

**A REPORT**

**ON**

**STATE PUBLIC HEALTH WORK**

**BASED ON**

**A SURVEY OF STATE BOARDS OF HEALTH**

**BY**

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The Council on Health and Public Instruction presents herewith the report of Dr. Charles V. Chapin, special representative of the Council on public health organization in the United States. In the fall of 1913 Dr. Chapin was selected by the council as special representative and directed to make a comprehensive study of the activities, equipment and accomplishments of the various State. Boards of Health. This work, carried on at intervals with his duties as Commissioner of Health of Providence, R.I. occupied the entire twelve months of 1914 and the early part of 1915. The compilation of his report, its consideration by the Council and its completion and verification required another six months. While the survey on which this report was based was made in 1914, the report was brought completely up to date before publication.

The object of the Council in having such a survey made and such a report prepared and the relation of this work to the general plans of the Council can best be made clear by the outline of those plans and purposes which appeared in the report of the Council to the House of Delegates at the Atlantic City Session in 1914.

“The plans of the Council have now developed to a point where a comprehensive program can be outlined, which will embrace all of the present and future activities of the Council and will show clearly their relation to each other, their relative importance and the order in which they can be taken up. In outlining such a program, the Council assumes that its primary object is to place before the profession and the public of the United States the objects, purposes and work of the organized medical profession, as represented by the American Medical Association and its constituents and component branches, and to place Association and its efforts before the public in such a way as to secure public support and endorsement for our efforts for the improvement of public health conditions in the United States.

“Careful study of the present situation leads to the conclusion that a rational program must include three general lines of action.

These are:

1. A thorough investigation of present public health conditions in the United States, with a view to securing more accurate information on all phases of the public health problem than is now available.
2. Education of the public by every possible means in order that the people may understand the enormous advances in scientific medical knowledge during the last generation and the possibility of utilizing such knowledge in the prevention of disease, the reduction of the death-rate and the prolongation of human life.
3. The crystallizing of such educated public sentiment in necessary public health laws, regulations and ordinances, which will render possible a conservation of human life commensurate with our advancing knowledge and which will render such laws effective through the only force available in this country, namely, educated and enlightened public opinion.”

Under the first head, namely, the investigation of the present public health situation, the Council emphasized the need for further knowledge in four main subjects, namely:

1. The need of a survey of the public health activities of the federal government in all its departments with a view to determining exactly what the federal government is doing for public health.

2. A similar survey of state public health activities.
3. A comprehensive survey of municipal public health work.
4. The collection of data on the work being done by voluntary public health organizations.

Under the second head the report continues:

"There is today, in every state in the Union, some form of public health organization. Owing to our form of government, each of these organizations is working independently. As the reports of the various activities and a tabulation of the results secured by their efforts is difficult. It is therefore, practically impossible today to summarize the public health work which is being done by the different state boards of health, to compare one with another or to establish any standard by which their relative merits may be determined. The first necessity for such a comparative study of state public health activities is clearly a collection of authoritative, official data on the subject. Realizing the importance of this field of investigation, the Council has given the subject careful consideration and has been fortunate in securing the assistance of one of the leading public health authorities of the country in carrying on a study of state public health work. Beginning Jan. 1, 1914, Dr. Charles V. Chapin, Commissioner of Health of Providence, R.I., was appointed as special representative of the Council and directed to make a comparative study of the activities, equipment and accomplishments of the various State Boards of Health. During the past five months, in accordance with the plans formulated by Dr. Chapin and the Council, he has been visiting the various state boards, from time to time, and making a personal study of their condition. He plans to complete this study during the present year. The results of his observations will be presented in the form of a report on state public health work."

The publication and distribution of this report completes the first effort that has been made to carry on a comprehensive and comparative survey of the public health work of the various states and to undertake some kind of comparative rating of the work -being done in the different states. The object of the Council in undertaking such a task is not in any sense due to a desire to be either critical or dictatorial, but rather to present in tabulated form the essential facts regarding state public health work as viewed by a recognized expert on this subject. It is hoped that the discussions of state public health work and the comparative tables will be of service to state boards of health and especially to executive secretaries of state boards of health in presenting to governors, legislators and legislative committees a clear statement of the facts regarding public health work in each state; that the rating sheet may be of value in pointing out the weak points in each state, by the strengthening of which the relative standing of the state may be raised; and that the collection and publication of the facts contained in the report may be of some service in increasing the effectiveness of state public health work.

## **A SURVEY OF STATE PUBLIC HEALTH WORK**

To the Council on Health and Public Instruction of the American Medical Association:—

The following pages are the report of a brief survey of the principal public health activities of the different states, made in accordance with your request and suggestions. It might be expected that a fair idea could be obtained from an examination of the laws of each state and of the reports and other literature issued by the department of health. It is true that a great deal of the information here contained has been obtained from these sources, but, unfortunately, there are very few health departments which publish well arranged, clearly written and well analyzed accounts of their work. A day or two of conference with the officials of the department affords a better knowledge of local conditions than any amount of study of printed material. The Council, therefore, wisely decided that each state health office should be visited.

It was the desire of the Council to learn what is being done in the different states for the promotion of public health and in particular what is being done by the state department of health. An earnest desire was also expressed that the states should be grouped, or arranged, in accordance with the volume and effectiveness of their health work and that a score card should if possible be made for this purpose. The report, therefore, is naturally divided into three parts; first, a summary of the conditions and needs of each state; second, a review of the health activities, of the states; third, a score card rating.

The summaries are intended to show at a glance the principal accomplishments in health protection in the different states and what now seems necessary to be further done to better conditions. It sometimes happens that in a state which at present does very little, few recommendations are made, for it seems better to insist on the first essentials only, as too radical changes are likely to invite failure. On the other hand, in a state which has already made some progress, many things suggest themselves which seem almost within reach of the department and which could be secured with a little more effort. The second portion of the report with its tables deals with the activities of state departments of health. The space given to each subject corresponds in a general way to the space which it occupies in the actual work of the departments rather than to its real importance in preventive medicine. The tables are designed to show in a more convenient form the organization and some of the principal lines of work in each state.

A review of state health work .at first causes a feeling of discouragement. There is so much to be done and so little to do with, there are so many technical problems to be solved and there are so many difficulties outside of the health department, in the way of efficient administration, that one fears that it will be a long time before the dreams of the enthusiasts come true. Nevertheless, a great deal has been accomplished in many states. Progress in public health work is accelerating and there is much to inspire a hope that it will be still more rapid in the future. To have vastly improved public water supplies, to have made the diagnostic laboratory accessible to all physicians, to have supplied sera and vaccines to those who need them, to have rapidly initiated, or improved means for recording vital statistics, to have developed comprehensive plans of public health education, stand to the credit of many states during the last few years. Two years ago West Virginia expended only \$2,500 on public health. There was no water control, no laboratories, no distribution of antitoxin, no vital statistics, nor anything else. If her neighbors on the east and west be compared with her, one is encouraged with the progress they have made. Doubtless the health officials in Pennsylvania and Ohio find so much that ought to be done that they are often discouraged but when it is remembered

that it is not so very many years ago that not much more was done in these, and in fact in most states, than was done in West Virginia in 1913, there is certainly great hope for the future.

The purpose of this report is rather to discover lines along which progress is most needed than is to point out success already attained. A review of public health conditions in the states today indicates that by far the greatest hindrance to progress is the terrible incubus of politics. It seems incredible that the citizens of an otherwise progressive state are perfectly content to see their health officers elected with no regard for fitness or training, but simply because they, or their friends, were helpful to the political party which was successful at the last election. Of course, it is not only in the health office that the evils of politics are felt, but nowhere else are the results so deadly. Until the people in such politics-ridden communities experience a moral and intellectual revival and insist that their governors select men for office because they are qualified for it, it seems useless to talk about sanitary reform.

It is perfectly true that it is by no means easy to find men who are properly qualified to take the position of state commissioner of health. Such men should have a thorough scientific education, should have seriously studied public health problems and should have had practical experience in public health work. Under present conditions there is, in most states, little to encourage a man to prepare himself for the position, or to accept it if it were offered to him. If he proves deaf to the spoilsman, he will be hampered in his work and he will lose his place on the first political upheaval. Run through the states and note how very few men were appointed because they were public health experts. It is true that a number who were not such when appointed have since become leaders, but it is an expensive and dangerous experiment for a state to try to educate its high officials after it has placed them in office.

The health activities of the states are too often the result of haphazard growth rather than well conceived plan. Some of the work is forced on the department from without. Politicians order work which will make a place for a friend. Persistent reformers get undue recognition for a cause, good, but not all important. The untrained health officer follows, not leads, and he often follows the wrong lead. The untrained man cannot initiate, so he copies. It is not easy to reorganize an illogical department and there are few able to do it, yet it is what is greatly needed in many states. Appropriations are never large enough to accomplish all that should be done. The money should be spent where it will do the most good. A wise apportionment of funds and activities along lines which will result in the greatest reduction in sickness and death is a necessary preface to the most efficient health administration. There are indications that more good planning can be expected in the future. This is recently illustrated by the divisions in the New York health department provided by statute and by the divisions of the Massachusetts department formed by the commissioner.

A review of the public health activities of the last fifteen or twenty years brings forcibly to mind the fact that sanitary science is still largely in the experimental stage. Many fundamental principles of profound importance have been established which will stand, but an immense number of subsidiary problems have of necessity arisen and wait for solution. If so many of the problems of the science remain to be worked out it cannot be expected that the sanitary laws and the organization of the health branch of the government can at once be fitted into a rigid mold. Ten years ago a hookworm campaign

was unheard of, intensive work in typhoid fever was unknown, attention was focused on the sanatorium to combat tuberculosis, the milk station was the one means of reducing infant mortality, the first tuberculosis exhibit had just been held, pasteurized milk was frowned on by physicians and health officers. All of these matters are looked at very differently today. The hookworm campaign, in its original form, is over and has left those engaged with less certain ideas as to the best means of control. In the prevention of typhoid fever interest has shifted from the city water supply to the rural privy. The sanatorium is now given its proper place in tuberculosis work and more attention is given to the advanced case, the dispensary and the nurse. It is known that the personal guidance of the mother does more for the baby than does merely the furnishing of good milk. Methods of milk control are steadily changing. The plan of aggressive public health education was scarcely thought of ten years ago. It is now considered the corner stone of prevention. The organization of the health department, too, is changing. The old shotgun methods of doing a little of everything, and nothing effectively, are becoming obsolete. Definite lines of effective work are planned. Bureaus, or divisions, in the department have become necessary in all the larger states. The former scheme of an executive board has been found to work badly. A single executive is needed. Today we are told that he should be appointed by the governor. Tomorrow there may be some other plan. Some would have a legislative board with unlimited power and in some states such have been established. In other states the courts have decided that this could not be done. Local health organization will probably, differ in county and township states. The peculiar problems of the South may require another type.

This state of flux in the science and art of preventive medicine, renders standardization difficult and undesirable except along a few limited lines. The principles of good registration are so well established that we can well have a "model" vital statistics law and standard forms. Even here conformity should not be too strongly insisted on, or there can be no progress. We are just beginning to learn how to control the communicable diseases, how to attack the tuberculosis problem and how to preserve infant life. To crystallize present day views by standardization would check experiment, and every science advances only by experiment. It is nature's plan to encourage variation and to select the best. There are those who believe that the variations in the organic world do not occur haphazard but proceed along certain lines only. It is fortunate that the nation consists of forty-eight commonwealths in which different experiments can be tried. It is well, however, that these should not be made blindly. If experiments are not to be costly and futile it is necessary to know what others have done and what are the results. A most essential preliminary to progress is for some central agency, as the American Medical Association, for instance, to collect and publish data as to what has been done, indicating if possible what lines of endeavor and what forms of organization give promise of the best results.

There are certain lines of state health work which have been shown by experience to be effective and practicable. Many of the conditions and for their successful prosecution have also been provisionally determined. It is difficult to indicate numerically their relative importance though it appears that some are more important than others. The organization of the department, the collection of vital statistics, the diagnostic laboratory and systematic education are all necessary, though their value cannot be measured in terms of sickness prevented, or lives saved. The control of water

and sewage disposal is a profitable field of effort and its value, in part at least, can be measured in deaths prevented. Some of the methods are so well established that they may even be standardized. The control of communicable disease, using the term in its broadest sense, must at the present be the most important and extensive of the state health department's activities. Each disease should have its due share of attention. One disease should not be neglected for another. It is just as important to prevent malaria as it is hookworm infection. A life saved from typhoid fever is just as much saved as one saved from tuberculosis. It is just as desirable to prevent deaths from measles as from smallpox. Every state health department should have a carefully planned and well balanced scheme for its communicable disease work. The diagnostic laboratory, the use of sera and vaccines and, to some extent, the direction and improvement of local health officials are only means for controlling these diseases. Every disease must be considered by itself.

We know perfectly well how to control some, others we know little about.

Thus the control of the venereal diseases, so-called, is in the very first experimental stage. It is scarcely known where to begin. The last thing has not been said in regard to the prevention of tuberculosis but enough is known to warrant doing much more than is done.

The prevention of infant mortality is one of the most profitable lines of local health work. Effective means are well known, as are also the means by which the state health department can stimulate local effort. This again is an activity the efficiency of which can be easily measured. The importance of protecting the health of school children is very great. Effective methods are well established. That they are largely under the direction of school officials instead of health officials is due, in part at least, to the apathy of the latter. That the state health department can do much to stimulate local action is certain, and that in most states it does little, is also certain.

The proper protection of urban milk supplies is extremely difficult. We really do not know accurately what are the requisites for a safe milk. The technical difficulties in the way of improving milk are great and the legislative difficulties are often greater. The state health officials undoubtedly can, however, do more than is now being done. Much attention is given to other foods by many health officials, especially to the prevention of adulteration. This is an economic problem, having little if any relation to health, but in some states it may be expedient to entrust it to the health department if it is not allowed to absorb energy which should be devoted to more important matters. The cleanliness of food is an important health matter, but it is as yet uncertain how much real cleanliness can be secured. This is another subject concerning which much observation and experiment are needed before we can be certain of the value of the methods employed. A somewhat similar activity is hotel inspection, which sometimes is a function of the health department.

The supervision of the health of factory workers and the prevention of occupational diseases are most important but their accomplishment by the health department is by no means easy. The tendency is to entrust such matters to the factory inspector, who is apt to give sanitary considerations a very subordinate place. To coordinate the work of the factory inspector, as it is ordinarily understood, and the sanitary supervision of the operatives, is one of the pressing problems. The supervision of the construction of public buildings, especially schoolhouses, is occasionally a function of the state health department, and, particularly as concerns

schoolhouses, may be very useful. Some of the older laws made the board of health supervise the management of various state institutions but it is to be feared that was often perfunctory. It is very questionable whether it is desirable to force this duty on the health department

The control of nuisances, especially those arising from slaughter houses and other offensive trades, is frequently taken up by of health and they are also often given authority over all forms of nuisances. Much of this nuisance work has little relation to the public health but sometimes a central authority is needed and it may as well be the health department as any.

The examination and licensing of embalmers, nurses, optometrists, midwives, dentists, veterinarians, pharmacists, plumbers, and physicians is at times one of the duties of the state health department Except in the case of midwives and physicians, this has little to do with the public health. Logically, the examination of physicians is properly a function of the health department but in practice it has been found to work especially well and it obtains in comparatively few states.

Among the miscellaneous activities of state health departments especially noted are "safety first" campaigns, mosquito control, education in sex hygiene, the inspection of plumbing, inspection of illuminating oils, enforcement of narcotic laws, supervision of pauper insane, campaigns against patent medicines, inspection of lodging houses, and the care of crippled children. Some of these have nothing to do with health, some are more properly functions of the local health department, while some have great possibility for good if developed with care and judgment.

