

# TRANSACTIONS

OF THE

North Carolina Health Officers  
Association

Tenth Annual Session

Charlotte, North Carolina

Monday, April 19, 1920

## Transactions of the North Carolina Health Officers' Association

### TENTH ANNUAL SESSION.

The Health Officers' Association met on Monday morning, April 19, 1920, at the Y. M. C. A., Charlotte, and was called to order by the President, Dr. E. F. Long, Lexington.

#### INVOCATION.

Mr. J. Wilson Smith, state secretary, Y. M. C. A., Charlotte:

Our Heavenly Father, we thank Thee for the privilege we have of coming to Thee with all our problems, and finding in Thee the solution to all difficulties and undertakings. We pray that Thou wilt bless this assembly of men who have, as their hearts' interest, the prohibition of the health of the men and boys and women and girls of the great State of North Carolina. We thank Thee, our Heavenly Father, for men who give their lives unselfishly in this service, and we pray that from the deliberations of this conference, and out of the topics discussed here, there may come to this State renewed life and renewed vigor, and that this gathering may be a blessing which will be felt to the remote corners of the State. We thank Thee for the way that Thou hast brought this State forward to take the lead in service for the uplift of men. We pray Thy blessing upon this State, upon its Governor, upon all its officers. We pray Thy blessing upon our Nation in these days of perplexity and trial, in these days of uncertainty and unrest, in these days of turmoil and strife. Help us to realize that the only solution of these difficulties is the religion based upon the teachings of our Lord Jesus Christ, that in Him we have a source of strength equal to any condition which may confront us. We pray that Thou wilt strengthen our faith in those things which are fundamental and eternal.

We ask these things in the Name and for the sake of Jesus Christ, our Savior, whom we love and to whom we have given our lives in service. Amen.

Dr. Long, President:

Before beginning the program, I am going to announce one committee, in order that they may be looking after the committee's work—a Committee on Visitors and New Members. I will appoint on this committee Dr. A. J. Warren, Dr. F. M. Register and Dr. W. M. Jones. The duties of this committee will be to receive visitors, secure new members and properly introduce visitors and new members to the meeting.

### "CO-ORDINATION OF HEALTH WORK—INTRA-GOVERNMENTAL AND EXTRA-GOVERNMENTAL."

ANNUAL ADDRESS—E. F. LONG, M. D., PRESIDENT.

History will probably record the twentieth century as the beginning of the public health era.

While Moses established certain practices calculated to prevent the spread of infectious diseases, based on scientific principles, relating especially to

isolation and disposal of excreta, during the march of the children of Israel through the Wilderness more than thirty-five hundred years ago, only desultory efforts to control devastating epidemics were undertaken until the latter part of the nineteenth century.

After the invention of the microscope, bacteriological investigations gradually awakened an increasing interest in the dissemination of infectious diseases. The possession of definite knowledge concerning the character of infective agents stimulated studies in research work which resulted in tracing offending organism from origin to host.

Regulations were adopted requiring isolation of persons sick with contagious diseases and limiting communication of contacts. Vaccine therapy and improved methods of sewage disposal engaged the profound consideration of scientists. Attention was soon directed to the necessity of ascertaining and correcting physical defects of childhood. This subject naturally includes the fertile field of eugenics, pre-natal and child welfare work. Prevention of occupational and degenerative diseases is recognized as an urgent necessity. These examples are sufficient to illustrate the broadening field of recognized public health requirements.

Heretofore both professional and public interest has been attracted principally to the prevention of disease. A broader conception of the possibilities of human development is being presented in the basic principle of health promotion.

In retrospect, it seems, almost, that a great vista of unrecognized perquisites has been denied humanity, so vast in its perspective that it appears as a gorgeous panorama of wasted opportunity.

When we consider that upon the physical welfare of the individual depends in large measure the material, moral and spiritual welfare of the community, we begin to realize the vital necessity of harmonious, systematic organizational unity in public health activities.

To physicians and investigators of related sciences is due the credit of practically all investigational work required to establish the principles and correlate the relative values of health protective measures.

It is a sad commentary on the medical profession that, although its productive capacity is commendable, the distribution of its product to the citizenship has proven inadequate.

So great, indeed, has been the demand for the preventive health product that almost innumerable individuals, societies, associations and other agencies have been assiduously engaged in delivery of this priceless possession, sometimes in a more or less damaged condition.

The ethical training of the physician, is professional desire to prove that which is worthy, his ambition to improve that which is acceptable, his scientific caution to weigh on the balanced scales of careful analysis every venture into the untried fields of experimental effort, militate against his success as a propagandist.

