Dog bite
- Epilepsy
- Erythroblastosis
- Multiple sclerosis
- Toxemias of pregnancy
- Yaws

totals of these diseases is of national value in reflecting local problems. The National Office of Vital Statistics will publish simple annual totals of all notifiable diseases submitted by the States. A partial list of such diseases is presented in table 3.

Table 3

A PARTIAL LIST OF DISEASES OF IMPORTANCE IN COMMUNICABLE DISEASE CONTROL BUT NOT INCLUDED IN THE MINIMUM LIST FOR NATIONAL REPORTING

A. Infectious Diseases

- Actinomycosis
- Ascariasis
- Aseptic meningitis
- Blastomycosis
- Chickenpox
- Coccidioidomycosis
- Colorado tick fever
- Conjunctivitis, acute infectious
- Echinococcosis
- Erysipelas
- Favus
- Filariasis
- Gas gangrene
- Glanders
- Histoplasmosis
- Hookworm
- Impetigo contagiosa
- Influenza
- Keratoconjunctivitis
- Lymphocytic choriomeningitis
- Moniliasis
- Mononucleosis, infectious
- Mumps
- Pediculosis
- Pneumonia
- Puerperal sepsis
- Q fever
- Rat bite fever
- Relapsing fever
- Rheumatic fever, acute
- Rickettsialpox
- Ringworm of the scalp
- Rubella
- Scabies
- Schistosomiasis
- Tapeworm infestation
- Trypanosomiasis, American (Chagas' disease)
- Vincent's infection
- Vulvovaginitis in children

B. Noninfectious Diseases

Dietary deficiency diseases
- Beriberi
- Pellagra
- Scurvy
- Rickets

Toxicological diseases
- Barbiturate poisoning
- Carbon monoxide poisoning
- Lead poisoning
- Other

Occupational diseases
- Dermatitis
- Silicosis
- Other pulmonary fibroses
- Radiation sickness

Metabolic diseases
- Diabetes
- Goiter
- Methemoglobinemia of infants

Complications following various immunization procedures
- Tetanus following smallpox vaccination
- Paralysis following Pasteur treatment
- Anaphylactic reactions following egg vaccines
- Post-vaccinal encephalitis

Miscellaneous
- Accidents
- Cancer
- Epilepsy
- Erythroblastosis
- Multiple sclerosis
- Toxemias of pregnancy
- Yaws
- Blindness
- Dog bite

REVISION OF PUBLIC HEALTH SERVICE "MORBIDITY REPORTING REQUIREMENTS"

The present edition of *Morbidity Reporting Requirements* was issued as of July 1, 1948. The recommendations described here involve several major changes both in the content of the reports and the reporting procedure. It is planned that these changes be instituted on January 1, 1951. Therefore, a revision of the above manual will be prepared and distributed to the States within the next few months.

REPORTING OF EPIDEMICS AND OUTBREAKS

A mechanism will be established by cooperative arrangement between the Public Health Service and the States for the regular weekly reporting of brief narrative accounts of epidemics and outbreaks. Precedents for such a practice already exist in that occasional brief accounts of epidemics have been included in the *Weekly Morbidity Report* and in *Public Health Reports* for many years. These reports, however, have been sporadic and intermittent and have depended upon the chance submission of information from the States.

A more orderly pattern of epidemic reporting has recently been established by the Influenza Information Center of the National Institutes of Health in cooperation with the World Health Organization. The laboratory identifications of influenza and other significant pathogenic agents by the collaborating laboratories were published during the winter of 1949-50 in the *Weekly Communicable Disease Summary.*

The Division of Sanitation, Public Health Service, has employed an independent mechanism for compiling reports on food- and water-borne epidemics from the States. An annual summary of such outbreaks is published separately and is of real interest and value.

The present proposal is felt to be a logical extension of these existing patterns and precedents. Routine epidemic reporting would serve many useful purposes such as:

1. Better control of epidemics.
2. More informative data on the occurrence and distribution of epidemic influenza and other epidemiological entities.
3. Stimulation of better epidemic investigation.
4. Strengthen the national defense against biological warfare.

Discussion of these purposes follows:

1. The traditional purpose of morbidity reporting is the control of epidemics. These become immediately apparent to the State epidemiologist because when a group of cases is reported to them, geographic localization is evident. Total State figures, however, may mask small but significant outbreaks. For example, if one State reports five cases of typhoid fever, it might indicate either a localized outbreak or a series of unrelated sporadic cases. If it happened to be an outbreak, a brief narrative account would be of interest and importance to health officers of adjoining States. It is entirely possible that single or small clusters of cases in their States might be traceable to the same source. Such epidemiological intelligence would facilitate prompt detection and institution of control of many epidemic diseases.

2. Individual case reporting of influenza is grossly unsatisfactory because the disease cannot be diagnosed clinically and is indistinguishable from many other types of common endemic and epidemic acute respiratory diseases.

Influenza is characteristically an epidemic manifestation covering wide expanses of territory almost simultaneously, and causing a degree of increased morbidity and absenteeism sufficient to become readily apparent to the general public. It is relatively easy for a local health officer to secure a qualitative description of the occurrence and extent of an influenza epidemic in his jurisdiction by telephoning schools and a few major industries to determine, roughly, the extent of increased absenteeism for respiratory disease. If local health officers were instructed to report such events to the State epidemiologist, he in turn could quickly secure a picture for the whole State more promptly and more accurately than he could by the more cumbersome, expensive, and impractical method of individual case reporting.

The only reliable semiquantitative descriptions of epidemic influenza on a national scale have come from analyses of excess weekly influenza-pneumonia deaths and excess total mortality. This source of data is outside the realm of morbidity reporting but the continuance of some mechanism for weekly mortality data is urged. It is believed that a combination of current descriptive reports from health officers with weekly mortality figures would provide a more adequate description of epidemic influenza than is now available.

In addition to influenza, there are a number of other diseases that are characteristically epidemiological entities such as epidemic diarrhea of the newborn, staphylococcus toxin food poison-

ing, and the diarrhea that follows gross sewage contamination of public water supplies. Information regarding the occurrence of these interesting phenomena can only be made available through a system for reporting epidemics.

3. Appropriate editing of these reports should be provided at the State level. If a particular hospital has experienced an epidemic of diarrhea of the newborn the name of the hospital does not need to be publicized, even the city does not need to be mentioned publicly. However, the occurrence of such epidemics is of national interest.

If an epidemic of typhoid fever is traced to a raw milk supply, the dealer need not be named, but the location of the community and the estimated time of the contamination of the supply may well be essential information to epidemiologists and health officers in adjoining areas.

In the reports of food- and water-borne epidemics prepared by the Division of Sanitation of the Public Health Service, certain States such as New York and California appear to have the most outbreaks. This clearly reflects the extent to which such outbreaks are investigated and sources determined, rather than poorer sanitary practices. The willingness of these States to make the information freely available is most commendable and should encourage a similar attitude in all States.

Epidemics of undiagnosed or bizarre diseases or of diseases not now considered reportable occur with considerable frequency. Examples of these are acute contagious gastro-enteritis (so-called "intestinal influenza"), epidemic pleurodynia, impetigo in nurseries, atypical pneumonia, and benign forms of myalgia and meningitis. The provision of an appropriate place where such events could be reported would stimulate interest in these unsolved problems.

4. The subject of defense against biological warfare is still shrouded in the secrecy of security classification. However, it is generally recognized that a potential enemy could create epidemics of a variety of infectious diseases by sabotage or by open warfare.

Biological warfare by sabotage of water or food supplies or by aerial contamination of strategic buildings might produce serious consequences. Adequate defenses against such attacks are difficult to visualize but the importance of "epidemiological intelligence" and the thorough investigation of all epidemics as they occur are patently necessary.

The proposal for regular reporting of epidemics and outbreaks has, therefore, not only solid justification in the logical development of the peacetime health program but also peculiar significance in the defense of the Nation.

A manual describing in fuller detail the procedures for epidemic reporting is now in preparation at the Communicable Disease Center.

RECOMMENDED MINIMUM CONTENT OF GENERAL MORBIDITY REPORT CARD

Consistent national morbidity data are needed for local, State, and national control of communicable diseases. The adoption by the States of minimum uniformity in certificate content and format contributed greatly to the successful development of mortality and natality statistics.

An individual case report card is necessary for good morbidity reporting. The criteria for selecting the minimum items on the form were: (a) that it include information needed for public health purposes, (b) that consideration be given to the convenience of the private physician and other persons responsible for reporting, and (c) that the content of the report card be as simple and clear in format as possible. In spite of the many advantages of uniform format in a morbidity report card, it is more important at this time to agree on its minimum content. For the purpose of eventually securing agreement on content, a draft of a form is shown (figure 1).

This form contains the following minimum items:

Disease. This item is self-explanatory. The parenthetical note requests type of disease if pertinent or known (for example, poliomyelitis — paralytic, or nonparalytic). If type is not known (when pertinent), the report card should not be delayed until diagnosis is complete. The card should be mailed immediately.

The date of onset is routinely obtained by the attending physician and is needed by the health department for epidemiological appraisal. This data is requested at the present time by 24 States.

Name of Patient. The need for this item is obvious. All except four States now request the name of the patient on general morbidity reports.

Age, sex, and color are basic characteristics needed in evaluation of the incidence and control of disease.

Usual Residence of Patient. The usual residence of the patient is recommended as the most

useful, practical basis for the routine allocation of cases. In addition, usual residence information makes possible the comparison of reported incidence with mortality and population data. Information on place of contraction is important for many diseases, but its correct identification is dependent on careful epidemiological investigation. Data developed in these investigations should be presented as special studies or as supplements to reports of morbidity by usual residence.

Space for Addition of Items by Individual States. Questions pertaining to special problems or interests of individual States should be asked in this space.

Reported by; Address. This item is self-explanatory. Space is also given for checking the need for additional reporting supplies.

The use of envelopes is recommended for all morbidity report cards. They will protect the confidential nature of the report. Also, the reverse side of the card becomes available for the following uses:

1. Provide space for use as an index card in local or State health department. One or two blank horizontal lines across the top of the card on the reverse side would give space for typing name of patient, area, disease, and other pertinent information.

2. Provide space for the list of legally reportable diseases in the State together with minimum instructions.

3. Provide space for local or State health department use: (a) Stamping date of receipt, (b) recording results of laboratory tests, and (c) recording other supplementary information.

