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A STRAIN OF ENDEMIC TYPHUS FEVER ISOLATED FROM A FIELD MOUSE *

By GEORGE D. BRIGHAM, *Senior Medical Technician, United States Public Health Service*

In 1934, Baker, McAlpine, and Gill (*1*) reported that, in southern Alabama, endemic typhus had spread from the urban to the rural districts, and Rumreich (*2*) noted cases in the same section which developed under conditions which made the rat a "highly improbable causative factor." In view of these reports, studies were undertaken in Alabama to determine what species of native rodents were susceptible to typhus and might possibly serve as reservoirs of the virus. At the same time, work was inaugurated to recover the virus from animals, chiefly rodents, trapped on rural premises in typhus-infected districts.

We have previously reported on the susceptibility of various species of native rodents (*3*) (*4*), and in the present paper are able to report the recovery of endemic typhus virus from an old-field mouse (*Peromyscus polionotus polionotus*). This mouse was trapped on rural premises in the southeastern part of Alabama in the fall of 1936. Its brain was removed, and half of it was injected, intraperitoneally, into each of two guinea pigs.

Both guinea pigs showed a febrile reaction on the 6th day, and scrotal involvement on the 8th day after inoculation. By transfer of blood and testicular washings from one of these guinea pigs, the strain was established and has been maintained to date. This strain has been passed through 22 generations, 90 guinea pigs being used. Of these animals, 77 gave a typical clinical picture of uncomplicated typhus, 6 showed fever with slight scrotal involvement, and 2 showed fever only. Five died with intercurrent infections. A comparison between the stock Wilmington strain of endemic typhus and this wild-mouse strain shows the two to be similar in all respects.

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* Contribution from the Typhus Research Laboratory, Mobile, Ala.

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SUSCEPTIBILITY OF ANIMALS TO ENDEMIC TYPHUS FEVER*

By GEORGE D. BRIGHAM, *Senior Medical Technician, United States Public Health Service*

Several species of animals native to the United States have previously been reported as susceptible to endemic typhus—the woodchuck, meadow mouse, white-footed mouse, and opossum (*1*, *2*). To this list may now be added, three species of field mice, three species of native rats, and a species of flying squirrel. In addition, a cat was found susceptible, confirming earlier observations by Lépine (*3*), and nine raccoons were found insusceptible.[1] All of the animals used in these experiments were trapped in southern Alabama.

To determine the susceptibility of these animals, the same general procedure was used in all cases. Each animal was inoculated intraperitoneally with the testicular washings from a guinea pig at a routine transfer of the stock Wilmington strain of endemic typhus. After a period of time, the animal was killed, and the brain was removed and inoculated into guinea pigs. Each strain recovered was studied in a number of guinea pigs to identify it by its clinical reaction, brain lesions,[2] and cross immunity with a known typhus strain, and for the presence of rickettsia. Rabbits were inoculated for the production of agglutinins for *Proteus* OX19.

The strains of typhus recovered from the above animals showed no differences, when compared in guinea pigs, from the original Wilmington strain.

MICE

Three old-field mice (*Peromyscus polionotus polionotus*) were inoculated with endemic typhus. The virus was recovered from all three mice. One mouse appeared ill on the seventh day after inoculation and was killed on the tenth day. One was active until found dead on the twelfth day, and the third was killed on the thirteenth day because both hind legs were paralyzed at that time.

A cotton mouse (*Peromyscus gossypinus gossypinus*) and a golden mouse (*Peromyscus nuttalli aureolus*) were inoculated with endemic typhus virus. Neither of these animals showed any gross signs of infection, retaining their activity until killed. The cotton mouse

*Contribution from Typhus Research Laboratory, Mobile, Ala.
[1] All of the rodents were identified through the courtesy of the National Museum.
[2] All examinations were made by Dr. Lillie, National Institute of Health, Washington, D. C.

was killed 18 days and the golden mouse 14 days after inoculation. The virus was recovered from both mice.

RATS

One member of each of the following species of rats was inoculated with typhus: Wood rat (*Neotoma floridana rubida*), cotton rat (*Sigmodon hispidus hispidus*), and rice rat (*Oryzomys palustris palustris*). All of these rats were very active until killed. The wood and rice rats were killed 14 days and the cotton rat 18 days after inoculation. The virus was recovered from all rats.

FLYING SQUIRREL

A flying squirrel (*Glaucomys volans saturatus*) was injected with the virus. In this animal no sign of illness was observed. The virus was recovered from the brain 14 days after inoculation.

CAT

A kitten (*Felis domesticus*) was inoculated with the virus. Daily temperatures were recorded, and there developed on the 3d day after inoculation a febrile reaction which continued for 4 days. The cat showed signs of illness, with loss of appetite, on the 10th, 11th, and 12th days. The virus was recovered from the heart blood obtained on the 7th day and from the brain removed on the 14th day after inoculation.

RACCOON

A young raccoon (*Procyon lotor lotor*) weighing 1,230 grams was inoculated with the virus. Daily temperatures were recorded, with no febrile reactions obtained. The animal was always exceedingly active. No strain was recovered from the brain removed 14 days after inoculation. Previously, in Montgomery,[3] Ala., it had been found that eight raccoons of varying ages were not susceptible to endemic typhus.

SUMMARY

The following animals trapped in Alabama were found to be susceptible to the virus of endemic typhus fever: Oldfield mice, cotton mice, golden mice, cotton rats, rice rats, wood rats, flying squirrels, and cats. Raccoons were not found susceptible.

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STUDIES IN CHEMOTHERAPY

IV. COMPARATIVE STUDIES OF SULPHONAMIDE COMPOUNDS IN EXPERIMENTAL PNEUMOCOCCUS, STREPTOCOCCUS, AND MENINGOCOCCUS INFECTIONS [1]

By SANFORD M. ROSENTHAL, *Senior Pharmacologist;* HUGO BAUER, *Research Associate;* and SARA E. BRANHAM, *Senior Bacteriologist, National Institute of Health, United States Public Health Service*

In a previous communication para-aminobenzene sulphonamide was shown to exert a favorable influence on pneumococcus infections in mice (*1*). Experiments are herein reported on this compound in pneumococcus infections in rats and rabbits. Work is in progress to obtain more effective chemicals, and some comparative results with other compounds in pneumococcus, streptococcus, and meningococcus infections are also dealt with in the present paper.

PARA-AMINOBENZENE SULPHONAMIDE [2] IN PNEUMOCOCCUS INFECTIONS OF RATS AND RABBITS

For this purpose the same strains of pneumococci were employed that were used in mice; they were obtained from the Mulford Biological Laboratories. The type I strain was almost equally virulent for mices rats, and rabbits, thereby giving a basis for comparative results in the three species. The type III strain was also highly virulent for rats (10^{-5}) while the type II strain was of lowered virulence for rats (10^{-3}); in rabbits, types II and III strains were of a virulence too low to be used, and we have not yet attempted to increase their virulence by animal passage. In these experiments the dosage of organisms was adjusted so that 10 to 100 fatal doses were employed, as in the mouse experiments. The sulphanilamide was administered in doses near the maximum dose that could be tolerated without symptoms. For rats and rabbits this proved to be approximately half the dosage, on a basis of body weight, that could be used in mice. Therapy was given subcutaneously within 30 minutes after the animals had been inoculated intraperitoneally with 1 cc to 1.5 cc of diluted broth cultures of the organisms.

[1] From the Divisions of Pharmacology and Biologics Control.
[2] This compound will subsequently be referred to as sulphanilamide, the name adopted by the Council on Pharmacy and Chemistry of the American Medical Association. It can be obtained from Merck & Co., E. R. Squibb & Sons, Burroughs & Wellcome, and from the Winthrop Chemical Co. under the name Prontylin.

In rats the curative action of sulphanilamide was quite marked.[3] Seventy percent of the treated animals survived the type I infection, while 100 percent survived the type II and type III infections. With the exception of one animal (III) the survivors have remained permanently well (fig. 1). In these experiments upon rats the effectiveness of sulphanilamide compares favorably with the results obtained in streptococcal infections in other animals.