The third portion of the report consists of the score and rating as shown in Table I. The writer has not the confidence of some in the marking system and very much fears that it has special limitations when applied to this particular subject. It is impossible to score the personal qualifications of officials, yet the future of every health department depends on this more than on anything else. Nevertheless, without funds, the best men can do nothing and their excellent character is even sometimes the cause of the small appropriation, as they cannot, and will not, stoop to the methods of the politician. It might be thought that the state should be given credit for the amount appropriated for public health but it is doubtful if this is so, unless the qualifications of the men, who spend it are also taken into account. The freedom of a department from politics is of the greatest moment but the fact is difficult to determine and it seemed unwise to give it weight in the rating. There is very much in public health work for which it is very difficult to find any scheme of measurement. Without accurate measurement it is difficult or impossible to assign values, for they must depend on judgment, and men's judgments differ and are difficult to defend.

In the present scheme the intention has been to rate the states rather than the health department, for sometimes important matters, as water control, the diagnostic laboratory and certain phases of anti-tuberculosis work, are not under the control of the public health officials. It is also intended to rate function rather than organization. Only those activities are selected for rating which are either very generally found in state health departments or are of great importance.

It has not been learned that any previous attempt has been made to establish a system of rating for state health work. In preparing this scheme several persons have been consulted and they have expressed very decided differences of opinion. The writer's

ideas have changed a good deal since it was first outlined and would probably be again modified after further thought and discussion. Perhaps some might think that the prevention of food adulteration should be recognized, but this does not seem to have much to do with health. Others would give more weight to the promotion of cleanliness of foods, and others to "sanitation." Some may think that instruction in sex hygiene, or the venereal diseases, should have recognition, but successful ways of teaching the one, and preventing the other, are so far from being standardized that it does not seem right to penalize a state for not experimenting. On the other hand, it may be objected that research does not save lives and should not be given credit, but there are so many problems to be solved that the department which takes no share in their solution should take a lower position than one which does.

The detailed report follows.

Respectfully submitted, CHAS. V. CHAPIN, M.D.

## STATE SUMMARIES

### ALABAMA

The most noticeable feature of public health affairs in this state is the provision that the State Medical Association shall be the State Board of Health and the county medical societies shall be the county boards of health. The same organization also controls the licensing of physicians.

This organization was adopted, partly to keep the department out of politics, and partly on the theory that medical men are the best qualified for controlling disease because of their knowledge of disease. In accordance with this theory one would expect especial excellence in vital statistics because mortality and birth returns depend on medical men and medical men ought especially to appreciate the value of such statistics.

Yet, while some states have had good registration of deaths for fifty years and two thirds of the country is included in the "registration area" of the Census Bureau, Alabama has not yet been admitted to this area.

So, too, Alabama appears to be not at all progressive as regards its control of communicable diseases. The first requisite of this is notification and notification is poor, as indicated by a case fatality of 27 per cent, for diphtheria and 31 per cent, for typhoid fever, a percentage based on a still imperfect registration of deaths.

Nevertheless, like most of the southern states, Alabama has experienced a marked sanitary awakening in recent years. Most of this part of the country for a long time was little affected by modern sanitary science. To the outsider it appears that the work of Rockefeller Sanitary Commission, bringing to the front young, active men, trained in scientific methods, has proved a great stimulus. The work of the Commission has been directed primarily against hookworm, but these men actually engaged in it have seen that the eradication of this disease is interwoven with sanitary progress in many lines and their campaign has involved preaching the general principles of sanitation and demonstrating that all sanitary progress must rest on a thoroughly scientific basis. While the work of the

Commission has been far-reaching all sanitary progress in the South has by no means been dependent on its influence.

Tuberculosis is a notifiable disease but few cases are reported. A site for a sanatorium has been purchased. In Alabama the establishment of the laboratory antedates hookworm work, dating as it does from 1908. There is an efficient staff and the work is well done, but it needs to be greatly extended. A total of 661 Widal examinations and 565 deaths from typhoid fever in the state in 1913 indicate that the physicians are not using the laboratory as they should.

Rabies has been prevalent and the laboratory has not only assisted in diagnosis, but has given the preventive treatment to a large number of persons. No provision is made for the distribution of other vaccines, or antitoxin, except that arrangement is made for the sale of "board of health" diphtheria antitoxin at 170 stations.

The censors of the medical association are virtually the State Board of Health. As neither the people nor their representatives have a voice in the selection of the censors or in the management of medical associations we have a form of organization which does not commend itself to many persons outside of the state. It is dangerous to delegate so important a function and there is no evidence that it can be as well performed by a medical society as by a department of the state government as ordinarily established. Doubtless the time will come when Alabama will change to a more modern system. Meanwhile there; is no necessity for insisting on an immediate change if the existing organization will continue to develop scientific and effective lines of work under the immediate direction of capable men.

Unfortunately the collection of vital statistics is not satisfactory and Alabama is not reckoned a registration state. In this branch of its work the department ought to adopt modern, well tried methods which have proved efficient all over the country.

Local sanitation must be promoted by the appointment of efficient local health officers to be supervised by the state.

Probably the most important need is the establishment of a strong bureau which shall be devoted to the control, not only of hookworm infection, but typhoid fever, malaria, tuberculosis and the ordinary contagious diseases.

Better provision should be made for the distribution of antitoxins and vaccines.

A modern water and sewage law is needed and a competent engineer to enforce it. (As this was going to press an act was passed repairing the approval of plans for water supplies and an engineer has been appointed.)

An active campaign for infant mortality and child hygiene should be organized.

Educational work should be extended and systemized.

All this will take money but it will save lives, prevent sickness and increase efficiency. With the conditions existing in the South, a decided reduction in the death rate can be promised as the result of the wise expenditure along the lines named of a sum by no means burdensome.

## ARIZONA

This state is large in area but has a small population, estimated as 247,299 in 1915, and of course sparsely distributed. It has a system of county and municipal health

officers, some of them very good men. Vital statistics are being collected through the county health officers, a method not considered satisfactory, but which has given surprisingly good results. The state chemist and bacteriologist at the University at Tucson is charged with the enforcement of the pure food law under the direction of the State Board of Health. The laboratory also offers to do diagnostic work but practically none is done, which of itself, indicates a lax control of communicable diseases.

A quarterly bulletin is issued by the department. What is needed first in this state is a full time superintendent of health who shall be a capable epidemiologist, and who will have charge of vital statistics and can develop the difference lines of public health work as conditions in the state demand. Work will gradually develop as elsewhere, but in a small state much can be accomplished by a full time health officer and plans for the future be worked out by him.

The trouble is that the office has been considered one of the spoils of partisan success. To remove it from the domain of state politics is necessary. It would probably be a move in the right direction to establish a board of health appointed by the governor in the manner suggested elsewhere in this report and confer on this board legislative or rule making power and authority to choose the superintendent of health but with no other executive duties. Experience has shown that ex officio members of a board are rarely efficient, as their primary interests are elsewhere.

## ARKANSAS

Previous to the entrance of the Rockefeller Sanitary Commission into Arkansas, practically nothing was done by the state to promote the public health. The first director of the hookworm work, Dr. Morgan Smith, was later elected secretary of the State Board of Health and to him is chiefly due the credit for the beginning of better things. The antihookworm campaign itself, here as elsewhere, has done much to stimulate an interest in public health work and belief in its value.

The next step in sanitary progress was properly believed to be the registration of vital statistics and a law was passed and registration was begun February, 1914.

A diagnostic laboratory is another essential instrument of public sanitation and one was established in connection with the medical department of the state university in December, 1913.

This is little enough for a state of a million and a half of people, but it is a beginning. The health department fully realizes what must be done and that much more money will be needed.

First of all sufficient funds should be provided for the administration of the registration law.

Next it must be remembered that it will require the whole time of a high class man to direct much varied and important work and that the executive, officer of the department should be paid a salary sufficient to secure such services. His tenure of office should be made secure. When convenient, the law which permits his election from the board should be changed, and it would be well if the continuity of the board should be rendered more certain by making the terms of the members seven years, one to expire each year.

Another important thing is the development of local health work. Some who are conversant with the situation believe that it is possible to educate and stimulate municipal and county health officers and to demonstrate to the cities and counties the necessity of expending more for public health purposes. It is thought that much can be accomplished along these lines without making any radical changes in organization, but this will require much active work by the state department of health.

Probably, however, the most pressing need is an expansion of the work of the Rockefeller Commission into a division of communicable diseases. To assist this division properly the laboratory must also be enlarged and later must come provision for the distribution of antitoxins and vaccines.

This will naturally lead to the systematic development of public health education with a full time man in charge, for the men engaged in the technical work of the laboratory, disease prevention and vital statistics cannot find the necessary time to devote to exhibits, press work and the numerous other methods of popular education.

Doubtless, too, the need for an efficient law and effective methods of water control will be shown when the statistics of disease become available.

No progress can be made without an increase in funds and it is very unfortunate that the last legislature did not see fit to provide for any extension of the meagre health work of the state.

## CALIFORNIA

The state department of health in California fell into disrepute owing to its failure to meet the bubonic plague emergency, but was later put on a better footing by Dr. Foster, and its work during the last few years has been greatly improved and extended by Dr. Snow. California now fully appreciates the importance of anti-plague measures and has recently strengthened the laws for the control of the disease and appropriated \$25,000 a year for its eradication. Like other infected states California has given the execution of anti-plague measures to the United States Public Health Service and this service is now (1914) spending \$15,000 a month in addition to the sum furnished by the state.

The registration of deaths is sufficiently accurate to place California among the registration states though there is still room for improvement. Birth registration remains quite defective.

The bacteriologic laboratory is doing excellent work but if the epidemiologic work were properly developed it ought to do a great deal more than it is doing now. Typhoid vaccine is made and sent out in considerable quantity and a large number of antirabic treatments are given. There are three branch laboratories.

There has recently been established a "Bureau of Tuberculosis" which is improving registration, encouraging and supervising hospitals and other local activities and doing some educational work. Seventy-five thousand dollars was appropriated by the 1915 legislature for the biennial period, \$20,000 of which is to be used for education and \$55,000 as subsidies to local hospitals and sanatoria.

The state has a fair water and sewerage law which was strengthened by the last legislature and an engineering bureau has just been organized in the department and is supported by an appropriation sufficient

for good work.

The control of foods and drugs is placed in the health department and the laboratory is situated at the University at Berkeley. The prevention of adulteration is well done. The department also, to some extent, looks after the cleanliness of markets, bakeshops, slaughter houses, etc. It also administers the cold storage law.

A certain amount of sanitary inspection is done, particularly of camps of various kinds, of which there are large numbers in the state.

A large amount of educational work was done by Dr. Snow, who was the first to use a railroad car for transporting an exhibit. Not so much educational work has been carried on during the last year or two.

As in many other states, the improvement of local health administration is at present the most important sanitary need of California. Two plans are suggested. One is to have, a considerable number of full, time supervisors appointed by and paid by the state, and the other is to have them paid by the counties which make up the districts. Some such plan must be put in operation in order to make local health work really effective.

Even with the district supervisor the central department must do more or less epidemiologic work. A separate division for this should be organized and should be closely correlated with the bacteriologic laboratory.

More effort should be made to secure the administration of sera and vaccines, especially diphtheria antitoxin, and if necessary it should be furnished by the state.

Educational work should be better systemized and more money devoted to it. Perhaps for the present until a better registration of birth accurately localizes the problem, the campaign for the prevention of infant mortality, as well as for the protection of child life, might be carried on by the bureau of education.

## **COLORADO**

The health department of Colorado, from all accounts, suffers badly from the dictation of politics and from political methods within itself. The election of the executive officer from the board of health by the board has apparently been the cause of friction which has resulted in inefficiency and loss of influence. Although the department has an appropriation of about \$25,000, very little is accomplished. Registration of vital statistics is complete enough to make Colorado a registration state for deaths, but the work might be very considerably improved. The only bacteriologic work is for the diagnosis of diphtheria. The food commissioner is an officer of the health department, but, though there is also employed a chemist of high standing connected with the University, very little effective work is done.

The department should be entirely reorganized along lines which shall best keep it free from politics. There should be public spirit enough in Colorado to demand that the care of the people's health shall be vested in an executive thoroughly trained in sanitary affairs and who shall give not only his whole time, but his whole energy, to the department. The work of county and local health officers must be improved and some sort of supervision by state appointed supervisors be provided for.

The work of the department must be extended and made effective. A modern bacteriologic laboratory is needed. An epidemiologist must be provided and the services of sanitary engineer made available. Provision should be made for the distribution of vaccines and sera. A campaign of education should be carried on. If food control is to remain with the health department it must be better directed. It is useless, however, to expect good work along any of these lines unless the executive of the department is a man of high attainment in sanitary science and absolutely free from all political control.

## CONNECTICUT

The Board of Health of this state is among the older organizations of the kind in the country and, perhaps because of the inertia of its inheritance, has not advanced as rapidly as it should. Nevertheless, the state has to its credit an excellent system of vital statistics which has placed it among the registration states for births<sup>1</sup> as well as for deaths. Free diphtheria antitoxin is distributed and the case fatality is low.

Excellent diagnostic work is done by the State Board of Health at Wesleyan University and the laboratory is doing much to improve local milk supplies. Through it, too, studies are being made of public water supplies and the sewage pollution of streams.

Connecticut maintains four sanatoria for tuberculosis and expends between \$300,000 and \$400,000 for the control of this disease but these funds are expended by the State Tuberculosis Commission.

The State Board of Health is a licensing board for physicians but the examinations are conducted by committees of state medical societies nominally appointed by the State Board of Health.

The Board of Health should be given rule-making power. Members of the board should be ineligible for the position of executive officer.

The present system of county health officers, attorneys appointed by the judges of the supreme court, has proved ineffective or at times a hindrance, and should be abolished. In its place should be full time district supervisors, appointed by the state department of health.

There should be a full time epidemiologist in the department.

The work of the laboratory should be greatly extended and ample provision made for the chemical work needed by the proposed engineer.

A water and sewage law was enacted this year which is capable of yielding good results and the next step, and an essential one, is the organization of an engineering division within the department.

Educational work should be systemized and greatly enlarged.

## DELEWARE

Delaware is peculiar in being a very small state with a small population, estimated as 211,596 in 1915, nearly half of which is in one city. Most of the problems which vex larger states do not exist in Delaware are reported and an extensive and highly organized state health department is not needed. The state already has a very good system of vital statistics and an excellent hygienic laboratory. Provision is made for the distribution of diphtheria antitoxin. There is a pure food law but no provision for its enforcement.

The greatest improvement which could be made in sanitary matters in Delaware would be to provide for a whole time state health officer who could look after epidemiologic work and vital statistics and gradually develop such other lines of effort as may prove necessary.

## FLORIDA

Florida holds a somewhat unique position among the states in public health matters. It is the only state in which no statutory provisions are found for the establishment of local health organizations, although they are required by the constitution. There are no county boards of health and such few municipal health departments or health officers, as there are, are appointed under special charters or ordinances. Florida, also, is the only state in which the funds of the state health department are provided by a special tax. According to the statute, a tax of one half mill on the assessed valuation of the state is to be set aside annually for the support of the State Board of Health. This sanitary tax yields a revenue of about \$100,000. The original purpose of this plan was to put the state in a strong position as to finances and centralized administration so as to cope with yellow fever which was formerly such a constant and terrible menace. Owing to the dwindling danger from this source, and the transfer to the federal government of maritime quarantine, the activities of the department have undergone a progressive change, but like all the southern states, Florida needs a strong sanitary administration, well backed financially, to make the health of the people what it should be and what they can reasonably demand.

The registration of vital statistics has been most imperfect. Fortunately, the efforts of the department to secure a modern statute resulted last spring in the enactment by the legislature of the "model law."