The method of reporting diseases of high frequency such as measles, mumps, and chickenpox requires further consideration. Many private physicians will probably continue to report in round numbers on an individual card. Some such simplified method of reporting the minor diseases would save the physicians time and might encourage better reporting of the more serious diseases.

ADDITIONAL COMMENTS

It should be recognized that national reporting is only the end product of the whole mechanism. Good morbidity reporting depends on strong local health departments and effective stimulation and guidance from the State epidemiologists.

The present recommendations are considered only a first step in fulfilling the 1949 request of the State and Territorial Health Officers rather than a complete solution of the problems.

Figure 1

RECOMMENDED MINIMUM MORBIDITY REPORT FORM

STATE OF

1. DISEASE (Specify type if pertinent or known)			DATE OF ONSET
2. NAME (First, Middle Initial, Last)	AGE	SEX ☐ Male ☐ Female	RACE OR COLOR ☐ White ☐ Non-white
3. USUAL RESIDENCE — NO., STREET (If rural, give location)			APT. NO.
CITY OR TOWN	COUNTY		STATE
4. SPACE FOR ADDITION OF ITEMS BY INDIVIDUAL STATES			
5. REPORTED BY	ADDRESS		CHECK FOR SUPPLIES ☐ Report Cards ☐ Envp.

NOTIFIABLE DISEASE REPORTS PHS---(VS)

Form approved
Budget Bureau No. 68-R097

Actual Size 5½x3¼

Communicable Disease Center Training Program in Housing

HERBERT H. ROGERS, J. A. Sanitary Engineer (R)*

Housing improvement is recognized as one of the most fundamental conditions of social reform. It is quite obvious that bad housing has tended to result in demoralization, in social unrest, and in high rates of mortality and disease. The increase in morbidity and mortality rates associated with poor housing has become one of the critical problems of today. The Surgeon General of the Public Health Service has said, "Underlying every ... (action) ... to improve the quality of housing is the recognition that the home environment plays a significant role in determining the health status of the individual, the family, and the community," and "that in our efforts for higher levels of national health, an aggressive program for improving the quality of housing is a necessary adjunct to the provision of better health services."(1)

The American Public Health Association through its Committee on the Hygiene of Housing has done extensive research on the basic principles of healthful housing. This Committee developed an appraisal method for measuring the quality of housing by applying these basic principles. This method is a tool for evaluating a very complex problem so that laymen can understand the basic essentials necessary to formulate plans for action.

Following the development of the appraisal technique, the American Public Health Association was consultant in the field of housing hygiene. The Public Health Service began work in this field in early 1948. The American Public Health Association released its rights and privileges of the Appraisal Technique to the Public Health Service at this time, and training in housing sanitation was begun in the Training Services of the Communicable Disease Center.

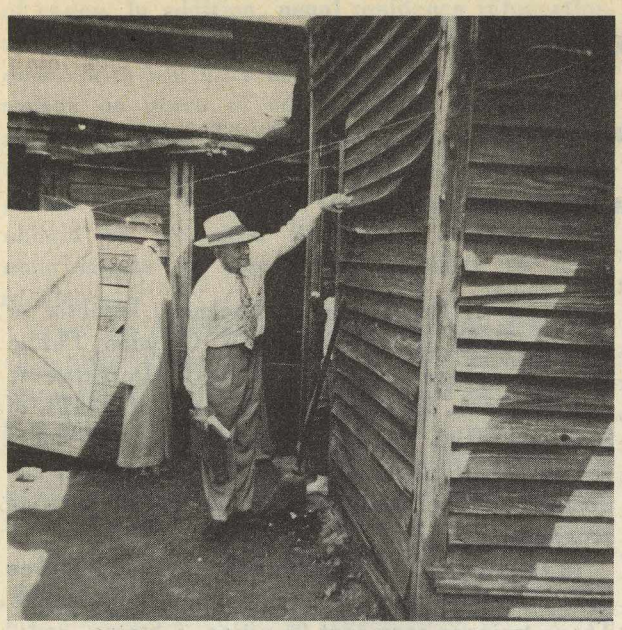
Field training in the use of the American Public Health Association Appraisal Technique for evaluating housing is now being given at two established Housing Sanitation Training Centers, in Atlanta, Ga., and Syracuse, N. Y. In carrying on this work, the Training Services has had the cooperation of Dr. James F. Hackney, Director of Public Health, and Mr. Stafford W. Graydon, Public Health Engineer of the Atlanta Health Department, and Dr. C. A. Sargent, Commissioner of Health of Syracuse. With the facilities of these two local health departments, it is possible to conduct the courses in the atmosphere of an active housing program.

In the 2½ years of training operation, 41 trainees have completed training in the Appraisal Technique. These trainees represent 25 cities, 5 States, and 2 Public Health Service Regions. In addition to these, there has been a large number of people who have taken short courses in housing sanitation. Persons given orientation in housing in these short courses have included Public Health Service regional engineers, local directors of health, State health department personnel, planning commission personnel, and other persons from local governmental departments. The demand for training in housing sanitation has spread beyond the boundaries of the United States, and many foreign trainees coming to the Training Services spend time seeking information as to how they may attack housing problems in their own countries.

The demand for training in housing has required some decentralized work. In addition to the 1-week and 5-week courses in Atlanta and Syracuse, Training Services has participated in seminars given in other localities. These seminars have been orientation classes and workshops to acquaint interested officials with the real problems that face them. In October and November, a 4-week training course in housing was given in Oakland, Calif., in order that many cities in that area might take advantage of housing training. Persons taking the course included personnel from the Public Health Service, State and local health departments, and local planning commissions.

The 5-week training course in housing is given at both of the Housing Training Centers. It is conducted at these two locations because of the very

*Training Services, CDC.



Trainee receiving field experience in dwelling appraisal.

active housing programs that are presently under way. The trainee has the opportunity of working in the field where he is confronted with the real problems, almost identical with those of his locality. In addition to the dwelling appraisal in the field, a certain amount of time is spent in a city planning office where problems of planning the dwelling environment are solved. The results of the field appraisal are summarized in the office and the analysis made. The analysis is then used as a basis for determining what action is necessary to improve the conditions of housing (2).

Although we depend on the "educational approach" to carry out a program, it is very necessary that equitable, strong, and constitutional laws be developed in order to rehabilitate blighted areas of a community. Regulatory laws on structures, environment, and rehabilitation are complex and a general code applicable throughout the country is not feasible. Each trainee is briefed on certain fundamental points which must be considered when discussing these laws.

Candidates for housing training need not be engineers, but they should have some background of experience in environmental sanitation, statistics, or city planning. These persons should be well acquainted with their local problems because part of the training period will be given to a discussion and consideration of their local needs. Candidates who meet these requirements may be supervisory personnel of State and local health departments, city planners, or rehabilitation commissioners.

New subject matter is being added to the general subject of housing sanitation and new training aid films are being made in cooperation with the Audio-Visual Production Services. In addition to training aid films, kits for the use of field representatives are being developed to meet the needs for reference material on the subject of housing. With the aid of this new material, it is hoped that the training program in housing may assist State and local agencies in meeting the needs and demands from the entire country.

REFERENCES

(1) Scheele, Leonard A.: Presented in hearings before the Subcommittee of the Committee on Banking and Currency, United States Senate, Eighty-first Congress (February 11, 1949).

(2) Bulletin of Field Training Programs: Federal Security Agency, Public Health Service, Communicable Disease Center (1951).

Expansion of Housing Training by Establishing a New Regional Center

EMIL A. TIBONI, S. A. Sanitarian (R)*

A center for the training of personnel in the hygiene of housing has been established at Syracuse, N. Y., as a joint effort of the Syracuse Health Department and Training Services of the Communicable Disease Center. It is hoped that this Center in cooperation with State and local agencies will satisfy the growing needs for training in this increasingly important aspect of housing activity

*Training Services, CDC, Syracuse Housing Training Center, Syracuse, N. Y.

in the northeastern portion of the country.

The Center is under the direction of Dr. C. A. Sargent, Commissioner of Health of Syracuse. Training courses are conducted by a training officer assigned by Training Services of the Communicable Disease Center. The housing evaluation program of the city health department is being used as a teaching facility. In addition to conducting training courses, the training officer has been placed in charge of the health department housing activity as a means of promoting unity of policy and action between the training and operational programs.

Cooperation has also been extended to other agencies by the city health department and the Training Center. Special surveys for the Syracuse Housing Authority are in progress to furnish data for programs under the Housing Act of 1949. A standing agreement has also been reached for the health department to complete all housing evaluations for tenant selection or other purposes as needed by the Housing Authority. Close cooperation also exists with the State health department and Syracuse University.

Training in the appraisal method is provided for supervisory personnel of State or local health departments or other agencies concerned with housing, such as city planning commissions, housing authorities, urban redevelopment agencies, or similar organizations, including nonofficial agencies.

Courses in the appraisal method are of 5 weeks duration and are scheduled at frequent intervals on a permanently continuing basis. Completion of such a course qualifies the trainee to establish the use of the appraisal method in his community and to train subordinate personnel for essential duties.

In addition, shorter courses of various types are also given. These range from 1-day seminars for orientation of selected groups to courses of 1 or 2 weeks or longer. The latter courses are designed for special purposes such as the review of the latest developments in legislation, administrative techniques in community housing improvement programs, or housing standards.

Courses to provide a basic general knowledge of housing to regional training officers and Public Health Service personnel in regional offices, and similar short courses for health officers and other local administrators, are also in preparation and are expected to be given shortly.

Information concerning available courses and training assistance may be obtained either through Training Services of the Communicable Disease Center, or directly from the Syracuse Housing Training Center, City Hall, Syracuse, N. Y.

Relationship of Housing to Public Health

ROSS W. BUCK, Sanitary Engineer*

The definition of the word "health" as given by the World Health Organization in its constitution (1) is: "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity."

Housing is essentially shelter, although few would accept this limited definition. The Committee on the Hygiene of Housing uses the term "adequate shelter." Dr. Leonard A. Scheele (2), Surgeon General of the Public Health Service, in testifying before the Subcommittee on Banking and Currency of the United States Senate, further delineates housing in terms of "...safe, sanitary and decent homes."

If one were asked what is meant by "an adequate shelter" or by a "safe, sanitary and decent home," a list of 30 principles would probably be required to explain these words. These principles, clearly stated, were developed by the Committee on the Hygiene of Housing soon after it was formed. The Committee describes them as "Basic Principles of Healthful Housing" (3) and groups them into four sections. These 30 principles are grouped into sections designated as follows: Protection against

*Training Services, CDC.