With type I infection the results in rabbits were closer to those obtained with mice. While there was uniform prolongation of life, only 25 percent of the animals survived as a result of therapy (fig. 2).

We have not yet obtained compounds more effective than sulphanilamide in pneumococcus infections. While we have a compound

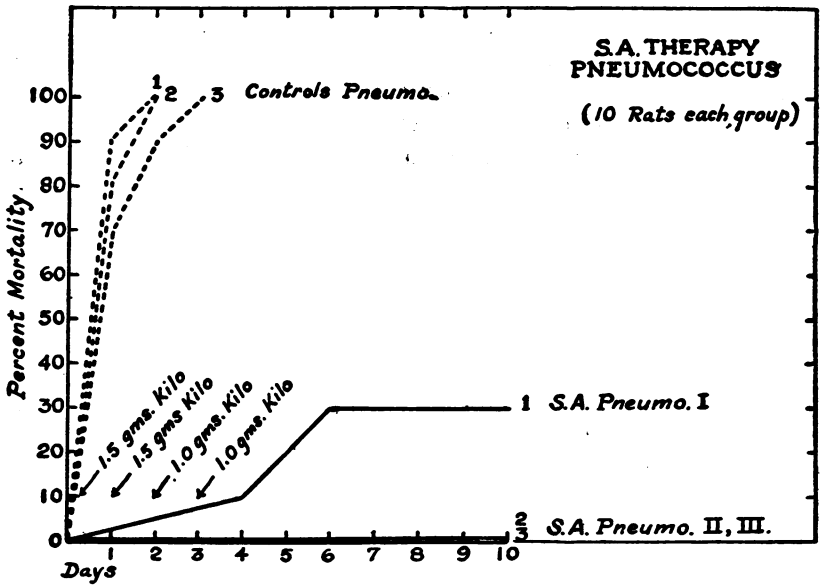


FIGURE 1.—The action of sulphanilamide in pneumococcus infections in rats. One cc of broth culture of Mulford type I pneumococcus, diluted 10^{-5}; type II, 10^{-2}; type III, 10^{-4}, intraperitoneally. Drug subcutaneously as indicated at arrows.

(di-sulphanilamide) with a better therapeutic index in streptococcus and meningococcus infections, this compound was less effective against pneumococci in rats and mice (fig. 3). Other compounds possessing little activity against pneumococci were also p-aminobenzene sulphonanilide, p-aminobenzene sulphonamide formaldehyde sulfoxylate, and p-benzyl aminobenzene sulphonamide. Other related compounds with little or no effect upon pneumococci have been reported in a previous communication (*1*).

[3] Since this was written, good results with type III pneumococcus in rats have been reported by Gross and Cooper. (Proc. Soc. Exp. Biol. and Med., 36 : 225 (1937)).

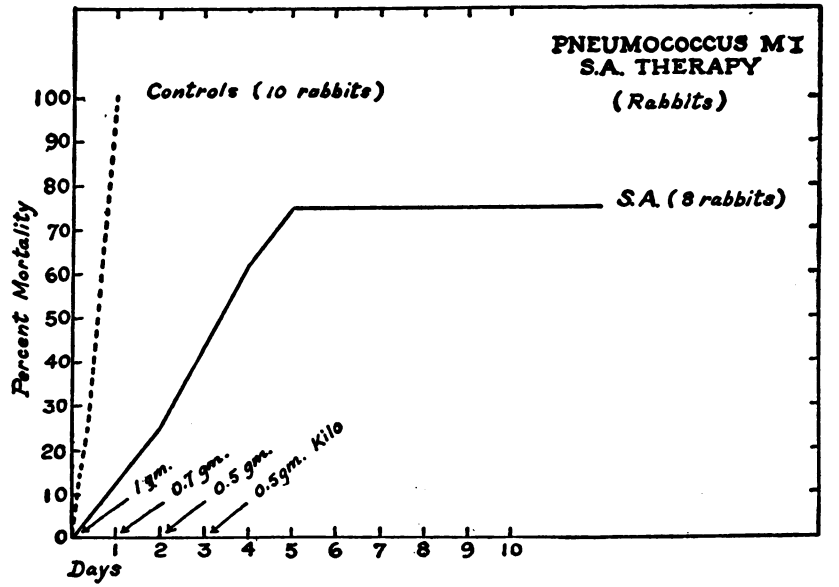


FIGURE 2.—Sulphanilamide therapy of type I pneumococcus in the rabbit. Infecting dose of organisms 1.5 cc of 10^{-4} intraperitoneally. Drug subcutaneously as indicated.

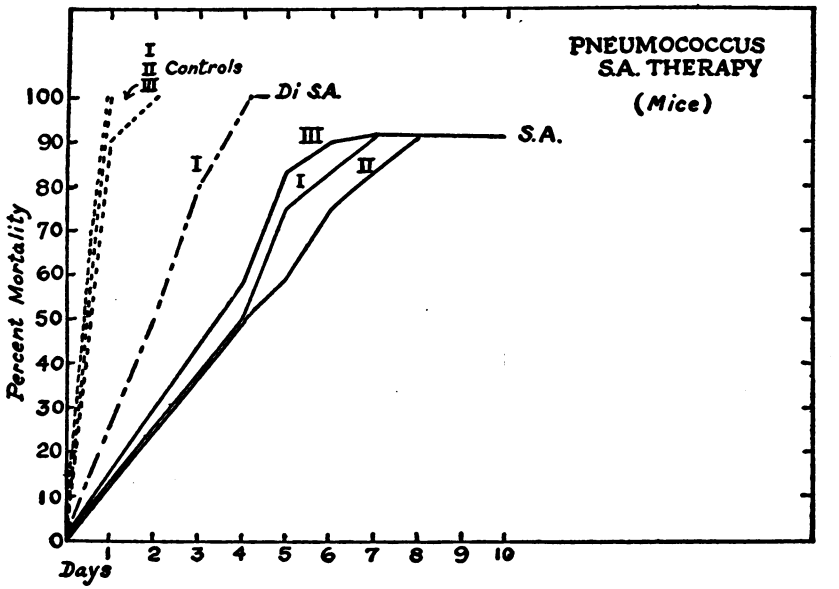


FIGURE 3.—Sulphanilamide and di-sulphanilamide therapy of pneumococcus infections (Mulford strains) in mice. Results with S. A. from a previous report (*1*). Di-S.A. given 4.0 gm per kilo 1st day, 2.0 gm per kilo 2nd and 3rd days (10 mice).

Chemical relationship of sulphonamide compounds employed.—These can be considered as substitution products of sulphanilamide, which is

(A) (B)

Compounds substituted at the free amino group (A) include:

p-aminobenzene sulphonamide formaldehyde sulphoxylate,[4] $SO_2NH_2C_6H_4.NHCH_2SO_2Na$

p-benzyl aminobenzene sulphonamide[5]. This compound was first prepared and studied by Goissedet and collaborators (*8*): $SO_2NH_2C_6H_4NHCH_2C_6H_5$.

Prontosil[6], 4-sulphonamide-2, 4′ diaminobenzene.

Prontosil soluble[6], 4-sulphonamide-phenyl-2-azo-7-acetylamino-1-hydroxy-naphthalene-3-6,-disulphonic acid.

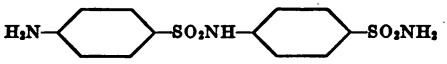
Compounds substituted at the sulphonamide radical (B) include:

p-aminobenzene sulphoneanilide, originally studied by Buttle, Gray and Stephenson (*4*): $H_2NC_6H_4SO_2NHC_6H_5$.

p-aminobenzene sulphonyl p-aminobenzene sulphonamide[3], which we have called di-sulphanilamide, is

$$NH_2C_6H_4SO_2NHC_6H_4SO_2NH_2.$$

This compound is prepared by condensing acetyl aminobenzene sulphonyl chloride with sulphanilamide, and subsequently deacetylating. The structural formula is



Di-sulphanilamide is of low solubility in cold water (0.01 percent) but much more soluble in hot water. The acetyl derivative of this compound was prepared by Fourneau and collaborators (*9*), who found it feebly active against streptococci. No previous work has been reported with the deacetylated compound.