There are very few efficient municipal health departments in Florida and in the cities, as well as in the rural districts, effective work, if done at all, must be done by the state. At one time the department had as many as thirty-two "county agents" but they were mostly part time men. At present there is an "assistant" health officer in each of the seven districts into which the state is divided, all full time men. These men are expected to look after all the details of local health work in a southern with probably 750,000 people scattered over 54,000 square miles.

Almost no reports of communicable diseases are received through laboratory specimens. The control of these largely to the attending physician. The department did conduct an aggressive campaign against hookworm infection before the Rockefeller Commission began its work and the Florida methods were to a considerable extent followed by the Commission.

Tuberculosis is reportable but not well reported. The department has three social workers to visit cases of this disease. A sanatorium has been authorized but the department now feels that the money had better be spent in home instruction. The department maintains four isolation hospitals for smallpox.

The State Board of Health maintains a central diagnostic laboratory at Jacksonville and five branch laboratories. A large amount of work is done.

Diphtheria and tetanus antitoxin and smallpox, typhoid and rabies vaccine are distributed. How adequate this distribution is it is impossible to determine in the absence of morbidity and mortality statistics.

The control of foods and of milk production is with the department of agriculture.

The monthly bulletin, which contains much effective material, is well known. There is a weekly press service covering about 225 papers. Films are sent out to the various moving picture houses. A traveling exhibit is being prepared.

There is a hotel law administered by a hotel commissioner—a separate department.

An unusual function for a state health department is the control of contagious diseases of animals. This includes the free distribution of hog cholera serum and the payment for slaughter of glandered animals.

The total expense of this division was about \$28,000 in 1914.

Another peculiar activity is providing hospital care for crippled children.

The last legislature provided that every schoolchild is to be examined by a medical inspector once each year under the direction of the State Board of Health and that the latter is to bear the expense.

It is now generally admitted that efficient local health administration is the key to sanitary progress. In Florida the state health department has peculiar responsibilities. No provision is made by statute for health officers in municipalities, or unorganized rural districts, while on the other hand the State Board of Health has full executive power and a considerable amount of money at its disposal. The department ought either to secure the appointment of efficient municipal and county health officers under the direction and pay of the local governments, or else appoint and pay a sufficient number of its own full time agents to cover the whole state. Some idea of the necessary number and pay of such officials can be obtained in North Carolina where there are already a number of full time county health officers, or in Kansas, where twenty-nine district health officers are proposed. There are some who are conversant with conditions in the South who believe that even a full time health officer in each county cannot do the work. Unless a still larger appropriation can be made available, it may be necessary both to require local communities to employ health officers and to provide a number of state supervisors according to the Massachusetts and New York plans.

After the mechanism for direct and continuous control is thus provided the reporting of communicable diseases should be insisted on and an epidemiologist appointed to direct local work. Doubtless under these conditions it would be found necessary to extend considerably the distribution of antitoxins and vaccines. A division of public health education should be formed to carry on an energetic campaign for infant mortality, child hygiene and for the control of typhoid fever, malaria, hookworm infection and tuberculosis.

A chemist with engineering training would be a useful addition to the staff of the department.

## GEORGIA

In 1905 a bacteriologic laboratory was established chiefly for diagnostic purposes. In 1908 the production of antirabic virus and preventive treatment was begun.

In 1909 the department began the production and free distribution of diphtheria antitoxin. Several other sera and vaccines are now distributed, some of which are also manufactured. While the amount distributed is very considerable, these agents are certainly not used by the physicians of the state as freely as they should be.

In 1910 a chemist was employed to analyze water samples and inspect public water supplies.

The department has a publicity man who is chiefly engaged in lecturing and writing for the press. He also does some epidemiologic work.

A vital statistics law and a law for local sanitary organization have recently been passed but no money was appropriated for their administration.

The control of food supplies is under the Department of Agriculture.

The hookworm work, which as in other states was only nominally under the state health department, and for the which the state furnished merely office room and postage, was entirely abandoned after the withdrawal of the Rockefeller Commission.

Certainly the state should require the executive officer of its health department to give all his time to the administration of his office if it expects the work of the department to be properly coordinated and developed and of course should give a salary sufficient to warrant such a demand.

The most pressing need is the collection of accurate vital statistics, for without these it is impossible to determine just what the health needs of the state really are, or whether the preventive measures adopted are really accomplishing the desired ends. Thus with no knowledge as to the prevalence of diphtheria, tuberculosis and typhoid fever we cannot know with certainty whether enough antitoxin is distributed or the diagnostic laboratory is doing its duty or the water supplies of the state need better control.

There ought to be a strong bureau of communicable diseases in which the anti-hookworm work should be merged, but in which the other diseases should be given their proper attention. The diagnostic work of the laboratory is now very meagre. As effective epidemiologic work is developed, the work of the laboratory, as a part of it, is bound to develop also and the use of sera and vaccines is bound to increase.

Even with efficient and adequate epidemiologic work on the part of the state department of health it can only be partially successful until there is better local sanitary administration.

Educational work needs to be extended and all modern methods made use of, particularly exhibits. Definite campaigns should be organized for the prevention of malaria, typhoid fever and for the prevention of infant mortality, and for child hygiene. Tuberculosis has apparently been much neglected in Georgia and should receive special attention. A modern sewage and water law is needed and an engineer to enforce it.

## IDAHO

Most of the work of the department of health is done by the dairy and food inspector who is also sanitary inspector, inspector of drugs, "humane officer" and sealer of weights and measures. Besides regular food and drug work, including milk and the

scoring of dairies, he also examines local water supplies, enforces the hotel law, inspects slaughter houses, markets, groceries, restaurants and all places where food is handled and also barber shops and bathing places. He has five deputies, four clerks and a chemist. Although appointed by the board of health he works independently of it. The last incumbent did a good deal of publicity work and was a skilful advertiser. It has been alleged that politics has sadly interfered with the administration of this important office.

Outside of the food inspector's office the department does some educational work by means of press articles, exhibits and lantern lectures. The state has adopted the model registration law somewhat modified, but has only one clerk to administer it.

There is a good diagnostic laboratory at Boise, with a branch at the State University at Moscow, but the latter needs another laboratory man.

More clerical force is needed for perfecting vital statistics.

There should be a better control of communicable diseases under a full time epidemiologist.

Provision should be made for the distribution of antitoxins and vaccines and the work of the diagnostic laboratory should be further developed.

A modern water and sewage law is needed and a full time engineer.

Educational work should be increased and specific campaigns carried on for child welfare and against tuberculosis and typhoid fever.

The department ought to be reorganized. The board is partly ex officio, which is not desirable. There should be a board of five or seven, one appointed each year for a term of five or seven years, and without executive power other than the election of an executive officer, who should not be a member of the board. The executive should be a full time man. The legislative power of the board, which is now somewhat uncertain, should be defined. The people of Idaho should demand that the whole department be kept absolutely free from politics of every kind.

## ILLINOIS

Illinois is among the few states in which the State Board of Health is the Examining Board for Physicians. The plan has not seemed to work well here in the past as this function of the board has received undue attention as compared with its more strictly public health work. Perhaps, partly owing to this examining function, internal controversies in the state medical association seem to have involved the department and it must be recognized that medical politics as well as state politics may greatly hamper public health administration. Although the expenses of the department were something over \$100,000 in 1914, about one quarter of this sum was expended for the examination and licensing of physicians, midwives and embalmers.

There is no satisfactory law for the registration of births, marriages and deaths and mortality statistics are in a more unsatisfactory condition in Illinois than any of the states of the Middle West. [See below for supplementary statement.

Local health organization throughout the state is usually the case in rural communities, but it is said that very few, even of the cities, possess an active health organization and it is worthy of note that some of these departments are supported almost entirely by private endowment.

Communicable diseases are reported rather better than might be expected but in the absence of mortality statistics it is difficult to determine just how complete notification really is, but outside of the large cities it is far from satisfactory. New regulations for morbidity reports have recently gone into effect which ought to enable the state department of health to exercise a more efficient control. The epidemiologic work of the department, as well as some sanitary inspection, is being attempted by three "medical inspectors" who give only a part of their time.

There is a diagnostic laboratory at Springfield, but compared with the amount of communicable disease it is not doing nearly enough work. The department is anxious to establish branch laboratories but probably the usefulness of the existing laboratory could be very considerably increased.

The department distributes diphtheria antitoxin freely to every one who needs it, at a cost last year of \$29,000. Typhoid vaccine, also, is distributed and prophylactic packets for ophthalmia are now being sent out. Antirabic treatment is provided for indigent at the Pasteur Institute in Chicago.

Tuberculosis has just been made reportable. There is no state sanatorium and few local hospitals, though there is a permissive law for hospitals in cities. The active state association is in cordial relation with the department.

Occupational diseases are reportable to the health department, under a law which does not appear to be very effective, but the sole function of the department seems to be to transmit them as soon as received to the factory inspector.

Illinois has no adequate water and sewage law, but the state water survey, in connection with the University, has done most excellent work in studying conditions and advising municipalities and private companies.

The State Food Commission has charge of the enforcement of the food laws, including the "sanitary food law," which relates to the cleanliness of places where food is handled. Some attention is given to the cleanliness of milk, especially through education, the state health department has a full time dairy inspector and four others during a part of the summer, who are occupied partly in seeing that milk excluded from one community does not go to another, and partly in helping cities, desiring it, to improve their milk supply by inspecting the farms from which it is derived.

Formerly the educational work was confined chiefly to special bulletins which as a rule are too bulky to be effective. At present there is a biweekly press service for about 375 papers. There is a traveling exhibit and the department has two films for "movies." Some lectures are given.

There is a hotel law containing several of the usual "sanitary" provisions which the State Board of Health is to enforce and under which it is to make rules, but practically nothing has been done and it is said that the law is likely to be repealed.

An attempt has been made at the inspection of summer resorts, construction camps and the like.

A peculiar activity of the department, and one which absorbs over \$10,000 annually, is the purely local function of lodging-house inspection in Chicago. While one may not consider the combination of medical and other professional and semiprofessional licensure with public health work desirable, it is not necessary to insist on the separation of the two. If for local reasons it is desirable to continue the combination in Illinois, it ought to be perfectly possible to carry on the work of the

department effectively along modern lines if the Board of Health and its executive keep entirely aloof from medical, as well as state politics and give to public health work proper, as distinguished from professional registration, the attention which it deserves and if the department is organized with these ends in view.

The first thing needed, of course, is a modern law for the registration of vital statistics with a sufficient appropriation to secure its administration.

Probably the next most important matter is the improvement of local health administration. At the present time the provision of a considerable number of well trained full time supervisors is the most practical measure.

The establishment of a division of epidemiology is also essential. This division may make use of the district supervisors, just referred to, for its field work, or may have field workers of its own. It is well to have the diagnostic laboratory and the distribution of antitoxins and vaccines in this division. It is hoped that the projected branch laboratories will be established.

An effective water and sewage law is needed. The difficulty will be in providing for its administration. It would be exceedingly unfortunate if the work of the water survey should be separated from the University and some plan should be devised for maintaining this union though the authority for executing the law might be conferred on the State Board of Health.

There should also be a division of education, for much of this needs to be done in connection with the prevention of infant mortality and with child hygiene as well as for the control of tuberculosis, typhoid fever and other diseases. Close cooperation should be provided for between this division and that of communicable diseases. Although the above was written in March of this year, now, in September, it needs to be greedily modified. A great deal of important legislation was secured for which the department deserves the greatest credit. The essentials of the model registration law were adopted and a division of vital statistics organized. An epidemiologic division was provided for with a director and four assistants. Two branch laboratories have been established. Larger appropriations were made for sera and vaccines.

Counties may now provide sanatoria for tuberculosis and also dispensaries and nurses. A division of engineering has been organized but the laboratory work is still to be done at the University.

## INDIANA

The department of health in Indiana seems to have kept free from political interference and its efficient executive has remained in office for many years and has been able to follow a consistent policy.

A successful registration of deaths has been developed and that of births is rapidly improving and is doubtless over 90 per cent.

Contagious diseases are still not well reported though the bacteriologic laboratory has done a good amount of most excellent work.

A member of the laboratory staff administers antirabic treatment and the cost is defrayed by a portion of the dog tax. Typhoid vaccine is made and distributed and provision is made for the sale of diphtheria antitoxin at a low price.

Much educational work has been done in connection with tuberculosis. The state maintains a sanatorium of 100 beds and has a permissive hospital law for counties.

The bureau of foods and drugs is well known outside the state for its excellent work against adulteration. Good work has also been done in fighting fraudulent nostrums. A good deal of attention has been given to the sanitation of places where food is prepared and handled. The cold storage law is administered by this department. Some work is being done for the improvement of milk supplies.

Water and sewage control is under the bureau of food and drugs of this department. Much has been done in the way of inspection and surveys, and improvement in local water supplies has been brought about by advice and orders. The law however is not entirely satisfactory and it does not provide for the filing and approval of plans. The educational work of the department is especially prominent and effective. Dr. Hurty has devised many new details which have been copied by others, such as the governor's letter presenting the "baby book" to mothers. It is possible however, that carelessness is sometimes permitted as to subject matter.

The department has broad powers over the sanitary conditions of public buildings, especially schoolhouses, and during the past, two years a large number of schoolhouses have been condemned and others renovated. It is estimated that nearly \$4,000,000 has been expended in these improvements.

The department believes, and is doubtless correct, that the chief need at the present time is improvement in local health administration. A bill to secure this failed of passage at the present session of the legislature but effort should be continued to secure in one way or another the needed improvement in the service.

Meanwhile the State Board of Health could do much to improve the control of communicable diseases by developing and strengthening the epidemiologic work of the department. With sufficient state supervision, a great deal could be accomplished even with the present local health officials.

A better and more modern water and sewerage law is needed and it would be wise to establish a division of engineering entirely separate from the food and drugs division.

## IOWA

Iowa has suffered from frequent changes in the secretaryship of the State Board of Health, and from friction with other branches of the government. Conditions are not satisfactory at the present time. The State Board of Health is appointed by an ex officio appointing board consisting of the Governor, Secretary of State and Auditor of State. The State Health Commissioner is also appointed by them. The finances of the department are controlled by the "Executive Council" consisting of the above-named appointing board together with the Treasurer of State, all of whom are ex officio members of the State Board of Health. The whole board meets only twice a year and meanwhile the state health officer has full executive authority, except as regards finances, and is in close touch with the "Executive Council" which seems to have much more to do with the management of the department than does the nominal board of health. Such a complicated organization suggests that it was not devised along broad lines but to meet some special exigency. One member of the board is under pay as a full time engineer for the department, an amicable arrangement at present, but one likely to cause trouble. The four medical men

on the board of health, together with the State Commissioner of Health, serve as the examining board for physicians. The provision that not more than three members of the board of health shall be of one political party suggests that other matters than fitness determine appointments.

Much of the time of the commissioner of health is taken by the examination of physicians, nurses, embalmers, optometrists and other clerical work, so that he has really little time for the study of important sanitary subjects.

The registration law is antiquated and deaths are not completely reported and birth statistics are still more defective.

Contagious diseases are not well reported and reports of typhoid fever are not required at all. It goes without saying that local sanitary administration is poor. The bacteriologic laboratory is connected with the State University and is under joint control. The diagnostic work of this laboratory stands high and is greater in volume, and hence more useful, than in most states. As in other states, under developed and last autumn the tension became acute. The University was desirous of undertaking epidemiologic work and the last legislature appropriated money for this purpose, health strenuously objected. Undoubtedly the University is at present better equipped to carry on such epidemiologic work, but it is dangerous for the University to be entrusted with such administrative duties and by no means to be recommended. Recently the epidemiologist has been appointed as provided.

The department is doing some educational work, chiefly through its quarterly and special bulletins, but it is not well done. The State Board of Control which manages the State sanatorium of 103 beds, was given \$5,000 for educational work on tuberculosis. This seems unfortunate, for duplication, or antagonism, or contradiction, in educational work is bad, and the State Board of Health is the only department of state logically to be intrusted with public health education.