Contagion, Protection against Accidents, Fundamental Physiological Needs, and Fundamental Psychological Needs. This grouping is essential so that the modus operandi of the principles can be more easily visualized.

If we were to define the word "safe" in terms of our basic principles, we would involve not only those sections dealing with protection against accidents and contagion, but also such psychological considerations as "provision of facilities which make possible the performance of the tasks of the household without undue physical and mental fatigue." It might also include the physiological needs, such as "maintenance of thermal environment which will avoid undue heat loss from the human body." These additional maxims are closely allied with safety.

The word "sanitary" not only brings to mind the "provision of a safe water supply" under the "Protection against Contagion" section, but also invades the section "Protection against Accidents" as delineated by the principle "control of conditions likely to cause fires or to promote their spread." Insanitary conditions, such as the accumulation of trash and waste products in the home, are among the major fire causes. Other examples can be cited such as provision for "adequate space for exercise and for the play of children," which is a physiological need greatly influenced by the sanitary conditions of the premises.

It is interesting to observe that Dr. Scheele uses the words "decent homes" in his testimony. The term "decent homes" involves many of the principles set forth under the section on "Fundamental Psychological Needs," such as "provision for maintenance of cleanliness of the dwelling and of the person." Another principle in this section is "provision of possibilities for esthetic satisfaction in the home and its surroundings," or "concordance with prevailing social standards of the local community." After exploring these principles which are basic to health and housing, it is interesting to note that the use of the word "decent" is as essential as the words "safe" and "sanitary," which everyone uses, when speaking of health and housing.

Many writers on public health, reflecting their scientific training, place great credence on cause and effect in proving their case. Yet in housing we have relatively little, at this time, with which to pin point a specific disease to a home which failed in being "safe, sanitary or decent."

Rollo H. Britten (4) probably best expresses this situation in an article "New Light on the Relation of Housing and Health," in which he says, "Bad housing is a symptom of low economic status; poor health, to a degree, is another symptom. And, to make matters more confusing, any element of bad housing which we choose to employ as a basis for comparison stands not by itself but is an index of bad housing in general." He continues in his article to say, "Thus, when I show, as I shall, higher rates of pneumonia or tuberculosis in crowded than in uncrowded households, it is not going to be possible to say that the crowding itself has produced all the excess."

For those who seek evidence of cause and effect, it is recommended that they turn to a recent study on "The Relation of Housing to the Incidence of Meningococcic Disease in an Outbreak in Oak Ridge, Tenn.," reported by Bernard M. Blum and William F. Elkin (5). Among the important facts presented are these statements, "Wide differences in rates (incidence of meningococcic disease) among several housing groups were demonstrated." They continue to report: "The rate in the white slum group was significantly higher than the rate in the white standard group. In one slum area, the rate in the colored dwelling group was shown to be significantly higher than the rate in the white group having comparable housing."

It is heartening to be able to see the new emphasis placed on research on the problems of health and housing. The work by Blum and Elkin, that of Kennedy and Hobbs (6) in St. Thomas, Ontario, and others, is a healthy sign of this new research.

It is refreshing to know that the epidemiologist continues to explore, with added emphasis, the effects of the environment by the individual. Dr. Scheele (7), in an article on "Arthritis as a Public Health Problem" says, "What, for example, is the status of diagnosis? What scientific data have we on the psychic components in arthritis and rheumatism? What are the relationships between rheumatism and occupation, age, climate, and other environmental and social factors?"

We may be able to obtain answers to these many and perplexing questions through the opportunities presented at this time due to our immediate national defense program. New communities will spring to life to provide services for the production of the H-bomb. Might not these cities provide the opportunities for "control" so necessary in scientific studies? Air raid shelters, hospitals, and other services which involve shelter should be thoroughly

Trash and sheds in this yard not only constitute fire hazards but also leave little space for children to play.

explored for the possibility of adding to our knowledge of healthful housing.

The effect of housing upon health is, to many, confusing and for good reason. Upon re-examination of what we know and what we are looking for, we are sure that adequate housing is one of the roads we can travel and reach our objective, good health - a state of complete mental and social well-being and not merely the absence of disease or infirmity.

REFERENCES

(1) Constitution: World Health Organization (1946).

(2) Scheele, Leonard A.: Hearings before Subcommittee of Committee on Banking and Currency, U.S. Senate, Eighty-first Congress (February 11, 1949).

(3) "Basic Principles of Healthful Housing." Committee on Hygiene of Housing. American Public Health Association. Second Edition (1939), reprinted (1946).

(4) Britten, Rollo H.: New light on the relation of housing to health. Am. J. Pub. Health 32(2): 193–199 (1942).

(5) Blum, Bernard M., and Elkin, William F.: The relation of housing to the incidence of meningococcic disease in an outbreak in Oak Ridge, Tenn. Am. J. Pub. Health 39(12): 1571-1577 (1949).

(6) Kennedy, R.A., and Hobbs, G.E.: Housing and health survey 1949 St. Thomas, Ontario. Mimeographed form (1949).

(7) Scheele, Leonard A.: Arthritis as a public health problem. Pub. Health Rep. 65(42): 1351-1358 (1950).

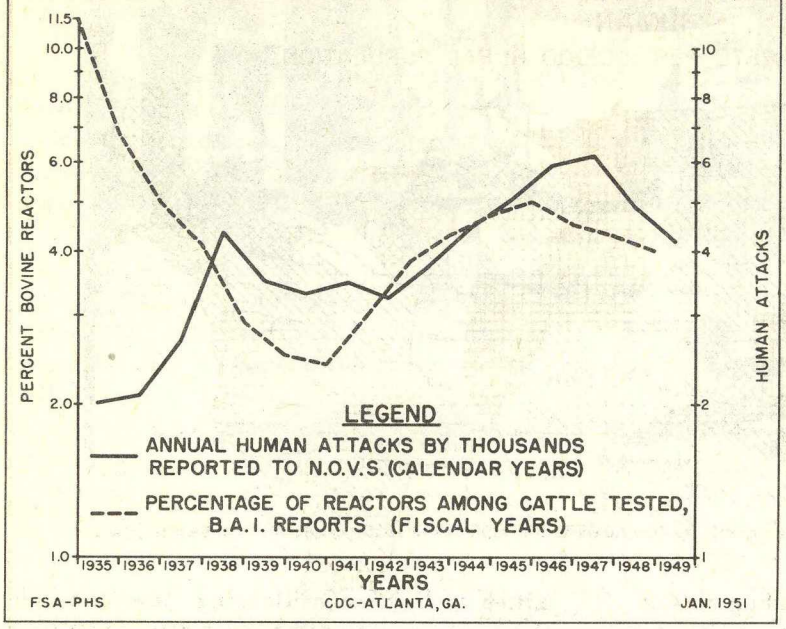
Reported Brucellosis in the United States

L. OTIS EMIK, Scientist (R)*

Brucellosis in both domestic animals and man has been reported annually from each State, with few exceptions, for more than a decade. The attacks in man reported by the National Office of Vital Statistics and the percentage of reactors found in cattle by the Bureau of Animal Industry followed a markedly parallel course from 1938 through 1949, as seen in figure 1, with about an

*Epidemiologic Services, CDC.

FIGURE I
REPORTED BRUCELLOSIS
HUMAN AND BOVINE, 1935-1949



18-month lag in the human cycle. It is fair to assume that cattle sampling was more biased in the first years of the program, becoming more stable by 1938. Also, human reporting may have been influenced by the cattle program and the improvement of reporting systems as well in the years immediately preceding 1938. Unfortunately, no figures worthy of presentation are available for brucellosis in swine, goats, and other animals. Many answers would appear simple from this time relation, but no significant correlation existed between human attacks or attack rates and cattle reactors when considered State by State.

Attack rates for humans by States are depicted in the upper map of figure 2. Attack rates are so low for urban inhabitants, with the exception of packing-house workers, veterinarians, and a few other workers with habitual animal contacts, that the inclusion of urban populations distorts the picture of the calculated attack rates much more than their exclusion. Therefore, the rates are based on all reported cases and the Bureau of the Census figures for rural population. It also seemed more appropriate that cattle, insofar as they are the source of human brucellosis, are more liable to be transmitters as a herd group than as individuals. This may be illustrated by considering one State which had 4.5 percent of cattle reactors, distributed among 22.3 percent of herds tested. Obviously, either the direct or indirect potential human contacts are to be expected roughly among one-fifth rather than one-twentieth of the population open to exposure, even though the average risk of each individual may be less. Accordingly, the distribution of bovine brucellosis is shown by percentage of tested herds containing reactors, State by State, in the lower map of figure 2. A logarithmic expansion of class sizes which agreed with observed frequency groupings was used to define the numerical limits of each map shading. The areas with the highest reported rates in humans are fairly well coincident with those with the highest percentage of positive herds. A few States, however, show unusual relations between bovine and human rates. Illinois, Colorado, and Utah have higher rates by two classes in humans than in animals. Illinois may simply have the most effective reporting system. Nine States, mostly in the Mississippi Basin, have low human rates with high bovine rates. There are many factors such as diagnosis, reporting systems, other species of susceptible animals, and transportation of animals which could be affecting these reported figures. The interrelations of such factors may be very complex and difficult to evaluate. It is not the purpose of this article to consider them.

