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AN EPIDEMIC OF ACUTE WATERY DIARRHEA IN ALABAMA[1]

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INTRODUCTION

The diarrhea described here is similar to the entity variously called epidemic diarrhea, nausea and vomiting, intestinal influenza, etc. (*1*).

In October 1946 an epidemic of acute watery diarrhea was in progress in Jefferson County, Alabama (population, 1940 census, 459,930). The epidemic started early in September and by mid-October over 150 cases had been reported to the County Health Officer, with 4–5 new ones a day. Five stool examinations from acutely ill patients revealed no pathogenic bacteria. No common source for the diarrhea could be found. However, the manner of spread suggested the possibility of a virus etiology.

On October 21, 1946, Dr. B. F. Austin, State Health Officer of Alabama, requested the assistance of the United States Public Health Service. Conferences were held with State authorities on that day and work was begun next day in Jefferson County.

Cases were being reported from Pinson with scattered cases from all sections of Jefferson County. Pinson is a village in Jefferson County, Alabama, 16 miles north of Birmingham in hilly, rural country. Though beyond the city limits, it is in the Birmingham Metropolitan Area (Census Bureau). Except for the few tradespeople in the block-long business district, most residents earn their living in Birmingham. Within a half-mile radius there are no more than 400 people. Except for one colored family, the population is entirely white. Pinson is unincorporated and has no local government. There are two physicians and they were most cooperative and helpful.

Specimens were taken from six acutely ill patients and shipped to the Public Health Service's Virus Laboratory in Montgomery, Alabama, where all virus laboratory work was carried on. During

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the last 2 weeks in October 1946 and during two subsequent visits, forty-seven contiguous families (172 people) were studied in Pinson. Acute cases in other families, both in Pinson and nearby localities, were also studied. Subsequent specimens, packed in dry ice, were sent to the Virus Laboratory from Pinson by air express.

CLINICAL DESCRIPTION

The first step was to visit 13 persons; 10 who had diarrhea and 3 who had recovered within 3 weeks. These people gave a similar story: a sudden onset of watery diarrhea which lasted for several days. In 69 cases the illness ranged from 1 to 14 days with a median of 5 days and mean of 5.1 days (table 1).

TABLE 1.—*Distribution of 69 cases of acute watery diarrhea according to duration of illness, Pinson, Ala., Sept. 1, 1946–Jan. 28, 1947*

Length of illness	Number of cases	Length of illness	Number of cases
1 day	3	8 days	3
2 days	5	9 days	0
3 days	13	10 days	0
4 days	7	11 days	0
5 days	15	12 days	0
6 days	7	13 days	0
7 days	13	14 days	3

The majority of cases were accompanied by nausea and vomiting the first 3–4 days. The nausea and vomiting frequently preceded the diarrhea a few hours. In all cases there was hyperperistalsis, borborygmus and flatus. The flatus had a most foul odor. Although the patients were usually prostrated, recovery within a week was the rule. A brief residual weakness was the only observed sequela.

In the 13 persons closely questioned, the first symptom was: nausea, 4; vomiting, 3; diarrhea, 3; abdominal pain, 1; headache, 1; and flatus and distention, 1. The second symptom was: diarrhea, 10; vomiting, 2; nausea, 1. Table 2 gives the distribution of symptoms of 13 cases according to degree experienced.

TABLE 2.—*Distribution of symptoms of 13 cases of acute watery diarrhea, according to degree, Pinson, Ala., October 1946*

Symptom	Degree			Total
	Slight	Moderate	Severe	
Diarrhea	0	9	4	13
Abdominal pain	0	3	0	3
Vomiting	3	6	0	9
Nausea	5	6	0	11
Refusing food	1	6	0	7
Thirst	6	2	0	8
Headache	7	1	0	8
Weakness	4	6	0	10
Fever	0	2	0	2

There was no history or findings of mucus or blood in the stools, nor history of straining. No history of irritability, convulsions, nor sore throats was obtained. The two fevers of 100° and 102° were in children, and lasted only a day or two. Patients stated they lost some weight which was quickly regained. Treatment was chiefly symptomatic. Paregoric and bismuth were most frequently used. Sulfasuccidine was also used in several cases. None of these seemed to alleviate or shorten the illness.

One patient was studied at the Jefferson Hillman Hospital. Physical examination was unremarkable. There appeared to be mild hemoconcentration (W. B. C. 11,600; R. B. C. 5.2 million; hemoglobin 16 grams). Proctoscopy was negative as were cultures and direct examination of feces. Recovery was uneventful.

INCIDENCE AND EPIDEMIC CURVE

Of 172 people surveyed, 69 had the disease between September 1, 1946, and January 28, 1947. (See table 3 and fig. 1.) Thus, one in 2.5 or 40 percent were ill. This high prevalence suggests universal exposure with a low degree of resistance. Even when pandemic, influenza attacks but 30 percent of the population on an average (*2*), or 10 percent less than were stricken here.

In this community there appeared to be an abrupt onset, with about the same number of cases during the first three 14-day periods.

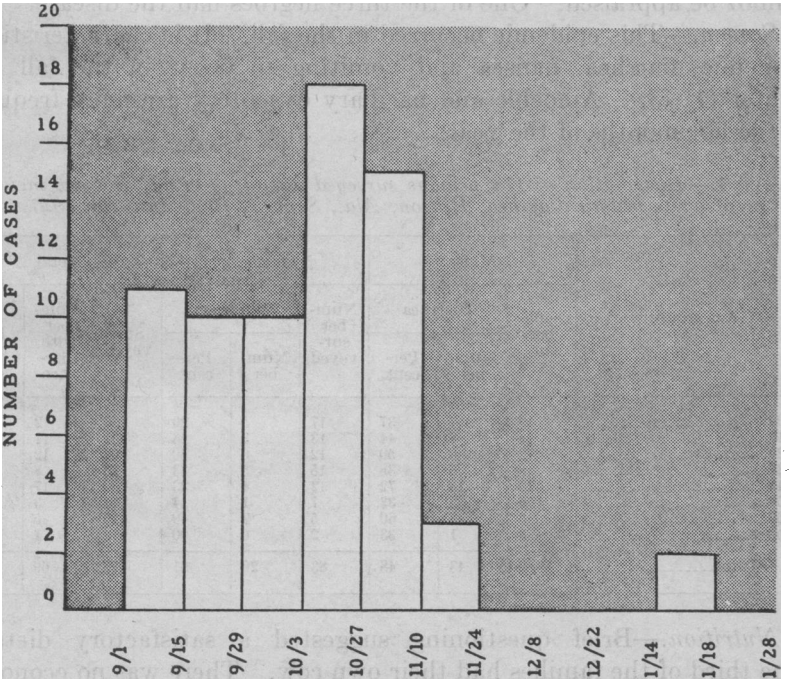

FIGURE 1.—Distribution of onset of 69 cases of acute watery diarrhea according to biweekly periods, Pinson, Alabama, 9/1/46-1/28/47.

A peak occurred in the fourth 14-day period, but was not markedly higher than for preceding periods. The epidemic practically disappeared during the sixth 14-day period. This is an unusual curve and is similar to that described by Reimann, Hodges, and Price (*1*). There was no history of any cases prior to September 1946. No one, including the two family physicians, remembered a similar epidemic.

TABLE 3.—*Distribution of onset of 69 cases of acute watery diarrhea according to biweekly periods, Pinson, Ala., Sept. 1, 1946–Jan. 28, 1947*

Date	Cases	Date	Cases
Sept. 1–14	11	Nov. 24–Dec. 7	0
Sept. 15–28	10	Dec. 8–21	0
Sept. 29–Oct. 12	10	Dec. 22–Jan. 3	0
Oct. 13–26	18	Jan. 4–17	2
Oct. 27–Nov. 9	15	Jan. 18–28	0
Nov. 10–23	3		

SECONDARY FACTORS

Age.—More men than women had diarrhea, but not significantly so statistically. (See table 4.) No age group escaped. There were four children under 1 year of age. One of these had diarrhea 1 day. An infant girl, born shortly after her mother and the two other members of the household had had the disease, did not become ill.

Race.—As only three colored persons live in Pinson, this factor cannot be appraised. One of the three negroes had the disease.

Season.—This epidemic occurred in the fall. It is characteristic of epidemic diarrhea, nausea and vomiting to occur in the fall and winter (*1*) (*3*). Amoebic and bacillary dysentery are more frequent in the hot months of the year.

TABLE 4.—*Distribution of 172 persons surveyed according to age and sex incidence of acute watery diarrhea, Pinson, Ala., Sept. 1, 1946–Jan. 28, 1947*

Age groups	Males			Females			Total		
	Number surveyed	Diarrhea		Number surveyed	Diarrhea		Surveyed	Number with diarrhea	Percent
		Number	Percent		Number	Percent			
00–09	19	7	37	17	5	29	36	12	33
10–19	18	8	44	13	3	23	31	11	35
20–29	12	6	50	12	6	50	24	12	50
30–39	8	3	38	15	5	33	23	8	35
40–49	18	13	72	12	4	33	30	17	57
50–59	6	2	33	7	1	14	13	3	21
60–69	5	3	60	5	2	40	10	5	50
70–over	3	1	33	2	0	00	5	1	20
Total	89	43	48	83	26	31	172	69	40

Nutrition.—Brief questioning suggested a satisfactory dietary. One third of the families had their own cow. There was no economic distress. Gardens and poultry yards were numerous.