COMPARATIVE RESULTS WITH SULPHONAMIDE COMPOUNDS IN STREPTOCOCCAL INFECTIONS

Comparison was made against streptococcal infections in mice with Prontosil, Prontosil Soluble, sulphanilamide, and new compounds which we have prepared. Mice were injected subcutaneously

[4] New compounds, prepared for the first time by Dr. Bauer.
[5] Obtained from Merck & Co.
[6] Obtained from Winthrop Chemical Co.

with aqueous solutions of Prontosil Soluble and with suspensions in olive oil of the other compounds. The strain of streptococcus was one isolated from erysipelas and was highly virulent for mice. The intraperitoneal injection of 0.5 cc of an 18-hour broth culture diluted 10^{-9} killed the majority of animals within 48 hours. Approximately 1,000 fatal doses were employed (10^{-6}), and treatment by subcutaneous injection was begun within one-half hour after infection.

With 0.5 gram per kilo of sulphanilamide repeated daily for 3 days, 80 percent of survivors were obtained. With 0.25 gram per kilo inferior results were secured. Prontosil and Prontosil Soluble were administered on a molar basis so that the same quantity of sulphona-

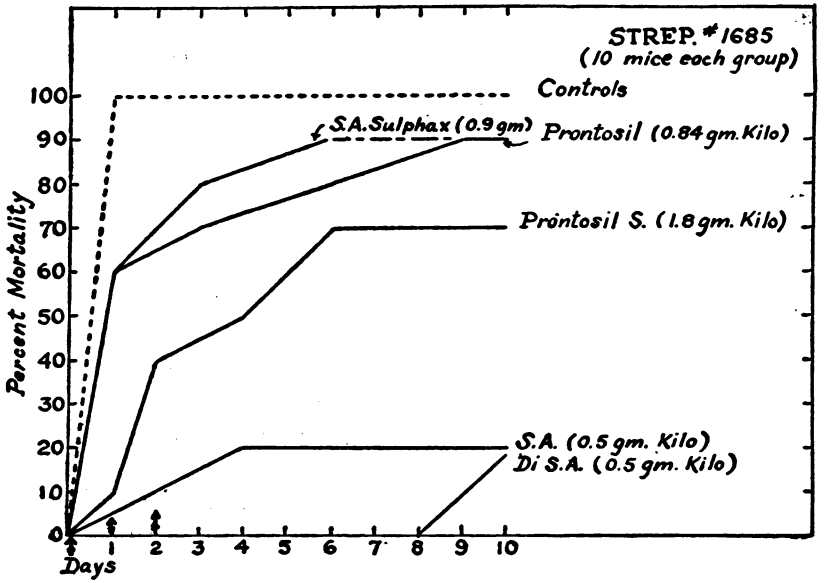


FIGURE 4.—Comparison of sulphonamide compounds in streptococcal infection in mice. Dosage is shown on chart and time of subcutaneous injection is indicated by arrows.

mide radical was injected. With Prontosil (0.84 gram per kilo) and with p-aminobenzene sulphonamide formaldehyde sulphoxylate (0.9 gram per kilo) there were 10 percent of survivors; with Prontosil Soluble (1.8 gram per kilo) there were 30 percent of survivors. With di-sulphanilamide, half of the molar amount was used (0.5 gram per kilo) and 80 percent of the mice survived (fig. 4). With 0.25 gram per kilo inferior results were secured.

Toxicity experiments in mice showed the maximum dose of sulphanilamide that could be tolerated without symptoms, when injected in oil or given by mouth, to be 1.5 gram per kilo. (Some mice develop ataxia and spasticity with this dosage.) Similar experiments with di-sulphanilamide revealed that no symptoms were produced with 8 grams per kilo (table 1). This compound therefore possesses a thera-

peutic index at least 5 times as favorable as sulphanilamide. This applied only to subcutaneous injection; for, upon oral administration, di-sulphanilamide was less effective than sulphanilamide against streptococci (fig. 5). Di-sulphanilamide is of low solubility, and poor absorption from the alimentary canal may account for its lowered activity by mouth.[7]

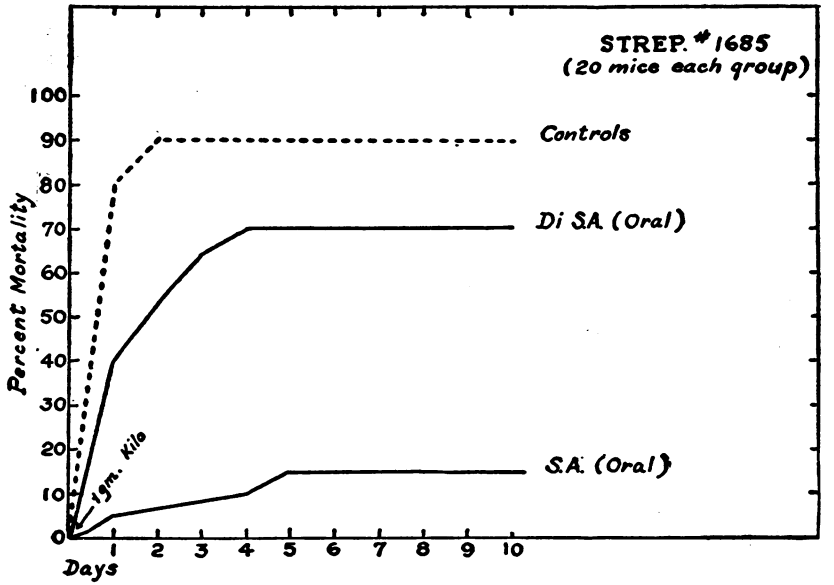


FIGURE 5.—The effectiveness of di-sulphanilamide is decreased when administered by mouth.

TABLE 1.—*Toxicity in mice following single subcutaneous injections in olive oil of sulphanilamide and di-sulphanilamide (10 mice in each group, with the exception of the lowest dosage, where frequent observations were made upon mice under treatment)*

Dosage	Sulphanilamide	Di-sulphanilamide
Grams per kilo:		
1.5	Spasticity, ataxia (occasional)	No symptoms.
3.0	Spasticity, ataxia, convulsions, 10 percent mortality	Do.
4.0	Spasticity, ataxia, convulsions, 40 percent mortality	Do.
6.0	75 percent mortality	Do.
8.0		Do.

We have conducted some experiments on the excretion of Prontosil Soluble in rabbits. This compound is excreted with great rapidity, and we were able to recover from 85 to 95 percent in the urine within 5 hours after intramuscular or intravenous injection (fig. 6). From 4 to 8 percent was recovered within 2 hours from the bile of rabbits. This rapid excretion is disadvantageous to chemotherapeutic action, since effective concentrations are not maintained in the body for any length of time. Indeed, if it is true as suggested by Fuller (*2*) and by

[7] Work is in progress to obtain more soluble derivatives.

Long and Bliss (*3*) that this drug, to be chemotherapeutically active, must be reduced in the body to liberate the sulphanilamide radical, then a surprisingly small percentage of the amount injected is retained in the body to be so activated. However, the excretion of so much of this compound in unchanged form suggests that some of the therapeutic activity may reside in the intact molecule.