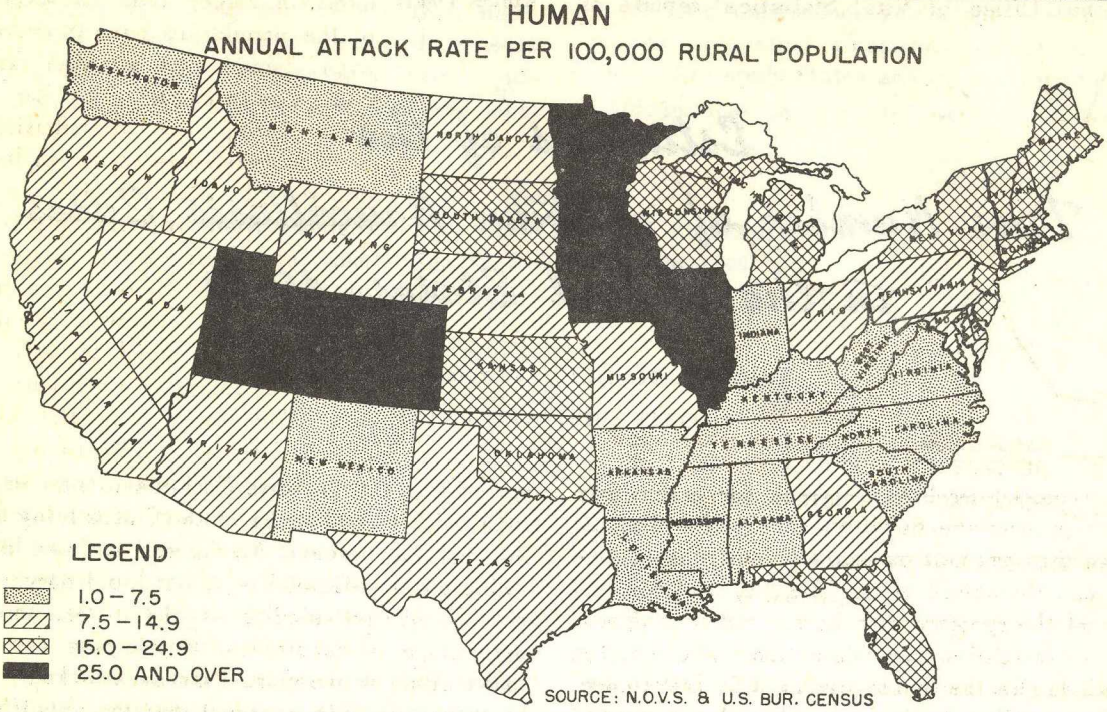
Seasonal variations constitute a third major break-down of these data. Seasonal variations in the reports on cattle have not been considered because of possible influences of the manner in which the testing is done.

An ebb and flow of major and minor seasonal peaks, which defy immediate explanation, occurred over this series of years from 1935 through 1949. A summer peak which varies from June to August has appeared consistently. There are also fairly definite spring and fall peaks, but these may be missing or modified in certain years and exaggerated in others. The rise and fall of the yearly totals are controlled considerably by the size of the spring and fall peaks, the slope of yearly changes being much greater than the changes in summer peaks. Preliminary examination of data by States indicates that there are regional differences;

FIGURE 2

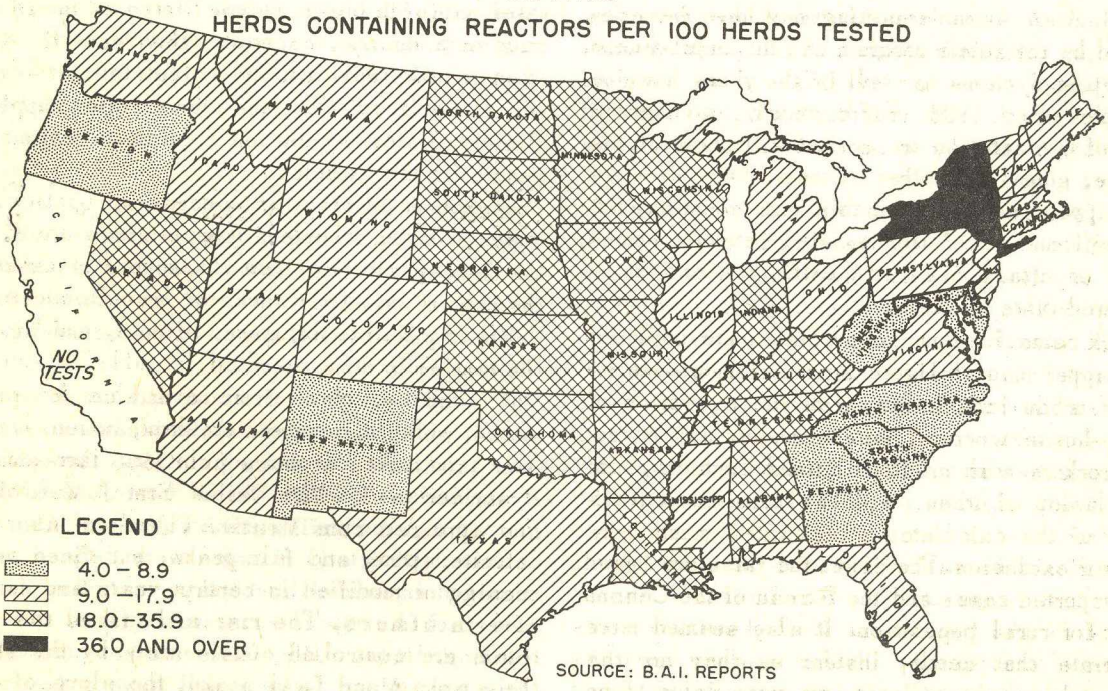
BRUCELLOSIS
1949

HUMAN
ANNUAL ATTACK RATE PER 100,000 RURAL POPULATION



SOURCE: N.O.V.S. & U.S. BUR. CENSUS

BOVINE
HERDS CONTAINING REACTORS PER 100 HERDS TESTED



SOURCE: B.A.I. REPORTS

NOTE: NEW ENGLAND STATES FIGURED COLLECTIVELY. MD., DEL. & D.C. FIGURED COLLECTIVELY.

FED. SEC. AGENCY PUB. HEALTH SERV. COMMUNICABLE DISEASE CENTER ATLANTA, GEORGIA JAN. 1951

but again, these do not appear amenable to a simple explanation. Weather, numbers and species of animals, economics, and other factors undoubtedly influence the differences between States.

National Office of Vital Statistics' reports of human cases through September 1950 show low peaks in March and June, but have the least fluctuations of any year and indicate a yearly total which should be around 3,300, the lowest year since 1942.

Estimates of the True Number of Human Brucellosis Cases in the United States, 1949

JAMES H. STEELE, Veterinary Director*

L. OTIS EMIK, Scientist (R)**

The reported morbidity figures for brucellosis do not represent the true incidence of the disease because they are not exclusively new cases. Due to the chronic nature of the disease, a significant portion of the reported attacks are either relapses, chronic exacerbations, or reinfections. The reported figures are then more closely akin to prevalence. In addition, it has been the opinion of a number of reliable workers with the disease that the reported figures are gross underestimates of the true ones.

While no reliable measures of the actual number of unreported cases are available, there are data available which will provide some estimates of the number of attacks to be expected under certain specified conditions.

The first method which will be considered is the application of epidemiologic observations. Jordan and Borts (1) and Magoffin, *et al.*, (2) as well as others, have presented figures to show the high attack rates in packing-house and rendering-plant workers, veterinarians, and animal production farmers. Intermediate attack rates were found for butchers, processors, stock buyers, and stock handlers and relatively low rates for housewives, children, and the remainder of the population.

Brucellosis in cattle is known in every State. Bang's tests conducted by the Bureau of Animal Industry for the fiscal year 1949 showed reactors in every State except California, where no tests were made. The percentage of reactors found varied from 0.8 in North Carolina to 11.1 in Louisiana, with three-fourths of the States lying between 2.0 and 7.0 percent. No figures are available for swine on an official basis, but local surveys indicate somewhat similar levels of reactors. The percentage of reactors in cattle was not related to the numbers of reported human attacks by States. If, therefore, it is assumed that the specific occupational risks are fairly constant from State to State and reliable in certain States as far as reporting methods are concerned, then specific occupation attack rates can be calculated for a number of reference States and these rates applied to United States population figures to estimate the totals for the Nation.

Maximum accuracy in specific occupation attack rates will be provided if populations are selected to most nearly represent the source of cases. The available data for attacks of brucellosis by occupation in Minnesota, Iowa, Illinois, and Wisconsin during 1949 are presented in table 1. Bureau of the Census figures were available for packing-house workers, farmers, children, housewives, and the remainder of the population. The number of veterinarians in the United States was obtained from the American Veterinary Medical Association National Directory. Farmers were defined as those engaged in animal husbandry, including dairy and livestock farms, plus subsistence farms and general farming. Undoubtedly, farms are not perfectly split this way. Many farmers will have a few animals

*Chief, Veterinary Public Health Services, CDC.
**Epidemiologic Services, CDC.

around, and some subsistence farms will have none. Children's rates were considerably more constant when only rural-farm children were considered. The same was true for rural housewives. No population figures could be specifically determined for those workers such as butchers, rendering-plant workers, stock buyers and handlers, dairy workers, and others having contact with animals or their products. Since this group is rather intimately related to slaughter, it appeared most appropriate to add these cases to those of packing-house workers. By adding all packing-house workers, and those processing meat as well, into one population, the variability of the rate for this group of cases was reduced by 60 percent. The remaining cases of known occupation gave most stable rates in the rural population. The populations for these various occupation groups are listed in table 2 for the four study States and for the entire country.

Occupation-specific rates were calculated using

Table 1
BRUCELLOSIS CASES BY OCCUPATION IN MINNESOTA, IOWA, ILLINOIS, AND WISCONSIN FOR 1949

STATE	Veterinarians	Packing-house Workers	Other Animal Contact Workers	Farmers	Housewives	Children 0-14	Other Known	Subtotal	Unknown	Total
Wisconsin	2	19	7	115	36	14	47	240	—	240
Iowa	9	28	13	173	51	19	65	358	23	381
Illinois	-	-	-	176	124	14	74	388	116	504
Minnesota	4	47	3	141	33	20	41	289	61	350

Table 2
SPECIFIC OCCUPATION AND AGE GROUPS ESTIMATED FOR 1949

STATE	Veterinarians, 1949 Directory of AVMA	All Packing-house and Prepared Meat Workers, 1947 Census of Mfg.	Male Farmers, Animal Husb. General and Subsistence Farms, 1945 Adjusted to 1949	Female Farmers, Same Classes, 1949	Rural Farm Children 0-14, 1940 Adjusted to 1949	Rural Women Engaged in Own Homework, 1940 Adjusted to 1949	Remainder of Rural Population, 1940 Adjusted to 1949 Estimate
			(000)	(000)	(000)	(000)	(000)
Illinois	800	40,198	188.9	3.6	276.4	540.6	1,196.0
Iowa	740	22,910	261.5	4.0	268.1	380.5	581.1
Minnesota	403	15,235	243.7	6.0	283.6	339.6	610.0
Wisconsin	502	8,497	256.2	11.1	263.0	359.5	663.9
United States Totals	12,903	258,798	5,238.4	228.1	10,416.6	14,177.0	33,555.8

Table 3
AVERAGE ATTACK RATES BY OCCUPATION FOR MINNESOTA, IOWA, ILLINOIS, AND WISCONSIN FOR 1949

Occupation Group	Average Annual Rates (100,000)	Standard Deviation of Rate (%)
Veterinarians	950.6	28
Packing-house Plus Other Animal Contact Workers	295.2	22
Animal Farmers	72.8	15
Rural Housewives	16.0	24
Rural Farm Children	6.87	9
Remainder (Rural)	8.53	14

methods presented by Pearl (3). These average rates, based on data from the four States, are shown in table 3. Estimated numbers may then be calculated for each occupation group and State or national totals found by combining the appropriate occupation-specific estimated attacks.