Secondary cases.—There was at least 1 case in 31 of the 47 families studied. In 19 families there were secondary cases. The secondary attack rate is calculated as follows:

Total number of persons in 31 families	118
Number of primary cases	31
Number of persons exposed to infection by contact with these primary cases	87
Number of persons in these families subsequently developing diarrhea (secondary cases)	38
Secondary attack rate of susceptible persons ($e = d/c$) (percent)	43.7

Secondary cases accounted for 55.1 percent of the cases. Frost reports the secondary cases in diphtheria (from Chapin's records) to be about 40 percent of total cases (*4*).

Colds.—No acute upper respiratory infection occurred while persons were having the diarrhea. Colds appeared early in November after the diarrhea epidemic was almost over. They appeared to be neither more severe nor milder than usual.

SOURCES

Enteric infections are thought to be caused by man ingesting matter contaminated by infected human excreta (*2*) (*5*). Water, milk, food and flies are common vectors (*2*) (*5*). Diarrheal diseases are also caused by food infection and food poisoning, etc. (*6*) (*7*). There are diarrheas of unknown etiology (*6*). The usual sources of diarrhea were investigated as follows:

Water.—All 172 persons (47 families) obtained water from wells; 103 (30 families) from drilled wells, and 69 (17 families) from dug wells. With so many individual water supplies, water could not have been the source of the epidemic. As there were other verified cases from other parts of the county as far as 30 miles away, the possibility of subsurface water contamination is remote.

TABLE 5.—*Source of milk of 47 families surveyed. Families who did and did not have diarrhea are shown separately, Pinson, Ala., October 1946*

Source	Families with no cases	Families with diarrhea	Total
No milk used	0	2	2
Canned milk	0	1	1
Dairy A	1	9	10
Own cow	6	11	17
Neighbor's cow	9	5	14
Total	16	31	47

Milk.—Practically all milk used was raw. Despite this defect, the many different sources of milk rules this source out. (See table 5.) No recent illness had been noted among cows supplying milk to these families.

Sewage disposal, housing, and screening.—Of the 47 families, 45 lived in single houses. The other two families live in a two-family house. Sewage disposal facilities were good and there was excellent housing and screening. Toilet facilities are given in table 6.

TABLE 6.—*Toilet facilities of 47 families surveyed. Families who did and did not have diarrhea are shown separately, Pinson, Ala., October, 1946*

Toilet facilities	Families with no cases	Families with diarrhea	Total
Inside flush	6	13	19
Outside flush	1	0	1
Sanitary privy	8	10	18
Insanitary privy	0	7	7
No toilets	1	1	2
Total	16	31	47

All flush toilets were equipped with septic tanks. Only two of the 47 families had inadequate screening. The prevalence of flies was not measured, but appeared to be low. The weather was cool, with several frosts at night in October before the peak of the epidemic was reached.

Food.—All families prepared their food individually. Refrigeration was excellent, 131 persons (76 percent) had electrical refrigeration. Six persons had no refrigeration, and 35 persons used iceboxes. The character of the outbreak is not that of a food-borne disease, and food could not be incriminated.

Location of Cases.—A spot map was made locating cases. The map shows a uniform dispersion of cases throughout the surveyed area. Because no correlation is shown between the distribution of cases and any common factor except contact with known cases, this map is not reproduced.

Routine Stool Examination of Cases.—Stool specimens were collected in sterile bottles and taken to the Jefferson County Health Department Laboratory. The stools were watery in character and more or less opalescent in color. They contained no blood, pus, or mucus. Thirteen stools examined for pathogenic intestinal parasites showed none. *Blastocystis hominis*, a nonpathogenic vegetable cell, was found in one stool. Four of these stools were examined while fresh and warm for *Endamoeba histolytica* trophozoites, but none were seen.

Fourteen stool specimens were streaked directly onto S. S. agar and also put into selenite-F enrichment broth. (Four of these fourteen patients had received sulfasuccidine.) The latter were incubated 24 hours and streaked onto S. S. agar. After the S. S. agar plates (three to each stool specimen) had incubated 24 hours, non-lactose-fermenting and other suspicious colonies were picked to Krumwiede triple sugar agar. Reactors were transferred to 1% maltose, dextrose, lactose, mannite, dulcite, rhamnose, saccharose,

xylose and sorbite media, incubated, and observed 14 days. No agglutinations were necessary as no suspicious organisms were found.

Transmission.—The incidence was 1 in 2.5 (40 percent). The secondary attack rate was 43.7 percent. Environmental sanitation was quite good. Common sources of diarrhea such as water, milk, and food did not seem to be implicated here. It is difficult to escape the conclusion that the diarrhea is contagious. Reimann and coworkers (*8*) filtered garglings and stools of persons with a disease similar to this one. They were nebulized and inhaled by 53 volunteers of whom 28 (53 percent) developed symptoms. Of 24 volunteers who ingested encapsulated filtrates of garglings and stools, none became ill. Out of 240, 22 (9 percent), apparently developed the disease naturally. The results were obtained in an epidemic period. Two attempts to repeat the performance in nonepidemic periods have met with equivocal results (*9*). The mode of transmission is still not definitely known.

Incubation period.—In 8 of the 13 closely questioned cases, there was a history of intimate exposure to a case ranging from 2 to 8 days previously (3-day median). The incubation period of 32 secondary cases was figured roughly as the number of days between the first day of illness of a primary case in a family and the first day of illness of the secondary cases in that family. Adding the 8 above to these 32 cases, 40 cases had a range of 1–12 days' incubation, again with a median of 3 days. Two incidents are given that illustrate what was frequently observed.

A music teacher visits Pinson twice a week. On Sunday, October 27, 1946, she spent the day giving lessons to school children at the Pinson Presbyterian Church. She left Pinson that night and returned again and worked all day Wednesday, October 30. Thursday, October 31, she had diarrhea (incubation period 1 day, 4 days, or longer), which lasted 4 days. Within a week 2 other young women in her home in Birmingham, where 16 girls live together, had cases of watery diarrhea lasting 2 to 4 days.

One of the field investigators left Pinson on Friday, November 15, 1946, after having spent the last 2 days there. Monday, November 18, was spent in the office. At 1 a. m. on Tuesday, the 19th, watery diarrhea started suddenly. There was no nausea or vomiting, but anorexia and severe malaise. He was prostrated and in bed for 6 days, and then became well with the surprisingly short convalescent period of less than 48 hours, leaving a 10-pound weight loss and no other sequelae. Three days after exposure, the person sitting next to him in the office had diarrhea for about 3 days. His wife had a 1-day diarrhea 4 days after he became ill.

Virus procedures.—Material was received from 14 different individuals who were in the acute stages of the diarrheal disease, 12 samples of feces, 7 nasal washings or garglings and 18 blood specimens.

Six of the latter were second specimens from the same individuals obtained after recovery.

Mice and guinea pigs were inoculated intraperitoneally and intranasally with both filtered and unfiltered fecal material from six of the cases. Two monkeys were likewise given unfiltered feces from two patients by nasal installations and other treated material intra-abdominally. None of the animals showed any symptoms. Mice were also given intranasal installations of mouth garglings treated with antibiotics (penicillin and streptomycin). A second passage of mouse lungs was made to other mice. So far results have been negative.

The major part of the laboratory investigations has been by innoculation of embroyonated hen's eggs by various routes. Two different series of inoculations were undertaken:

Series I.—In series I the Seitz filtrates of fecal specimens from six patients and nasal washings of three were inoculated into eggs, both by yolk sac and intra-allantoic routes. From three to five passages (seven in one instance) in eggs were made from each specimen using either a suspension of embryonic tissues, or allantoic fluid.

Stained slides from yolk sacs of many of the eggs failed to reveal any rickettsial or spirochetal organisms. Gram positive cocci were occasionally encountered, but these were considered to be of accidental origin. All passage material was cultured in broth, and only bacteria free tissues were inoculated.

In order to determine the possible presence of a virus of the influenza group, the allantoic fluid was removed from 194 different inoculated eggs, representing samples from each egg passage. These fluids were all tested for hemagglutinins by means of washed chicken red blood cells and occasionally washed guinea pig red blood cells.

Because positive agglutination was observed in a few instances, repeated passages were made in eggs. However, because there was no regularity in the results, these were considered to be nonspecific reactions, such as may occur if small amounts of albumin are included in the fluid (*10*). There was also no regularity in the death of the embryos, nor any increase in hemagglutination using guinea pig red blood cells as found by Burnet (*11*) for the "O" form of influenza virus.

Table 7 gives a summary of these results.

TABLE 7.—*Summary of series I virus procedures. Specimens are from 6 persons with acute watery diarrhea, Pinson, Ala., 1946*

Patient	Number of transfers from fecal filtrates	Allantoic fluids			Number of transfers from filtered nasal washings	Allantoic fluids			Remarks
		Number tested	Pos. to chick RBC	Pos. to G.P. RBC		Number tested	Pos. to chick RBC	Pos. to G.P. RBC	
D. E. H.	1	2	0	------	7	52	4	0	Embryos rarely died.
G. H.	2	5	0	------	------	------	------	------	All negative.
R. H.	5	26	4	0	------	------	------	------	Irregular deaths of embryos.
H. R.	4	11	1	------	5	31	2	1	Occasional deaths of embryo.
M. S.	3	47	6	1	------	------	------	------	Embryos rarely died.
A. S. H.	4	7	0	0	3	15	5	------	No regular embryoic fatalities after the first passage.