It occurred to us that if Prontosil Soluble were administered orally, excretion would be delayed and a greater part of this drug would be reduced in the alimentary canal and in the body, so that more of the active component would be liberated. This was borne out in two series of experiments on mice infected with streptococci. Identical doses of Prontosil Soluble given orally and subcutaneously showed the

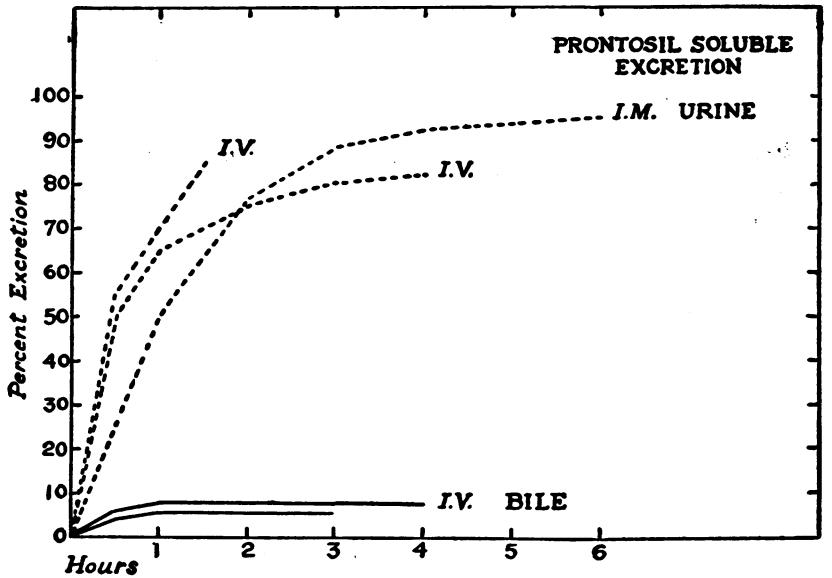


FIGURE 6.—The excretion of Prontosil Soluble in the urine and bile of rabbits. One cc and 2 cc injected intravenously (i. v.) and 2 cc injected intramuscularly (i. m.), 2.5 percent solution.

drug to be more effective on oral administration than when injected (fig. 7).

p-aminobenzene sulphonanilide was reported by Buttle, Gray, and Stephenson (*4*) to be as active as sulphanilamide against streptococci. We have found it to be approximately half as active by weight, which means that, on a molar basis, their effectiveness would be quite similar.

SULPHONAMIDE COMPOUNDS IN MENINGOCOCCUS INFECTIONS IN MICE

The curative action of sulphanilamide in meningococcus infections in mice was first reported by Buttle, Gray, and Stephenson (*4*), and their findings were elaborated upon by Proom (*5*). Curative results

were obtained by them against as many as a million lethal doses of meningococci when therapy was instituted immediately after infection. We have obtained similar results, and work is in progress on the effect of this compound upon various types of meningococci, as well as on the relative merits of serum and drug therapy. In the present paper comparative results will be given for various sulphonamide compounds which we have studied. The meningococci used in these studies were recently isolated strains of high virulence, and the size of the dose given was determined in preliminary tests.

Mice infected with such strains become severely ill in a very short time, and the majority of deaths in untreated animals occur within 24 hours. The course of meningococcus infection in mice has been

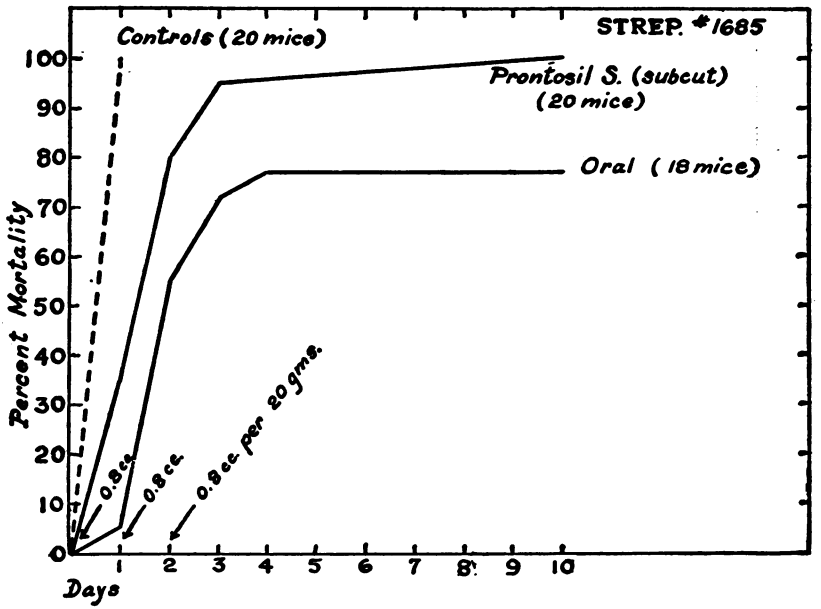


FIGURE 7.—Prontosil Soluble is more effective by mouth than subcutaneously in streptococcal infections in mice. The same dosage used in both cases, at intervals indicated on chart.

accurately described by Miller (*6*). Very few animals die if they can survive the infection 48 hours. For the present study, only one injection of drug was employed, given within one-half hour after intraperitoneal inoculation of the organisms suspended in mucin, following the technique of Miller (*6*, *7*). While this amount of therapy does not represent maximum curative results, it was satisfactory for comparison of different drugs. All drugs were administered subcutaneously and were suspended in olive oil, with the exception of those which were water-soluble (Prontosil Soluble and p-aminobenzene sulphonamide formaldehyde sulphoxylate).

Results obtained were similar to those obtained with streptococci. The greatest percentage of survivors occurred following disulphanil-

amide therapy (fig. 8). In a group of three experiments in which a total of 40 mice were given 0.5 gram per kilo of di-sulphanilamide the average mortality was 10 percent. In the same experiments among 40 mice receiving 0.5 gram per kilo of sulphanilamide the mortality was 30 percent. (Two of the experiments are shown in fig. 8.)

Under the conditions of these experiments the maximum results with sulphanilamide were obtained with dosages between 0.5 and 1.0 gram per kilo. The animals were so acutely ill as a result of the inoculation of meningococci that larger doses of this drug caused frequent deaths.

Less favorable results were obtained with Prontosil and Prontosil Soluble, even though the former was employed on a molar ratio (0.84

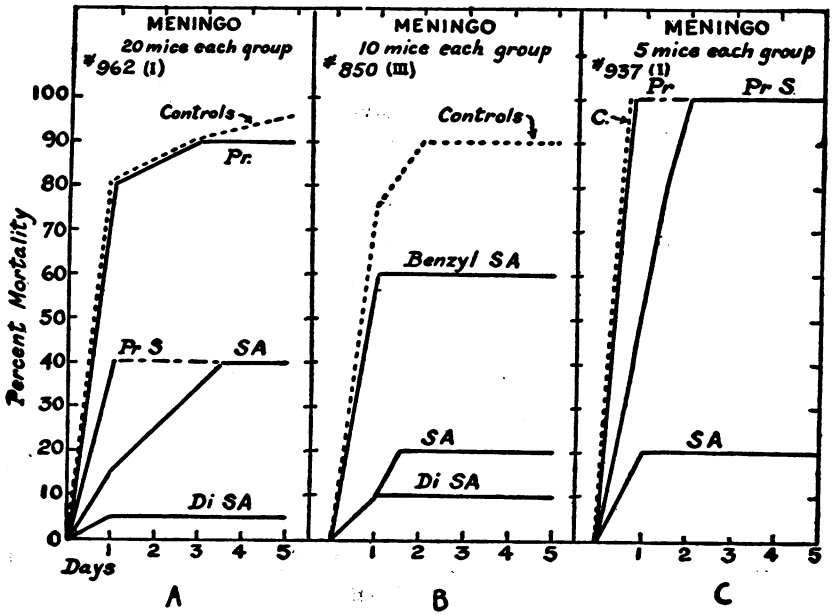


FIGURE 8.—Comparison of sulphonamide compounds upon meningococcal infections in mice. Therapy consisted of one injection of drugs within one-half hour after infection. Dosages were as follows: (A) 0.5 gm per kilo for S. A. and Di-S. A.; 0.84 gm per kilo for Prontosil; 1.25 gm per kilo for Prontosil Soluble. (B) 0.5 gm per kilo in each case. (C) S. A. and Prontosil Soluble, 1.25 gm per kilo. Prontosil, 2 gm per kilo.

gram per kilo). Prontosil Soluble was available only as 2.5 percent solution and so the maximum volume injectable into a mouse at one time (1.0 cc, 1.25 gram per kilo) was used (fig. 8).

Benzyl p-aminobenzene sulphonamide (0.5 gram per kilo) gave a fair percentage of cures, although inferior to sulphanilamide and di-sulphanilamide. This compound is also of low toxicity, 6 grams per kilo producing no symptoms when injected subcutaneously in oil into mice. p-aminobenzene sulphonamide formaldehyde sulphoxylate and p-aminobenzene sulphonanilide were of inferior activity against meningococci

SUMMARY

Upon the same strains of pneumococci, sulphanilamide was much more effective in rats than in mice and rabbits. Up to the present time no other compounds have been found as effective against pneumococcus infections as sulphanilamide.