There were 10,709 estimated cases for the United States in 1949 as compared to 4,143 cases officially reported by the National Office of Vital Statistics. The standard deviations of the rates for the average specific population units of the four States, used to calculate the rates, vary from 9 to 28 percent as shown in table 3. Extrapolating and combining the occupational groups gives a standard deviation for the total cases in the United States of 17 percent. The 1 percent confidence limits will be 7,000 and 14,400 cases. In other words, if the hypotheses are acceptable, then there is only 1 percent probability that the true number of attacks of brucellosis which would be found if all States reported and investigated brucellosis by the same system and with the same diligence as the four study States, would lie outside the limits of 7,000 and 14,400 for the United States for 1949.

A second estimate has been made on the basis of laboratory results provided through the cooperation of certain State laboratories. Due to the variability of laboratory methods and the variability of utilization of State laboratory facilities by the private practitioner in different States, the inherent error of such an estimate will be large.

From Minnesota data, the probability was determined of each agglutination titer of 1:80 or above being a culturally positive case. The expected culturally proved cases for the 10 States (Colorado, Indiana, Iowa, Illinois, Kentucky, Minnesota, New York, Ohio, Virginia, and Wisconsin), were 480. In Minnesota there were 4.5 times as many additional cases, supported by other evidence but with no cultural proof. This factor applied to 480 would give a total of 2,600 cases irrespective of culture Again extrapolating by the ratio of 2,068 known cases in these States to 4,310 for the United States gives an estimate of 5,400 cases which might be discovered by epidemiologic investigation of all agglutination titers which were found to be positive at 1:80 or a greater dilution in State laboratories. This is certainly an underestimate as far as number of laboratory results is concerned because State laboratories perform only a fraction of the total serum agglutination tests, and no data from commercial laboratories are available.

The prevalence and incidence of human brucellosis cannot be accurately determined at this time because of the indefinite status of many of the laboratory criteria for the diagnosis of the disease. The evaluation of clinical symptoms in the reporting of brucellosis is even more difficult. To aid in obtaining more accurate reports of human cases, it is necessary that standard laboratory procedures for the determination of antibodies be developed such as the method used in testing cattle where a standard antigen and procedure is followed. In addition, it is necessary for the clinician to tabulate all his evidence including the history of animal exposure or the ingestion of contaminated food products of animal origin. To control and eventually eradicate any disease of man or animal, it is necessary to have accurate methods of diagnosis and reporting. The Communicable Disease Center has the laboratory diagnosis of human brucellosis under study and, along with the many other health agencies which are investigating this problem, it is hoped that an acceptable standard laboratory method of diagnosing human brucellosis will be developed.

REFERENCES

(1) Jordan, Carl F., and Borts, Irving H.: Brucellosis and infection caused by three species of *Brucella* Am. J. Med. 2(2): 156-167 (1947).

(2) Magoffin, Robert L., Kabler, Paul, Spink, Wesley W., and Fleming, Dean: An epidemiologic study of brucellosis in Minnesota. Pub. Health Rep. 64(33): 1,021-1,043 (1949).

(3) Pearl, Raymond: Introduction to medical biometry and statistics. Third Edition. W.B. Saunders Co. (1941).

Musca publicica: Charleston Experiments with a New Species of Fly Publicity

ODOM FANNING, Information Specialist*, and WADE H. BOLTON, Operations Officer**

"It has become traditional in the United States to attach unusual importance to firsts. The first baby of the year, the first traffic fatality, the first robin, the first tooth, even the first gray hair always come in for special notice of one kind or another. Today climaxes the world's first Fall Fly Week, or indeed, the first Fly Week of any season, so far as I know. In any event, it is a first of more than passing significance."

Thus Dr. W. Palmer Dearing, Deputy Surgeon General, began a speech keynoting Charleston's Fall Fly Week, 5 days of intensive publicity — September 18-22, 1950 — during which the citizens of the West Virginia capital were assailed with fly facts by newspaper, radio, speech, leaflet, poster, and other media of information.

Fall Fly Week had been conceived 7 weeks earlier at a meeting of Dr. N. H. Dyer, State Health Commissioner; Dr. L. A. Dickerson, Kanawha-Charleston Health Officer; Mr. Joseph Fitzpatrick, CDC Representative for Region III; Mr. J. H. Coffey, in charge of Fly Control Section, Engineering Services, CDC; and the authors.

This group adopted as the theme for Fall Fly Week, "A Report to the People at the Halfway Mark," because summer 1950 represented the midpoint in the projected 5-year program.

FIVE OBJECTIVES

Early in the planning, five objectives were set. They were:

1. To inform the public that statistical, epidemiological, and entomological activities recently had been added to the fly control operations, which had been under way for 2½ years.

2. To stress the disease transmission aspects of the program, which had taken on a new importance with the assignment of new personnel.

3. To emphasize sanitation. The degree of fly control obtained so far, most engineers agreed, was due largely to spray activity. To achieve even greater fly control, they felt, the public would have to be convinced of the necessity for improving sanitation.

4. To reiterate the successful cooperation between State and city-county health departments and the U. S. Public Health Service. Public agencies always make friends outside when they make it known that they have good working relationships.

5. Finally, to conduct an experiment in public relations. A field test of certain techniques previously used elsewhere for getting public cooperation in health programs was needed.

The first 3 weeks after conception were spent planning and preparing material; only during the second 3 weeks were the first stories actually released and initial contacts made. Four background memoranda, for different release dates, provided factual information for press, radio, and other organizations whose assistance was needed.

HEALTH INFORMATION PROGRAM

Time, personnel, and money were lacking to carry out a big public relations campaign. Despite these limitations, good community cooperation made it possible to put on a successful 10-point health information program consisting of:

Newspaper Publicity. The headlines necessarily were preoccupied by the Korean war, but the two daily newspapers were liberal in their allotment of space to Fall Fly Week. They published 26 stories, 11 pictures, and 2 editorials, totaling 334 column inches. Suburban weeklies also covered the Week.

Radio Coverage. All five Charleston radio stations featured fly control activities regularly on their news programs for 2 weeks before, and during, Fall Fly Week. They carried, as a public service, regular 15-second announcements. The largest station devoted a sponsored 15-minute program to an interview with the State Health Commissioner.

"Come Out and See" Demonstrations. As the sanitary landfill is an integral part of the fly control program, it was decided to publicize it during Fall Fly Week. A permanent sign was erected at the site. A daily demonstration was arranged for health department staff, the local medical society, the board of health, civic groups, PTAs, and others. The demonstrations were transferred to the health department when rain made it impossible to hold them outdoors.

"Street Theaters." One might call them window displays, but when advertised as "Street Theaters," thousands came to see them.

*Executive Office, CDC.
**Fly Control Project, Engineering Services, CDC, Charleston, W. Va.

One featured "The World's Largest Fly," a $5,000 model loaned by the Boston Museum of Science. It was on exhibit in a men's clothing store window.

Two other street theaters featured continuous motion pictures of fly biology and sanitation. The projection machines were placed in the doorways of department stores.

School Booklets. On the first day of Fall Fly Week teachers distributed two specially prepared booklets.

"The Flv " a 12-page illustrated leaflet in rhyme, carried to 10,000 grammar school pupils the story of how flies spread disease.

"Fly News," a more mature leaflet stressing the importance of sanitation in fly control, was distributed to 4,000 high school students.

Clubs. One thousand copies of "Fly News" were distributed at the weekly luncheon meetings of the city's six civic clubs – the American Business Club, Civitan, Exchange, Kiwanis, Lions, and Rotary.

Guest of Honor. Charleston's guest of honor for Fall Fly Week was the Deputy Surgeon General. His presence was legitimate news. His visit held an important value, in addition, in internal public relations. He met personally every member of the fly control staff. In a speech to them he pointed out that they constitute a team doing a job which is being watched by public health people all over the country.

Public Appearance by the Guest of Honor. The Deputy Surgeon General spoke before the Charleston Civitan Club, delivering a message about fly control and public health to 150 leading business and professional men.

State-wide Meeting of City Officials. The mayor of Charleston became so interested in Fall Fly Week that he called a special meeting of the West Virginia League of Municipalities to talk about fly control. A total of 25 mayors and city managers of 15 cities visited the sanitary landfill, studied the fly control project, and met with the Deputy Surgeon General to talk about public health.

Miscellaneous Activities. Public health workers from surrounding States visited Charleston during Fall Fly Week in search of ideas for publicizing fly control in other communities.

The PTA agreed to present fly control programs at its meetings during the winter; the mayor officially proclaimed Fall Fly Week; the Chamber of Commerce sent out a notice of the Week's activities to its members; and the weekly tourist bulletin told visitors where to go and what to see during the week.

ADAPTABLE PLAN

The 10-point plan for *Musca publicica*, publicizing the fly, could be adapted by any local health department anywhere. Aside from the salaries of the staff, who already were employed, and mimeograph paper, which already was on hand, Fall Fly Week cost the Kanawha-Charleston Health Department only $249.74.

A little more than $200 was for printing the school booklets. Mimeographing or photo-offsetting would have reduced the printing bill materially. The remainder was the expense of borrowing "The World's Largest Fly." Another type of window display might have been substituted.

As with all "firsts," Fall Fly Week produced useful lessons. None of the 10 points was a failure, but all of them might have been made more effective. The radio stations, for example, would have used more interviews and dramatic programs if staff had been available to write them. Had planning begun sooner, even the limited staff available might have written this material.

The movie machines proved too large to fit into store windows. Ideally, they should be used as part of an exhibit at, say, a fair.

The school booklets should have been distributed as a supplement to a motion picture or other type of program for school assemblies.

In other situations the Junior Chamber of Commerce, the Boy Scouts, church groups, and women's clubs might be enlisted for specific duties in connection with a fly week. If the budget permits, outdoor advertising, trailers in the movie theaters, banners across the streets, posters on every utility post are some of the media which could be used to call attention to even the soberest of subjects.

Although only a few of the possibilities were tried in Charleston, it was possible to retell an old story dramatically by using ingenuity, originality, and imagination.