Series II.—In series II different methods were employed in the attempt to isolate an active agent. By means of the stab method, 8 or 9 day old embryonated eggs were inoculated into the ammiotic sac with the Seitz filtrates of fecal specimens from 6 patients, and also with the same material after addition of antibiotics. The specimens had been kept frozen for 6 weeks to 2 months. They were treated so as to contain 2,500 units of streptomycin and 250 units of penicillin per 0.05 cc., according to the method of Hodges (*12*). After standing at room temperature for ½ to 1 hour, the mixture was innoculated into eggs in 0.05 cc. amounts. Very rarely were any bacterial contaminations encountered in the eggs. Often a number of the embryos died within 24 hours, but since the cultures were negative, death was probably due to either trauma or perhaps a toxic factor from the feces. The same fatalities were also encountered in the eggs given the filtrates.

Mouth garglings from two patients were likewise treated in the same manner as previously described and innoculated via the amniotic route.

After 2–4 days incubation the living eggs were placed in the refrigerator over night. The extra embryonic fluids were then removed and the ambryos and membranes saved. Transfers were made from the embryos and also the allantoic fluids. As a rule very few embryonic deaths occurred. Because of the absence of lesions or fatalities among the embyros, it was difficult to know if a virus was present or not. For this reason an attempt was made to utilize the method of Habel (*13*) for the identification of the mumps virus by application of the complement fixation test. The tests were made by using the allantoic or amniotic fluids as antigen against the patient's serum.

Several positive results were obtained in the present study, but they were not considered of value because the same fluids not only reacted with the sera of the diarrhea patients, but also with normal sera from a different locality. Also, the tests were negative when using the allantoic fluids from the second and third egg passages. If a virus were present the tests should have continued to be positive. Further work is being continued in this regard, however.

In another attempt to determine if there was relationship between this diarrheal disease and the influenza viruses, the sera of several patients were tested for antibodies against the influenza viruses A and B. Since it was necessary to know if a rise in titer had occurred, sera taken both during acute stages of the disease and after recovery were tested at the same time by the antihemagglutinin method of Salk (*14*), using washed chicken red blood cells. Both early and late bleedings were available from only 4 persons; none of these had respiratory influenza during the intervening time periods. Their convalescent sera failed to show any rise in titer for either of the viruses.

Results of virus work.—After numerous attempts to isolate a virus by various methods in both embryonated eggs and small animals, none has been found as yet from either the fecal specimens or the nasal washings from a limited number of patients in this epidemic of diarrhea. Further studies are being made, however, especially in regard to the methods employed by Buddingh and Dodd (*15*).

SUMMARY

1. An epidemic of acute watery diarrhea is described which is probably the entity known as epidemic diarrhea, nausea and vomiting, intestinal influenza, etc. (*1*).

2. Primary symptoms, frequency and severity of symptoms are given.

3. Length of illness ranged from 1 to 14 days, with means of 5.1 days and median of 5 days.

4. Incidence was 1 in 2.5 (40 percent) with a secondary attack rate of 43.7 percent.

5. No age group was exempt.

6. There was no significant difference in the incidence of the disease in men and women.

7. There were no deaths nor other sequelae.

8. Environmental sanitation was good.

9. Water, food and milk did not appear to be possible sources.

10. None of the usual known causes of acute diarrhea (*6*) were found.

11. Incubation period based on known contact ranged, for 40 cases, from 1 to 12 days, with a median of 3 days.

12. Negative results of attempted virus isolation are given.

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PLAGUE INFECTION IN DAWSON COUNTY, TEXAS

Plague in native rodents in Texas was reported from Cochran County during 1946 (PUBLIC HEALTH REPORTS **61**:910) and in Dawson County twelve miles southwest of Lamesa during May 1947 (PUBLIC HEALTH REPORTS **62**:929). Following these initial discoveries, the Texas State Department of Health, cooperating with the Communicable Disease Center of the United States Public Health Service, undertook a study of the ecology of the reservoirs and vectors of plague in the affected counties with a view toward determining factors influencing spread of the disease. Mr. Virgil I. Miles, entomologist, directs these field studies, and all rodent ectoparasites collected are forwarded to Dr. J. V. Irons, Director of Laboratories, Texas State Health Department, for the identification of plague and other pathogenic organisms. As a result of these studies, Dr. George W. Cox, Texas State Health Officer, announced on December 23, 1947, that plague infection again had been found in Dawson County; this time in a pool of 141 fleas from 14 pack rats (*Neotoma micropus*) collected on October 2 and 3, 1947, 8 miles west of Lamesa.

DEATHS DURING WEEK ENDED JAN. 24, 1948

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

	Week ended Jan. 24, 1948	Corresponding week, 1947
Data for 93 large cities of the United States:		
Total deaths	10,244	9,958
Median for 3 prior years	9,958	
Total deaths, first 4 weeks of year	42,125	40,765
Deaths under 1 year of age	722	855
Median for 3 prior years	622	
Deaths under 1 year of age, first 4 weeks of year	2,940	3,378
Data from industrial insurance companies:		
Policies in force	66,902,625	67,268,974
Number of death claims	14,575	13,827
Death claims per 1,000 policies in force, annual rate	11.4	10.7
Death claims per 1,000 policies, first 4 weeks of year, annual rate	10.6	9.8

FEDERAL-STATE-LOCAL RELATIONSHIPS IN THE FINANCING OF LOCAL HEALTH SERVICES [1]

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INTRODUCTION

The story of the development of the American democratic system is one of growth of local community government with its various services, followed by association of a group of communities into States, and finally the banding together of States into a nation. In line with this general trend, health services for the most part originated in the local community. As their value was demonstrated, health services of various patterns were established in an increasing number of communities. The result was a most uneven distribution of such services. To obtain more complete service within a community and wider distribution over the area, States began setting up State health programs. The aim was to assure greater protection of health for the people of the State as a whole. In spite of the progress made over the years it is evident today that wide variations in public health services still exist. With full recognition of these inequalities, the Federal Government became interested in aiding the public health program on a Nation-wide basis.

These trends have resulted in the development of a rather complex system of intergovernmental relationships between the local, State, and Federal levels of government. Public Health services themselves are actually rendered in the homes and agencies of local communities under the authority of the local government where well organized, well staffed, well equipped and well operated health units are needed. Efforts of the State and National governments should be aimed principally at facilitating local development. That this fact is appreciated by leaders of the public health movement has been dramatically reemphasized by the recent campaign spearheaded by the American Public Health Association to blanket the nation with efficient local health units.

Our problem is how to guide the development of intergovernmental relationships to promote efficient local health services. The first essential in the achievement of this objective is adequate financing. This has become more and more a shared function of the three levels of government. The Federal Government has initiated a system of grants-in-aid to States. In the utilization of these funds, the States either provide the services directly to the local communities or they establish a second system of grants-in-aid to local governmental agencies.

[1] Paper presented at the meeting of the Western Branch American Public Health Association, San Francisco, May 28, 1947.

The following paper presents a history of the development of these intergovernmental relationships. The necessity of financial participation by all three levels of government is indicated. Some possible approaches to the methods of redistribution of Federal and State funds to local health departments is also presented.

WHY A GRANT-IN-AID PROGRAM

The primary purposes in the initiation of a Federal grant-in-aid program were twofold: first, to improve the standard of health service throughout the county, and second, to increase the quantity of service particularly in those areas with limited financial resources. But why are Federal grants-in-aid necessary to accomplish these purposes? The answer lies in the differing sources of public revenue.

The system of taxation in our country has been so developed that the revenue raising power of local governmental units has been markedly restricted. It is limited primarily to the taxation of real and personal property. The State has more latitude while the Federal Government has almost unlimited taxing power. The practical application of this principle is illustrated by the taxes collected in California in 1945 by the three levels of government. Local governments collected about $38 per capita, the State $65 and the Federal Government $403. Federal taxes were four times the State plus local taxes, and more than ten times local taxes alone.

A second reason for a grant-in-aid program is to equalize the public health services throughout the country by a redistribution of wealth. California is said to be a wealthy State. It contributes about 10 percent of the Federal revenue. It has over 7 percent of the Nation's population. Yet it receives less than 4 percent of the money allotted for public health by the Federal agencies. By such a system of grants-in-aid it is possible to secure more even distribution of health services throughout the country by diverting money from the wealthy to the poorer States.

The State and Federal levels of government are tending more and more to subsidize local governmental agencies to assist them in financing various local programs. Examples are: Old age pensions, aid to the blind, indigent relief, subsidies for education, for road construction, for public building programs, and to a more limited extent, for public health. Such a pattern of financial cooperation between the three levels of government is probably a permanent element of our economy. The only alternative would appear to be a fundamental change in our tax structure which is not currently contempleted.

HISTORY

Federal-State Relationships.—The idea of Federal grants-in-aid for health purposes was proposed as long ago as 1879 when a bill creating the short-lived National Board of Health was under consideration by Congress.