Therefore, an individual type of specially qualified physician is being selected and trained as an important element in the rapidly developing science of preventive medicine. Gentlemen, the health officer!

As in the development of every science, the basic facts must be established

beyond peradventure of doubt. The essential principles of this new science must include every requirement and condition actively or remotely affecting the physical and mental welfare of the human race.

In establishing a well ordered system of health conservation, the essential factor of scientific conservatism has been to some extent ignored by an impatient public. Facilities for training a sufficient corps of capable professional administrative officers has interfered materially in proper organizational effort.

The necessity of supporting arguments for appropriation of necessary funds for initiating and maintaining adequate health departments by an undisputed record of achievement has aided in making secure the position of well organized departments of health. At the same time, satisfactory development in keeping with the progress of scientific public health achievement as a well organized and properly related governmental function has been realized.

The conservatism of physicians, whose almost immemorial function has been the treatment of disease, has permitted the aggrandizement of much of their hard-earned knowledge of the science of preventive—and, I almost added, promotive-medicine, by less capable, non-scientific administrative agencies.

The fertile field of preventive medicine is intimately related to every phase of human endeavor and environment.

Can blame attach to individuals and organizations for taking advantage of neglected opportunities to administer functions of a purely scientific character, even though these promoting agencies are possessed of no scientific training or ability?

#### STATE, COUNTY AND CITY PUBLIC HEALTH ORGANIZATIONS.

The organization of most of the pioneer state health agencies were hastily conceived and designed to afford protection against some particularly devastating epidemic. Plans were adopted to meet the apparent immediate needs without provision for orderly development into comprehensive, co-ordinating, effective units of service to the citizenship comparable in importance with the legislative, judicial and educational functions of governments.

Succeeding state organizations were largely modeled after the plans previously adopted by neighboring states.

Efforts to reorganize state health agencies according to the modern conception of public health requirements have proven particularly difficult.

No state has succeeded in establishing a co-ordinating public health agency of such character and proportions as to serve as a model. Nor has any health organization sufficient available funds to secure and equip a corps of qualified experts to undertake a systematic study of all the factors necessary to ascertain the essential information to serve as a basis for such comprehensive effort.

The diversity of plans of organization, functions, and limitations of the various intra-governmental state health agencies clearly indicate that both professional and popular opinion differs radically as to what should and

what should not constitute the primary functions of public health agencies. Functions considered by some state health agencies as of paramount importance are utterly disregarded by others.

Units of work regarded by some authorities as primarily essential to the proper functioning of a state health organization are ignored by others, or permitted to be administered by agencies whose avowed purposes are utterly foreign to the administration of public health activities.

Most city and county public health organizations were conceived as a result of temporary enthusiasm, rather than of deliberate planning. Few have had the benefit of systematic, orderly planning by men fitted by training and experience, as is customary in organizing industrial enterprises. The first health officer is usually chosen because of political preferment, popularity as a practicing physician, or because he is the cheapest bidder, regardless of his adaptability on these factors. Precedent is quickly established and public opinion judges the worth of all public health activities throughout succeeding administrations largely by the measure of success of the initial effort.

Discrepancies in the conception of relative values of public health functions are more glaringly apparent in city, town and county public health activities than in the state organizations.

The relations between the state health organizations and the city and county departments are as varied as the geographical boundaries of the territory involved. In no state is there a comprehensive program of public health administration, embracing a scientific adjustment of the state, county, city, town and rural prerogatives, founded on the basic principle of real and relative values, ascertained through the means of a thorough survey of actual health conditions and requirements.

The co-operative state-county plan of public health work, which is being rapidly systematized in North Carolina, embracing in most co-operating counties the city, town and rural phases of work, is probably the most striking example of unified and properly correlated organizational effort.

#### NATIONAL GOVERNMENTAL PUBLIC HEALTH ORGANIZATIONS.

The United States Public Health Service, a bureau of the Treasury Department, developed from the Marine Hospital Service, is the most conspicuous portion of the governmental health organization.

The United States Public Health Service has a central bureau in Washington with seven divisions, namely:

1. Personnel and Accounts
2. Foreign and Insular Quarantine and Immigration
3. Domestic (Interstate) Quarantine and Sanitation
4. Sanitary Reports and Statistics
5. Scientific Research
6. Marine Hospitals and Relief
7. Miscellaneous.

The classification of the divisions of the Public Health Service indicates in a general way the functions and limitations of the bureau.

