Plague Surveys by State Health Departments

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Although the U. S. Public Health Service deserves a large share of the credit for initiating and maintaining surveys in the search for wild rodent plague foci, it has not been responsible for all of the field or laboratory accomplishments in this country. Of the 15 known-infected Western States, 9 have conducted their own surveys at one time or another, and 2 have carried out their own laboratory procedures. The Public Health Service has done the laboratory work for the other seven. The known infected States are Arizona, California,** Colorado,*** Idaho,*** Kansas, Montana,*** Nevada, New Mexico,*** North Dakota, Oklahoma, Oregon,*** Texas,** Utah,*** Washington,*** and Wyoming. Without the able assistance provided by the nine States which conducted surveys, the present knowledge about plague foci in wild rodents would be far less complete than it is.

The California Department of Public Health has maintained an active interest in wild rodent plague since 1910, shortly after the discovery of the first wild rodent plague focus in Contra Costa County in the summer of 1908. At first, California was concerned primarily in assisting with squirrel destruction. In 1914, the State legislature appropriated $100,000.00 to aid in the control of plague in squirrels. On February 1, 1936, the Public Health Service transferred all its plague control activities in California to the California Department of Public Health and proceeded to concentrate its own efforts on the search for wild rodent plague foci in other Western States. Since 1936, California has maintained its own survey units and has performed all of the laboratory procedures necessary to carry out the diagnosis of plague on the suspected specimens obtained. It is appropriate that California, with the greatest number of human and rodent infections, should have undertaken and continued this interest in plague.

Until 1934, plague apparently was limited to the wild rodents of the State of California only. In that year, the death of a sheepherder in Lake County, Oreg., served notice that California was not the only State involved. In fairly rapid succession, plague foci were demonstrated in 14 other Western States. During the period between 1935 and 1951 inclusive, the Public Health Service, with the assistance of the 9 State health departments, has demonstrated that plague did exist in these 15 States (table 1).

Table 1

PLAGUE FINDINGS IN 15 STATES

State	Year first found	Number of counties
Arizona	1938	3
California	1908	35
Colorado	1941	8
Idaho	1936	7
Kansas	1945	6
Montana	1935	7
Nevada	1936	6
New Mexico	1938	20
North Dakota	1941	1
Oklahoma	1944	2
Oregon	1935	10
Texas	1946	6
Utah	1936	8
Washington	1937	10
Wyoming	1936	10
		Total 139

Following the realization in 1934 that plague-infected wild rodents no longer were confined to California, the Public Health Service shifted its attention from that State to others. In 1935, plague foci were demonstrated in Oregon and Montana, and in 1936, in Idaho, Nevada, Utah, and Wyoming. The interest of certain State health departments was aroused and as a result they undertook to conduct surveys of their own territories.

In April 1936, the Washington State Department of Health began its own survey work, even before it was known that wild rodent plague existed in the State. It has maintained these surveys continuously since that time, and has made important contri-

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butions to the knowledge of plague, particularly in the matter of the importance of the pigmy vole (*Lagurus curtatus*) as a reservoir host.

In June 1936, the Idaho Department of Public Health initiated its own survey unit which operated until July 1938. It was reactivated during 1941 and 1942.

The Oregon State Board of Health began its plague surveys in August 1936. These have continued to the present time.

In April 1937, the Utah State Department of Health organized a survey unit which continued working until July 1938.

The Montana State Board of Health initiated plague surveys in May 1937. These were continued until 1946.

Three States have carried on plague surveys with financial assistance from the Communicable Disease Center. In 1946, following the first demonstration of wild rodent plague in Texas, the Texas State Department of Health and the Communicable Disease Center set up a plague study headquartered at Brownsfield. This study continued until July 1, 1949. During 1948 and 1949, plague surveys were conducted in Colorado and Utah as a joint effort of the Communicable Disease Center and the health departments of those States.

In 1949, New Mexico experienced the first of six human cases of plague. To date, plague has been found in 20 of the 31 counties. Except for California, New Mexico has reported the largest number of human cases of plague, the largest number of wild rodent plague foci, and the largest number of counties involved. For these reasons, the New Mexico Department of Public Health, in cooperation with the Western Communicable Disease Center Laboratory, has been operating its own survey unit since 1950.

It is somewhat surprising, at first glance, to note that so many of the western State health departments have actively participated in these plague surveys for such a long time. The actual number of human infections from wild rodent sources has been small in relation to other more important causes of human diseases. Yet plague still remains a potential threat of unknown proportions. There are indications that it can still cause deaths in spite of the remarkable efficacy of antibiotics in its treatment, and no one knows when another epidemic may start. For these reasons, it is hoped that Western States will continue their support of plague surveys within their boundaries.

Serologic Titers in Rickettsial Infection as Affected by a Course of Antibiotics

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The question of what effect antibiotics have upon the Weil-Felix and complement fixation titers in rickettsial infections has concerned laboratory workers for some time. Although numerous studies have been made on the subject, the data as a rule have been reported as parts of other studies. Such information was compiled and is presented here.

In 1945 Rose, Duane, and Fischel (1) studied the treatment of Rocky Mountain spotted fever with para-aminobenzoic acid. Although treatment was started early in the disease (third day of onset), serologic specimens taken at regular intervals showed a rise in titer which reached 1:1280. Sadusk, Hjerpe, and Freedman (2) studied the effect of para-aminobenzoic acid upon the clinical course of typhus in the guinea pig. Administration of para-aminobenzoic acid to guinea pigs infected with murine typhus generally prevents the appearance of clinical signs of this infection but permits appearance of rickettsia in the circulating blood and the formation of complement-fixing antibodies. Complement-fixing antibodies and rickettsemia develop in a comparable degree in both treated and untreated control animals at about the same time. The rise in titer