The Board of Health is required to enforce the hotel law, and this with the control of water and sewerage, and other matters has been intrusted to the bureau of sanitary engineering. The water and sewerage control has apparently not been as efficient as could be desired and a new law is needed. At present control is exercised solely by means of rules.

Antitoxin is distributed at cost but the board does not know how much is used.

The Pasteur treatment is given.

Iowa is far from taking its proper position in sanitary affairs. The department should be reorganized, having in mind solely the interests of public health. Probably a board which shall elect a commissioner, but which should have no other executive power, would be a good form. The positions should then be filled by the very best men attainable. If the department is such that the community has the highest confidence in it, the laboratory, epidemiological, educational and all other public health work should be placed directly under its control. This does not, however, mean that all connection with the University should be severed. It is very desirable that the laboratory be at the University if possible and that other University connections be established as well. Cooperation is equally important for the health department and for the University.

## KANSAS

The department of health of Kansas seems to have kept out of political entanglement and been able for a number of years to devote itself earnestly to the promotion of the public health. A close alliance has grown up between it and the State University which has an excellent influence on and is most useful to the department. It is to be regretted that the University, does not make more use of this valuable connection for the instruction of its students. Kansas has been admitted to the registration area for deaths and is making an earnest endeavor to perfect its entire system of registration. The department has a division of epidemiology an health organization which not only looks after communicable diseases but is undertaking a "sanitary survey" of the state by counties probably to extend over a number of years.

Provision is made for the distribution of vaccines and antitoxins and the Pasteur treatment is given at the medical school. There is a diagnostic laboratory at Topeka. The department for three years, by means of a special appropriation of \$10,000, carried on a vigorous anti-tuberculosis, campaign and is now supervising cases through the epidemiologic division. The department keeps in close touch with the state antituberculosis association. Much of the epidemiologic work has been begun only recently and needs to be greatly developed. The diagnostic laboratory particularly ought to be developed and more generally used, for without it the dangerous atypical cases can never be recognized.

A division of child hygiene has recently been organized.

Excellent work is being done for the protection of water supplies and for solving problems of sewage disposal. The law seems to be very effective. There is a food and drug division in the department which not only looks after adulterations of foods and drugs, oils and seeds, but also devotes much time to the cleanliness of places where food is handled or prepared and enforces the weights and measures law. Hotel inspection was formerly under the health department but has been transferred to the hotel commissioner. The educational work is extensive and well known, but as with most educational work, a good deal more care should be given both to matter and form.

The department has developed to a considerable degree the more important fields of sanitary endeavor. As in other states which have reached this stage of sanitary effort, the most important present need in Kansas is such improvement in local health administration that, throughout the state, details of sanitary work shall be efficiently carried out. This greatly desired by the department and is the most important matter under consideration by the Kansas commissioner of public health. It has been suggested that a desirable plan is the appointment of full time health officers for counties or groups of counties. It is not necessary here to urge the adoption of any specific scheme, but if Kansas is to progress, some effective plan must be adopted, and it must be kept in mind that no efficient local health work will ever be done unless it is adequately paid for. The reorganization of local health work and the strengthening of that of the state department along the lines now followed is what is needed. Since writing the above a law for the above purpose was framed but failed to pass.

## KENTUCKY

The State Board of Health of Kentucky is organized on the plan, which has met with favor in several of the other southern states, by which the medical profession is

given a share in its control. The members of the board, though appointed by the governor, are nominated by the state medical associations, regular, homeopathic, eclectic and osteopathic, and all are to be represented on the board. The avowed purpose is to remove the board from domination by politicians and secure the confidence and cooperation of the medical profession. Even if the expected benefits always resulted, the danger of thus conferring on private organizations the selection of state officials and the recognition of medical sects, is, as is pointed out elsewhere in this report, a dangerous practice. Further-more, medical politics and medical bossism may be as pernicious as state politics. That a considerable degree of helpful cooperation has been secured in Kentucky is true. A willingness to adopt modern methods of treatment for hookworm, trachoma and diphtheria, the prompt reporting of cases of communicable disease and ready compliance with the vital statistics law are adduced as evidence, but these conditions do not seem to have been secured earlier, or to have been secured earlier, or to have more nearly reached the ideal, than in many other states where this form of organization does not prevail.

With this form of organization it is logical that licensing of physicians should be one of the functions of the board and it is considered a valuable asset.

The adoption of the model registration law in 1911 soon placed Kentucky in the registration area for deaths and the state is likely to be in the registration area for births about to be established.

The control of water and sewage is by rules of the board, the validity of which seems to be sustained by the courts. The aims of the department are excellent but its funds do not permit of a sufficiently systemized and close supervision.

Communicable diseases are well reported to the local officials but reports are sent to the state board only quarterly, which does not admit of effective control from the central office. The work of the Rockefeller Commission received the hearty support of the department and much attention is given to the eradication of hookworm, trachoma and typhoid fever, but funds for intensive work are not available. Preventive treatment for rabies is given.

The state has a special commission for the control of tuberculosis, which is carrying on the usual educational work. There is no state hospital and no county hospitals, though some have been voted.

The department distributes diphtheria antitoxin and many counties and towns furnish it free to the poor. Special effort is made to encourage its use but they have not been especially successful. Other sera and vaccines are distributed. The diagnostic laboratory is doing a large amount of work in an economical manner, but hookworm infection occupies relatively too large a share of it.

The department did much to eliminate tuberculosis from milch cows and this work is now carried on by the Live Stock Board. The Food and Drug Commission does a good deal of dairy inspection. There is a hotel law and inspector, not in the health department. The educational work is of good quality and large in amount. The department has been very successful in securing the interest and cooperation of various agencies in the advancement of the public health.

Bureaus of nursing, of housing and of food and drugs have been established-on paper, some work is being done, largely voluntary, by outside persons. It appears that in

this and in some other directions the department is extending its efforts farther than its finances warrant.

One of the most important needs is a better control of communicable diseases. A full-time epidemiologist, doing nothing else, should be secured and assistants added as needed. The state is now spending \$15,000 a year on its tuberculosis commission. It is difficult to see why the work of this commission is not properly work of the State Board of Health, and a part of these funds might be diverted to intensive campaigns against typhoid fever, malaria, etc. More active and continuous efforts along these lines will result in a greater use of the laboratory and of sera and vaccines.

As in most states better local health administration is needed and the department is working to secure full-time county health officers which would seem to be a reasonable possibility and well adapted to conditions in Kentucky.

The reduction of infant mortality has received practically no attention and almost nothing is known about conditions. In many states this has proved one of the most effective lines of health work and a bureau of child hygiene which will carry on intensive campaigns would far more important than bureaus of housing or food and drugs.

## LOUISIANA

Politics are said to dictate appointments to the state board of health. If this is so permanency of tenure for the executive, and perhaps his subordinates, can never be secure and no matter how efficient an official may be, the whirligig of politics may displace him in a moment and reverse the policy of the department and destroy its influence. The incubus of easily preventable disease lies so heavy on the South that no southern state can afford to allow party or personal politics to exist in the department of health. The people should demand that no governor appoint to membership in the board of health any man who does not hold himself above all petty politics.

The registration of vital statistics has been very poor and until last year there was no effective law. Recently a special agent, has been employed to secure its enforcement

The food division does much more than attempt the control of adulterations. In fact that is rather a minor function. Considerable has been done to improve the character of local milk supplies and to encourage the use of tuberculin tested cows. A great deal of attention has been given to the cleanliness of markets, restaurants, hotels, bakeries, slaughter houses and all places where food is handled. Indeed the promotion of general municipal cleanliness seems to be one of the chief aims of the department and to secure it, it does a good deal of local executive work.

There is a division of engineering, but a large part of the engineer's time is occupied in inspection, examining for schoolhouses and public buildings and in lecturing. Though the control of water supplies is probably less important in Louisiana than some other states, it would seem that more attention should be given to it than at present.

The control of the sale of illuminating oils is an unusual function for a health department and has little to do with public health but brings to the department a substantial revenue.

A matter of fundamental importance is a local sanitary organization which can carry out details of sanitary work. Some effective plan of full time parish health officers, or a system of local officials with state supervisors, or some other arrangement should be

devised and put in operation. In the advent of plague the State Board of Health joined in asking the United States Public Health Service to take charge of the situation, as was done in California, and during 1914 appropriated over \$22,000 to assist in carrying on the work.

Since the cessation of the work of the Rockefeller Commission intensive work has been carried on in one county jointly by the State Board of Health and the International Health Commission intensive work has been carried on in one county jointly by the State Board of Health and the International Health Commission.

Recently a beginning has been made in local supervision by the appointment of a district health officer in one of the parishes who is supported in part by the State Board of Health and is under its direction, though his support is partly derived from the county. Other district health officers overseeing the work in groups of counties are planned for. As in some other southern states, general epidemiologic work has suffered while relatively too much attention has been given to controlling hookworm disease. There should be a well organized and well supported bureau of communicable diseases and proper attention, should be given to malaria, typhoid fever, tuberculosis and plague as well as to other diseases which are common to the whole country. The diagnostic laboratory is a most important factor in epidemiologic work and Louisiana should have a bacteriologic laboratory of its own, entirely independent of any other. So also the state should provide for the distribution of vaccines and antitoxins more effectively than it does at present. Louisiana, as is well known, has a difficult problem in leprosy, but the management of the leper hospital is not under the department of health.

The Louisiana health department has devoted a large part of its energies to general educational work. Its monthly bulletins are distributed in large numbers, many lectures are given, its portable exhibits are sent out about the state and the "health train" is known to every one.

While births are so poorly reported it is impossible to learn the exact infantile death rate, the indications are that it is unduly high. Louisiana certainly ought to have a bureau of child hygiene in its department of health.

The principal criticism to be made of this department is that sufficient study has not been given to planning its activities or carrying out the details. Emphasis has not always been placed on the most important measures. Too much attention has been given to nuisances and general municipal sanitation and the attempt to render cleaner the handling of foods, and not enough to the direct control of malaria and typhoid fever, tuberculosis and the prevention of infant mortality. Effort needs to be concentrated.

## MAINE

Maine, like the other New England states, has good registration of births, marriages and deaths and has had it for many years. The department has an excellent laboratory which is doing a fairly large amount of diagnostic work. The director of the laboratory also makes inspections and advises as to water supplies and does chemical work for the department of agriculture which is in charge of food control.

For many years a considerable amount of educational work, but not of a sensational character, has been done by means of circulars, leaflets for schoolchildren, illustrated lectures, exhibits, etc

Much educational work has been done in relation to school sanitation and plans of schoolhouses are examined and approved by the department.

The law requires that the townships furnish free diphtheria antitoxin to the poor and many of them do so under a contract with a manufacturer made by the state board of health. The usefulness of the department could certainly be greatly increased by a very moderate and reasonable expenditure. The most important needs are:

Improvement in local health administration, which might be secured by the appointment of a supervisor and perhaps in other ways. The supervisor should of course first of all be a competent epidemiologist. More effective work could then be done in the control of contagious diseases. Better provision might also be made for the distribution and use of sera and vaccines.

The state is now taking over two sanatoria for tuberculosis "formerly operated by the state association.

Educational work ought to be greatly extended and definite campaigns carried on for the protection of child life and for the prevention of tuberculosis. Either a special man is needed, or the secretary should be relieved of some of his routine work. There are a very large number of labor and pleasure camps in Maine as well as numerous hotels and summer colonies and the state would do wisely to institute an effective supervision.

Although the public water supplies are not at present badly polluted, a modern water law is needed and a competent engineer to look after its enforcement, or perhaps a chemist with engineering training might prove the most useful at present.

## MARYLAND

The Board of Health of Maryland is also the licensing board for physicians, a combination which is undesirable. The department is fortunate in having its own attorney, but is unfortunate, owing to a provision in the constitution, in not being able to pay its executive officer a proper salary.

Maryland is reckoned a registration state for deaths and the department is making a strong effort to improve the registration of births.

In 1910 a division of communicable diseases was established, but it has been occupied largely in office and statistical work and not field work has been done. Occupational diseases and tuberculosis reported directly to the state department and the latter maintains more or less supervision over the cases of tuberculosis, but it is not very effective. No provision is made by the state for the distribution of curative sera, though typhoid vaccine is distributed by a state agent not in this department.

The diagnostic laboratory also is well managed and does a large amount of work. This laboratory makes many examinations for the engineering division.

An engineering division was established in 1912 and has been doing good work in the study of water and sewage problems, but at the time the state was visited, there was no law giving effective control. Since then one of the most complete laws in the country on this subject and one which gives the department very great power, has been passed. It carries with it an appropriation of \$25,000 annually and provides for four district

engineers besides the force in the central office. This law has recently been sustained by the courts.

The division of food and drugs appears to be doing good work and some attention is paid to the cleanliness of places where food is sold. Since this was written a law has been passed giving the State Board of Health great power in relation to this, conferring at the same time authority to make additional rules.

The chemical laboratory is chiefly concerned with food and drug work, though many analyses are made for the engineering division.

The department has done much educational work in connection with tuberculosis but on the whole public health education has not received the attention it deserves. It will thus be seen that the main lines of state sanitary work which have proved effective have been undertaken by the department. At the time the state was visited the greatest need appeared to be better local health administration. Since then there has been enacted a law giving the State Board of Health greater executive and legislative power and providing for sanitary districts with a deputy state health officer in each. The act carries an appropriation of \$50,000 annually. Seven deputies have thus far been appointed. Doubtless with the help of the district officers the division of communicable diseases will be strengthened, more field work done, better notification secured and more use made of the laboratory and of antitoxins and vaccines. Indeed it is proposed to bring about this result by making the district officers work under the direction of this division.

Educational work ought to be greatly extended add systemized, health officers educated and effective campaigns organized against infant mortality and tuberculosis.

## MASSACHUSETTES

Massachusetts was, in 1869, the first state to establish a permanent board of health along modern lines and this department has had, during the intervening years, a greater volume of successful accomplishment than any other state department of health. Undoubtedly the most important work of the department has been in connection with water supplies and sewage disposal and kindred matters. This division was organized in 1885, and so little was known of the subject that comprehensive investigations were needed, and were so well carried on, that the results for many were considered authoritative, not only in this country, but abroad as well. Though the state has never had laws giving control over water and sewerage systems, such as are now found in many states, yet the health department succeeded in bringing about so many improvements in the water supplies of the state that the typhoid, death rate soon began to decrease sad for a quarter of a century Massachusetts has had less typhoid fever than any other state. The department has also been entrusted with the planning of many important works, such as the metropolitan sewerage system, the improvement of Charles River and the metropolitan water supply, and is now engaged in carrying out the improvement of the Neponset River, a drainage project costing about \$200,000.

Diphtheria antitoxin was made and distributed as early as 1895 and smallpox vaccine has also been distributed. Recently the department has undertaken the preventive treatment of rabies and the vaccine and Wassermann laboratories have been united as a division of communicable diseases.

A diagnostic laboratory was established in 1895. It has now been made, a part of the division of communicable diseases.

Massachusetts was the second state to enact a pure food and drug law (1882) and its administration by the state department of health has been eminently successful. Recently a cold storage law has been enacted and the department entrusted with its enforcement. A good deal of attention is given to the adulteration of milk by the pure food division and three inspectors under the veterinarian of the department until recently gave their time to the inspection of dairy farms. The state also controls slaughtering to some extent through locally appointed inspectors subject to its approval. It controls the taking of shell-fish from polluted beds.

The research work of the department has been extensive and varied and many valuable contributions to sanitary science have appeared in its reports.

Massachusetts was the first state to put in practice the modern idea of state-appointed inspectors as supervisors for which the state was, in 1907, divided into fifteen districts. An important part of the work of the inspectors in the beginning was the sanitation of industrial establishments which has recently, many believe unwisely, been transferred to another department. The state inspectors have certainly done much to unify and improve the work of local health officials.