The United States Public Health Service began the program of assisting States in 1913, when funds were obtained for "Field Investigations of Public Health." This embraced limited field studies on typhoid fever and was followed, in 1916, by congressional appropriations for demonstrations in rural sanitation. In both these instances funds were administered on a project basis and Public Health Service personnel were assigned to States to assist in the projects. The first example of formal allotments to States was in 1918 when $1,000,000 was appropriated by Congress for venereal disease control. Here, for the first time there was an actual transfer of money to the State for public health purposes. This allocation to States was on a basis of the ratio of the population of any given State to the total population of the United States. This appropriation was discontinued after the First World War.

In 1921, Congress passed the Sheppard-Towner Act which appropriated money to the United States Children's Bureau to assist States in the development of maternal and child health services. Again funds were actually transmitted to the States. There was a basic allotment of $5,000 to each State, $5,000 more to each State if matched and the remainder was allotted on a basis of population. Here two factors were used in determining allotment and population. This program continued until 1929.

With the passage of the Social Security Act in 1935, Congress formally embarked upon a program of grants-in-aid to States for public health. The framework of the allotment procedure was provided in the law. In title VI, which has since become Public Law 410, grants were authorized by the United States Public Health Service. The law prescribed that three basic factors should be considered in determining the allocation of these funds, namely, population, financial need, and extent of the health problem. Under title V administered by the United States Children's Bureau, two additional factors were noted in the law, namely a basic allotment to each State and a requirement for special attention to rural areas. The latter was in reality a slight attempt at definition of criteria to be used in determining the extent of the problem. Both agencies provide for special demonstration or study projects. The Childrens' Bureau places more emphasis on such special projects and upon aid to rural areas then does the Public Health Service.

State-local relationship in California.—While the above Federal-State fiscal relationships have been developing, California, as other States, has been gradually evolving a State-local fiscal pattern. Until 1918, State aid to local jurisdictions was almost exclusively through the provision of direct services. These included primarily epidemiological investigations, laboratory services and services in the field of environmental sanitation. The one exception was the State subsidy for all

resident tuberculosis patients hospitalized at public expense which was begun in 1914.

With the coming of Federal funds for venereal disease control in 1918, a new pattern of State administration of aid to local health departments came into being. The State employed personnel and assigned them to local health departments and clinics. Allocations to local areas were made on a basis of the State's estimates of needs and the willingness of the local communities to participate. This same general plan was later utilized but to a lesser extent, in the administration of the Sheppard-Towner funds appropriated by Congress for maternal and child health. Most of this activity was in rural areas which had no full time health service so the State provided a direct service in this field.

The pattern of assignment of State personnel was resumed when Social Security funds became available in 1936 and continued until the 1945–46 fiscal year when a limited number of health departments entered into contracts with the State and received the subsidy in the form of funds rather than assigned personnel. This procedure was extended during the 1946–47 fiscal year and will be made almost uniformly applicable during the coming year.

There has thus evolved a procedure through which Federal funds may be channeled to local health departments without disrupting the essential independence and responsibility of the local unit. The agreements are surrounded by regulation with adequate safeguards to insure reasonably efficient utilization of such funds by the local health department.

While this administrative procedure for the handling of the funds has been developing, the adoption of some kind of formula for determining how the funds shall be distributed within the State has lagged behind. Heretofore, the estimate by State personnel of the extent of the problem, together with the willingness of the local health department to undertake new activities, has played the predominant part in determining how the funds were allocated. This has resulted in a most uneven distribution of funds by the State to local health departments. During the past 2 years studies have been under way, designed to solve this problem.

Out of these studies has come the realization that Federal funds available, plus local funds now being appropriated, are inadequate to do the job regardless of how the Federal funds are distributed. This inadequacy of funds was the genesis of the legislation introduced into the current session of the California Legislature to provide a State subsidy for local health work.[2] It was concluded that the only way State-wide coverage, with reasonably adequate local health

[2] This act became effective September 19, 1947. The act and regulations of the State Board of Public Health adopted to administer the act are available upon request.

services could be obtained would be by active State, as well as the Federal, participation in the financing of local health programs.

Three other conclusions have also evolved. First, it is necessary to establish a businesslike fiscal relationship between the State health department and the local health unit. This has been largely accomplished through the formal contractual procedure. Second, it is necessary to develop a formal procedure for determining allotments to local health departments. Third, development of formal minimum standards that must be met by the local health department in order to be eligible is also necessary for subsidy. In the proposed State subsidy act, the allotment procedure is established by law. It is a model of simplicity. The type of local health unit eligible for subsidy is defined. The minimum standards that must be met are to be established by regulation of the State Board of Public Health after consultation with and approval by the Conference of Local Health Officers. After minimum standards are met by the local health department, the allotment is based on two easily defined criteria. First, a basic allotment of $16,000 per county, or 60 cents per capita, whichever is less, will be made; second, the remainder of the funds will be allotted on a straight per capita basis. There is a requirement that each dollar of State funds allotted on the per capita basis be matched by 2 dollars of local funds, thus assuring local financial participation. State funds may not be substituted for currently appropriated local funds.

Behind this simple allotment procedure there were many months of study, analysis and discussion. The chief considerations will now be briefly summarized.

THE PROBLEM OF A BASIC ALLOTMENT

It has already been noted that in the Children's Bureau formula there is a basic allotment established for each State. There are three primary reasons for provision of such an allotment. The first reason is to provide extra assistance to smaller or sparsely populated areas. The per capita cost for rendering the basic health services in such sparsely populated areas and in small health units is greater than in more densely populated regions. A second primary reason for favoring the concept of a basic allotment is the practical fact that the development of full time health service has lagged in the rural areas of the State. Twenty-seven counties in California are currently without full time health service. A third reason is that, in general, the rural sparsely populated areas are less wealthy and consequently less able to finance a health department than are the more populous areas. These three elements, namely, scattered population with increased cost of operation of health departments serving small populations, delay and lack of development of services in rural areas, and less ability to finance the program, combine to emphasize the necessity for

providing extra stimulus to the development of full time health units in these rural areas. One further consideration that applies particularly to California is the State-wide interest in maintenance of a high quality of health service in rural areas used as vacation lands by vast numbers of our population.

At the same time it was determined that the basic allotment should be limited to a minimum geographic area of a county. This was done in order to discourage cities or areas of the counties from setting up separate health jurisdictions. Therefore, regardless of the size of its population, each county would receive the same basic allotment, however, with the proviso that a per capita maximum would establish a ceiling for small counties. In order to encourage rural counties to combine, the allotment continues to be figured on a county basis regardless of how many counties combine into a single health unit. In other words, the cards are stacked in favor of countywide health units and in favor of two or more rural counties combining to form single health units.

Under the proposed law in California, the basic allotment is $16,000 per county or 60 cents per capita, whichever is less. Rural, sparsely populated counties would, therefore, receive a basic allotment of 60 cents per capita. Los Angeles County, with a population in excess of 3,000,000, would receive a basic allotment of approximately 0.4 cents per capita. Such a procedure provides for marked encouragement toward the formation of full-time health departments in the rural areas in the State. Actually the larger proportion of the State subsidy would go into the metropolitan areas. Los Angeles County, with about 40 percent of the population, on a basis of $3,000,000 available, would receive about 29 percent of the total funds available for allotment.

FINANCIAL NEED AS A FACTOR IN A FORMULA

Financial need plays a prominent part in the formulas of the Federal agencies. It is determined on a basis of the reciprocal of the per capita income. The higher the per capita income of a State, the less the financial need. In general, Federal taxes are levied on a basis of income. However, local taxes are collected on a basis of assessed valuation of property and the tax rate applied thereto. It was, therefore, thought that perhaps assessed valuation should be the criteria used to determine the relative financial need of a county. This has been used in certain other States. A study was made of this possibility. It was found that assessed valuation in California varies from county to county from about 25 percent to 75 percent of the real value of the property. Furthermore, the tax rates applied in 1945 varied from $1.19 to $5.05 per $100 of assessed values. There were thus two variable factors in 1945 which resulted in a range of per capita property taxes from $18.46 to $97.92. It was found that

the per capita property tax bore little or no relationship to per capita income of the respective counties. It was concluded that neither assessed valuation, tax rate, nor per capita property tax provided a reasonable basis on which to evaluate the financial need of a county.

In California, the chamber of commerce has provided estimates of the per capita income of counties for a number of years. These varied from $638 to $2,192 per capita in 1945. If any criterion of financial need is to be used, it was concluded that this would be the best measure. Using these indices just as is done by the Federal agencies, San Francisco on this basis of financial need, would receive about one-fifth as much per capita allotment as the State average. Amador, a rural mountain county, would receive four and one-half times the State average. Other counties range between these limits. This procedure, therefore, establishes a wide range of difference in allotments, actually quite comparable to the differences between States on the national level.

Per capita income as a measure of financial need is essentially just as feasible a factor for use to determine allotments within California as it is on a national level to determine State allotments.