The Public Health Service is also authorized to co-operate with state

and local public health authorities in the control and suppression of epidemics and to act in public health matters bearing on interstate commerce.

The Children's Bureau of the Labor Department is authorized by law to investigate and report on all matters pertaining to the welfare of children. This bureau administers the Child Labor Law, conducts investigations and publishes reports and pamphlets.

The Bureau of Chemistry of the Department of Agriculture, the Division of Vital Statistics of the Bureau of the Census, and the Bureau of Animal Industry of the Department of Agriculture also administer quasi health functions.

The Chairman of the Appropriations Committee of the Lower House of Congress was recently quoted as saying: "Today duplication in the government service abounds on every hand. Forty-two different organizations, with overhead expenses, are dealing with the question of public health."

#### EXTRA-GOVERNMENTAL PUBLIC HEALTH ORGANIZATIONS.

The American National Red Cross Society is the most conspicuous and successful extra-governmental public health agency. Organized for the purpose of nursing and caring for sick and wounded soldiers in time of war, its effectiveness was so marked that it quickly expanded into a comprehensive relief agency. Operating through its well manned and equipped central and local organizations; radiating into every section of the United States, even serving stricken and destitute peoples of many foreign nations; supported by popular subscription and controlled by a directorate consisting of government officials, professional men and laymen, the President of the United States of America being the titular head of the organization, it assumes responsibility in large part for the physical and moral welfare of the army in war time.

This powerful relief organization, whose activities embrace certain public health functions, responds to distress calls in every section. Acting in harmony with national, state and local governmental authorities, it is both a popular and semi-governmental organization.

Limitation of time and space forbids enumeration of the many extra-governmental public health agencies. Suffice it to say that the activities of practically all of them are devoted to some particular phase of public health endeavor. An effort to organize state and local societies subordinate to the national organization is the usual plan of procedure.

The organization of most of this group of societies resulted from the active interest of small groups of individuals, consisting principally of social workers. Their effectiveness is curtailed by reason of limited membership.

A recent tabulation by an official of the American Medical Association reveals the astonishing fact that there are now fifty-seven extra-governmental public health agencies of national ambition.

#### SUMMARY.

The existence of such a large number of governmental and extra-governmental public health organizations denotes a wide-spread popular interest in the physical welfare of the citizenship.

This situation also indicates the absence of any powerful scientific co-ordinating public health agency.

The multiplicity of organizations, the complexity of avowed purposes, the varied estimate of relative values, the intimate relation of human efficiency and average longevity to every condition and requirement of human endeavor, environment and association directs attention to the vital necessity of unifying and coordinating the public health forces of the nation.

Notwithstanding that there are forty-two governmental and fifty-seven extra-governmental national public health organizations, making a total of 99, and the single semi-governmental agency, the American National Red Cross Society, rounding out an even hundred, yet there is no organized agency for the study, collection and distribution of knowledge on health conservation and promotion!

Each state organization is, therefore, compelled to largely dissipate its energies in an attempt to cover the whole field of investigation, preparation and distribution of literature and exhibit material and many other phases of work, common to all and for which standard forms and material should be provided by an accredited co-operating national public health agency.

In addition, the state and local organizations are constantly solicited to furnish data, material and energy to further the cause of the aggressive national organizations for specific purposes, often at inconvenient seasons, and for which no funds are provided, nor credit secured.

What a striking example of duplication of effort, overlapping and divergence of opinions and methods!

Most of the voluntary health organizations are the result of chance. Much of the information distributed by them is ill-considered, some of it contradictory and confusing.

Does the result justify the means? The public pays the bills. What does the public get for its money?

Should a citizen desire to offer a comprehensive program of public health administration for adoption by his city, town or community, embracing the best available practices of established value for protecting, promoting and developing the physical well-being of every individual of his community, together with a carefully estimated per capita cost, methods of procedure, personnel of department, functions, powers, limitations and a scientifically adjusted system of relative values, to which of the national governmental or extra-governmental organizations should he apply?

What state has an organization capable of furnishing the desired information?

Has any city or county developed a public health organization approaching in a well marked degree of effectiveness the essential requirements of the citizen's program?

After diligent inquiry from every available source, the interested citizen would probably conclude that his country possesses a heterogeneous conglomeration of public health agencies, all of whom maintain a costly personnel of more or less capable administrative officials whose energies are largely expended in effecting, financing and maintaining the individual organizations; whose activities are limited by reason of the necessity for promoting the particular objects for which they have assumed responsibility.