The routine control of contagious diseases has not received the attention it deserves, though such are fairly well reported. However, a division of communicable diseases has recently been organized on a broad basis and will doubtless do effective work. The state has a large sanatorium, and hospitals for advanced required to furnish hospital accommodation for tuberculosis and other contagious diseases, and the state department of health is to see that the law is enforced. The state also is to supervise tuberculosis dispensaries and has secured their establishment in all towns and cities of over 10,000. Ophthalmia has received more attention than in any other state. Perhaps the former neglect of routine epidemiologic work is due to the fact that the towns and cities of Massachusetts have done more of their own volition than have the cities in other states.

This department has been subjected to a good deal of criticism in recent years, but when one considers the honest criticism it appears that much of it refers to matters which in other states would be considered minor ones. Thus the writer has criticized the production of an unconcentrated diphtheria antitoxin, though it is well known that the state was the first to produce antitoxin and has distributed more than any other state. Because Massachusetts has done so well we expect her to do still better.

The reorganization of the department which went into effect on August 3, 1914, is not entirely ideal. Although the first selections are excellent, it is a question whether, under the present arrangement, the department will be able to keep out of politics during the next thirty-five years as it has during the past thirty-five. Executive power is not vested entirely in the commissioner who is appointed by the governor for a term of five years, for all his appointments are subject to the approval of the public health council and salaries subject to approval by the "governor and council," thus bringing effective control within the sphere of state politics. The public health council is given legislative power but no penalty is provided. The state inspectors, though now made full time officials, are cut down to eight.

The collection of vital statistics, which is now in the hands of the Secretary of State, should be transferred to the health department. Educational work, which has never received efficient attention, should be developed and effective campaigns undertaken for specific purposes, such as child welfare. Since the above was written a division for this has been organized.

Legislation should be secured which would give the department a real control over water sullies and river pollution.

## MICHIGAN

Michigan has a State Board of Health composed of representative men who take much interest in the work of the department and whose advice and assistance are of great value. Formerly the board elected its executive officer, but he was, a few years ago, made an appointee of the governor, which does not appear to be a wise change, but the last legislature provided that he is to be recommended by the board.

The state is fortunate in having had for some time excellent registration of births, marriages and deaths. It is unfortunate, however, that the collection of vital statistics is under the Secretary of State instead of the health department. There are only three other states to which this condition obtains. Registration should be where it can immediately be made use of for public health purposes.

Contagions diseases are not well reported, as shown by the case fatality (though physicians are paid for reports), and the present method of control is unsatisfactory as it is in most states. A full time epidemiologist is needed and some such supervision of local health work as the board has already tried to secure. A diagnostic laboratory is maintained at Lansing and another in the Upper Peninsula. Provision should be made so that vaccines and curative sera are made accessible to all. (The legislature of 1915 provided for a better distribution by municipalities.) The state has a small sanatorium of eighty beds for tuberculosis. The disease is reportable to the state board of health and the number of cases is about double the number of deaths. Literature is sent to the family. The state antituberculosis association is doing excellent work. The last legislature appropriated \$100,000 for the biennial period for the prevention of tuberculosis to be expended at the discretion of the State Board of Health. The latter is undertaking extensive educational work and will try to organize associations and secure dispensaries and a hospital in every county.

The department maintains an engineering bureau which is doing good work in the supervision of water supplies and sewage disposal, though the law under which it acts might be improved. The work should be greatly extended and an increased appropriation made therefor.

The educational work of the department is extensive and in the main is very well done. It might well be strengthened however, in several directions as in newspaper work, illustrated lectures and meetings for health officers, and there ought to be a man to devote all his time to it.

Little is done by the department for the protection of child life and an active campaign ought to be inaugurated.

The department feels that what is most needed at present is to improve local sanitary administration, and a bill was presented to the last legislature to provide for a system of supervisors to oversee the work of the local health officials, but it did not pass.

## MINNESOTA

The state department of health is well organized and is doing excellent work with good plans for the future. It has had, and has now, many first class men on its staff. The registration of vital statistics is sufficiently accurate to permit of the inclusion of Minnesota as a registration state for both births and deaths. The division of sanitation and engineering has devoted its chief attention to the protection of water supplies. A partial survey of the state has been made and much accomplished in improving the public supplies of the state, of which there are some 500 or 600. This valuable work has been done without any adequate law, though the board has without success asked for such.

Attention has also been given to sewage problems, especially trade wastes. A follow up system is effectively in use to see that the recommendations of the division are complied with.

The most interesting division is that of preventable diseases, under which the diagnostic laboratory is now placed as a subsidiary bureau, an arrangement which is of great practical value as well as strictly logical. There are two branch laboratories and others are planned.

This division seems to have done more and better work in the investigation and prevention of outbreaks than that of any other state. Moreover, a system of "follow up" and supervision from the central office is in force for the common infectious diseases. The diagnostic laboratory is doing excellent work and an unusually large amount of work. The Pasteur laboratory for the prevention of rabies has been very efficient and prepares its own virus. A good deal of typhoid vaccine is also made and used. The state has a sanatorium for tuberculosis and there is a law providing for county hospitals with state aid, but the institutions are not under the control of the State Board of Health. The disease is reportable and the department follows up cases. The department has made some valuable county surveys.

The former method of distributing diphtheria antitoxin did not prove satisfactory and the last legislature provided \$5,000 for this purpose and the department has now arranged for a sufficient number of stations for its distribution. A larger sum, however, than this is needed.

The department conducted an extensive tuberculosis campaign, partly in connection with the state antituberculosis association, and was afterward associated with the educational work of the Minnesota Public Health Association. An educational campaign for the medical inspection of schools was carried on for a while by Dr. Hoag, who was employed by the board. There is a dairy and food commissioner and a hotel inspector, neither in the department of health.

It seems to be very desirable that this department should maintain its independence and present organization and that its immediate plans for extending its work should be supported by suitable appropriation and legislation. The engineering work should be extended and a suitable water and sewerage law secured. Educational

work should be systemized and extended. It is probable that the registration of both deaths and births could be improved.

An aggressive child hygiene campaign should be carried on, including the prevention of infant mortality, and school inspection.

The most important matter just now is to secure a better sanitary administration in the smaller towns and rural districts. This is absolutely necessary if effective work is to be carried on against contagious diseases, infant mortality, impure water and bad milk. The department has plans for the effective supervision of local health work and it is most important to secure the legislation and appropriation necessary to put in operation some such method of control.

## MISSISSIPPI

As in some other southern states the state medical society has a share in the control of the state health department, as, of the thirteen physicians of the board five, are nominated by the medical society. The board of health is also the licensing board for physicians.

The department appoints the county health officers, whose salaries are, however, fixed and paid by the county government. The sanitary inspector of the state board has supervision of these county health officers and they act as his deputies. He supervises the municipal health officers' work as well.

A registration, law was passed in 1912, and the department is making earnest and successful endeavors to secure its enforcement.

The antihookworm work has been carried on along the usual lines, but more lectures have been given than in most states and more attention devoted to other subjects, as typhoid fever, and tuberculosis for Dr. Leathers believes that more permanent good is accomplished by broadening out the work than by restricting it too closely to one subject. Since the withdrawal of the Rockefeller Commission this state, like several others has been carrying on a more intensive and somewhat broader work of rural sanitation by means of two "units" consisting of a director and three assistants. This is financed to a large extent by the International Health Commission.

Cases of tuberculosis are reported to the department and provided with literature and counties are authorized to established sanatoria, which when approved by the state department of health, are to receive an annual grant from the state. Only one has so far been built.

A good laboratory has been established, but its diagnostic work is not very extensive.

The state, through the county health officials, directs nuisance work, inspects slaughter houses, and pays particular attention to the cleanliness of all places where food is handled, as markets, bakeries, restaurants and hotels. Public institutions also are inspected. The milk supply is controlled by local licenses which are required by the state department of health, and the state has applied the tuberculin test to large numbers of milch cows and those reacting are required to be killed. The validity of this law has recently been affirmed by the Supreme Court. For the effort expended a great improvement has been effected in "sanitary conditions" throughout the state.

There has been a good deal of educational work. A monthly bulletin is published and there is an exhibit with lantern and "movies." Many lectures are given.

The department should be reorganized with a smaller board appointed according to modern ideas and with the elimination of the medical society. Neither medical politics nor state politics should have any place in the health department. The executive should be a full time man, thoroughly versed in sanitary science, and should be paid an adequate salary.

The local health service is, as elsewhere, in great need of improvement and those conversant with local conditions believe that full time county health officers could and must be provided by the counties. In failure of this, much could be done by a number of state supervisors to continually stimulate the work of the local officials.

The vital statistics division should have more clerical assistance.

Although the public water supplies of the state are not numerous a water and sewage law is needed and an engineer should be added to the staff of the department.

A division of epidemiology should be created which should include far more than "rural sanitation" and should wage effective campaigns against all infectious diseases. The work of the diagnostic laboratory should be greatly extended. Public health education should be increased in amount, systemized and specific campaigns carried on against malaria, typhoid fever, tuberculosis and for child welfare. Better provision should be made for the free distribution of antitoxins and vaccines.

## MISSOURI

Missouri is one of the states in which the State Board of Health is also the examining board for physicians. This is not a good arrangement, as the latter duty occupies time and energy which should be devoted to strictly public health matters. The mode of appointment of the board, by which the majority may be removed at one time, does not favor a strong policy and the election of the executive officer from the board, and by the board, does not favor selection of the best men and, with the mode of appointment of the board itself, gives ample opportunity for pernicious politics. The state does not appear to have taken its health department very seriously, for it has not given it much power nor placed many duties on it

The "model" registration law was enacted in 1909 and the State Board of Health seems to have been very successful in securing records of deaths, so that Missouri is reckoned a registration state. The registration of births, too, is fairly good.

The board of health maintains a bacteriologic laboratory, with a capable man at the head, but the work has not been pushed.

Missouri has not a modern law for the registration and control of contagious disease. Local health administration is especially poor. There is no effective law for the protection of water supplies and the supervision of public supplies has been delegated to the Public Service Commission, which seems unfortunate, as this commission is burdened, and is likely to be so for some time, with many other very weighty matters. The department ought to be reorganized along modern lines so as to discourage the interference of politics. Bureaus of vital statistics, epidemiology (including the laboratory), engineering, child hygiene and educational work should be established with

first class men at their head who would have the entire confidence of the community. All the real public health work of the state, such as control of water supplies, and publicity, should be transferred to this department. With its advice the health laws need to be revised and local sanitary administration reorganized and the whole work maintained by suitable appropriations.

## MONTANA

The state health department of Montana has made a beginning in those forms of sanitary endeavor which are considered most essential in the Mountain States, but the work is not as well planned as it should be and is not supported by a sufficient appropriation. The state has a registration law which ought to secure complete returns but one clerk is not enough to secure proper enforcement. Undue importance is attached to the food division, as of, the total appropriation of about \$15,000 there is set aside \$5,000 for food inspection and \$4,000 for the chemical laboratory, most of the work of which has been concerned with food analysis. It is true, however, that a good deal of the work of this division is directed to securing the cleanliness of hotels, restaurants, bakeries, markets, slaughterhouses and other places where food is handled. Moreover, milk dealers are required to be licensed by the State Board of Health and dairies are inspected and scored. All this is done chiefly by local health officers but under the rules and supervision of the State Board of Health.

The state has a diagnostic laboratory at Helena but it is doing very little work.

There is a water law which might yield better results if there were funds for its administration.

The department inspects many public buildings and institutions, as construction camps, and has to approve plans for schoolhouses. Montana board of health has done much in the study of Rocky Mountain tick fever and also in applying methods of control. In this it has worked in cooperation with the U. S. Public Health Service. At present there is a state commission of three, of which the secretary of the State Board of Health is a member, but which is now leaving most of the active work to the federal government.

The executive officer believes that the first need is the improvement of the local health service, and in this he is probably correct. It is his opinion that whole time health officers are entirely practicable provided some of the counties be united to form sanitary districts and the towns are placed under district supervision. The executive officer also believes that these health officers should be appointed by the State Board of Health. In any event the state board should supervise and control their work as fully as possible. Another clerk is needed for vital statistics.

There should be an epidemiologist who could not only investigate outbreaks but could also develop a better system of control for contagious diseases. In this connection the work of the diagnostic laboratory should be greatly extended, perhaps by making the epidemiologist the head of the laboratory and giving him enough assistance. Provisions should also be made for the distribution of antitoxins and vaccines.

The department needs a full time engineer who should devote a large part of his time to the control of the water supplies and sewage disposal. The typhoid death rate is high and a part of it is certainly due to water pollution, which should not be

permitted. The engineer's advice would also be valuable for the sanitation of state buildings and schoolhouses. It is not improbable that a man could be found who could do both the engineering work and the water laboratory as well. At present the chemical laboratory where the water and food analyses are made is at the agricultural college, and it seems desirable to maintain this connection.

A great deal more educational work is needed and a special man should be provided for this unless an assistant can relieve the executive officer of routine work so that the latter can devote the necessary time to it.

This state is not taking its proper position in sanitary work. The organization of the health department is bad and it is said that political influence makes itself felt. Local sanitary organization is generally poor throughout the state and diseases are not well reported. It is stated that in 1913, eighty-one cases and eighty-four deaths from scarlet fever were reported in a population of 1,200,000! Dr. Wilson, the state inspector, whose work is well spoken of, has to look after outbreaks of contagious diseases, as well as nuisances and vital statistics, and act as general agent of the department. He is the only full time man outside of the laboratory.

Although Nebraska has had since 1905 a registration law which ought to give good results, it has not been admitted as a registration state. The clerical force is not sufficient and the work is not well handled.

Practically nothing is done in the way of publicity and education, except an annual meeting of health officers. There is no systematic supervision of water supplies and no good law, though the laboratory has done some advisory work. No good provision is made for the distribution of antitoxins and vaccines. There is a small state sanatorium for tuberculosis, and the disease is reportable, but according to the bulletins only 17 cases were reported for the year ending December, 1913. The control of food, milk and dairies is in another department, as is hotel inspection. The department does practically nothing toward developing local activity in child hygiene. A little nitrate of silver is distributed for the prevention of ophthalmia and the law requires the licensing of boarding places for infants as well as maternity hospitals by the State Board of Health, though the secretary was not certain about this.

In October, 1913, a good bacteriologic and chemical laboratory was established which is making water examinations and giving advice, besides doing diagnostic work, all of which needs to be greatly extended.

The most important need is a reorganization of the department. The constitution forbids the establishment of a board of health, as it is usually constituted, so that the present exofficio board, consisting of the governor, the attorney general and the superintendent of public instruction, must continue. It would seem to be wise to allow the existing "board of secretaries" to remain and to continue as an examining board for physicians, which has hitherto been their chief function. All the executive power in regard to public health might be placed in the hands of a commissioner of public health to be appointed by the exofficio board of health, and who should be a man skilled in sanitary science and who would give his whole time to the work and who ought to be paid adequately therefor. He should be given full authority in appointments. When such a position is made and filled by an efficient man, he can best lay down specific plans for public health work, but it is safe to say that provision must be made for more efficient and better paid local health officers, for the enforcement of the vital statistics law and

the law for reporting disease, for the services of an epidemiologist and for a water and sewage law and the services of an engineer, and for the distribution of antitoxin and vaccines as among the more immediate activities of the department.

### **NEVADA**

State sanitation in Nevada is a very difficult problem, for the state is in population by far the smallest in the Union, the state having in 1910 but 81,875 persons, yet these are mostly in small communities, often difficult of access and scattered over more than 110,000 square miles. There are only five states with as large a land area. These conditions make public health work difficult and expensive while, of course, the revenue of the state must be comparatively small.

The state has a registration law which ought to give good results though the details relating to local registrars and their fees might be improved.