Fall Fly Week there was tagged "the world's first." The regular landfill operation became something special when it was labelled a "Come Out and See" demonstration. Continuous movie machines attracted the curious when they were advertised as "Street Theaters."

Fall Fly Week succeeded because it had imagination. It had definite objectives. It was timed to take place when needed most to boost the program. It was carried out vigorously. It was followed up by even more publicity hammering away at the theme that sanitation, the best means of fly control, must go on and on and on.

Spring 1951 should see local health departments all over the country sponsoring Fly Weeks. In some cities the occasion will be coupled with Spring Clean-up or Health Week. But in all cases the objective will be the same: to seek a healthier, more fly-free community.

Entomologic Appraisal of Fly Control Programs

H. F. SCHOOF, Scientist (R)*

The effectiveness of vector control operations can best be determined by measuring the extent to which the prevalence of the vector has been reduced. While the effect of this vector reduction also is reflected in the incidence of the disease concerned, the latter may frequently be influenced by other factors (such as disease cycles, medication, and method of reporting) to such a degree that it cannot serve for a critical appraisal of the efficacy of vector control operations. For example, in certain areas of the United States malaria has ceased to be a problem even though the vector still persists in abundance. Furthermore, suitable routine facilities to detect disease trends are not always available. Consequently, the criterion selected for determining the adequacy of an insect control program must basically relate to the density of the vector.

On present-day fly control programs, the evaluation of the effectiveness of the suppressive measures is confined largely to measuring the fluctuations of adult fly densities. The incidence of diseases (e.g. Shigellosis) transmitted by these insects is not readily discernible by the routine diagnostic and reporting practices of physicians. In addition, many fly control programs are established on a nuisance relief basis, or upon the supposition that certain diseases or detrimental conditions arise from the fly population.

Since measurement of fly densities forms not only the foundation of appraising control effectiveness but also serves to guide the type, frequency, and placement of the suppressive measures, it seems inconceivable that there would be any question as to the need for such evaluation. The basis for this questioning attitude probably lies in the complete but erroneous reliance of the public on the suppressive action of the newer insecticides. In accordance with this belief, the chemical once applied as a blanket treatment should yield a definite period of effectiveness, followed by as many applications as are necessary to extend the control for the time desired. On this premise, evaluation possibly could be dispensed with as an unnecessary expenditure. However, control of any insect, particularly those with short reproductive cycles, rarely lends itself to control by rote. Further, routine nonselective control operations are much more costly than selective measures. Consequently, effective fly abatement depends upon adequate evaluation, supported by the judicious application of suitable control measures.

The principal technique of evaluating fly control programs or measures concerns measurement of adult densities. Larval prevalence is unreliable, not only from the lack of suitable quantitative criterion, but also because of the difficulties of accurate field identification. With adult flies, however, a number of devices and techniques can be employed to yield reliable quantitative findings, and the qualitative determinations are not too difficult to make. Regardless of methods employed, several basic principles must be followed in making the necessary observations:

1. The same technique should be employed for each successive appraisal.
2. The size of the sample must be adequate to represent the area under surveillance.
3. Observations should be on a routine basis at intervals of 2 weeks or less.
4. Successive periodic surveys should be so scheduled as to minimize the effects of ecologic factors upon the results secured.

By adherence to these fundamentals, it makes little difference as to which of the various techniques is employed. Simple observation in a dairy farm of the number of flies alighting on a square of blotting paper soaked in milk will provide data comparable in significance to those obtained by means of trap or grill. Preference of one method or another is largely contingent upon the local situation as regards manpower, area of surveillance, and the degree of accuracy desired in the ultimate results.

Among the various methods of evaluating fly populations are the fly trap, Scudder grill, reconnaissance or visual survey, baits, and tapes. Each of these when properly employed can yield a

*Entomológic Services, CDC.

density index which can be compared with other indices similarly derived. All techniques measure the density of only a portion of the fly populations, the relationship of this portion to the total fly density in a given area being undetermined. However, the presumption can be made that the portion appraised remains relatively fixed, thereby permitting accurate collection of data from successive appraisals.

For small areas such as dumps, rendering plants, dairy barns, and the like, measurement of fly densities is simplified to the extent that the limited area of surveillance makes it possible to sample designated stations in a routine manner, week after week. This fact eliminates or minimizes many of the variables of environmental fluctuations, and also permits a larger number of observations, thus augmenting the reliability of the data secured. At the same time, detection of breeding sites and their subsequent elimination, or the control of breeding therein, is rendered less difficult because of the small area involved.

It is in the evaluation of large-scale fly control activities such as community programs that the sample size, techniques employed, and inspection schedule assume far greater significance. Because of the more extensive area concerned, the elements of time and manpower become increasingly important. Essentially the entomologic surveillance can be subdivided into two major functions:

1. Measurement of adult prevalence and detection of breeding sites to guide the individual control operations.
2. Measurement of adult prevalence to determine the over-all effectiveness of the control measures applied.

To fulfill the first function, visual observation or reconnaissance will suffice. No detailed method of fly measurement, such as the trap or grill technique, is required to appraise the immediate effect of space spray application; the answer to this can be provided by a rapid survey over the block or premises to note the abundance of flies. The crude data thus obtained are adequate to demonstrate whether further effort is needed. Search for the breeding foci again demands the visual method, this necessitating much more intensive coverage than the adult survey and being dependent for its success upon the experience and diligence of the inspector. The pattern of these evaluative operations is fluid, being governed by the conditions as they exist from day to day.

The second function of appraising the over-all effectiveness of the control program differs from the first in that it measures the trends in fly densities from week to week, and is not concerned with the every day minutiae of guiding the suppressive tactics, even though data so derived can also be employed for that purpose. Of the various methods utilized for this type of appraisal, the Scudder grill technique (figure 1) has been the recommended and most widely used procedure. Fly traps, although useful in quantitative surveys, serve chiefly as qualitative indicators. From the evidence available, it seems apparent that the merits of the trap as a quantitative indicator have not been sufficiently explored to determine its value in this category.

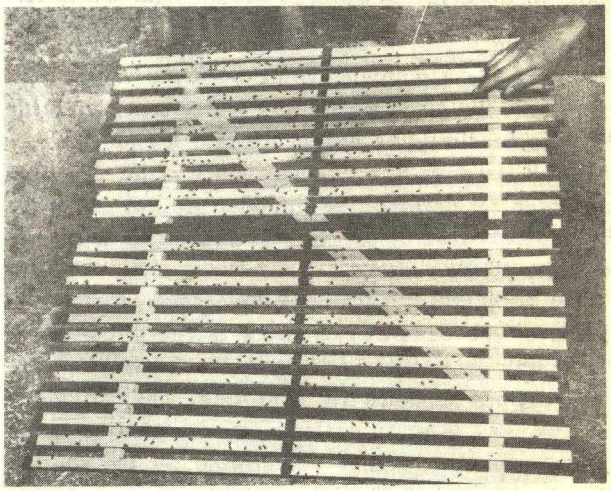


Figure 1. Measurement of fly densities by Scudder grill technique.

Reconnaissance surveys, probably the oldest of these three methods, recently have received increased attention because of the rapidity with which they can be conducted, together with the realization that visual estimates of fly densities are not as grossly inaccurate as originally believed.

In special comparative tests of the grill and reconnaissance techniques, inspectors trained in use of the grill conducted both types of surveys in selected blocks. On the reconnaissance observations, the inspector noted the fly concentration and then estimated the number of flies that would alight on a grill had this device been placed over the attractant. Preliminary analyses of data from these tests reveal that in areas having block ratings of below 40 flies per grill count, density levels with the Scudder grill generally exceeded those obtained by visually making estimated grill

counts. This difference usually decreased as the level of fly prevalence dropped, block ratings obtained by both methods frequently being on par with each other. Population trends also showed similar parallel fluctuations with the two techniques. As these observations were made by experienced grill inspectors, the results might not have been so comparable using less highly trained personnel. However, the data do indicate that the reconnissance survey can serve as a useful evaluative tool to provide comparative measurements of fly densities. Reliance on the reconnaissance method places greater dependence upon the inspector's integrity, and removes the advantage of counting and identifying the flies on a single plane of observation such as occurs with the grill.

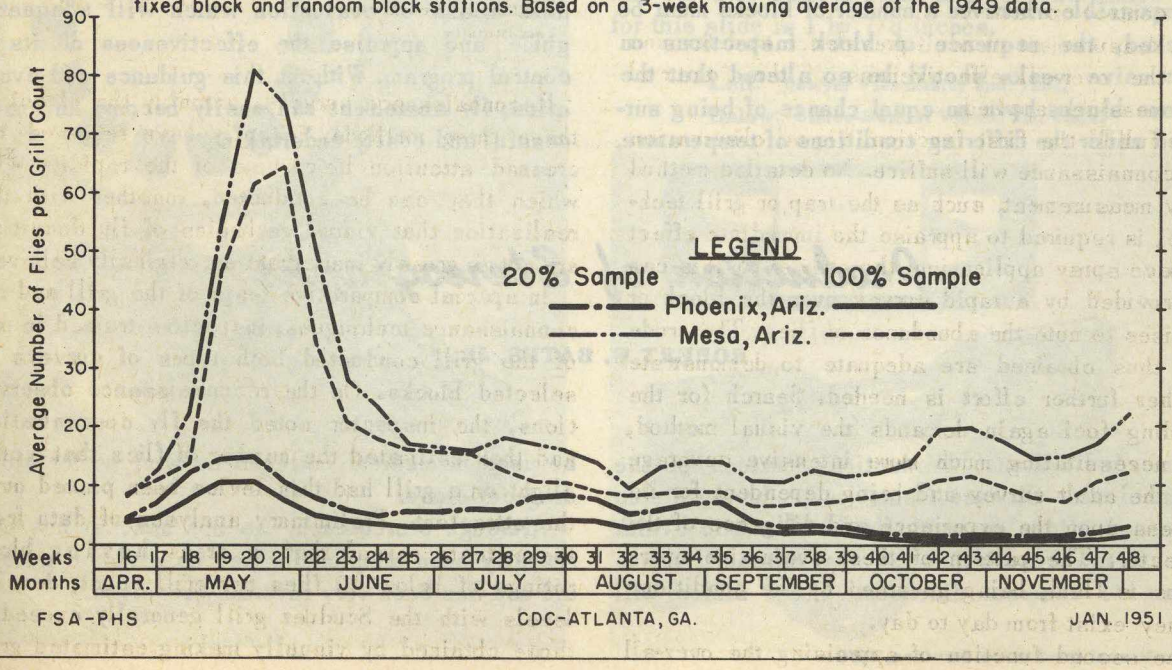
The chief virtue of this method over grill surveillance is that the rapidity with which it can be conducted enables a reduction to be effected in manpower requirements or (with the same inspection force) permits an increase in the sample size.