Many apparently vying with all others in an endeavor to win most popular favor. All apparently convinced that the subject of their particular objective is of paramount importance. None apparently capable of developing into a powerful, cohesive, effective unit of such character and influence as to include all of the many interrelated but essential requirements of a national public health agency, radiating through legitimate channels into and successfully co-operating with all of the political subdivisions of the nation.

Efforts of governmental as well as voluntary public health agencies have been too largely directed toward eradicating or suppressing diseases. Most of the voluntary agencies devoting their attention to amelioration of a single disease or condition.

Too little attention has been devoted to ascertaining and correcting the influences which are directly or remotely responsible for these diseases and conditions. This subject involves consideration of the scientific, economic, sociologic and legal requirements and limitations.

If all the individuals of a community were properly nourished, clothed and housed, and the environment, working conditions, provisions for recreation and adequate sleep and rest scientifically adjusted, such diseases as tuberculosis would be negligible.

#### CONCLUSIONS.

1. Appreciable results have been achieved in the campaign against specific diseases.
2. The plan of campaign has not been sufficiently inclusive, cohesive nor co-operative.
3. Public appreciation of existing health conditions and requirements is being intelligently manifested.
4. Physicians were primarily responsible for the development of public health sentiment. Sociologists and philanthropists have contributed materially to the resulting achievement in public health endeavor.
5. In order to accomplish the end results desired, amalgamation and co-ordination of the public health forces is essential.
6. Any proposed plan should include active participation of the individual citizen to whom the benefits ultimately accrue.
7. The ideal: A powerful co-operative, coordinating public health organization, be it governmental, semi-governmental, or extra-governmental, creating, absorbing, digesting and dispensing unprejudiced, trustworthy information concerning every phase of the science of health; principles, practice and administration. Commanding the respectful confidence of the public. Co-operating in an intelligent, mutually helpful manner with the state agencies whose properly correlated, systematic organizations radiate into every county, city, town, hamlet and remote country community of the nation.

#### REPORT OF SECRETARY-TREASURER OF THE NORTH CAROLINA HEALTH OFFICERS' ASSOCIATION FOR YEAR ENDING APRIL 1, 1920

DR. G. M. COOPER, Raleigh.

Balance brought forward from 1919, \$25.36. Savings Bank interest, 91 cents. Total, \$26.27. Total receipts for the year, nothing. Grand total,

\$26.27. Disbursements: Postage on 200 letters mailed, \$4. Multigraphing copies of program, circular letter and clerical hire for mailing out letters, \$12.27. Printing 200 postal cards, \$4. Janitor for meeting hall, \$6. Total disbursements, \$26.27. Balance on hand, nothing.

I wish to express deep appreciation to the newspapers of the State for the notices concerning our meeting, and the Medical Society of the State of North Carolina for furnishing us with a stenographer to report our meetings at Pinehurst last year, and for publication of the proceedings of our meeting in the Annual Transactions.

This being the tenth annual session of this Association, a word concerning the history of the first decade of its existence might be considered in order. This Association was organized and held its first meeting in the amphitheater of the old North Carolina Medical College here in the city of Charlotte on June 19, 1911. The progress that North Carolina has made in public health work during these years is nothing short of marvelous. At that time there was not a single whole-time health officer in a city or county of North Carolina. The nearest approach was the action of the city of Wilmington, some time just before that meeting, in the employment of a physician for his whole time, chiefly to enforce the quarantine against smallpox and to vaccinate the school children of the city, where they had a severe epidemic at the time. The chief occupation of every county physician and every city physician in the State was treating paupers, quarantining against smallpox and trying to decide which was the best and cheapest method of fumigation, or at least to determine which would smell the worst. Other more or less police duties were charged up to the officials of the different health departments in that day. Smallpox vaccine sold, even to county physicians, at 10 cents per tube. Diphtheria antitoxin cost the county physicians, as well as other physicians, \$7.50 for 5,000 units. No such thing as vaccination against typhoid fever had been discussed by the average physician at that time. The State Sanatorium for Tuberculosis was being bandied about from one bunch of politicians to another with the resulting incompetency and inefficiency that might have been expected from such management. The average practicing physician in North Carolina who did not treat at least fifty cases of typhoid fever each year with the loss of about five or more was considered down and out and his practice all lost. The State had never heard of the registration of the births and deaths except through a toy law concerning a few of the cities and larger towns, which was not even expected to be enforced. The State Board of Health consisted chiefly of the Secretary, his chief assistant and a stenographer or two, and the work of Dr. Shore and about one or two assistants in the laboratory. The man who dared to go out and preach public health and the necessity for counties and cities, paying attention in a business-like manner to the multitude of questions arising in which the public was vitally concerned, was regarded as a crank, a fanatic or an ordinary job hunter. I mention these things especially for the contemplation of the newer men who now constitute the bulk of the membership of this Association. There are several of the older "standbys" here who were present at the first meeting, some of whom have never missed a meeting since. Some of them and others have got the reward that is generally in store for most people who serve the public, in that they have been kicked out of office after devoting many years