There is a good bacteriologic laboratory in connection with the University at Reno, which not only does diagnostic work, but examines water and milk and does epidemiologic work and advises local communities as to various sanitary problems. The connection between this laboratory and the State Board of Health is slight and indefinite. Food control is under another department

The work of the laboratory might be greatly extended and a prospectus recently issued indicates this purpose. Educational work is needed which might well be carried on in connection with the laboratory. The epidemiologic work also should be extended and better reports of contagious diseases secured. The laboratory might also, on its own initiative, do more work in regard to water supplies. In all this there ought to be a close cooperation between the laboratory and the State Board of Health. Sufficient funds should be given the latter to enable the executive officer to travel where necessary in order to improve registration and, stimulate, the work of county health officers. More money is needed, and with a very little more money a great deal more work might be done.

### **NEW HAMPSHIRE**

The New Hampshire department of health has been managed in a rather conservative manner but nevertheless has done much good.

The registration of vital statistics is excellent and places New Hampshire with the rest of New England among the registration states for births as well as deaths.

The state has had a pure food law for many years, administered by the health department, and much has been done, though of late more attention has wisely been devoted to the investigation of water supplies. A good deal of work has been done on milk for the smaller towns and, recently, under a new law, the department makes inspections and establishes rules for firms desiring to sell "inspected milk," an industry which the secretary expects to greatly increase. This state health department was also one of the first to adopt rules for the cleanliness of places where food is handled, but as there is only one inspector, who has other duties, not much executive work is done by the state. The state has an effective water law and considerable work has been done but much more should be done.

There is a good bacteriologic laboratory which does much with water and milk and its diagnostic work is unusually good.

A recent act provides for the distribution of diphtheria antitoxin.

The department has certain duties concerning the indigent insane which require much clerical work.

Among the important needs are an engineer, for, while the typhoid death rate is low, there are still polluted water supplies and sewage problems are numerous. Although the laboratory is doing good work there should be a full time bacteriologist and more clerical assistance.

There should be much more, and more effective, educational work and a special man for this is needed who could carry on active campaigns for whatever sanitary need is most pressing.

It is not desirable that the state attend to the details of local inspection or control of contagious disease but should rather strive to instruct and supervise the local health officials. For this purpose two or three supervisors are needed working along the same lines as the supervisors in Massachusetts. These men should be, first of all, good epidemiologists.

## **NEW JERSEY**

The health department of New Jersey, though not given to self-exploitation, has been doing excellent work for a number of years and is following most lines of effective sanitary administration.

The state has long had a registration law and its administration has steadily improved until the marriage and death record is practically complete, though birth registration needs to be improved.

There is a bureau of contagious diseases sanitary inspection, which carries on the epidemiologic work as well as possible with its present force and under the defective local sanitary administration. Contagious diseases are not as well reported as they should be though the showing is better than in very many states.

The department has carried on a good deal of tuberculosis education and the state maintains a sanatorium under independent management and has a law requiring every county to provide hospital facilities for which the state may give aid. The state board of health is to see that this law is obeyed and expects soon that each county will be provided for. This state was the first to enact a compulsory isolation law for tuberculosis.

New Jersey, formerly had a separate board to deal with water and sewerage problems but in 1908 this was consolidated with the state board, of health and its work is continued by the division of food, drugs, water and sewerage. The state has a very good water and sewage law and it is well administered, as is indicated by the low typhoid death rate.

The diagnostic laboratory is under, the above named division and does a large amount of work. The examinations for typhoid fever are especially numerous. The food and drug division has done excellent work along the ordinary lines of preventing adulterations and of late has devoted an increasing, amount of time to more strictly sanitary conditions. Much attention has been, devoted to preventing the infection of clams and oysters and much has been accomplished. The cold storage law is

administered by the department as is also the "broken egg law." Creameries and ice cream factories are supervised and canneries and slaughterhouses inspected. The department seems to have done a good deal of effective education by its inspection of dairy farms, which is usually done for the assistance, and with the cooperation of local communities.

The state provides an inspector for maritime quarantine, appointed by the governor, but nominally acting under the State Board of Health. As the federal government maintains inspection at the same port this is an entirely needless expense. New Jersey is; one of the very few states which have a paid board of health. Each of the seven members, except the secretary, who receives \$2,500, is paid \$1,500, per annum. The board meets every week. The disadvantages of a paid board are elsewhere referred to, and also of having a board do executive work. Since the above was written the department; has been reorganized by the legislature. The board of health is retained and it still possesses full executive power and has been given legislative power as well. The members serve without pay and elect the executive officer.

The divisions of the department should be arranged, for certainly food control, engineering and the diagnostic laboratory do not belong together.

Local health administration needs to be decidedly improved. The present local expenditure of five cents per capita, permitted by the law, for health purposes is entirely inadequate. It is thought by the department that much improvement could be effected if the state board of health had authority, in cases of local, inefficiency, to step in and charge the expense to the township and this power has just been granted. Adequate fees for local health officers might be fixed by law as in Vermont.

Without doubt also the appointment of state supervisors as in Massachusetts and New York would prove useful, but in some way local health work should be made more efficient.

With an improvement in local health work doubtless contagious diseases would be better reported and the bureau having supervision over them would be in a position to do more and better work. Provision should be made for the distribution of antitoxins and vaccines.

The function which has received least attention is that of education. A division of public health education should be established to continue antituberculosis work and to develop local effort for the prevention of infant mortality.

Of course there are many details of legislation and administration which could be improved, but under a reorganized department, and with an improved local health service, these would be worked out by the staff and should be supported by an increasing appropriation.

## **NEW YORK**

The health department of this state was entirely reorganized in January, 1914, and was enabled to undertake its new work with a greatly increased appropriation. Perhaps the most important features of the new organization are the "public health council," on which is conferred exceedingly broad legislative power concerning matters affecting the security of life or health, and the division of the state into sanitary districts, for each of which the commissioner of health appoints a sanitary supervisor. Provision is made in

the organic law of the department for the organization of nine divisions, covering the main lines of sanitary work now deemed essential in this part of the country, but not all of these have yet been established.

The council has already framed a considerable body of legislation known as the "sanitary code" and covering such subjects as cable diseases, milk, midwives, labor camps and nuisances. These rules are in the main far better, and show evidences of greater care in preparation, than similar regulations in most of the states.

Although New York has been reckoned a registration state for deaths and births, there is here, as elsewhere, room for improvement. The adoption of the model law and the appointment of Dr. Wilbur give assurance that effort will not be spared to make the records as nearly complete as is possible.

The state has been divided into twenty districts and supervisors appointed who, under the direction of the central office, are to supervise and unify the work of local officials, make epidemiologic studies and secure the enforcement of the sanitary code. In 1915 the number of supervisors was reduced to ten, entirely too small a number.

The division of communicable diseases has been organized and will operate largely through the supervisors who will do much of the field work.

Maritime quarantine in New York is not a function of the department of health but a separate department. It is carried on at a considerable cost to the state over and above the fees. It has been urged, and with much reason, that maritime quarantine be transferred to the federal government, as has been done at nearly every port in the country, and it would seem desirable too that it be done here.

The division of laboratories and research does the work required by the engineering division, makes and distributes sera and vaccines, and does the usual diagnostic work.

The tuberculosis division has not been organized, owing to lack of appropriation, but the department is doing educational work, is preparing traveling exhibits, and has actively assisted in the campaign for the establishment of county hospitals.

The division of engineering, besides water and sewerage work, has among other duties, to inspect certain institutions, approve plans, investigate nuisances, inspect summer hotels, and study oyster pollution. Unfortunately the most important work of the division, the supervision of water supplies, is greatly hampered by the lack of proper legislation. A modern water and sewerage law seems to be needed to make this division as effective as it should be, a need of course which is well recognized by the department.

By statute the health department is charged with food control but as no appropriation has been made nothing has been done. The cold storage law is, however, enforced by this department.

The educational work is proceeding along sane and effective lines and is wisely avoiding some of the sensational and careless matter and methods which have found favor elsewhere.

The division of child hygiene has carried on vigorous campaigns for the purpose of organizing effective local work for the prevention of infant mortality, the success of which has already been shown by a lessened death rate. The division of public health nursing, through its nurses, aims to establish, standardize and supervise the different lines of public health nursing, throughout the state.

The state of New York is fortunate in having a department of health, not built up haphazard, but carefully planned by able men versed in sanitary affairs and it is equally fortunate in having it directed by exceedingly capable and earnest officials on whom has been conferred ample power. It remains for the state to appropriate sufficient funds to carry on the work according to the plans formulated.

### **NEW MEXICO**

It is unfortunate, that a state with a population which now numbers nearly half a million should do nothing whatever for public health. It is the only state of which this can be said. The State Board of Health has both legislative and executive power but no appropriation. It is also an examining board for physicians but it is said that at present the fees do not pay expenses. Surely the state is not so poor that it cannot afford sufficient salary for a full time executive trained in public health work. Such a man could do epidemiologic work, stimulate and supervise the local health officials, study the sanitary needs of the state, and with a suitable registration law establish a system of vital statistics. The people should demand that the office be absolutely free from politics. Such an officer would study local conditions and be able to develop the department along effective lines.

### **NORTH CAROLINA**

The present activities and progressive attitude of the North Carolina department of health are largely due to the self sacrificing efforts of the former secretary, Dr. Lewis, who voluntarily resigned so that a full time executive might be appointed. Until 1909 the appropriation had been but \$2,000.

The department was one of the first to recognize the paramount importance of improving local health administration and was one of the first to make a serious attempt to do so. In 1913 it secured a law permitting the appointment of full time county health officers and at present eleven counties have made such appointments. It is the belief of the department that such good results will be obtained from efficient work in these model, counties that other counties will be led to adopt the same plan. This state, more markedly than most others, is attempting to place the responsibility for sanitation on the local governments.

Finding that the counties are slow to elect full time health officers the department has recently developed the "unit plan" for rural health work. Under this plan the counties pay for definite forms of work such as vaccination or school inspection, and the work is actually done by the State Board of Health.

The "model" vital statistics law was enacted in 1913, though until 1915 burial permits were not required in places with less than 500 inhabitants. This law has been vigorously and widely enforced.

Antihookworm work has been carried on, as in other states, with some incidental, but important, education of the people along the lines of general sanitation, though

it has perhaps deviated less from its original purpose than in some other states. Since the withdraw of the Rockefeller Commission the department has abandoned this as a separate line of work.

In 1908 a bacteriologic laboratory was established which also gives antirabic treatment and acts as agent in the distribution of diphtheria antitoxin and makes and distributes typhoid vaccine. Authority has recently been given to manufacture antitoxin and the department is preparing to do so.

North Carolina has a sanatorium for tuberculosis, formerly under a separate board, but about two years ago it was placed under the management of the State Board of Health. Seventy-five thousand dollars was this year appropriated for enlarging the sanatorium and \$10,000 for a "correspondence school" in connection with it, by which the department hopes to keep in advisory communication with the tuberculosis population of the state. The state has a good water and sewerage law but the engineer gives only a small part of his time to engineering work and consequently, it has not received the attention it deserves.

The educational work is of excellent quality and is very extensive, particularly as regards press notices and bulletins.

Although much has already been accomplished, and in a short time, much more remains to be done. As in all other southern states the lines of work undertaken must be extended and appropriations increased.

The most important and urgent need is the formation of a division of communicable diseases which will give prefer attention to malaria, typhoid fever, tuberculosis and the common contagious diseases. The diagnostic work of the laboratory should be greatly extended. There should be a full time engineer to carry out the provisions of the water and sewerage law.

Educational work also ought to be greatly increased and new lines taken up, such as campaigns against malaria and for the reduction of infant mortality.

A most excellent beginning has been made in the prevention of disease, and if supported financially it is certain that the state department of health of North Carolina can make an enormous change in the health conditions of the state.

## **NORTH DAKOTA**

The active force of the state department of health consists of the superintendent of health (part time only) with the addition of a clerk for two or three months in the year. A change in administration means a change in officials. Politics determines the election. The appropriation is \$2,700 a year and has to cover the salary of the executive officer, clerk hire, travel and printing. Of course almost nothing can be accomplished under such conditions. Local health organization is about the same as in most states and of course needs supervision.

There is a small tuberculosis sanatorium and an active state tuberculosis association is doing good educational work. A registration law was enacted in 1907 but the appropriation of the department is insufficient for its administration.

The public health laboratories form an integral part of the State University and have no connection with the State Board of Health. The laboratories are doing excellent work in diagnosis and in water investigation.

The most important thing in this state is to secure a full time superintendent of health, experienced in public health work, and pay him sufficient salary to retain him, and with an indeterminate tenure of office. An unpaid board of health with legislative power, but with no executive authority except the election of the superintendent of health and furnish enough clerical assistance for the registration of vital statistics, for increasing educational work, for a full time epidemiologist and for providing for the distribution of antitoxin and vaccines. A permanent office in the capitol, or some other accessible place, should be provided. When the department of health is thus strengthened and supported, some organic connection with the public health laboratory should be established, though it would be desirable to maintain the latter in connection with the University. The control of water and sewerage should be extended, either through the laboratory or an engineering division of the department, and a modern law secured.

## OHIO

The health department is unusually well organized and its work well systemized. It stands in close relation to the University and its offices and laboratories are situated on the campus. As the connection is entirely voluntary, not prescribed by the state, it is hoped that it will prove useful to both.

Contagious diseases are well reported as compared with the average state and the department has the services of an epidemiologist but, as in most states, real control cannot be obtained until local sanitary organization is improved.

The work of the diagnostic laboratory is good in amount but it could be still very considerably extended and improved.

Although, judging from the case fatality of diphtheria, antitoxin is quite freely used, and considerable typhoid vaccine is put out by the laboratory, the department ought to consider a freer distribution of these and other sera and vaccines. Since the above was written an appropriation has been made for the production of diphtheria antitoxin. The bureau of public health education and tuberculosis is well organized and supported by a substantial appropriation, so that a great delft of educational work is being done by means of lectures, a traveling, exhibit and by supervisory nurses and in other ways. Most of it is directed against tuberculosis as was intended. The state has a sanatorium of 140 beds and a district hospital law under which several hospitals have been built. Local antituberculosis activities of various kinds are being developed by the educational work.

Ohio has a good water and sewage law and the work of the engineering department has proved efficient in checking pollution and brining about improvement in the water supplies of the state. A stricter vision and more frequent inspection is desirable.

The department is making a survey of occupational diseases under a recent act of legislature and hopes that the work will be continued under a permanent bureau.

The state has a plumbing law which is applicable to the smaller municipalities, 751 of which are dependent on the State Board of Health for the inspection of the plumbing. As there is only one inspector with an assistant such inspection is impossible. Comparatively little is done to promote child hygiene and probably the most important need of the department is the establishment of a special bureau for this purpose.

Without doubt the most important sanitary need of the state at the present time is better health administration in the small communities and rural districts. The recommendation of the department is that the state be divided into districts (excluding the cities) in each of which there would be a whole time health officer elected by the local officials with the approval of the State Board of Health and part time deputies appointed for each small health district into which the large district would be divided. Some plan which will secure efficient supervision of this sort ought to be adopted.

The registration of vital statistics is in the office of the secretary of state, which is an unfortunate arrangement, though the registration of deaths seems to be good. The registration of births is not so good but the law has been operative only five years. It is always better that registration should be under the health department and it is so in all but four-states.

## OKLAHOMA

For a state as populous, rich and progressive as Oklahoma comparatively little is done to protect the public health.

Vital statistics are being collected by the commissioner of health but registration will never be satisfactory without a modern law and a proper system of local registrars. There is a laboratory at the State University but very little diagnostic work is done. During 1914 the department had a fund of \$7,500 for the free distribution of antitoxins and vaccines, but this is entirely inadequate for a state of this size.

A good deal of educational work is done in the way of press notices and an exhibit has been prepared relating chiefly to tuberculosis.