EXTENT OF THE PROBLEM AS A FACTOR IN THE FORMULA

A study was made to determine whether or not objective criteria could be found that would provide a reasonable estimate of the variations in the extent of health problems throughout the State. Tuberculosis, venereal diseases, and maternal and child health were selected as three separate fields for study. By the objective criteria that were set up, it was possible to demonstrate a rather wide range of differences among the counties of the State in each of these categories. The use of such data in determining allotments based on extent of the problem did result in a marked variation from straight per capita allotment for each of the funds when figured separately. However, when all funds were combined there was a definite tendency to neutralize each other and hence the end result was about the same as when all funds were pooled and allotted on a straight per capita basis. This was the most revealing and unexpected finding of the entire study and is really the basis for our throwing out entirely attempts to utilize the factor of extent of the problem in an allotment formula. In other words, all the statistical gymnastics resulted in such a small change in the actual allotments that it appeared completely impractical to utilize such data in a formula.

POPULATION AND BASIC ALLOTMENT

Population constitutes the most readily useful and undoubtedly the most satisfactory single criterion for determining allotments to counties.

The variation in the population composition from county to county in California as enumerated in 1940 is not sufficiently great to render practicable any attempts to place differing values on such factors as racial distribution and age composition.

After a full study of all of the factors noted above, it was concluded that essentially the same purpose could be achieved by the utilization of the two factors of basic allotment and population as was achieved by extensive attempts to bring into a formula the intricacies of financial need and extent of the problem. It was, therefore, on a basis of these studies that the legislation in California was drawn to provide a simple formula that could be readily understood by all as a basis for determining allotments to local health jurisdictions. The basic pattern, at least in its relation to California, is applicable regardless of the amount of money available for allotment.

While the plan has not been formally adopted with reference to the allotment of Federal funds, we are gradually adjusting allocations to conform to this pattern.

SUMMARY AND CONCLUSIONS

In this discussion I have attempted to outline briefly the development of Federal-State-local relationships in the field of public health. Here is a most interesting experiment in the application of the democratic process. Will we evolve a pattern of progressively increasing centralization of authority in this field to the end that the local health department will merely carry out policies and procedures dictated from above? Or will we keep before us the concept that our primary objective is the development of efficient local health units with adequate freedom to operate and adequately financed to render effective community service? The three levels of government are becoming partners in the financing. It is imperative that they also be partners in the planning and in the determination of policies and procedures.

We need keep on guard lest the operation of our partnership become so involved that we spend all of our time and energy in needless controversies. For every operation we should ask ourselves, "Is there a simpler way?"

By a pattern of Federal to State and State to local subsidy we are attacking the problem of adequate financing of local health services. By the pattern of a conference of local health officers to advise with the States and a conference of State health officers to advise with the Federal agencies it is hoped we can avoid arbitrary and bureaucratic administration at the State and Federal levels to the end that the partnership will function smoothly and in the interest of the people we serve.

INCIDENCE OF DISEASE

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

UNITED STATES

REPORTS FROM STATES FOR WEEK ENDED January 31, 1948 *

Summary

A total of 14,253 cases of influenza was reported for the current week, as compared with 11,687 last week and a 5-year (1943–47) median of 4,852. The net increase was accounted for chiefly in the reports for Alabama, Arizona, and California. Of the current total, 13,037 cases (91 percent) were reported in 7 States of the South Atlantic, South Central, Mountain, and Pacific areas, as follows (last week's figures in parentheses): Virginia 969 (949), South Carolina 1,279 (1,218), Alabama 1,576 (344), Arkansas 599 (586), Texas 5,088 (5,027), Arizona 1,666 (1,274), and California 1,860 (1,065). Only 4 other States reported more than 99 cases or an increase of more than 37, Wisconsin 159 (last week 108), Tennessee 113 (last week 233), Louisiana 106 (last week 7, next earlier week 180), and Oklahoma 184 (last week 161). The total since the first of the year is 46,635, as compared with 16,910 for the same period last year, the latter figure being the lowest for the period in the past 5 years (the highest 261,981 in 1944, the 5-year median 17,421 for the period).

Of 30 cases of poliomyelitis reported for the week (last week 46, 5-year median 36), only 4 States reported more than 2 cases—North Carolina and Texas 5 each and Florida and Louisiana 3 each. The total for the year to date is 157, as compared with 299 for corresponding period last year and a 5-year median of 147.

For the first 4 weeks of the year, figures above the corresponding median expectancies have been reported for the dysenteries (combined), influenza, measles, poliomyelitis, Rocky Mountain spotted fever, undulant fever and whooping cough.

Deaths recorded during the week in 93 large cities of the United States totaled 10,421, as compared with 10,244 last week, 9,602 and 10,100, respectively, for the corresponding weeks of 1947 and 1946, and a 3-year (1945–47), median of 10,069. The cumulative figure for the 5 weeks ended January 31 is 52,546, as compared with 50,367 for the corresponding period last year. Infant deaths during the week in the same cities totaled 677, as compared with 722 last week, and a 3-year median of 602. The total for the 5-week period is 3,619, as compared with 4,187 for the same period last year.

*Exclusive of figures for Pennsylvania for the current week; report not received.

Telegraphic morbidity reports from State health officers for the week ended Jan 31, 1948, and comparison with corresponding week of 1947 and 5-year median*

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

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended—		Median, 1943–47	Week ended—		Median, 1943–47	Week ended—		Median, 1943–47	Week ended—		Median, 1943–47
	Jan. 31, 1948	Jan. 25, 1947		Jan. 31, 1948	Jan. 25, 1947		Jan. 31, 1948	Jan. 25, 1947		Jan. 31, 1948	Jan. 25, 1947	
NEW ENGLAND												
Maine	1	7	3	5	1	1	2	191	27	0	0	2
New Hampshire	0	0	0	1				1	5	0	1	1
Vermont	2	0	0	2	15	15		123	19	0	0	0
Massachusetts	4	21	3				288	427	377	2	1	3
Rhode Island	1	3	0				1	63	22	0	0	1
Connecticut	0	0	1		2	14	57	204	185	3	4	3
MIDDLE ATLANTIC												
New York	20	29	11	[1] 5	[1] 6	[1] 14	719	147	928	5	7	27
New Jersey	6	3	3	5	6	24	654	[1] 93	93	2	3	7
Pennsylvania*		16	12	(2)	[2] 10	[2] 10		708	738		8	16
EAST NORTH CENTRAL												
Ohio	14	17	12	5	8	9	629	380	111	2	2	10
Indiana	13	12	8	32	2	14	430	19	71	1	1	4
Illinois	0	5	6	1	3	4	1,792	12	273	2	1	16
Michigan [3]	1	7	7	4	2	2	1,014	66	135	1	5	6
Wisconsin	0	0	1	159	31	93	234	132	132	3	2	8
WEST NORTH CENTRAL												
Minnesota	6	6	6	1		2	406	23	19	0	1	2
Iowa	2	3	3				485	7	22	0	0	1
Missouri	4	6	6	6	4	5	59	10	96	0	4	7
North Dakota	3	1	1		1	14	52	2	2	0	0	0
South Dakota	0	0	0				14	10	48	2	0	0
Nebraska	0	3	3	13	4	4	29	6	14	0	0	1
Kansas	1	3	5	79	75	54	3	1	101	1	0	1
SOUTH ATLANTIC												
Delaware	0	0	0				23		10	0	0	1
Maryland [3]	15	8	9	3	5	15	76	33	32	2	0	2
District of Columbia	0	0	0			4	33	14	14	0	0	2
Virginia	3	10	10	969	490	567	165	201	124	1	0	6
West Virginia	11	4	4	99	93	67	269		11	0	1	2
North Carolina	14	9	11				2	171	92	2	1	7
South Carolina	10	2	8	1,279	595	810	17	32	32	1	0	1
Georgia	7	2	7	77	22	154	33	90	34	1	2	5
Florida	2	4	4	55	16	7	37	18	35	0	2	3
EAST SOUTH CENTRAL												
Kentucky	6	4	7	2	2	19	28	2	97	1	4	5
Tennessee	5	6	6	113	60	105	63	42	86	4	7	7
Alabama	9	10	10	1,576	107	379	9	35	20	2	5	7
Mississippi [3]	6	7	7	50			37			1	2	5
WEST SOUTH CENTRAL												
Arkansas	2	7	7	599	78	150	79	14	90	0	1	3
Louisiana	2	4	6	106	29	29	14	1	13	1	0	4
Oklahoma	2	4	7	184	134	192	26	1	7	0	0	0
Texas	26	26	57	5,088	2,280	2,280	692	115	173	8	5	8
MOUNTAIN												
Montana	7	0	1	15	29	29	163	122	84	0	0	0
Idaho	0	1	1	14	15	1	9	5	10	1	2	0
Wyoming	0	0	0		6	6	24	6	21	0	0	0
Colorado	10	6	8	85	44	113	54	9	95	1	0	3
New Mexico	3	1	3	8		5	25	55	8	0	0	0
Arizona	7	3	3	1,666	149	155	11	71	15	0	0	1
Utah [3]	2	1	1		39	39	9	5	33	0	0	0
Nevada	0	0	0						1	0	0	0
PACIFIC												
Washington	5	4	7	19	1	1	122	39	88	0	1	5
Oregon	3	3	4	68	7	35	30	36	42	1	1	3
California	8	21	35	1,860	17	89	538	104	430	13	4	21
Total	243	289	331	14,253	4,388	4,852	9,456	3,846	6,712	64	78	242
4 weeks	972	1,277	1,355	46,635	16,910	17,421	32,861	14,795	20,285	327	344	953
Seasonal low week [4]	(27th) July 5–11			(30th) July 26–Aug. 1			(35th) Aug. 30–Sept. 5			(37th) Sept. 13–19		
Total since low	7,330	8,843	9,794	90,193	49,885	49,885	67,807	37,682	46,409	1,109	1,316	2,472

[1] New York City only. [2] Philadelphia only. [3] Period ended earlier than Saturday.
[4] Dates between which the approximate low week ends. The specific date will vary from year to year.
*Exclusive of figures for Pennsylvania for the current week; report not received.