A new compound has been prepared, di-sulphanilamide, which, on subcutaneous administration, was slightly more effective against streptococcic infections in mice, while at the same time its acute toxicity is less than one-fifth as great as that of sulphanilamide. Prontosil, Prontosil Soluble, and other compounds were less effective.

Prontosil Soluble was more effective by mouth than by subcutaneous administration, owing to its rapid excretion in the urine when injected parenterally.

Upon meningococcic infections in mice, di-sulphanilamide administered subcutaneously was more effective than sulphanilamide. Prontosil, Prontosil Soluble, and other derivatives were found less effective.

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AIRPLANE COMPANY INSTITUTES MEASURES AGAINST YELLOW FEVER

In the fight against communicable diseases it frequently happens that control measures are developed which are entirely adequate for the time being, but later new conditions arise which make additional protective measures necessary.

Before it was known that yellow fever was transmitted by the mosquito, this country was subjected to frightful ravages by this disease, some of which occurred less than half a century ago. After the epoch-making investigations and discoveries by Dr. Walter Reed and other medical officers of the United States Army, later confirmed and amplified by other workers in this country and abroad, and the subsequent application of their contributions to the knowledge of the epidemiology of the infection, yellow fever became a vanishing disease and was soon entirely eliminated from North America and from the ports of the entire Western Hemisphere. However, with the presence

of jungle yellow fever in South America, the possibility of an animal reservoir and of the existence of yet unknown vectors of the disease in nature, and with the quick passage of airplanes from South American countries where this type of yellow fever persists, the possibility of the reintroduction of the disease into North America becomes something of more than mere academic interest.

A note was recently published in the PUBLIC HEALTH REPORTS [1] showing that in 24 of 69 inspections of airplanes arriving at Miami, Fla., from South American ports, 53 insects were captured and 1 escaped. In 7 of these 24 inspections, 13 mosquitoes were found. While no yellow-fever mosquitoes (*Aëdes aegypti*) were discovered, the possibility of their importation is evident.

Under date of April 21, 1937, Medical Director J. D. Long, of the Public Health Service, reports that the Pan American Airways, Inc., has instituted the following control measures:

1. All flying personnel not already vaccinated against yellow fever will be vaccinated here in Rio de Janeiro at the Rockefeller laboratory. This will be begun at once, and will be finished as soon as may be possible. The flying personnel will include aviators, radio operators, flying mechanics, pursers, stewards, etc.

2. Beginning May 1, 1937, cards will be filled out for all passengers which will show where they have been or have resided for the six (6) days just prior to embarking en route to the United States. These cards will be attached to the passenger list of the airplane and will be available to the Quarantine Officer on arrival at destination.

With such cooperation, the Public Health Service may pursue its efforts to eliminate this new hazard with every prospect of success and without unduly restricting the utilization of our newest and fastest means of transportation.

STANDARDIZATION OF ANTIPNEUMOCOCCUS HORSE SERA AND CONCENTRATES

A report [2] on the standardization of antipneumococcus sera and concentrates recently issued by the Public Health Service, includes the description of a modified mouse-protection test, of an in-vitro combining equivalent technique, and a report of the findings of unit value in the United States control serum P11 and the British dried standard sera for types I and II.

Reliable and reproducible results may be obtained in the mouse-protection test for assay of type I and type II antipneumococcus sera under the following conditions: When the test employs dilutions of both culture and antibody which lie in the zone in which the law of

[1] Apr. 2, 1937, p. 414.

[2] By Lloyd D. Felton and H. J. Stahl. National Institute of Health Bulletin No. 169. Government Printing Office, Washington, D. C., 1937.

multiple proportions is valid; when culture dose is standardized against 0.5 unit of antibody; when the mice used are of uniform resistance; and when the unknown serum is tested in comparison with 0.5 unit of a standardized control serum.

An in-vitro method of assay, a "combining equivalent" test, is based on the principle of measuring the amount of antibody which actually combines with the soluble specific substance. This method was briefly described in the Public Health Reports for December 6, 1935. This test shows a high degree of correlation with the mouse-protection test described; i. e., in 62 samples, the correlation coefficient, r, = 0.94 for type I and 0.91 for type II sera.

By comparison with serum F146 in 1933, the National Institute control serum P11 was found to contain, by mouse-protection method, 300 type-I and 131 type-II units per cc; by neutralization method, 333 type-I and 150 type-II units per cc; by the combining equivalent method, 322 type-I and 150 type-II units per cc; and by Heidelberger's method, 308 type-I and 150 type-II units per cc.

In 1935 a comparison of serum F146 and the dried British standards with Lyo–P11 demonstrated a deterioration of serum F146, and gave the following unit content of the British sera: Mouse-protection method, 1,150 type-I and 750 type-II units; combining equivalent method, 1,177 type-I and 720 type-II units; and by Heidelberger's method, 949 type-I and 426 type II-units per cc.

DEATHS DURING WEEK ENDED MAY 1, 1937

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

	Week ended May 1, 1937	Corresponding week, 1936
Data from 86 large cities of the United States:		
Total deaths	8,859	9,480
Average for 3 prior years	8,977	
Total deaths, first 17 weeks of year	169,289	165,103
Deaths under 1 year of age	504	582
Average for 3 prior years	620	
Deaths under 1 year of age, first 17 weeks of year	10,427	10,011
Data from industrial insurance companies:		
Policies in force	69,704,534	68,511,026
Number of death claims	14,151	14,293
Death claims per 1,000 policies in force, annual rate	10.6	10.9
Death claims per 1,000 policies, first 17 weeks of year, annual rate	11.4	11.0

PREVALENCE OF DISEASE

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

UNITED STATES

CURRENT WEEKLY STATE REPORTS

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

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 8, 1937, and May 9, 1936

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 8, 1937	Week ended May 9, 1936	Week ended May 8, 1937	Week ended May 9, 1936	Week ended May 8, 1937	Week ended May 9, 1936	Week ended May 8, 1937	Week ended May 9, 1936
New England States:								
Maine	1	1	-------	3	28	134	0	0
New Hampshire	-------	-------	-------	-------	81	82	0	0
Vermont	1	1	-------	-------	-------	545	0	0
Massachusetts	6	7	-------	-------	683	1,407	12	7
Rhode Island	1	-------	-------	-------	218	76	3	3
Connecticut	6	6	1	3	373	249	0	5
Middle Atlantic States:								
New York	41	73	[1] 7	[1] 8	1,507	3,892	9	25
New Jersey	7	9	10	14	1,989	567	3	8
Pennsylvania	34	21	-------	-------	1,135	1,114	9	9
East North Central States:								
Ohio	9	20	11	65	1,015	333	5	9
Indiana	3	6	16	40	771	23	1	10
Illinois	27	25	39	54	274	43	7	9
Michigan	8	5	3	5	169	113	3	3
Wisconsin	3	1	68	37	23	130	0	2
West North Central States:								
Minnesota	3	1	2	2	15	456	4	2
Iowa	2	7	6	31	2	3	0	3
Missouri	4	16	65	207	12	41	0	8
North Dakota	-------	-------	2	18	-------	-------	0	0
South Dakota	1	-------	-------	-------	2	4	1	0
Nebraska	-------	2	-------	-------	76	20	2	0
Kansas	2	10	4	48	27	22	2	2
South Atlantic States:								
Delaware	-------	1	-------	-------	61	19	0	0
Maryland [2]	13	2	12	12	550	429	6	10
District of Columbia	5	16	-------	1	103	187	1	1
Virginia [2]	18	18	-------	147	490	256	9	11
West Virginia	9	8	21	27	58	76	9	7
North Carolina	8	19	31	28	152	43	4	8
South Carolina	3	6	211	142	55	76	1	4
Georgia [4]	3	4	-------	-------	-------	-------	2	2
Florida	3	3	-------	8	14	29	1	4
East South Central States:								
Kentucky	5	9	16	101	445	27	7	9
Tennessee	14	6	80	160	84	29	7	7
Alabama [4]	6	13	174	123	25	16	10	1
Mississippi [3]	3	5	-------	-------	-------	-------	5	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 8, 1937, and May 9, 1936—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 8, 1937	Week ended May 9, 1936	Week ended May 8, 1937	Week ended May 9, 1936	Week ended May 8, 1937	Week ended May 9, 1936	Week ended May 8, 1937	Week ended May 9, 1936
West South Central States:								
Arkansas	3	6	66	169	2	1	0	0
Louisiana	14	11	16	310	6	63	1	2
Oklahoma [3]	12	5	74	247	79	26	4	1
Texas [4]	57	28	365	498	1,070	450	5	4
Mountain States:								
Montana	1	6	----	2	27	----	0	1
Idaho [3]	----	----	3	6	24	11	0	0
Wyoming [3]	----	2	----	----	4	2	0	0
Colorado [3]	5	3	----	----	17	26	0	1
New Mexico	3	2	----	26	111	38	1	1
Arizona	1	1	32	35	169	116	0	1
Utah [3]	----	----	----	----	29	12	0	2
Pacific States:								
Washington	2	1	1	3	47	330	3	2
Oregon [3]	----	2	25	14	6	138	0	0
California [4]	48	23	50	163	265	1,914	1	9
Total	395	411	1,411	2,757	12,293	13,568	138	193
First 18 weeks of year	8,872	9,870	268,019	130,929	140,252	178,185	2,996	4,385