Since 1908 the supervision of food and drugs has been under the department of health. Though considerable effort is made to improve the "sanitary" conditions of markets and groceries, as well as to prevent adulteration, this food work is an unimportant health measure, yet it absorbs \$12,500 of the \$32,500 appropriation. There is a hotel but it is supposed to be enforced by local health officers. It has been suggested that the food work be transferred to some other department of the state government. This is a matter of expediency but if it remains where it is, it should be remembered that its expenditures are not primarily, for public health.

The department needs to be properly organized. While it is believed that a board of health, whose sole executive duty is to elect a state health officer, is the best form, yet if a commissioner of health, appointed by the governor, is preferred here, as it is in some other states, there ought certainly to be a legislative board as is provided for in New York.

It is of paramount importance that the department be kept absolutely free from all political entanglements. To mix in politics, either medical or civic, in the slightest degree, though it may, apparently for the moment, secure some sanitary advantage, is in the end always harmful. It goes without saying that the state should pay its commissioner of health a salary sufficient to retain his undivided services and should insist that these services be devoted solely to the scientific and administrative duties of his office. It is absurd to expect that \$1,800 a year will do this.

The department should have definite divisions of work as follows:

A division of vital statistics operating under a modern registration law.

A division of engineering with a law giving effective control over water supplies and sewage disposal. This division should have ample laboratory facilities, preferably under its immediate control.

A division of communicable diseases with laboratory facilities for diagnostic purposes. The use of this laboratory should be greatly extended over what it now is. It is very desirable that the University connection be continued. The use of curative sera and vaccines also should be increased.

A division of public health education, which should carry on educational work along many lines, one of the most important of which in this state is for the prevention of tuberculosis.

A division of supervision of local health work. It would seem that with state appointed county health officers local sanitation might be greatly improved by the appointment of state inspectors or supervisors as has been done in other states.

The food and drug division could be retained by the department, or not, as might be thought best.

## OREGON

The systematic work of the state health department is by no means extensive. Vital statistics are collected but the method is defective and they are not complete. A modern law was, however, adopted February of this year.

There is a bacteriologic laboratory which makes some examinations of water and does a moderate amount of diagnostic work.

There is a fund of \$1,000 for furnishing diphtheria antitoxin and smallpox vaccine but very little of it expanded. Preventive treatment for rabies is given.

Tuberculosis is reportable to the department and literature is sent to the cases, but there is little real supervision and the disease is poorly reported. The state has a sanatorium of 70 beds.

There has been some inspection of construction and hop picking camps.

The department inspects and licenses institutions receiving state aid but there are only about half a dozen.

The general educational work has been moderate in amount. Special educational work for improving schoolhouse conditions and for the encouragement of medical inspection has been carried on by sending nurses well over the state to demonstrate methods.

The educational work in which the department has been most interested is that of "social hygiene," and in this it has cooperated closely with the Social Hygiene Association, which association receives a grant of \$10,000 from the state for the biennial period ending Sept. 30, 1914. For the present period it is \$7,500.

A water and sewage law was enacted last winter providing for the filing and approval of plans for new water supplies and the filing of plans for sewerage. The work of the department needs to be better organized and carried on more aggressively along the most effective lines of modern health work.

The vital statistics law should be vigorously enforced.

A full time epidemiologist is required. It is suggested that he might well be a bacteriologist and have charge of the laboratory, which would seem to be a good

arrangement but he should in that case have ample assistance. It is to be expected that, with increased activity in communicable disease control, will come increased use of the diagnostic laboratory and a more extensive employment of sera and vaccines.

A general inspector is needed to investigate local conditions, stimulate and instruct local health officers and local registrars when the latter shall be appointed.

A man to conduct educational work also should be added to the staff as there is enough of this work of a general character to keep him busy, as well as specific campaigns against tuberculosis and for school inspection and infant hygiene.

## PENNSYLVANIA

The health department of Pennsylvania does a larger volume of sanitary work than does the corresponding department of any other state.

Perhaps the most distinctive feature of public health work in the state is the complete control by the central authority of local sanitation in a large portion of the less thickly settled wealth. There are 670 districts, including over 2,500,000 people, in which the health officer is appointed, paid and directed by the state department of health. Besides these local health officers there are county medical inspectors who act as supervisors and are also appointed by and paid by the state.

Vital statistics, which a few years ago were not worthy of the name, have been perfected to such an extent that Pennsylvania is now recognized as a registration state for births as well as for deaths.

The laboratory is at Philadelphia and, besides diagnostic work, makes bacteriologic, and some chemical examinations, for the engineering division, and also prepares several kinds of vaccines. The diagnostic work does not appear to have been pushed as it should have been and the laboratory is made use of by practicing desirable. The department distributes free to the poor diphtheria and tetanus antitoxins as well as tuberculins and typhoid and other vaccines.

The antituberculosis work of the department is very extensive and to it is devoted a large portion of the appropriation. Three large hospitals for all classes of cases are maintained. The department also has a system of dispensaries distributed through the state, 114 in number, administered by physicians and nurses in the employ of the department. Supervision of the patients is maintained and more or less supplies are furnished by the state. Besides this, a traveling exhibit is kept on the road and lectures and other educational work carried on.

A bureau of housing has recently been organized to look after tenement houses and boarding and lodging houses.

The division of engineering is larger than in any other state. The department is charged with complete control of water supplies and river pollution and keeps up a constant supervision of the waters of the state and is also making a most detailed survey of all watersheds. For this purpose it has a large force of inspectors, who also do most of the epidemiologic work for typhoid fever, and devote a considerable time to the abatement of local nuisances.

A traveling child welfare exhibit has been sent out to many places in the state and other educational work has been carried on by the department, but neither infant welfare

work nor general educational work has been as extensively, or systematically, organized as would seem desirable.

Pennsylvania and Florida are the only states in which medical school inspection is avowedly made the duty of the state instead of the local government. Although the state does not inspect the school communities there are nearly 12,000 rooms in the more sparsely settled portions of the state where inspection is made by nearly 900 medical men employed by the state department of health.

It is thus seen that in Pennsylvania the state takes an unusually large share in public health work, occupying itself extensively with local details and employing for this purpose a very large number of officials. Very much has been accomplished where little or nothing was done before. An active and uniform control of communicable diseases has been established in rural and village communities, antitoxins and vaccines have been freely distributed, local nuisances abated, large numbers of schoolchildren needing medical treatment have been sent to their physicians, much has been done to improve water supplies, an extensive campaign against tuberculosis is carried on and vital statistics have been vastly improved. The striking characteristic of the Pennsylvania system is the centralization of the work at Harrisburg, and it is doubtless true that, but for this entrance of the state into local work, large sections of the commonwealth most needing it would still show little sanitary progress.

The critics of such centralization in sanitary affairs believe that, though quick results may be obtained in this way, they are not so good, or so lasting, as when local communities are exalted to look after their own affairs. It is pointed out that with so many to be appointed it is difficult to select from a central office the men best qualified. Without a strong and able administration, such as Dr. Dixon's assuredly is, it is impossible to carry on the system, at all, but with it, individual initiative and responsibility is apt to degenerate into official routine. Moreover the administrative details of extensive organization are so burdensome and exacting that little opportunity remains for the critical study of sanitary problems without which success and progress are impossible. The employment of so many officials in one department makes its possible involvement in politics, which is the ruin of any health department, a very real danger, no matter how earnestly the head of the department may strive to avoid it. There are men, competent to judge, who claim that some of these very evils can be seen in Pennsylvania. However this may be, it does not appear that the success attained by such centralization, great though it be, is sufficient to induce other states which are making progress, though it may appear slow at times, by the development of local management of sanitary affairs, to abandon their methods for the dangers of frankly centralized control.

## **RHODE ISLAND**

As Rhode Island has such a small area; with its 600,000 people mostly in quite sizable cities, the problems and duties of the state department of health are, in many ways, simpler than in most states.

Like the other New England states Rhode Island is a registration state for births as well as deaths. The statistical tables covering an exceptionally long period are considered of unusual value. This was the first state health department to establish a diagnostic

laboratory (Sept. 1, 1894) though not enough work is done in those parts of the state which need it most. With the recent appointment of a pathologist the laboratory expects to extend its activities along pathologic lines.

Rhode Island was also the first state to distribute free diphtheria antitoxin and has since included other sera as well as vaccines in the distribution. It was also the first to distribute preventive outfits for ophthalmia.

A water laboratory has been established for some years, a chemist with engineering training is employed, and much has been done by the department to improve the water supplies of the state, though there has been no adequate law.

The department has done quite a little educational work particularly by means of exhibits, lectures and "movies."

Tuberculosis is reportable to the State Board of Health and literature is sent out and sputum cups and paper napkins furnished. The state has a sanatorium of 130 beds for incipient cases and is about to build a hospital for advanced cases, neither however under the management of the department of health.

The state board of health is also the examining board for physicians.

There is a Food and Drug Commission, but with an entirely inadequate appropriation.

The Shell Fish Commission has done a great deal of excellent work in studying the conditions of the oyster industry and improving its output and the conditions under which the latter is handled.

The board has recently formed three bureaus which operate under the immediate direction of the board itself. An arrangement which, as will be referred to on another page, is bad in principle, and has worked poorly in New Jersey and can be expected to work poorly in most cases. A single strong executive officer is needed in every state. Among the improvements to be recommended is a requirement that the executive officer be a full time man, which should carry with it with it an adequate salary.

In most of the towns, the local health work is quite inefficient, and one of the most important needs of the state department of health is a supervisor who shall instruct and direct the work of the local health officers and impress upon town officials its importance. Such a supervisor should be an expert epidemiologist.

The educational work of the department needs to be systemized and greatly extended, and might well supplant some of the effort of private organizations. A full time man is also needed for this.

The appropriation for antitoxin should be increased so that there may be enough for all who need it, both within institutions as well as without.

A modern water and sewage law is sorely needed, which will give the state department of health the same effective control, that obtains in many other states, over dangerous pollution.

## **SOUTH CAROLINA**

Like the other southern states, South Carolina had in its state health department a Division of Rural Sanitation acting chiefly against hookworm and chiefly financed by the Rockefeller Commission.

The department also has an excellent bacteriological laboratory which is doing a good deal along some lines though little in others.

Some chemical and bacteriological tests of water supplies are made, but little supervision is exercised.

The department has distributed a good amount of diphtheria antitoxin and much typhoid vaccine, and has provided antirabic treatment.

A small sum has recently been appropriated for a sanatorium for tuberculosis, but little else has been done to control this disease.

Food control is under the Department of Commerce, Agriculture and Industry. The "model" law for the registration of statistics was signed by the governor, Sept 1, 1914, and has been vigorously enforced.

Since the vital statistics law has been put in operation, the most important need in South Carolina is better local sanitary administration. Whether this is brought about by the appointment of full time county health officers, or in some other way, the state department of health must exercise some efficient control and must have supervising officers.

The Division of Rural Sanitation should be extended so as to include all the communicable diseases, each which should receive the share of attention to which its importance entitles it. With the active epidemiological work will come a great increase in the use of the diagnostic laboratory, and in the demand for antitoxins and vaccines.

Since the above was written, the exclusive antihookworm campaign together with the Division of Rural Sanitation, have been given up, and the department, with the help of the International Health Commission, is doing intensive sanitary work of a somewhat more general nature. Two sets of men, or "units," are employed, who spend about three months in each country.

Public health educational work should be put on a sound basis, and systemized, and specific campaigns inaugurated for the control of tuberculosis, malaria, and typhoid fever, and for the prevention of infant mortality and protection of child life. A modern water law is needed, and a full time engineer should be employed.

## **SOUTH DAKOTA**

Comparatively little health work is done by the state of South Dakota. The superintendent of health is a part time man, engaged in general practice in a small town in the northeastern part of the state. Politics enter into state appointments. With a change in administration, officials expect to hand in their resignations. The appropriation is small and the only assistance which the superintendent of health has is a stenographer and part time clerk. The board of health is also the examining board for physicians and this duty absorbs much of its interest. The state does little in the way of supervision of local health officers or in the control of contagious diseases. Little epidemiologic work is done. There is no distribution of antitoxins, no efficient publicity campaign, no control of water supplies, and no accurate knowledge of the prevalence of typhoid fever.

The state has a small sanatorium for tuberculosis and there is a food and drug commission at the state university at Vermilion, and also a health laboratory at the same place. The latter is doing good work, and is partly supported and directed by the State

Board of Health, though, as a matter of fact the latter really has little to do with it. The registration of vital statistics is in the department of history in the capitol in Pierre.

Here, as in North Dakota, the essential thing is to get the department out of politics, if possible. Probably a board of five with terms of five years, one member appointed each year, would be an improvement. This board should elect the superintendent of health but not from its membership. The executive should be a full time officer and trained in public health work. He should be paid an adequate salary and supported with an adequate appropriation. When the department is properly established, the control of the health laboratory and the collection of vital statistics should be turned over to it. Instead of having the laboratory, the office of the registrar and the office of the superintendent of health, in different places, and the latter wherever the incumbent happens to live, the whole consolidated department should be together. Provision should then be made for a campaign of education, a better supervision of health officers, control of contagious disease, and investigation of outbreaks by a full time epidemiologist, or otherwise. Antitoxins and vaccines should in some way be made accessible to all. The water supplies of the state should be studied and probably a law for their control for their control enacted.

## TENNESSEE

It is unfortunate that the department is not free from political relations. It is true that the executive officer avers that he does not consider politics in the management of his office, but he admits that he is an active party man. It is certain that no executive officer can safely take any active part in political work, for it is sure ultimately to interfere with his efficiency, and perhaps cause his removal.

It is unfortunate, too, that the department has been unable to publish any reports since 1910.

The department has within a few years undertaken several new lines of work.

The "model" registration law became effective Jan. 1, 1914, and is apparently being well administered.

The department has, recently, with the liberal assistance of the International Health Commission, put in the field three "units" to carry on more intensive community work on somewhat broader lines than that of the former Division of Rural Sanitation.

Public health educational work is being carried on by means of lectures, exhibits at fairs, a traveling railroad exhibit, etc. but the work needs to be systemized and extended. A diagnostic laboratory was started, January, 1914, but thus far very little has been accomplished. This very important work has been apparently been neglected.

The department of food and drugs is supposed to be under the supervision of the department of health, but the connection is slight as the chief inspector is appointed directly by the governor, and there is a special appropriation for the department. Six inspectors and two chemists are supposed not only to look after adulteration, including milk, but to enforce the "sanitary law" in regard to the cleanliness of hotels restaurants, bakeries, stores, slaughterhouses, etc., the "hotel law," and the very important "anti-narcotic law," as well as to assist in the enforcement of the "weight and measures" law. Nevertheless, good work has been done by this small force.

The control of contagious disease is poor, and the state is doing little against tuberculosis. Local sanitary administration is unsatisfactory.

There is no control of water supplies.

The most urgent needs of the state are:

The establishment of an efficient system of local administration, by the appointment of full time county health officers, by state supervisors, or by some other means.

The formation of a bureau of epidemiology, with a full time man at its head, and which should have charge of all the campaigns against contagious diseases, is one of the first needs of the department. It would probably be desirable to place the diagnostic laboratory in this bureau.

Provision should be made for placing curative sera and vaccines in the hands of all who need them.

A law for the control of water supplies and sewage disposal is needed, and a full time engineer to enforce it.

There should also be a full time man to take charge of educational work.

The promotion of child hygiene should be seriously taken up by the department and a systematic campaign carried on.

## TEXAS

That Texas suffers from the doctrine that to the victor belongs the spoils is illustrated by the statement of the state health officer that a new governor would mean a new health office, a prophecy of which he has since been the victim. The uncertainty of tenure in office of the head of the department precludes the carrying out of definite plans and a comprehensive development of public health work. Probably the safest plan of organization is a legislative board without executive power other than the election of a commissioner from outside its own membership, but no scheme is politics-proof. Public opinion must be awakened. Until the people, of Texas realize the importance and value of public health work, and demand that the best qualified and capable men be appointed and kept in charge of the health department, and that offices be not used to pay political debts, or reward friends, it hardly seems worth while to waste time in the discussion of administrative details.