Telegraphic morbidity reports from State health officers for the week ended Jan. 31, 1948, and comparison with corresponding week of 1947 and 5-year median—Con.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Week ended—		Median 1943–47	Week ended—		Median 1943–47	Week ended—		Median 1943–47	Week ended—		Median 1943–47
	Jan. 31, 1948	Jan. 25, 1947		Jan. 31, 1948	Jan. 25, 1947		Jan. 31, 1948	Jan. 25, 1947		Jan. 31, 1948 [3]	Jan. 25, 1947	
NEW ENGLAND												
Maine	0	0	0	22	31	31	0	0	0	0	0	0
New Hampshire	0	2	0	2	2	12	0	0	0	0	0	0
Vermont	0	1	0	4	4	8	0	0	0	2	0	0
Massachusetts	0	3	1	94	154	314	0	0	0	2	3	2
Rhode Island	0	0	0	4	25	13	0	0	0	0	0	0
Connecticut	0	0	0	24	43	65	0	0	0	0	0	0
MIDDLE ATLANTIC												
New York	0	5	2	213	323	404	0	0	0	2	3	3
New Jersey	0	1	0	67	138	135	0	0	0	0	2	1
Pennsylvania [2]	------	2	0	------	246	254	------	0	0	------	7	5
EAST NORTH CENTRAL												
Ohio	1	1	1	306	389	318	0	0	0	3	0	0
Indiana	1	1	1	65	114	114	0	3	1	0	3	2
Illinois	1	1	2	152	162	201	0	0	0	3	1	1
Michigan [3]	0	3	0	140	154	154	0	0	0	1	0	0
Wisconsin	0	1	0	87	98	145	0	0	0	0	0	0
WEST NORTH CENTRAL												
Minnesota	0	1	0	38	66	67	0	0	0	0	0	0
Iowa	0	1	0	56	46	61	0	0	0	0	0	0
Missouri	0	0	0	48	30	93	0	0	0	0	0	0
North Dakota	0	0	0	2	6	13	0	0	0	0	0	0
South Dakota	0	0	0	0	8	34	0	0	0	0	0	0
Nebraska	0	3	0	22	36	59	0	0	0	0	0	0
Kansas	0	1	1	20	60	75	0	0	0	0	0	0
SOUTH ATLANTIC												
Delaware	0	0	0	8	15	6	0	0	0	0	0	0
Maryland [3]	0	0	0	29	37	81	0	0	0	0	1	1
District of Columbia	0	0	0	14	15	29	0	0	0	0	0	0
Virginia	0	0	0	29	40	74	0	0	0	2	1	2
West Virginia	1	0	0	27	36	36	0	0	0	0	3	0
North Carolina	5	2	1	30	34	56	0	0	0	2	0	0
South Carolina	0	0	0	7	4	9	0	0	0	1	0	1
Georgia	0	0	0	13	22	23	0	0	0	1	0	3
Florida	3	3	2	5	10	11	0	0	0	2	1	2
EAST SOUTH CENTRAL												
Kentucky	0	0	0	37	50	50	1	0	0	0	0	0
Tennessee	1	0	0	31	33	41	0	0	0	0	0	2
Alabama	0	0	0	14	11	12	0	0	0	0	1	1
Mississippi [3]	0	1	0	3	8	11	0	0	0	0	0	0
WEST SOUTH CENTRAL												
Arkansas	1	0	0	3	3	7	1	0	0	2	0	0
Louisiana	3	2	1	6	2	8	0	0	0	6	2	3
Oklahoma	1	0	0	13	13	15	0	0	0	2	0	0
Texas	5	2	4	55	49	65	0	0	0	4	2	3
MOUNTAIN												
Montana	2	1	0	20	9	9	0	0	0	1	0	0
Idaho	0	1	0	3	7	14	0	0	0	0	1	1
Wyoming	0	0	0	4	9	9	0	0	0	0	0	0
Colorado	0	0	1	23	54	68	0	0	0	0	2	0
New Mexico	0	1	0	10	11	11	0	1	1	0	0	0
Arizona	0	1	0	12	9	12	0	0	0	0	5	0
Utah [3]	0	0	0	19	24	53	0	0	0	0	0	0
Nevada	0	0	0	0	0	0	0	0	0	0	0	0
PACIFIC												
Washington	1	0	2	52	56	56	0	0	0	0	1	0
Oregon	2	0	0	31	25	34	0	0	0	1	0	0
California	2	18	11	108	123	302	0	0	1	3	0	2
Total	30	60	36	1,972	2,844	3,401	2	4	7	40	39	46
4 weeks	157	299	147	8,325	9,688	14,150	11	17	34	151	166	201
Seasonal low week [4]	(11th) Mar. 15–21			(32d) Aug. 9–15			(35th) Aug. 30–Sept. 5			(11th) Mar. 15–21		
Total since low	10,368	25,096	13,547	30,841	36,374	52,471	32	71	117	3,560	3,694	4,784

[3] Period ended earlier than Saturday.
[4] Dates between which the approximate low week ends. The specific date will vary from year to year.
[5] Including paratyphoid fever reported separately as follows: Vermont 2; Illinois 1; Michigan 1; Oklahoma 1; Texas 1; Oregon 1; California 1.

Telegraphic morbidity reports from State health officers for the week ended Jan. 31, 1948, and comparison with corresponding week of 1947 and 5-year median—Con.

Division and State	Whooping cough			Week ended January 31, 1948							
	Week ended—		Median, 1943-47	Dysentery			Encephalitis, infectious	Rocky Mt. spotted fever	Tularemia	Typhus fever, endemic	Undulant fever
	Jan. 31, 1948	Jan. 25, 1947		Amebic	Bacillary	Unspecified					
NEW ENGLAND											
Maine	30	40	40	-----	-----	-----	-----	-----	-----	-----	-----
New Hampshire	3	-----	9	-----	-----	-----	-----	-----	-----	-----	-----
Vermont	55	17	21	-----	-----	-----	-----	-----	-----	-----	2
Massachusetts	69	190	171	-----	9	-----	1	-----	-----	-----	1
Rhode Island	10	19	24	-----	-----	-----	-----	-----	-----	-----	-----
Connecticut	37	42	63	-----	-----	-----	-----	-----	-----	-----	13
MIDDLE ATLANTIC											
New York	157	219	219	5	3	-----	2	-----	-----	-----	8
New Jersey	-----	182	106	2	-----	-----	-----	-----	-----	-----	1
Pennsylvania[2]	-----	252	138	-----	-----	-----	-----	-----	-----	-----	-----
EAST NORTH CENTRAL											
Ohio	95	186	169	1	-----	-----	-----	-----	-----	-----	1
Indiana	27	48	22	-----	1	-----	-----	-----	2	-----	4
Illinois	83	94	91	4	6	-----	-----	1	2	-----	20
Michigan[2]	108	274	142	2	-----	-----	-----	-----	-----	-----	-----
Wisconsin	87	194	97	-----	-----	-----	-----	-----	1	-----	5
WEST NORTH CENTRAL											
Minnesota	46	8	37	1	-----	1	-----	-----	-----	-----	2
Iowa	2	15	15	-----	-----	-----	-----	-----	-----	-----	10
Missouri	22	48	28	-----	-----	1	-----	-----	4	4	1
North Dakota	6	1	2	-----	-----	3	-----	-----	-----	-----	-----
South Dakota	3	9	5	-----	-----	-----	-----	-----	-----	-----	1
Nebraska	11	17	3	-----	-----	-----	-----	-----	-----	-----	3
Kansas	41	21	36	-----	-----	-----	1	-----	1	-----	-----
SOUTH ATLANTIC											
Delaware	2	10	7	-----	-----	-----	-----	-----	-----	-----	-----
Maryland[2]	44	75	49	-----	-----	-----	-----	-----	-----	-----	-----
District of Columbia	6	3	5	-----	-----	-----	-----	-----	-----	-----	-----
Virginia	72	74	56	2	-----	29	-----	-----	1	-----	3
West Virginia	34	-----	22	-----	-----	-----	-----	-----	-----	-----	-----
North Carolina	41	38	99	-----	-----	-----	1	-----	2	3	-----
South Carolina	91	45	53	2	26	-----	1	-----	1	-----	-----
Georgia	16	14	14	1	1	-----	1	-----	5	3	3
Florida	24	46	16	5	-----	-----	-----	-----	1	5	1
EAST SOUTH CENTRAL											
Kentucky	4	27	30	-----	-----	-----	-----	-----	-----	-----	-----
Tennessee	17	25	31	1	-----	-----	2	-----	3	-----	-----
Alabama	19	27	27	2	-----	-----	-----	-----	1	1	-----
Mississippi[2]	4	-----	-----	3	-----	-----	-----	-----	-----	2	-----
WEST SOUTH CENTRAL											
Arkansas	23	3	17	8	-----	6	-----	-----	1	-----	1
Louisiana	10	6	6	7	-----	-----	-----	-----	-----	3	-----
Oklahoma	39	4	7	-----	-----	-----	-----	-----	-----	-----	1
Texas	264	426	241	11	289	138	-----	-----	1	3	7
MOUNTAIN											
Montana	11	13	19	-----	-----	-----	-----	-----	-----	-----	-----
Idaho	9	3	3	-----	-----	-----	-----	-----	-----	-----	2
Wyoming	2	4	4	-----	-----	-----	-----	-----	-----	-----	-----
Colorado	164	10	20	-----	-----	-----	-----	-----	-----	-----	14
New Mexico	10	16	4	-----	-----	-----	-----	-----	-----	-----	-----
Arizona	39	15	15	-----	-----	19	-----	-----	-----	-----	2
Utah[2]	8	-----	14	-----	-----	-----	-----	-----	-----	-----	6
Nevada	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
PACIFIC											
Washington	39	32	32	-----	-----	-----	-----	-----	-----	-----	1
Oregon	25	11	10	-----	-----	-----	-----	-----	-----	-----	4
California	75	115	138	7	6	-----	1	-----	-----	-----	2
Total	1,984	2,918	2,459	64	341	197	10	1	26	24	119
Same week: 1947	2,918	-----	-----	48	722	163	6	0	68	47	92
Median 1943-47	2,459	-----	-----	26	258	89	6	0	17	47	[4] 68
4 weeks: 1948	9,305	-----	-----	231	1,388	1,254	24	3	101	80	386
1947	9,500	-----	-----	125	1,815	827	26	1	222	202	342
Median 1943-47	8,985	-----	-----	115	1,422	525	32	0	104	246	[4] 268