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 8, 1937	Week ended May 9, 1936	Week ended May 8, 1937	Week ended May 9, 1936	Week ended May 8, 1937	Week ended May 9, 1936	Week ended May 8, 1937	Week ended May 9, 1936
New England States:								
Maine	0	0	20	9	0	0	1	3
New Hampshire	0	0	17	13	0	0	0	1
Vermont	0	0	13	5	0	0	0	0
Massachusetts	1	2	256	246	0	0	2	1
Rhode Island	0	0	62	19	0	0	0	0
Connecticut	0	0	159	40	0	0	0	2
Middle Atlantic States:								
New York	1	1	979	904	0	0	7	12
New Jersey	0	1	188	328	0	0	1	0
Pennsylvania	0	2	894	381	0	0	6	16
East North Central States:								
Ohio	0	0	255	288	0	0	6	4
Indiana	0	0	150	180	23	4	1	0
Illinois	1	0	618	575	19	18	2	6
Michigan	0	1	709	283	3	0	0	4
Wisconsin	0	1	296	546	3	6	0	0
West North Central States:								
Minnesota	0	1	132	314	25	7	0	2
Iowa	0	0	189	203	26	62	1	4
Missouri	0	0	192	205	25	1	8	1
North Dakota	0	0	15	63	33	8	3	0
South Dakota	0	0	46	16	1	19	0	0
Nebraska	0	0	68	101	4	21	0	0
Kansas	0	0	244	296	15	38	2	1
South Atlantic States:								
Delaware	0	0	9	3	0	0	0	0
Maryland [3]	0	0	53	46	0	0	1	2
District of Columbia	0	0	13	17	0	0	0	1
Virginia [3]	0	1	13	49	0	0	5	0
West Virginia	0	0	46	32	0	0	1	4
North Carolina	1	2	31	23	0	0	0	3
South Carolina	0	0	2	4	0	0	2	3
Georgia [4]	0	0	8	7	0	0	5	9
Florida	0	0	10	7	0	0	0	5

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 8, 1937, and May 9, 1936—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 8, 1937	Week ended May 9, 1936	Week ended May 8, 1937	Week ended May 9, 1936	Week ended May 8, 1937	Week ended May 9, 1936	Week ended May 8, 1937	Week ended May 9, 1936
East South Central States:								
Kentucky	0	0	45	23	0	1	4	4
Tennessee	1	0	23	20	0	0	3	3
Alabama [4]	1	0	4	6	2	0	0	3
Mississippi [3]	3	0	6	6	1	0	0	2
West South Central States:								
Arkansas	2	0	10	8	0	0	2	1
Louisiana	1	0	22	3	0	1	9	5
Oklahoma [5]	3	0	36	36	2	0	1	2
Texas [4]	0	3	128	65	6	2	19	3
Mountain States:								
Montana	0	1	17	66	10	11	2	0
Idaho [3]	0	1	22	23	6	3	1	0
Wyoming [3]	0	0	18	77	4	24	0	0
Colorado [3]	0	0	29	87	14	24	0	0
New Mexico	0	0	29	52	0	0	4	1
Arizona	0	1	11	23	0	0	3	0
Utah [3]	0	0	4	41	0	4	0	0
Pacific States:								
Washington	1	0	34	73	8	9	3	3
Oregon [3]	0	0	39	21	10	8	0	5
California [4]	5	4	174	271	12	1	5	13
Total	21	22	6,338	6,104	252	272	110	129
First 18 weeks of year	393	292	23,493	138,597	5,737	4,056	1,990	1,958

[1] New York City only.
[2] Week ended earlier than Saturday.
[3] Rocky Mountain spotted fever, week ended May 8, 1937, 18 cases, as follows: Virginia, 1; Idaho, 3; Wyoming, 9; Colorado, 2; Oregon, 3.
[4] Typhus fever, week ended May 8, 1937, 37 cases, as follows: Georgia, 17; Alabama, 5; Texas, 14; California, 1.
[5] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

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

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
March 1937										
Idaho	-------	1	34	-------	95	-------	1	112	7	1
April 1937										
Arkansas	3	10	334	60	7	22	0	35	14	7
Connecticut	7	12	40	-------	2,803	-------	1	691	0	2
District of Columbia	10	47	6	-------	403	-------	1	63	0	4
Missouri	11	98	485	14	202	1	-------	1,908	292	6
New Mexico	2	10	7	1	415	1	3	130	0	11
Pennsylvania	51	167	-------	-------	3,819	-------	1	3,469	0	27
West Virginia	25	43	244	-------	303	-------	6	226	1	10

Summary of monthly reports from States

March 1937

	Cases
Idaho:	
Chicken pox	86
Conjunctivitis	3
Encephalitis, epidemic or lethargic	1
German measles	10
Mumps	78
Septic sore throat	4
Undulant fever	1
Whooping cough	42

April 1937

	Cases
Chicken pox:	
Arkansas	71
Connecticut	877
District of Columbia	153
Missouri	302
New Mexico	102
Pennsylvania	4,482
West Virginia	145
Conjunctivitis:	
Connecticut	13
Dysentery:	
Arkansas (amoebic)	1
Connecticut (amoebic)	1
Connecticut (bacillary)	3
Missouri	3
New Mexico (amoebic)	1
New Mexico (bacillary)	1
Pennsylvania (bacillary)	1

April 1937—Continued

	Cases
Encephalitis, epidemic or lethargic:	
Connecticut	1
District of Columbia	1
Missouri	1
New Mexico	1
Pennsylvania	1
German measles:	
Connecticut	127
New Mexico	5
Pennsylvania	468
Hookworm disease:	
Arkansas	1
Lead poisoning:	
Connecticut	1
Mumps:	
Arkansas	24
Connecticut	649
Missouri	134
New Mexico	46
Pennsylvania	3,136
West Virginia	71
Ophthalmia neonatorum:	
Arkansas	2
Connecticut	2
Missouri	1
New Mexico	7
Pennsylvania	2
Paratyphoid fever:	
Connecticut	1
New Mexico	1

April 1937—Continued

	Cases
Rabies in animals:	
Connecticut	10
Missouri	2
New Mexico	3
West Virginia	2
Septic sore throat:	
Connecticut	44
Missouri	60
New Mexico	13
Tetanus:	
Missouri	1
Trachoma:	
Pennsylvania	3
Trichinosis:	
Connecticut	3
Pennsylvania	3
Tularaemia:	
Arkansas	2
Undulant fever:	
Arkansas	2
Connecticut	3
District of Columbia	1
Missouri	3
New Mexico	1
Pennsylvania	3
Whooping cough:	
Arkansas	44
Connecticut	254
District of Columbia	47
Missouri	607
New Mexico	111
Pennsylvania	1,952
West Virginia	331

PLAGUE INFECTION FOUND IN FLEAS TAKEN FROM GROUND SQUIRRELS IN OREGON

According to a communication dated May 7, 1937, from Senior Surgeon C. R. Eskey, plague infection was proved on that date, by animal inoculation, in a lot of 56 fleas taken from Oregon ground squirrels (*Citellus oregonus*) shot 14 miles north of Lakeview, Lake County, Oreg., on April 28, 1937.