The state health officer should devote all his time to his office, and receive an adequate salary therefor.

The principal activity of the department is the maintenance of quarantine along the seaboard and the Rio Grande. This takes up a considerable part of the funds, and requires the investment of large sums in buildings, and it is difficult to find a reason why this function should not be turned over to the federal government, as has been done by nearly all cities and states in the country.

Within a few years, however, the department has taken up several new lines of activity.

There is a registration law, but it is not satisfactory and the results attained are poor. Less than the time of two persons is utilized in its enforcement, though in a new state the size of Texas probably ten or a dozen are needed.

Hookworm work has been carried on as elsewhere, but, as the infection is confined to about one third of the state's area, the educational influence of the campaign has not been as widespread as in other states. It has now been entirely abandoned.

In the spring of 1914, \$25,000 was appropriated for the investigation and control of plague, and \$4,000 for anthrax, but it has been impossible to learn how the money is expended.

The department has a bacteriologic laboratory, but the diagnostic work is very small in amount.

Antitoxins and vaccines are distributed, but the amount is not large. Antirabic treatment is given at the state asylum for the insane.

The state has provided a tuberculosis sanatorium of seventy beds under a separate commission, and has done some educational work but it is doing little now. Public health education has not been extensive but an exhibition car has recently been put on the road, which will doubtless prove an educational measure of value as it has in other states. A summer school for health officers has been provided.

A water and sewage law has been enacted but it was not drawn along modern lines and will not prove very effective.

The Pure Food and Drug Commission has done excellent work both on foods and milk.

The health department must be kept out of politics, and the executive made a full time health officer with an adequate salary.

There should be established a division of communicable diseases, provided with an adequate staff. It will be the duty of the division to see that the laboratory is brought into greater use and to see that sera and vaccines are supplied to all who need them. Maritime quarantine should be turned over to the federal government.

Local sanitary administration needs to be greatly improved and state supervisors of local health officers appointed, and an earnest and continued effort made to bring about a steady improvement in the work of these officers and to secure for them an adequate compensation.

The vital statistics law should be improved and a sufficient appropriation provided for its administration.

A really modern and effective water law should be enacted, and an engineering staff and laboratory provided for.

Educational work needs to be thoroughly systemized and well directed campaigns carried on against various diseases, and for child hygiene and the prevention of infant mortality, as well as to acquaint the public with the needs, and value of the department and with progress in the art of sanitation.

## UTAH

The sanitary activities of the state in Utah are limited.

There is a registration law and the collection of vital statistics improving so that Utah has, by the federal census bureau, been considered a registration state for deaths. The department employs two inspectors, who are not physicians, at salaries of \$900 and \$1,320 a year, respectively. They not only look up nuisances but represent the state department of health with advice and assistance in local, sanitary affairs.

There is a bacteriologic laboratory in connection with the university but the state health department spends only a small amount each year (\$500) on it for printing, etc. As is usual when the epidemiologic work of the health department is neglected, the laboratory is comparatively little used.

Very little has been done to control tuberculosis, except the testing of cows and the slaughter of those infected. The testing was done by the federal government. There is a State Dairy and Food Bureau, a department separate from the State Board of Health, which not only looks after adulterations, but inspects dairy farms, slaughterhouses, and all places where food is handled, as well as enforces the hotel law and the weights and measures law.

The state chemist not only analyzes foods for the above bureau, but also analyzes some water specimens for the health department.

It is thus seen that the state health department does very little really effective work. It should be reorganized and the executive made a full time man with adequate salary. This has recently been done.

There is needed a full time skilled epidemiologist. The diagnostic laboratory should be brought under direct control of the department and perhaps the epidemiologist might be made director with a competent assistant as bacteriologist. Ample provision should be made for the distribution of antitoxins and vaccines to all who need them. Educational work should be systemized and greatly extended, and a full time man is needed for this.

It might be that the executive officer and the two officials above referred to could find time to systematically visit and supervise local health officers, or it might develop that a special man for this is needed.

The state needs good water and sewage law, and a chemist with engineering training to enforce it.

## VERMONT

Vermont is to be numbered among the more progressive states as regards public sanitation. The department of health has been free from politics, and the board itself has been composed of men of high character and professional standing and greatly interested in public health.

Vital statistics have been well collected for many years.

The department has felt that the most essential thing was to improve the local health service, and to this end secured a law by which all local health officers are appointed by the state appointed by the State Board of Health. Though appointed by the state, they are paid by the towns. The next step was the training of the health officers, which is attempted by means of an annual "school," the cost of which is borne by the state. The local health officers, as a result, seem to be superior to those of the other New England states.

The diagnostic laboratory does most excellent work. The only antitoxin distributed is that for diphtheria, but the low death rate from this disease indicates that it is made good use of. A good deal of educational work has been done with exhibits, lectures, and "movies," particularly in connection with tuberculosis. There is no

sanatorium and, though the state appropriates a small amount for the care of advanced cases, not much is accomplished.

There has been no very systematic control of water supplies, but in many ways the department has been able to bring about improvement, so that the supplies are in pretty good condition, as indicated by the fairly low typhoid death rate, but continued supervision will be necessary.

The department does excellent work in the prevention of food adulteration, including milk. The chemical laboratory is well conducted and, besides the usual food and water work, makes medicolegal analyses and tests liquors and paints.

The department also exercises an effective control over the sanitation of school houses and other public buildings, and has done much to improve the condition of the former throughout the state. The dean of the engineering department of the university gives a good part of his services to the health department, advising as to public buildings, as well as to water and sewage problems.

Recently the department has been given \$25,000 from private sources for the prevention of poliomyelitis and its sequelae.

The activities now carried on by the department need to be extended and additional appropriations will be required.

A better control of contagious diseases is needed, and a full time epidemiologist should be added to the staff. Besides diphtheria antitoxin, other sera and vaccines should be distributed.

Educational work should be increased and will require the whole time of a capable man. The department also needs a full time engineer and a modern water and sewage law should be enacted.

## VIRGINIA

This state has, during the last few years, shown a remarkable sanitary development. The department is kept free from political entanglements and has a very efficient staff.

In 1912 an amended form of the model registration law went into effect and has been vigorously enforced with excellent results.

The Bureau of Rural Sanitation is in large part an epidemiologic department, and, under the guidance of Dr. Freeman, markedly reduced the incidence of typhoid fever and wisely and effectively directed the work of the Rockefeller Commission in the state.

Since the withdrawal of the Rockefeller Commission, the department has put in the field four "units" of three or four trained men each, to carry on intensive work in the rural districts along somewhat broader lines than the former scheme of rural sanitation. This is financed chiefly by the International Health Commission.

The work of the district health officers, or general inspectors, has been increased and much time is devoted to school inspection.

A trachoma hospital is being maintained jointly by the State Board of Health, the U. S. Public Health Service, and the town in which it is situated.

The Bureau of Education has been a leader in popular education, and as regards the matter put out, is one of the best in the county.

The engineer is doing good work, but an up-to-date water and sewage law is needed.

There is a good laboratory, but the diagnostic work needs to be pushed. Hotel inspection is under the board of health, but the inspector often assists the other bureaus.

The state sanatorium for tuberculosis, with 160 beds, is managed by the state Board of Health. The disease is reportable.

Food and dairy work is carried on by the dairy and food commissioner and considerable attention is given to sanitary conditions.

The work of the state department of health, though well organized should be extended. The appropriations must be correspondingly increased. Additional employees will be required in the bureaus. There should be a better local sanitary organization, the details of which can best be worked out by the department. Ample provision should be made for the distribution of vaccines and antitoxins. Little has been done to lower infant mortality and an aggressive campaign is needed. Ophthalmia neonatorum has not received due attention and in fact the whole subject of child hygiene should be given a more important place.

## WASHINGTON

It is important that a state department of health which has such clear ideas as to its duties and such definite plans for carrying them out cannot secure the necessary legislation and funds. With an appropriation of only about \$15,000, nearly a third of which is for vital statistics, the department has been able to do very little to protect the lives of about 1,500,000 people spread over 66,836 square miles of territory.

Very rightly the registration of vital statistics has been considered of primary importance, and though the death rate is surprisingly low it appears that returns are made with a fair degree of accuracy and Washington has consequently been considered a registration state for deaths.

The department maintains a bacteriological laboratory but the number of examinations made is small, as it probably will be, until epidemiological work is seriously undertaken.

A good deal of typhoid vaccine is made and distributed and antirabic treatment is given.

Some educational work has been done, particularly in connection with tuberculosis, but some of this has been discontinued. Tuberculosis is poorly reported. The state gives assistance to counties and municipalities which establish hospitals and some are taking advantage of it. Plans and sites are to be approved by the state department of health.

The state takes little part in anti-plague work as this is carried on by the cities and the Federal Public Health Service, chiefly by the latter. The officials of the latter are however made state inspectors.

The department has investigated water supplies in a limited way, but so far as it was able, and enough to demonstrate the need of more effective control. A very efficient inspector has done much to improve the sanitary condition of the many industrial camps in the state and has also assisted in solving other local sanitary problems.

The State Board of Health has investigated the conditions of oyster growing and has shown the need for a law to prevent pollution.

Food and milk control is placed in the department of agriculture.

The important needs of the department are:

Perfection of vital statistics, especially the returns of births.

An adequate water and sewage law with an engineer and necessary assistants to properly enforce it.

The systemization and development of education, with specific campaigns against tuberculosis, for the prevention of infant mortality and for the development of school inspection.

A division of communicable diseases should be established with trained epidemiologists who should have ample laboratory facilities at their disposal. Provision should be made for the distribution of vaccines and antitoxins of various kinds.

Probably the most important need is the health service. Doubtless the department can best determine just what arrangement of municipal or county health officers a primary need, with any form of local health service, is direct supervision by the state department of health through its own inspectors.

The department is desirous of developing a division of industrial hygiene and if local conditions are favorable for placing this in the health department it would be advantageous to do so.

## **WEST VIRGINIA**

Until 1914 the State Board of Health was little more than an examining board for physicians. Although a rich state with a population of 1,250,000 only \$2,500 a year was appropriated for the state department of health. In 1914 this was raised to \$15,000. The form of organization is not the best, as the appointment of the executive officer by the governor and the terms of the board, which are such that half expire at one time, tend to throw this department into politics. The board has no power and very little and illy defined legislative power.

Since this was written a law has been enacted which provides for a Commissioner of Health and a Public Health Council and the Commissioner have very considerable executive power.

Local sanitary organization is not effective. Consequently control of nuisances and contagious diseases is poor. The latter are imperfectly reported. The state has done little supervisory work. A bacteriological and chemical laboratory has, however, recently been established in connection with the State University. The work of this laboratory should be pushed, and if its geographical location should be moved, though a University connection is desirable if possible. The department has established a school for health officers and started a bulletin but this educational work needs to be greatly expanded. There is no adequate control of water supplies and sewage disposal, though according to the executive, typhoid fever is prevalent. Vital statistics are very defective and the model law should be adopted and sufficient money appropriated to properly enforce it. If the present law providing for the free distribution of antitoxin and vaccines cannot be made cannot be made effective ample provision should be made in some other way. (This also is authorized by the new law.) The state has a sanatorium for tuberculosis of about sixty

beds. \$10,000 was appropriated especially for educational work in this disease and an exhibition car with exhibit and lecturers traversed the state during the season of 1913-1914.

There is a hotel law and an inspector, but not under the board of health, though the latter can make rules. There is a law requiring certain schools to provide medical inspection and making it permissive for others, but the state board of health is taking no action.

The very limited activities of the department ought to be greatly extended, and perhaps the most important things to be done at present are:

The enactment of the model registration law, with an appropriation sufficient to administer it.

The enactment of a modern water and sewage law and the employment of a full time engineer.

The employment of a full time epidemiologist.

(Both the engineer and the epidemiologist have recently been appointed.)

More efficient organization of local health organizations.

## WISCONSIN

The present organization of the department is good and favors aloofness from political entanglements though the recent service of the executive officer in the legislature was unwise and dangerous. The salary of the executive should certainly be made sufficient for him to devote all his time to the duties of his office.

The department has appreciated the importance of better local sanitary work and has secured the services of five Deputy State Health Officers who carry on advisory and educational work in their districts.

The state has a very good water and sewage law which requires the approval of plans by the state department of health and allows the department considerable power in ordering, changes. The department through its chemist and consulting engineer has done a good deal of inspecting and analyzing water and in approving plans, but to properly control the waters of the state more work, and systematic work, in the way of supervision and inspection should be done requiring more employees and a full time engineer. The registration of births, marriages and deaths is properly in this department. The latter seem to be well recorded and reckoned a registration state for deaths by the Census Bureau; registration of births has improved so that probably over 90 per cent of these are now reported.

Contagious diseases are not well reported. An apparent case fatality of 14.5 for diphtheria, and 30.7 for typhoid fever shows that something is wrong. This is not any worse than is found in many other states, but Wisconsin, with its Deputy State Health Officers, prepared to exercise a better control and should insist on the report of cases. One way is to develop the diagnostic laboratory. It is decidedly unfortunate when the laboratory is not directly controlled by the department of health. A closer connection than in the past has been arranged for and the diagnostic work ought to be greatly increased. The Pasteur treatment for rabies is given by the department at a charge of \$25. Diphtheria antitoxin is distributed under an arrangement made with the manufacturer and

in the case of the indigent is by the municipality. Its use does not seem to have been sufficiently pushed. The laboratory is making and sending out a good amount of typhoid vaccine.

The state has a tuberculosis sanatorium of 200 beds. There is also a law under which counties with the aid of the state may provide for advanced cases. Eight counties have built, or are building, hospitals for this purpose.

Among other work of the department may be mentioned the inspection of hotels and camps under two inspectors. Lumber, construction and pleasure camps are important in this state and this control, if effective, should be productive of good results. The department has made elaborate rules for slaughter houses and for the care of school houses. It has also recently been authorized to prepare a uniform plumbing code for the state and expects soon to have eight inspectors to enforce the code in the smaller cities and supervise its enforcement in the larger.

The most important lines of progress at the present time seem to be:

The strengthening of the state inspection service (deputy health officers) by the appointment of more men and the improvement in local health organization.

Development of water and sewage control.

Extension of diagnostic laboratory work and insistence on morbidity reports and a full time epidemiologist.

A better distribution of sera and vaccines.

Systematic educational work with a special man for that purpose.

## WYOMING

Wyoming has next to the smallest population of any state, but an area about equal to that of New York, New Jersey and Pennsylvania combined.

This makes state health work difficult and expensive. With an appropriation of \$2,100 a year little can be done.

The vital statistics law while not ideal could be made, with sufficient clerical assistance, to give good results.

There is a Dairy, Food and Oil Department which looks after adulteration and also enforces the "sanitary law" relating to the cleanliness of foods.

There is a state chemist who analyzes food and water.

While Wyoming does not need as extensive a department of health as is necessary in other states, it should take the preservation of health as a serious state affair. The state can at least appoint a full time health officer and pay a salary sufficient to retain the services of a capable and efficient man. Such a man, through the control of local health officers which now obtains could greatly improve sanitary conditions.

A laboratory should be provided where diagnostic, as well as chemical work, can be done. Either the laboratory man or the health officer should have some knowledge of water problems.

It is believed that when the health department is put on a more substantial basis the present chemical laboratory should be joined with it.

Unless a hygienic and diagnostic laboratory is controlled by the department of health it rarely attains its greatest usefulness.

A good water and sewage law should be enacted for, in a growing state, water pollution, with its attendant evils, it sure to increase, unless efficiently controlled.