of service for the people instead of making money for themselves. Many of us, however, are still allowed the bare necessities of life and an occasional grudging vote of thanks for the work that we have been trying to do through all these nine years.

This Association has been a common meeting ground and a clearing house for the dissemination of the best information available on live public health topics, and I am proud to say that our stand has generally been an advanced one, and that as a whole we may be considered as having been always in the vanguard of progress. I need not call attention to any contrast in conditions today as compared with those of nine years ago. "He who runs may read." I would like to urge, instead of retrospection, that we map out the new campaign far in advance, because there is an abundance of work to be done and the public is by no means unanimous in its support of the efforts we are making; and to the newer men who are here representing counties I would like to urge that you never let for one minute the idea obsess you that you have a good job and that your chief duty is to hold that job; but I would like to urge that your motto should be service to the most people, regardless of consequences to yourselves. I hope you will pardon me for assuming to hand out this bit of brotherly advice. I take this liberty because I feel that I have been knocked and kicked and bumped by practically everybody in the State of North Carolina that could possibly get up energy enough to afford a knock or a kick or a bump, and that I can speak with authority as one who had had ample experience, and as such, I would like to warn you that those are the things that you may expect. Your reward must be in the performance of duty, with your chief object the saving of human lives and increasing comfort, happiness and prosperity on the part of all the people whom you are serving.

Dr. Long, President:

In addition to the Committee on Visitors and New Members which was appointed a few minutes ago the following committees are appointed:

Auditing Committee:

Dr. A. Cheatham  
Dr. A. C. Bulla  
Dr. C. Daligny

Committee on Resolutions:

Dr. R. L. Carlton  
Dr. J. S. Mitchener  
Dr. C. W. Armstrong

Dr. Long, President:

We are honored today by the presence of a very distinguished visitor, Dr. Charles V. Chapin, of Providence, Rhode Island. Dr. W. S. Rankin, Secretary of our State Board of Health, will formally introduce Dr. Chapin to the meeting.

Dr. Rankin:

Ladies and gentlemen, if you will look at the program you will see that our theme this morning is largely that of the Relative Values of Health Problems, and speaking of values, it is my very great pleasure to present



to you a man who has been of great value to our State, perhaps of more value than most of us realize. This man has saved you and your State not less than \$100,000, and I think, as I do always when I am speaking of values in health work, that that is away under the real value.

North Carolina is handling each year 30,000 cases of infectious and contagious diseases. That is the number reported. If we had been following along in the old, beaten track, and had been burning formaldehyde after infections, we would have been spending at least \$30,000 a year for the past several years. Be it said, to the credit of the State, that disinfection as we used to know it has not existed in North Carolina for five years, and five times \$30,000 is \$150,000. But I will reduce the figures somewhat, and say that the man whom I shall present to you has saved this State not less than \$100,000. But that is the smaller part of the saving because this man has not only torn something down—the false thing—but he has substituted for it the true and valuable practice of regarding the person, and not things, as the source of infection. So I do not know what he has saved in human lives.

If one looks back over the last five or ten years of public health work, I think one of the most distinct impressions one gets is that of the tremendous amount of general interest in public health. Everyone is getting interested in some phase of the public health problem. That is the explanation of all these organizations referred to in the President's address. Someone gets interested in cancer and organizes a cancer society. Another is interested in social hygiene, and organizes a social hygiene association. And so we have become divided into so many fractions that we are losing the strength of a united movement. This has come about through lack of a sense of proportion, of a sense of relative values. It is no longer sufficient to recognize a public health problem as an important one, but we have to relate that problem to all other public health problems, because the resources—the funds for dealing with public health work—will always be limited. With a limitation of resources, the wise man will pick out the most profitable thing on which to spend his money. So the advance in the next ten years will be along lines of relative health values. We are fortunate in having with us today the man who has given more thought to this problem than any other man in the country. It was when he began to question the value of fumigation that he entered into the study of relative values in health work. This man is an expert on relative values. He has, in my judgment, contributed more to the symmetrical development of health work than any other man. I know that you all know him by reputation, and I want you to know him personally.