WEEKLY REPORTS FROM CITIES

City reports for week ended May 1, 1937

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Data for 90 cities:											
5-year average	207	209	68	7,726	747	2,504	23	437	28	1,516	----
Current week [1]	143	116	69	4,171	691	2,558	47	406	17	1,427	----
Maine:											
Portland	0	----	0	0	1	3	0	0	0	5	20
New Hampshire:											
Concord	0	----	0	0	0	0	0	0	0	0	8
Nashua	0	----	----	2	----	0	0	----	0	0	9
Vermont:											
Barre	0	----	0	0	0	0	0	2	0	0	4
Burlington	0	----	0	0	0	0	0	0	0	1	10
Rutland	1	----	0	3	0	2	0	0	0	4	9
Massachusetts:											
Boston	2	----	0	41	34	61	0	13	0	50	250
Fall River	1	----	1	31	1	3	0	1	0	4	33
Springfield	0	----	0	2	1	7	0	0	0	10	40
Worcester	0	----	0	34	5	7	0	5	0	25	58
Rhode Island:											
Pawtucket	0	----	0	0	0	0	0	0	0	0	21
Providence	0	----	0	160	4	35	0	3	1	47	70
Connecticut:											
Bridgeport	0	1	1	3	5	60	0	0	0	0	35
Hartford	0	----	0	21	2	7	0	1	0	1	49
New Haven	0	1	0	4	0	11	0	0	0	0	46
New York:											
Buffalo	0	----	3	114	13	10	0	12	0	37	170
New York	41	13	6	623	133	490	0	89	6	54	1,575
Rochester	0	1	0	3	8	2	0	1	0	14	77
Syracuse	1	----	0	26	2	34	0	0	0	33	53
New Jersey:											
Camden	0	----	1	2	4	5	0	0	0	3	37
Newark	0	1	1	354	7	14	0	5	0	15	93
Trenton	0	----	0	1	1	9	0	1	0	2	33
Pennsylvania:											
Philadelphia	7	2	0	49	38	261	0	16	1	33	507
Pittsburgh	1	7	6	91	27	51	0	8	0	19	169
Reading	0	----	1	417	2	13	0	1	0	3	43
Scranton	0	----	----	0	----	19	0	----	0	1	----
Ohio:											
Cincinnati	0	----	2	262	12	15	0	10	1	9	159
Cleveland	5	16	3	317	21	103	0	14	0	40	216
Columbus	0	----	0	9	4	7	0	4	0	27	94
Toledo	0	3	1	234	7	10	0	5	0	36	75
Indiana:											
Anderson	0	----	1	10	0	11	0	0	0	0	9
Fort Wayne	0	----	0	1	1	2	0	2	0	2	18
Indianapolis	2	----	3	242	11	45	0	4	0	41	105
South Bend	1	----	0	5	2	2	0	0	0	0	18
Terre Haute	1	----	0	0	0	3	2	0	0	1	17
Illinois:											
Alton	0	----	0	0	0	11	0	0	0	0	11
Chicago	10	13	5	84	44	268	0	36	0	73	672
Elgin	0	----	0	0	0	0	0	0	0	5	6
Moline	0	----	0	0	3	1	0	1	0	8	15
Springfield	0	----	0	0	4	3	0	0	0	2	20
Michigan:											
Detroit	7	----	3	21	32	373	0	20	2	94	291
Flint	1	----	0	0	10	12	0	0	0	1	34
Grand Rapids	0	----	0	78	1	12	0	0	0	42	35
Wisconsin:											
Kenosha	0	----	0	0	0	2	0	0	0	0	6
Madison	0	----	0	0	0	13	0	2	0	8	24
Milwaukee	0	2	2	3	5	81	0	3	0	16	112
Racine	0	----	0	1	1	9	0	0	0	2	19
Superior	0	----	0	0	1	3	0	0	0	8	10

[1] Figures for Helena, Mont., estimated; report not received.

City reports for week ended May 1, 1937—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Minnesota:											
Duluth	0	------	0	1	4	14	0	1	0	9	35
Minneapolis	1	------	1	2	8	32	0	1	0	34	111
St. Paul	0	------	0	1	12	13	0	1	0	110	56
Iowa:											
Cedar Rapids	0	------	--------	0	-------	2	0	-------	0	1	--------
Davenport	0	------	--------	0	-------	1	0	-------	0	0	-------
Des Moines	0	------	--------	1	-------	38	1	-------	0	4	33
Sioux City	0	------	--------	0	-------	9	0	-------	0	0	--------
Waterloo	0	------	--------	0	-------	6	0	-------	1	4	--------
Missouri:											
Kansas City	0	2	2	0	13	57	0	8	0	12	117
St. Joseph	0	------	0	0	3	22	18	0	0	1	28
St. Louis	3	------	1	10	15	190	0	9	1	66	256
North Dakota:											
Fargo	0	------	0	0	0	0	2	1	0	0	6
Grand Forks	0	------	0	0	0	0	0	0	0	0	1
Minot	0	------	0	0	0	0	1	0	0	0	3
South Dakota:											
Aberdeen	1	------	--------	0	-------	4	0	-------	0	0	--------
Sioux Falls	0	------	0	0	0	6	0	0	0	0	8
Nebraska: Omaha	0	------	0	0	7	10	9	1	0	7	64
Kansas:											
Lawrence	0	------	0	0	0	4	0	0	0	0	3
Topeka	0	------	2	1	1	8	0	0	0	3	29
Wichita	0	------	0	34	3	6	1	1	0	19	33
Delaware:											
Wilmington	0	------	0	6	5	1	0	1	0	1	30
Maryland:											
Baltimore	4	2	0	363	22	17	0	9	1	76	226
Cumberland	0	------	0	0	0	0	0	0	0	1	16
Frederick	0	------	0	8	0	0	0	0	0	0	3
Dist. of Col.:											
Washington	11	2	2	75	10	12	0	11	0	16	163
Virginia:											
Lynchburg	2	------	1	4	5	0	0	0	0	12	13
Norfolk	0	------	0	7	4	2	0	1	0	13	19
Richmond	0	------	4	6	0	3	0	1	0	1	58
Roanoke	0	------	0	252	1	0	0	1	0	0	19
West Virginia:											
Charleston	0	------	0	0	3	4	0	2	0	0	20
Huntington	2	------	--------	2	-------	2	0	-------	0	0	-------
Wheeling	0	------	0	1	0	1	0	0	0	9	21
North Carolina:											
Gastonia	0	------	--------	0	-------	0	0	-------	0	1	--------
Raleigh	0	------	0	1	1	0	0	1	0	0	17
Wilmington	0	------	0	0	1	0	0	0	0	2	14
Winston-Salem	0	------	0	2	2	6	0	0	0	2	13
South Carolina:											
Charleston	0	10	0	0	6	1	0	0	0	0	26
Florence	0	------	0	1	2	0	0	0	0	0	10
Greenville	0	------	0	1	1	0	0	1	0	6	13
Georgia:											
Atlanta	0	8	3	1	7	3	0	7	0	1	98
Brunswick	0	------	0	1	0	0	0	0	0	0	1
Savannah	1	9	0	0	-------	1	-------	3	-------	3	31
Florida:											
Miami	0	2	1	0	0	0	0	4	0	0	35
Tampa	1	------	0	4	3	2	0	0	0	5	22
Kentucky:											
Covington	0	------	1	24	3	1	0	0	0	2	15
Lexington	0	------	0	1	2	0	0	2	0	15	21
Louisville	0	3	0	24	5	15	0	5	0	46	96
Tennessee:											
Knoxville	0	------	0	1	4	0	0	2	0	0	40
Memphis	2	------	2	32	7	3	0	11	0	42	89
Nashville	0	------	1	6	5	4	0	2	0	6	59
Alabama:											
Birmingham	2	12	4	3	10	0	0	5	0	5	65
Mobile	0	1	1	0	3	3	0	0	0	0	27
Montgomery	0	4	--------	0	-------	0	0	-------	0	0	--------
Arkansas:											
Fort Smith	0	------	--------	1	-------	1	0	-------	0	1	--------
Little Rock	0	------	0	0	1	4	0	2	0	0	4
Louisiana:											
Lake Charles	0	------	0	0	1	0	0	0	0	0	4
New Orleans	7	------	3	2	13	15	0	11	1	20	143
Shreveport	0	------	0	0	1	0	0	0	0	0	44