On the assumption that a suitable means of measuring fly densities is being used, the next step is the selection of an adequate sampling pattern. Theoretically, examination of all blocks on a weekly basis achieves the ideal; however, such intensive coverage is too expensive for practical purposes, and at the same time is unnecessary, since a smaller sample can provide ample data for measuring population trends. As shown in figure 2, the relative fluctuations of fly densities derived from 100 percent and 20 percent samples in the same area approach similarity in reflecting trends in treated and untreated towns. The magnitude of densities with the smaller sample is greater, as would be expected, since the small sample selected on basis of blocks of high fly potential lacks the dilution factor caused in the larger samples by inspection of numerous blocks of low fly prevalence. Likewise, the peaking effects of the small samples are more abrupt.

Of equal importance to sample size is the manner of selecting the sample units, the significance of this aspect increasing in inverse proportion to the sample size. Much debate has revolved around the question. Some favor division of the community into units or zones (10 to 20 blocks each), letting one block in each serve as an index to fly prevalence in the unit; others advocate a similar arrangement, except that the identity of blocks inspected changes from week to week. A third approach is to use large units (70 to 400 blocks) and to cover the majority of the blocks of the high potential routinely, inspecting the remainder on

Figure 2

A comparison of the trends in fly densities in the business sections of Phoenix, Ariz. (treated), and Mesa, Ariz. (untreated), when derived from a 100 percent grill coverage of all city blocks, and when based on a 20 percent sample of fixed block and random block stations. Based on a 3-week moving average of the 1949 data.



biweekly, monthly, or less frequent schedules. Present CDC programs use a combination of the first two procedures, whereby two blocks in each unit are sampled weekly by the grill method, one being a fixed station block representing the block with the highest fly potential in the area; the other, the random block station changing from week to week. Results indicate this technique to be entirely satisfactory for reflecting population trends in the large metropolitan areas where these activities were undertaken.

Probably the defect most evident on surveillance programs is the inability to establish and maintain inspections on routine weekly or semiweekly schedules. One reason behind this inability is the general tendency to adopt an inspection schedule too extensive for the manpower available. This invariably results in insufficient data collected in a discontinuous manner. Such data rarely lend themselves to accurate interpretation. Schedules arranged to expend 80 percent of the allotted time in completing the required inspections generally provide ample compensation for time loss arising from adverse weather conditions. Continuous data derived from smaller samples is to be preferred to those procured from sporadic inspections of a more extensive sampling area.

The pattern of fly activity being contingent upon the various ecological factors of the environment makes it advisable to conduct surveys under conditions as nearly similar as possible. As performance of block surveys over the same time intervals is impossible wherever a number of blocks must be checked, the sequence of block inspections on successive weeks should be so altered that the various blocks have an equal chance of being surveyed under the differing conditions of temperature, moisture, and shade.

In any community program, the scarcity of flies can be due either to unfavorable weather conditions or to the control measures employed or to both. To ascertain more closely the role control operations play, it is essential that some effort be made to determine fly densities in an area where conditions are similar to the treated city except for the absence of control tactics. An untreated town selected for this purpose rarely shows identical sanitation conditions, and the fly densities may exceed or be less than those in the treated city. However, the data secured will yield an appraisal of the trends in the fly population which can serve as a yardstick for those obtained in the treated city.

Community fly programs vary in scope from those of a purely operational nature to those established for research purposes, and in size from hamlets of 500 to 1,000 people to municipalities in the range of 50,000 to 100,000 population. With such diversity of purpose and size, the funds, manpower, and objectives likewise exhibit much variation, which in turn is translated into modifications of control and evaluative procedures. The extensive coverages desirable in the larger cities are not necessary in the smaller communities; the reconnaissance survey adequate for a small operational program may lack the degree of accuracy required on a research endeavor. Consequently, both control and appraisal efforts must of necessity be fluid and adaptable to local conditions. By this approach it is felt that any community can establish a suitable means of evaluation which will adequately guide and appraise the effectiveness of its fly control program. Without this guidance and evaluation, fly abatement can easily become an unsuccessful and costly undertaking.

Production of Stereographs

ROBERT E. BATES, JR. *

The Audio-Visual Production Services of the Communicable Disease Center is producing stereo reels and slides in many fields of public health work. At the present time the most advanced series pertain to venereal diseases. These slides will be used in medical colleges as well as for aiding diagnosticians.

Although stereography is not new, it has only recently been adapted for use as a visual training aid and has been very favorably received.

*Audio-Visual Production Services, CDC.

Stereography is probably the most fascinating of any photographic presentation. It is the only medium by which the appearance of an object may be reproduced in detail so that the viewed image appears as it did in the original. Unlike the flat photograph, which does not indicate size, distance, depth, or contour, the stereograph reproduces full, natural size, distance and shape.

Stereography, after declining in popularity for many years, is now again becoming popular with amateur, as well as professional photographers. It is being used not only as a source of entertainment for personal use, but for full-scale audio-visual education in schools and colleges and in the world of advertising and selling.

The principle of stereoscopy is very simple. Our eyes are positioned at approximately 65 mm. from pupil to pupil. Therefore, we have an individual point of view for each eye.

The two photographs made with a stereo set-up correspond with the visual image of the eyes. If these images are viewed in a manner in which each eye sees its own image, there is then viewed a single three-dimensional image as is seen in normal vision.

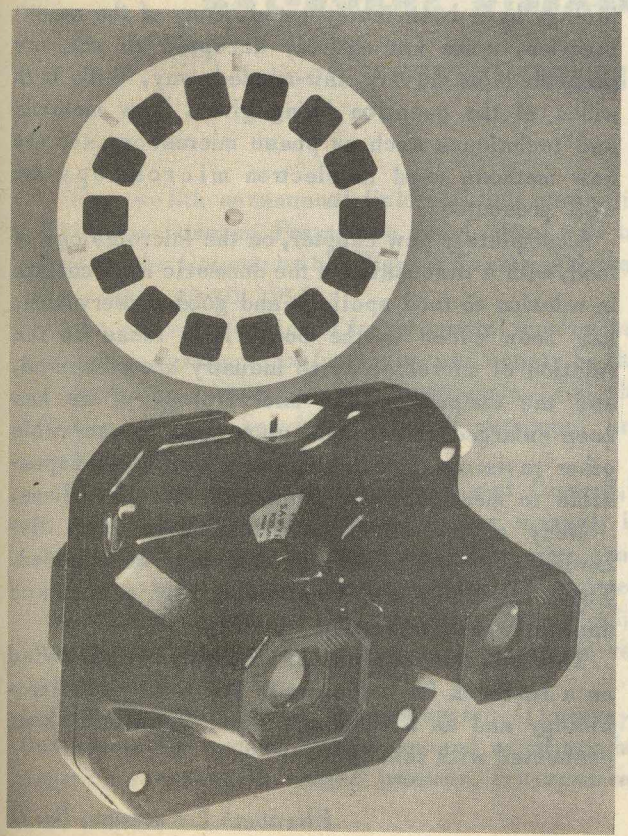
The technique of stereoscopy, while not entirely different from normal photographic practices, requires a more thorough knowledge of lighting, subject, and related object placement and skill.

Stereo may be applied in stereomicrography, stereoradiography, and many other specialized fields.

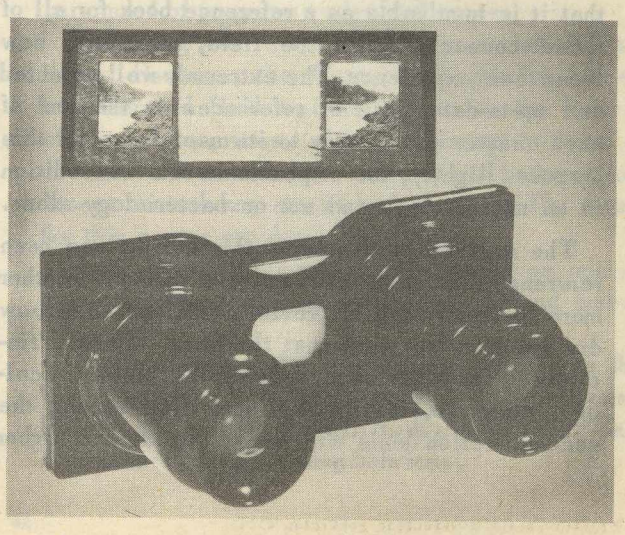
The cameras used in making the stereographic slides in our case are a Voightlander Stereoflektoskop, 6 by 13 centimeters, and a Stereo-Realist 35 mm. Any matched pair of cameras may be used if provisions are made whereby two exposures may be made at the same instant, with the lenses parallel and with a separation of 65 mm. between points of view. A single camera can be used in the case of photographing inanimate objects if a sliding base permitting moving the camera laterally 65 mm. for the second exposure is used.

The method used by AVPS in presenting and viewing stereographs is the Sawyer Viewmaster system. This is a flat reel, approximately 3½ inches in diameter, containing seven stereo pairs of color transparencies approximately 7/16-inch square, mounted stereoscopically and observed by use of the viewer. The stereograph is examined by inserting the reel in the viewer, facing light, or if a light attachment is provided, pressing the light bar and placing the viewer to the eyes. When it is desired to change to the next scene, one merely pulls the advance lever down, changing to the next scene. Each reel is titled with a main title and each frame with a subtitle.

The Stereo-Realist viewer takes one titled slide, approximately 1-5/8 by 4 inches, at a time and has its own built-in light source. The image size for this slide is 1 by 7/8 inches.



Left: Sawyer Viewmaster and reel.
Below: Stereo-Realist Viewer and slide.



FUNDAMENTALS OF BACTERIOLOGY

MARTIN FROBISHER, JR.

4th Edition, 1949

W. B. Saunders Co., Philadelphia, Pa.

Frobisher's "Fundamentals of Bacteriology" is widely used as a textbook for the study of microbiology. The new (fourth) edition, published by W. B. Saunders, is most welcome to all who have used this book in the past. This edition is larger in actual size than the third edition and contains about a hundred more pages. The paper and the type are excellent, the latter being even more legible than that used in previous editions. Typographical errors are so few as to be almost nonexistent. It is obvious that great care has been taken in the preparation of the volume.