[2] Period ended earlier than Saturday.

[4] 3-year median 1945-47.

Alaska: Common respiratory 13; diphtheria 2; chickenpox 2; German measles 5; impetigo 1; tonsillitis 4; pharyngitis 3; scarlet fever 2; pneumonia 1; vincent's angina 1.

Territory of Hawaii: Bacillary dysentery 1; measles 1; whooping cough 8; scarlet fever 1.

WEEKLY REPORTS FROM CITIES*

City reports for week ended Jan. 24, 1948

This table lists the reports from 88 cities of more than 10,000 population distributed throughout the United States, and represents a cross section of the current urban incidence of the diseases included in the table.

Division, State, and City	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
NEW ENGLAND												
Maine:												
Portland	0	0	------	0	1	0	2	0	2	0	0	10
New Hampshire:												
Concord	0	0	------	0	-------	0	1	0	0	0	0	------
Vermont:												
Barre	0	0	------	0	-------	0	0	0	0	0	0	------
Massachusetts:												
Boston	3	0	------	0	268	1	17	0	14	0	0	10
Fall River	0	0	------	0	-------	1	1	0	0	0	0	5
Springfield	0	0	------	0	1	0	1	0	3	0	0	4
Worcester	0	0	------	0	-------	0	2	0	12	0	0	4
Rhode Island:												
Providence	0	0	------	0	-------	0	4	0	3	0	0	4
Connecticut:												
Bridgeport	0	0	------	0	1	0	0	0	7	0	0	1
Hartford	0	0	------	0	3	0	2	0	2	0	0	2
New Haven	0	0	------	0	-------	1	2	0	6	0	0	9
MIDDLE ATLANTIC												
New York:												
Buffalo	0	0	------	1	-------	0	2	0	5	0	0	7
New York	7	0	2	1	403	1	67	2	74	0	1	26
Rochester	0	0	------	0	-------	0	3	0	14	0	0	2
Syracuse	0	0	------	0	4	0	1	0	4	0	0	11
New Jersey:												
Camden	1	0	------	0	3	0	1	0	1	0	0	1
Newark	1	0	2	0	29	0	3	0	15	0	0	11
Trenton	7	0	------	0	4	1	3	0	3	0	0	1
Pennsylvania:												
Philadelphia	1	1	3	1	77	1	14	0	53	0	1	31
Pittsburgh	0	0	------	0	-------	2	7	0	14	0	0	3
Reading	0	0	------	0	2	0	2	0	4	0	0	11
EAST NORTH CENTRAL												
Ohio:												
Cincinnati	0	0	------	0	13	0	7	0	14	0	0	1
Cleveland	2	0	4	1	2	2	7	0	30	0	0	13
Columbus	3	0	2	2	115	0	2	0	9	0	0	7
Indiana:												
Fort Wayne	1	0	------	0	1	0	3	0	4	0	0	------
Indianapolis	2	0	1	1	75	0	4	1	7	0	0	4
South Bend	0	0	------	0	-------	0	0	0	0	0	0	------
Terre Haute	0	0	------	0	30	0	1	0	2	0	0	------
Illinois:												
Chicago	2	0	1	1	404	2	29	0	49	0	0	30
Springfield	0	0	------	0	84	0	1	0	2	0	0	------
Michigan:												
Detroit	2	0	------	0	22	0	11	0	42	0	0	30
Flint	0	0	------	0	-------	0	1	0	0	0	0	------
Grand Rapids	0	0	------	0	244	0	2	0	1	0	0	4
Wisconsin:												
Kenosha	0	0	------	0	21	0	0	0	0	0	0	------
Milwaukee	0	0	------	0	5	0	6	0	18	0	0	14
Racine	0	0	------	0	41	0	2	0	2	0	0	2
Superior	0	0	------	0	4	0	0	0	5	0	0	------
WEST NORTH CENTRAL												
Minnesota:												
Duluth	0	0	------	0	-------	0	0	0	3	0	0	5
Minneapolis	1	0	------	0	150	0	4	0	13	0	0	23
St. Paul	0	0	------	1	23	0	3	0	6	0	0	6
Missouri:												
Kansas City	0	0	7	2	4	0	4	0	3	0	0	13
St. Joseph	0	0	------	0	-------	0	0	0	2	0	0	------
St. Louis	8	0	7	1	11	0	12	0	16	0	0	1
Nebraska:												
Omaha	0	0	------	0	-------	0	2	0	3	0	0	------
Kansas:												
Topeka	0	0	------	0	-------	1	1	0	0	0	0	------
Wichita	0	0	------	0	1	0	5	0	1	0	0	

*In some instances the figures include nonresident cases.

City reports for week ended Jan. 24, 1948—Continued

Division, State, and City	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
SOUTH ATLANTIC												
Delaware:												
Wilmington	0	0	------	0	-------	1	1	0	0	0	0	------
Maryland:												
Baltimore	3	0	1	0	-------	2	9	0	19	0	0	35
Cumberland	2	0	------	0	-------	0	1	0	3	0	0	------
Frederick	0	0	------	0	-------	0	0	0	0	0	0	------
District of Columbia:												
Washington	0	0	------	0	63	0	2	0	11	0	0	5
Virginia:												
Richmond	1	0	------	1	2	0	2	0	4	0	0	8
Roanoke	0	0	------	0	-------	0	0	0	1	0	0	------
West Virginia:												
Charleston	0	0	------	0	5	0	5	0	0	0	0	------
Wheeling	0	0	------	0	1	0	3	0	1	0	0	------
North Carolina:												
Raleigh	0	0	------	0	-------	0	2	0	0	0	0	------
Wilmington	0	0	------	0	-------	0	1	0	0	0	0	------
Winston-Salem	0	0	------	0	-------	0	1	0	0	0	0	3
South Carolina:												
Charleston	0	0	46	1	3	0	4	0	0	0	0	5
Georgia:												
Atlanta	0	0	27	0	-------	0	4	0	1	0	0	------
Brunswick	0	0	------	0	2	0	0	0	0	0	0	------
Savannah	0	0	5	0	-------	0	0	0	2	0	0	1
Florida:												
Tampa	3	0	5	0	24	0	3	0	0	0	1	10
EAST SOUTH CENTRAL												
Tennessee:												
Memphis	0	0	------	0	26	0	8	0	8	0	1	11
Nashville	0	0	------	1	-------	0	3	0	1	0	0	------
Alabama:												
Birmingham	0	0	11	1	-------	1	9	1	0	0	0	2
Mobile	0	0	18	1	-------	0	2	0	0	0	0	------
WEST SOUTH CENTRAL												
Arkansas:												
Little Rock	0	0	7	0	-------	0	3	1	0	0	0	2
Louisiana:												
New Orleans	1	0	1	0	1	1	12	3	3	0	0	2
Shreveport	0	0	------	0	-------	0	1	0	0	0	0	------
Oklahoma:												
Oklahoma City	0	0	2	0	-------	0	3	0	2	0	0	1
Texas:												
Dallas	4	0	1	1	1	0	0	0	5	0	0	7
Galveston	0	0	------	0	-------	0	0	0	0	0	0	------
Houston	0	0	3	1	-------	0	12	0	0	0	0	------
San Antonio	1	0	3	2	-------	2	15	0	1	0	0	------
MOUNTAIN												
Montana:												
Billings	0	0	------	1	3	2	0	0	0	0	0	1
Great Falls	0	0	------	0	-------	0	2	0	1	0	0	------
Helena	0	0	------	0	-------	0	0	0	0	0	0	------
Missoula	0	0	------	0	-------	0	0	0	3	0	0	5
Idaho:												
Boise	0	0	------	0	-------	0	2	0	0	0	0	------
Colorado:												
Denver	2	0	6	0	49	0	4	0	6	0	0	28
Pueblo	1	0	------	0	-------	0	1	0	2	0	0	23
Utah:												
Salt Lake City	0	0	------	0	7	0	0	0	2	0	0	------
PACIFIC												
Washington:												
Seattle	0	0	------	0	4	0	7	2	19	0	0	15
Spokane	0	0	1	0	2	0	0	0	2	0	0	------
Tacoma	0	0	------	0	63	0	0	0	2	0	0	------
California:												
Los Angeles	0	0	254	12	28	1	4	0	18	0	0	8
San Francisco	0	0	49	0	146	0	5	0	9	0	0	12
Total	59	1	469	34	2,476	23	373	10	594	0	4	495
Corresponding week, 1947[1]	86	------	61	19	968	------	434	------	665	0	12	749
Average 1943-47[1]	77	------	745	[3] 45	[2] 2,393	------	[3] 491	------	1,099	1	10	666

[1] Exclusive of Oklahoma City. [2] 3-year average, 1945-47. [3] 5-year median, 1943-47.