I present Dr. Charles V. Chapin, of Providence, Rhode Island.  
Dr. Charles V. Chapin, Providence, R. I.:

It is worth coming to North Carolina to be introduced by Dr. Rankin, but I like North Carolina, because it is so attractive, and I like to visit a State so progressive in health matters. To come from a city which cut down the health appropriation \$14,000 and to a state which has done the things which this state has done, is a great pleasure. Another reason why I wanted to come was to have a chance to have a chat with the most stimulating and progressive health officer in the United States, Dr. Rankin.

Your President has touched upon most of the features which I was going to talk about today, and so has your Secretary-Treasurer. There are various reasons why we lack perspective in health work, and one of the chief reasons is that health officers do not take the trouble to think. It is so easy to follow in the footsteps of others. Like your Secretary, I, too, years ago devoted a good deal of time to thinking how to get the best fumigation for killing contagious diseases. It was ten years or more before it occurred to me to inquire whether we needed fumigation. It is so easy to be conservative, and that is why we do a great many things which do no good, and then we have no money to do the things which are good.

I am sometimes considered a kicker, but I am not so much a kicker as I am a questioner. It is desirable to be sure if possible before going ahead. Thus vaccination against diphtheria promises well and there is nothing inherently dangerous about it. Yet clinical data as to its effectiveness are not very extensive, and bad results have been produced by carelessness. I have hesitated to urge it in a wholesale way until we have had a larger experience.

Another reason why we do not do better in health work is because of

#### RELATIVE VALUES OF MILK.

Vital Statistics .....	60
Education .....	80
Laboratory .....	50
Control of nostrums.....	50
Care of sick poor.....	50
Food (Adulteration) .....	0
(Sanitation) .....	17
Milk (Alulteration) .....	3
(Sanitation) .....	3
(Privy sanitation) .....	60
(Housing) .....	20
Nuisances (Plumbing) .....	10
(Nuisances) .....	10
(Refuse removal) .....	0
(Fly and mosquito control).....	10
(Nurses) .....	80
(Supervision of midwives).....	10
Infant mortality (Babies' boarding houses).....	5
(Milk stations) .....	5
(Consultations) .....	20
(Pre-natal clinics) .....	10
School inspection .....	80
(Home isolation) .....	100
Contagious Diseases (Hospitalization) .....	50
(Immunization) .....	50
(Venereal diseases) .....	20
(Nurses) .....	60
Tuberculosis (Dispensaries) .....	40
(Hospitalization) .....	40
	1,000

organization. Organization is a necessary evil. We are very apt to organize, and when the machinery gets to work about all it manufactures is red tape. I was, recently, at a meeting of a national association dealing with public health, and we talked all day. We talked about salaries, and by-laws and secretaries and state organizations, and not a word was said about the causation and prevention of disease. That is the way with organizations—we are very likely to let the organization run away with us. We forget that our purpose is to prevent sickness and defer death. We are prone to tell how many letters were written, how many nurses we have at work, how many visits were made, etc. What we should show is how much sickness prevented, how many lives saved. We must see that our work does accomplish something.

Another reason why our health departments are not as good as they should be was touched upon by your President, and that is that they are very rarely planned on general principles and with a broad view to start with. They start in a small way, and are added to little by little in a haphazard fashion. One reason is that the health officer is overridden by outside influences. We have had an instance of that in Providence lately. An article on the floating hospital for babies in Boston appeared in a health bulletin. Some of our philanthropic women were greatly impressed and made up their minds we needed one, though I advised that its value is questionable. We have the hospital and much money is spent on it for small results, though the same amount spent on baby nurses would yield large and definite results in lives saved.

City councilmen and state legislators often introduce "health measures" and perhaps secure their passage, without consulting the health officer, lest they lose some of the credit. Sometimes they are good measures, but quite as often they are ill-advised and prevent the adoption of something better.

People who are urging their own pet health measure are very much inclined to forget that there are only one hundred cents in a dollar and sixty minutes in an hour, and they will urge their measure regardless of the time and money that it takes. Doubtless most public health measures do some good—the question is how much, and the next question how much as compared with other things. I tried some years ago to work out a statement of the relative values of the things which we tried to do in Providence. This chart hanging on the wall is the result of that computation. I did not bring it here because I believe it is the right thing for Charlotte—in fact, it is not the right thing for Providence now. Every year I go over it and revise it a little. Conditions are very different in North Carolina from what they are in Rhode Island, and very different in Robeson County, for instance, from what they are in Charlotte. What is the best expenditure of time and money in one community is not necessarily the best for all communities. In fact, it is certainly not the best. That is the reason why every health officer should devote a great deal of time to studying these questions for himself, for his community, so that he can work out the best plan for his own particular territory.