This book is intended primarily for beginners in the field of microbiology, and the author's simple and highly readable style is well suited to this purpose. It contains such a wealth of material on all subjects related to microbiology, much of which has been assembled from widely scattered sources, that it is invaluable as a reference book for all of those connected with the field, no matter how broad their experience. The extremely well selected and up-to-date lists of references at the end of each chapter add greatly to its usefulness for this purpose. Rightly, the emphasis in this new edition is on microbiology and not on bacteriology alone.

The material presented in this edition has been rearranged so that one subject follows another more logically than in previous editions. It is now divided into four sections: the first, "Basic Principles," includes such subjects as history, ecology, structure, metabolism, and disinfection; the second section deals with yeasts, molds and higher bacteria, including the Actinomycetales and the Spirochaetales; the third section deals with the true bacteria, and includes chapters on agricultural, industrial, economic, domestic, and related phases of bacteriology; the fourth section deals with the pathogenic microorganisms, including Protozoa, and the diseases which are caused by each.

All of the chapters show careful revision, and the latest advances in the whole field of microbiology have been incorporated. Many of the recent theories, some not entirely accepted as yet, are presented in a very fair-minded way, with both sides of the question being given. New methods and techniques such as phase microscopy and the new methods used in electron microscopy are well presented.

A completely new chapter, on the microbiology of food, with a discussion of the domestic applications in relation to food spoilage and good preservation, has been added to the book. New ideas on the relation of microbiology to industry are presented, and the chapter on the microbiology of air has been enlarged and brought up to date. Innumerable other revisions and additions, which it is impossible to mention, have been made to the volume.

Many of the old illustrations have been discarded in this new edition and new ones added. These new ones are of extremely high quality and unusually well reproduced.

This book can continue to be highly recommended as a textbook for beginners in the study of microbiology and as a reference book for all of those connected with this field.

Elizabeth I. Parsons, Sc. D.

RECENT PUBLICATIONS BY CDC PERSONNEL

Ajello, Libero: The need for mycological diagnostic services in the public health laboratory. Pub. Health Lab. 8(4): 88-91 (1951).

Bradley, G. H. and Lyman, F. E.: Present status of the malaria eradication program. N. J. Mosq. Extermination A. 156-162 (1950).

Chen, T. C., and Sumerford, W. T.: Some esters of 2-trichloro-(p-chlorophenyl)-ethanol as potential insecticides. J. Am. Chem. Soc. 72: 5124-5125 (1950).

Edwards, P. R. and West, Mary G.: Unusual types of enteric bacteria. J. Infect. Dis. 87: 184-188 (1950).

Ewing, W. H.: *Shigella* grouping antiserums. J. Lab. & Clin. Med. 36(3): 471-472 (1950).

Gaines, T. B., Sumerford, W. T., and Hayes, W. J., Jr.: The non-toxicity of urine from rats poisoned with 1080. Pest Control (1950).

Jeffery, G. M.: Incidence of *Enterobius vermicularis* in Puerto Rican children, with a comparison of two diagnostic methods. J. Parasitol. 36(5): 485-488 (1950).

McNeel, T. E.: The newer insecticides and rodenticides and their use. Bull. A. Food & Drug Officials of the U. S. 14(4): 142-146 (1950).

Pratt, H. D.: Audio-visual aids for mosquito identification produced by the Communicable Disease Center. N. J. Mosq. Extermination A. Proceedings 63-66 (1950).

RAT-BORNE DISEASE AND INSECT CONTROL FIELD TRAINING COURSES

The twelfth semiannual field training course in Rat-borne Disease Prevention and Control will be held by the Communicable Disease Center, Atlanta, Ga., March 12-30, 1951.

The course is designed for rat control specialists including personnel of large city and county health departments, State health departments, and the Public Health Service. Military personnel are welcome to attend these courses.

"Rat-borne Disease Prevention and Control," a new Communicable Disease Center manual, is the basic handbook for the course. The more complex considerations in this manual will be depicted for the first time by the new joint Army-Public Health Service series of motion pictures on rat control.

There will be increased emphasis on: (1) surveys of towns for rodent infestation and recommendations for a suitable control program, (2) organization of local programs, (3) individual contacts in the promotion of antirat sanitation programs, (4) training of subordinate personnel, and (5) development of improved presentation by technical personnel of programs to lay audiences.

Following the 3-week training period in rat-borne diseases, the Center will give a 2-week concentrated field training course in the control of flies, mosquitoes, and other insect vectors of disease. Personnel interested in both rat and insect control may attend both courses. The dates for this course are April 2-13, 1951.

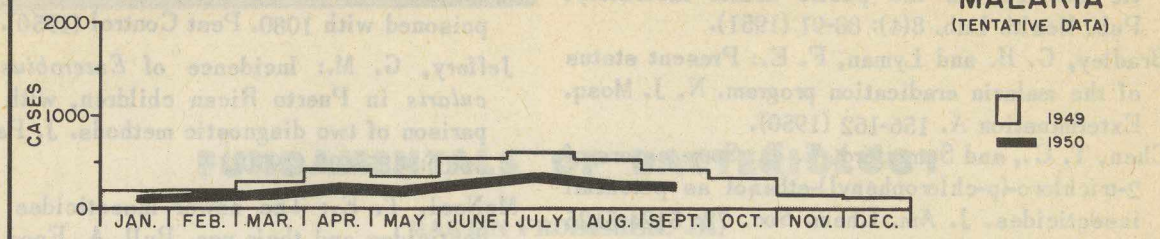
Environmental sanitation is stressed as one of the most important methods of both rat and insect control.

Applications for the courses may be sent to the Medical Officer in Charge, Communicable Disease Center, 50 Seventh Street, N. E., Atlanta 5, Ga., Attention: Chief, Training Services.

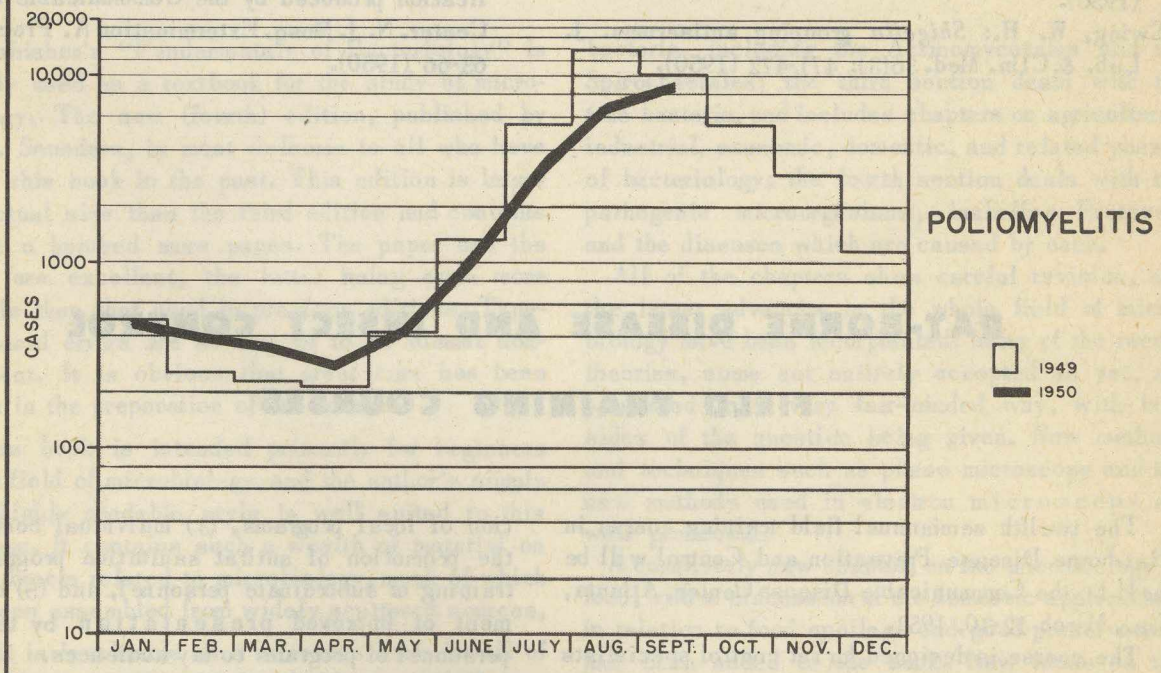
MORBIDITY TOTALS FOR THE UNITED STATES *
MALARIA, POLIOMYELITIS, TYPHUS

1949 - COMPLETE 1950 - AS REPORTED

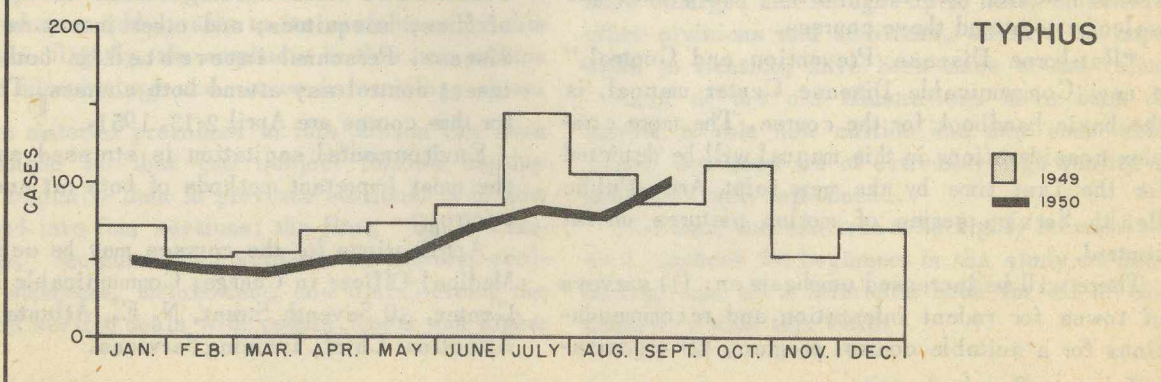
TOTAL INCIDENCE THROUGH SEPTEMBER 1950 1,929



TOTAL INCIDENCE THROUGH SEPTEMBER 1950 21,532



TOTAL INCIDENCE THROUGH SEPTEMBER 1950 572



FSA-PHS-CDC ATLANTA, GA.

* SOURCE OF DATA NATIONAL OFFICE OF VITAL STATISTICS

☆U. S. GOVERNMENT PRINTING OFFICE : 1951 O—916830