City reports for week ended May 1, 1937—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Oklahoma:											
Muskogee	1			0		0	0		0	0	
Oklahoma City	1		1	0	14	5	0	0	0	2	40
Tulsa	0			3		5	0		0	7	
Texas:											
Dallas	3		0	197	5	6	0	4	0	47	62
Fort Worth	0		0	28	2	7	0	3	0	8	32
Galveston	1		0	0	1	1	0	0	0	0	15
Houston	6		2	0	15	4	0	4	1	0	91
San Antonio	1		0	8	8	0	0	10	0	1	67
Montana:											
Billings	0		0	0	0	0	0	0	0	0	9
Great Falls	0		0	0	0	1	0	0	0	3	6
Missoula	0		0	0	0	0	1	0	0	0	4
Idaho:											
Boise	0		0	0	0	1	0	0	1	0	8
Colorado:											
Colorado Springs	0		0	0	4	2	0	0	0	0	13
Denver	1		0	16	7	15	0	4	0	31	74
Pueblo	0		0	0	0	0	0	0	0	1	11
New Mexico:											
Albuquerque	0		0	5	1	4	0	3	1	0	8
Utah:											
Salt Lake City	0		0	18	4	10	0	7	0	14	44
Washington:											
Seattle	1		1	3	3	2	0	5	0	42	86
Spokane	0		0	27	6	10	4	0	0	2	45
Tacoma	0		0	0	1	2	1	1	0	1	31
Oregon:											
Portland	0	3	1	5	7	21	1	1	0	13	71
Salem	0			0		0	0		0	0	
California:											
Los Angeles	13	9	1	42	22	29	9	15	1	82	312
Sacramento	0		0	39	1	3	0	6	0	5	26
San Francisco	3	1	0	3	9	15	0	9	0	22	149

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Massachusetts:			
Boston	1	0	0
New York:			
New York	11	2	0
Newark	3	0	0
Pennsylvania:			
Philadelphia	1	0	0
Pittsburgh	3	2	0
Ohio:			
Cincinnati	4	3	0
Cleveland	1	1	0
Toledo	1	0	0
Illinois:			
Chicago	4	0	0
Michigan:			
Detroit	1	0	0
Missouri:			
Kansas City	2	1	0
St. Louis	1	0	0
Kansas:			
Lawrence	1	1	0
Maryland:			
Baltimore	1	0	0
District of Columbia:			
Washington	1	1	0
West Virginia:			
Wheeling	1	0	0
North Carolina:			
Wilmington	8	0	0
Georgia:			
Atlanta	1	0	0
Florida:			
Miami	0	1	0
Kentucky:			
Louisville	2	1	0
Tennessee:			
Knoxville	1	1	0
Memphis	0	1	0
Nashville	1	0	0
Alabama:			
Birmingham	5	2	0
Mobile	0	1	0
Louisiana:			
Shreveport	0	2	0
Texas:			
Dallas	1	1	0
Houston	1	0	0
Colorado:			
Pueblo	0	1	0
Washington:			
Spokane	1	0	0
Oregon:			
Portland	1	1	0
California:			
Los Angeles	1	0	2
San Francisco	1	0	2

Encephalitis, epidemic or lethargic.—Cases: New York, 2.
Pellagra.—Cases: Wilmington, N. C., 1; Charleston, S. C., 2; Atlanta, 1; Savannah, 4; Birmingham, 1; San Francisco, 1.
Typhus fever.—Cases: New York, 1; Atlanta, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended April 24, 1937.—During the 2 weeks ended April 24, 1937, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada, as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis				2	1		1			4
Chicken pox				285	656	41	30	8	73	1,093
Diphtheria		5	39	28	21	4	1		3	101
Dysentery				2	3					5
Erysipelas				17	13	6	7	5	2	50
Influenza	1	22		547	488	39	50		87	1,234
Lethargic encephalitis					1					1
Measles		79	18	757	787	220	366	90	425	2,802
Mumps		3	35		776	25	22	35	56	952
Paratyphoid fever		1			3					4
Pneumonia	10	3			48		16		25	102
Poliomyelitis				1						1
Scarlet fever	1	20	10	128	287	50	74	100	35	705
Trachoma							5			5
Tuberculosis	4	18	15	116	137	30	3	3	23	349
Typhoid fever			5	10	5		4			24
Undulant fever					4	1				5
Whooping cough		12		313	296	53	54	3	16	747

GERMANY

Vital statistics—1936.—The following table shows the number of marriages, births, and deaths in Germany during the year 1936:

	Number	Rate per 1,000 population		Number	Rate per 1,000 population
Marriages	611,114	9.1	Total deaths	796,971	11.8
Live births	1,279,025	19.0	Deaths under 1 year of age	84,073	[1] 6.6
Stillbirths	33,320				

[1] Per 100 live births.

PANAMA CANAL ZONE

Notifiable diseases—January–March 1937.—During the months of January, February, and March 1937, certain notifiable diseases, including imported cases, were reported in the Panama Canal Zone and terminal cities as follows:

Disease	January		February		March	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chicken pox	3		4		5	
Diphtheria	24	1	15	1	19	
Dysentery (amoebic)	11	1	5	1	11	2
Dysentery (bacillary)	12	6	13	10	10	
Leprosy	1	1				
Malaria	98	4	120	2	140	1
Measles	205	1	122		63	2
Mumps	78		32		43	
Pneumonia		49		22		19
Poliomyelitis			1			
Relapsing fever	1		1		1	
Scarlet fever			1			
Tuberculosis		32		31		34
Typhoid fever	4				2	
Whooping cough	9	1	2		6	

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

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for Apr. 30, 1937, pages 571–585. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued May 28, 1937, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Plague

Brazil.—During the month of February 1937, plague was reported in Brazil as follows: Parahyba State, 1 case; Pernambuco State, 2 cases, 1 death.

Hawaii Territory—Island of Hawaii—Hamakua District—Paauhau Sector.—A rat found on May 10, 1937, in Paauhau Sector, Hamakua District, Island of Hawaii, Hawaii Territory, has been proved plague-infected.

Peru.—During the month of March 1937, plague was reported in Peru as follows: Cajamarca Department, 1 case; Libertad Department, 12 cases, 6 deaths; Lima Department, 1 case, 1 death; Piura Department, 14 cases, 1 death.

Senegal—Tivaouane.—On April 27, 1937, 1 case of plague was reported in Tivaouane, Senegal.

United States—Oregon.—A report of plague infection in fleas taken from ground squirrels in Lake County, Oregon, appears on page 677 of this issue of PUBLIC HEALTH REPORTS.

Smallpox

Honduras—Puerto Castilla.—During the week ended April 17, 1937, 1 case of smallpox was reported in Puerto Castilla, Honduras.

Yellow Fever

Brazil.—Yellow fever has been reported in Brazil as follows: Matto Grosso State, Maracaju, February 25, 1 case, March 1, 1 case; Tres Lagoas, March 26, 1 death. Minas Geraes State, Campo Bello, March 21, 1 death (first appearance); March 29, 1 death; Lavras, April 5, 1 death; Muzambinho, March 28, 1 death (first appearance); S. Joao del Rey, March 30, 1 death (first appearance), April 5, 1 death; Tres Pontas, March 13, 1 death.

Senegal—Fatick.—On May 6, 1937, 1 case of yellow fever was reported in Fatick, Senegal.