The scheme is based to a large extent on what municipal health has accomplished in the past. During sixty years in Providence the decrease in the annual number of deaths per 100,000 of the population has been

about 600. A considerable part of the decrease has been in the acute contagious diseases, diphtheria, scarlet fever and typhoid fever. The cause of that decrease was apparently isolation at home or in the hospital, the teaching of the mothers how to care for the patients, the protection of the schools, and, in diphtheria, the free distribution of antitoxin. For typhoid fever, the factor which did most to reduce the death rate was the removal of privy vaults. Our water supply was never bad. We had much typhoid fever every year, and many privy vaults. Way back in the eighteen nineties it was my opinion that the way to control typhoid fever was to control the disposal of excreta. The subject of the sanitary privy is one of the most important with which you have to deal. I have always felt that the only way to sanitize a privy satisfactorily was to get rid of it. So I urged the sewerage of Providence, and as we got rid of the privies it was very interesting to see the typhoid disappear. Another improvement in Providence was one which I did not anticipate. After we had gotten rid of the privy vaults, I noticed that the diarrheal death rate in infants had gone down. I feel that this was due also to the removal of privy vaults. In the summer of 1890 we had 245 deaths of infants from diarrheal diseases. Last year, with double the population, we had 37 deaths from this cause. This is not entirely due to the removal of privy vaults. There was also a reduction in the general infant death rate. That, however, did not go down until about ten years ago. The improved knowledge of physicians generally and of pediatricians in particular had a great deal to do with it, but the chief thing was the work of the nurses.

Another drop in our death rate was in tuberculosis. The death rate from this disease has been going down steadily since 1880. I do not know what caused the decrease in the death rate from tuberculosis. I wish I did. It is very likely that our hospitalization, our sanatoria, our nurses, have had effect, but I have no idea that they had more than a small part in that decrease.

I naturally give a high value to the control of contagious diseases, to immunization, to the control of excreta disposal and to our tuberculosis work. The value of all these I could figure out in a certain way, a rough way, of course. We know how many lives have been saved, and we can assign a value accordingly. Mr. Schneider worked out the same sort of schedule in much the same way, not confining himself to local figures, but taking the figures for the whole of the registration area of the United States.

Although we can figure out pretty well that our nurses saved babies' lives, and pretty nearly how many they saved and how many lives were saved by privy sanitation, there are a number of absolutely essential health functions the value of which you cannot figure; for instance, vital statistics. We cannot do anything without vital statistics. It is our fundamental bookkeeping. We are all at sea unless we have vital statistics. Fortunately, vital statistics are worth all they cost for reasons other than those connected with preventive medicine. A complex society like that of the present time cannot get along without a record of births, deaths, and marriages, and if these records were of no value in preventive medicine, the state ought nevertheless to maintain a complete system of registration. I have been registrar of vital statistics since 1889, as well as health officer, and I appreciate fully the value of these records.



Then there is public health education. It goes without saying that we have to educate the people about health matters. We have to teach and should teach the truth. While I have given educational work a value of eighty, the good of that education which I have observed, really has only a minus value. Social workers without scientific training, newspaper men and legislators think themselves perfectly competent to educate the public. In fact, I have never seen a health officer who did not feel that he was better fitted than anybody on his staff to carry on educational work. It is not a good thing to teach a lie, but it is sometimes difficult to find the truth. At Johns Hopkins this winter they had three very distinguished lecturers: Dr. Newsholme, who believes that tuberculosis is, to a large extent, contracted in adult life; Dr. Krause, who says that the infection is acquired in childhood and that the only practical way to decrease tuberculosis is to decrease the strain and stress of life; and Dr. Raymond Pearl, who figures out by statistical methods that tuberculosis depends largely upon the inherited constitution. Who is competent to decide? We have, many of us, been teaching that it is a bad thing to eat fast, but some of the most distinguished physiologists in the country tell us that the food digests just as well if we do eat fast. There is a curious thing about education. You may have a whole lecture with everything in it true except one sentence, and that one sentence only will stick in the minds of your hearers.

It is impossible to carry on the work of a health department without a laboratory. I believe that one of the most important uses of the diagnostic laboratory has been to teach people science, not simply to help in the diagnosis of diseases. The laboratory has shown us the atypical case. The laboratory also has taught us to control our observations. It has made us familiar with the "control guinea pig."