Rates (annual basis) per 100,000 population, by geographic groups, for the 88 cities in the preceding table (latest available estimated population, 34,445,600)

	Diphtheria case rates	Encephalitis, infectious, case rates	Influenza		Measles case rates	Meningitis, meningococcus, case rates	Pneumonia death rates	Poliomyelitis case rates	Scarlet fever case rates	Smallpox case rates	Typhoid and paratyphoid fever case rates	Whooping cough case rates
			Case rates	Death rates								
New England	7.8	0.0	0.0	0.0	716	7.8	83.6	0.0	128	0.0	0.0	128
Middle Atlantic	7.9	0.5	3.2	1.4	242	2.3	47.7	0.9	87	0.0	0.9	48
East North Central	7.3	0.0	4.9	3.0	645	2.4	46.2	0.6	112	0.0	0.0	64
West North Central	18.1	0.0	28.2	8.0	380	2.0	62.3	0.0	95	0.0	0.0	107
South Atlantic	14.9	0.0	139.0	3.3	165	5.0	62.9	0.0	70	0.0	1.7	111
East South Central	0.0	0.0	171.2	17.7	153	5.9	129.8	5.9	53	0.0	5.9	77
West South Central	15.2	0.0	43.2	10.2	5	7.6	116.8	10.2	28	0.0	0.0	30
Mountain	23.8	0.0	47.7	7.9	469	15.9	71.5	0.0	111	0.0	0.0	453
Pacific	0.0	0.0	498.5	19.7	398	1.6	26.2	3.3	82	0 0	0.0	57
Total	9.0	0.2	71.2	5.2	376	3.5	56.6	1.5	90	0.0	0.6	75

Anthrax.—Cases: Boston 1; Philadelphia 1.
Dysentery, amebic.—Cases: New York 9; New Orleans 1; Los Angeles 1.
Dysentery, bacillary.—Cases: Providence 1; Philadelphia 1; Los Angeles 1.
Dysentery, unspecified.—Cases: Baltimore 4; San Antonio 2.
Typhus fever, endemic.—Cases: Tampa 3; New Orleans 2; Dallas 1.

TERRITORIES AND POSSESSIONS

Hawaii Territory

Plague (rodent).—According to information dated January 27, 1948, plague infection in rodents found in Hamakua District, Island of Hawaii, T. H., has been reported as follows: 1 rat found in District 12B in Hamakua Mill area; 1 rat found in District 2A in Kukuihaele area; 1 rat found in District 9A in Paauhau area; 1 mouse found in District 1A in Kukuihaele area.

Virgin Islands of the United States

Notifiable diseases—October—December 1947.—During the months of October, November, and December 1947, cases of certain notifiable diseases were reported in the Virgin Islands of the United States as follows:

Disease	October	November	December	Disease	October	November	December
Ascariasis	2			Mumps	14	43	26
Chickenpox	1			Paratyphoid fever	1		
Dysentery:				Pneumonia (all forms)		1	9
Amebic		1		Schistosomiasis	2		
Unspecified	1		2	Syphilis	24	7	14
Filariasis	4	3	1	Tetanus	2		1
Gonorrhea	10	13	8	Trichinosis		1	
Hookworm disease	8	3	5	Tuberculosis	2	1	5
Impetigo contagiosa			1	Typhoid fever		1	1

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended January 10, 1948.—Certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Chickenpox		49	2	156	504	44	55	174	152	1,136
Diphtheria			1	15	1			2	3	22
Dysentery, amebic				6	2					8
German measles				2	19	4		13	12	50
Influenza		12			3				4	19
Measles	6	2		572	811	7	6	35	61	1,500
Meningitis, meningococcus				1	1		1	1	1	5
Mumps		82		210	195	29	33	84	17	650
Poliomyelitis		1							4	5
Scarlet fever	5	7	17	71	97	3	4	9	14	227
Tuberculosis (all forms)		1	10	51	18	24	9	56		169
Typhoid and paratyphoid fever			1	9				1	2	13
Undulant fever				1				2	1	4
Venereal diseases:										
Gonorrhea	1	19	16	111	70	34	26	63	107	447
Syphilis	1	8	3	58	38	12	3	5	33	161
Other forms									2	2
Whooping cough		4		37	29	31	2	68	28	199

FINLAND

Notifiable diseases—November 1947.—During the month of November 1947, cases of certain notifiable diseases were reported in Finland as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	7	Paratyphoid fever	254
Diphtheria	495	Poliomyelitis	30
Dysentery	5	Scarlet fever	295
Gonorrhea	1,257	Syphilis	390
Malaria	3	Typhoid fever	41

JAPAN

Notifiable diseases—4 weeks ended December 27, 1947, and accumulated totals for the year to date.—For the 4 weeks ended December 27, 1947, and for the year to date, certain notifiable diseases were reported in Japan as follows:

Disease	4 weeks ended Dec. 27, 1947		Total reported for the year to date (52 weeks)	
	Cases	Deaths	Cases	Deaths
Diphtheria	1,963	226	28,345	2,393
Dysentery, unspecified	252	142	39,253	7,434
Encephalitis, Japanese "B"		0	[1] 252	[1] 131
Gonorrhea	14,570		211,097	
Influenza	[2] 154		[3] 3,040	
Malaria	261	1	11,802	24
Measles	[2] 2,053		[3] 464,895	
Meningitis, epidemic	93	29	3,370	1,101
Paratyphoid fever	192	7	4,721	267
Pneumonia	[2] 7,952		[4] 115,708	
Scarlet fever	181	4	2,633	61
Smallpox	1	0	391	38
Syphilis	11,880		147,022	
Tuberculosis	[2] 13,609		[3] 282,308	
Typhoid fever	651	92	17,776	2,231
Typhus fever	80	3	1,115	86
Whooping cough	[2] 2,243		[3] 128,298	

[1] Suspected; diagnosis confirmed in 7 cases.
[2] For 3 weeks; report for week ended Dec. 6, not received.
[3] For 51 weeks only.
[4] For the period Mar. 30 to Dec. 27, exclusive of the week ended Dec. 6.

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

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

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

Cholera

Indochina (French).—For the month of November 1947, 109 cases of cholera with 81 deaths were reported in French Indochina.

Plague

Madagascar.—For the period December 21–31, 1947, 28 cases of plague with 18 deaths were reported in Madagascar, including 21 cases with 12 deaths reported in Fianarantsoa, 1 fatal case in Tamatave, and 6 cases with 5 deaths reported in Tananarive.

Peru—Lima.—Information dated January 27, 1948, reports 1 confirmed case of plague in the city of Lima, Peru.

Siam (Thailand).—Plague infection has been reported in Siam as follows: Week ended January 3, 1948, 13 cases, 2 deaths; week ended January 17, 1948, 15 cases of plague with 1 death were reported in 3 towns in northeast Siam.

Smallpox

China—Shanghai.—For the week ended January 10, 1948, 78 cases of smallpox were reported in Shanghai, China.

Ecuador.—Smallpox has been reported in Ecuador as follows: For the month of December 1947, 557 cases with 13 deaths were reported in all of Ecuador. For the week ended January 17, 1948, 45 cases were reported in Quito and 25 cases (alastrim) with 2 deaths were reported in Guayaquil.

Honduras.—For the month of October 1947, 2 cases of smallpox were reported in Honduras.

Lebanon—Beirut.—For the week ended January 17, 1948, 15 cases of smallpox were reported in Beirut, Lebanon.

Libya—Tripolitania.—For the week ended January 10, 1948, 23 cases of smallpox were reported in Tripolitania, Libya.

Mexico—Mexico State.—For the week ended January 17, 1948, 47 cases of smallpox were reported in Mexico State, Mexico.

Venezuela—Maracaibo.—For the period January 2–12, 1948, 12 cases of smallpox were reported in Maracaibo, Venezuela. From the beginning of the outbreak in the last week of December 1947, up to January 12, 1948, a total of 75 cases of smallpox with 1 death were reported.

Yellow Fever

Colombia.—For the month of December 1947, 1 death from yellow fever was reported in La Dorado, Caldas Department, and 1 death from the same disease was reported in San Martin, Intendencia of Meta, Colombia.

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