There are certain lines of health work which I believe will come to the front more in the future. One of them is the control of nostrums. Then the care of the sick poor should be coupled with it. I had the care of the sick poor transferred from the charities department to the health department. Instead of having the poor department do as little as it could, I send the best men I can get to do as much as they can. If we fight nostrums, we have to see that there is an opportunity for the great mass of the public to get first class medical treatment. If we take away the nostrums, we must supply something to take their place.

It seems to me that the adulteration of food is not a health matter at all. The sanitation of food is of some importance; of how much I do not know. People in the South, I think, are inclined to attribute a great deal to it. I spent one day in a small Southern city where that was about all the health officer did,—stir up the markets and bakeries to make them cleaner. There is one line of sanitation in food handling establishments which I think promises well, though there is danger of its being overrated. That is the sterilization of eating utensils. Colonel Cumming, of the Army, is carrying on an active propaganda to show that contagious diseases are chiefly spread by eating utensils. I think he is mistaken as to its relative importance; but it is not a very expensive experiment to try sterilization, and it seems probable that it will reduce diseases somewhat.

Privy sanitation I put at sixty for Providence, but in the future very

little effort need be expended along this line. We have privies only on the outskirts, and there is now very little typhoid fever and diarrheal diseases.

Now, about nuisances: When I was first appointed, health officers had two functions—one, to get after dead cats and garbage pails, and the other to burn sulphur. The dead cats and garbage pails do not count at all, nor do other nuisances except where there is human excrement. I have been trying lately to get rid of nuisances entirely. I want to turn over the whole nuisance business to the police department, and refer all complaints to the police. They can attend to it better than I can. I waste my time and my money on it. What money I have been able to get in late years I have spent on nurses and not on sanitary inspectors. The police can do it without extra cost.

Housing, I never thought, had much to do with health. Poor health and poor housing go together, but so do poor health and low wages. I have not, as health officer, taken much interest in improved housing. As a citizen I do, but not as a health officer; but I fail to see how poor housing in itself produces disease.

Fly and mosquito control with us is not a question of great importance. There is no evidence that the fly has ever been much of a factor with us in the spread of typhoid fever. At the present time, with the little typhoid and diarrheal diseases that we have, it is not a factor. We occasionally have some malaria, and we have to fight that, but it is not a matter of great importance. We fight mosquitoes, but chiefly because they are a nuisance.

The prevention of infant mortality is, I believe, one of the most effective lines of health work. We know the most important measures for preventing sickness among infants, and we can at once make a showing in lives saved.

Some would give a higher value to milk supervision, but personally I have not been able to see that the character of the milk is the most important factor in infant sickness. It is how the milk is given, rather than the character of the milk.

Another line of work which promises much and is, I believe, of very great importance is the school work, the care of the children. We cannot get results and state them in figures as we can in baby welfare work, but everybody feels that child welfare work accomplishes a great deal. I believe in this work heartily, but I wish we had the figures to show what it accomplishes, as we have in infant welfare work.

In regard to tuberculosis—I am very uncertain. It is certainly a good thing to have a hospital where you can take cases that are poor and are not cared for at home. It is certainly better to find a case early than to find it late. A dispensary helps us do that, and so does the nurse. These things accomplish good, exactly how much I do not know, but I have estimated it at the figures shown on the chart.

In closing, I wish simply to repeat that this scheme of relative values is not presented as something final. It was prepared simply as a tentative scheme for a definite place and time. It must be varied from time to time and from place to place. The drawing up of a similar scheme by every health officer to meet the conditions of his work, I am sure, will be found most useful in clarifying and defining his plans.

Discussion of Dr. Chapin's paper: Relative Values of Health Problems.

Dr. D. E. Sevier, Asheville:

I would like to make a motion that the Health Officers' Association of North Carolina extend a rising vote of thanks to Dr. Chapin for his instructive lecture.

This motion was seconded and adopted.

Dr. Long, President:

The matter is referred to the Committee on Visitors and New Members.

We are now going into the discussion of papers, and I wish to call attention to the note at the end of the program, as follows:

"No paper shall exceed fifteen minutes, no discussion be longer than five minutes and no one allowed on the floor more than one time during a session. (By-Laws.)

"Exception: The President's address and invited guests from outside the state."

This is made necessary by the fact that we have a long program and only a limited time in which to present the papers and discuss them. We, of course, do not expect that the time would be wasted in any event, but we wish to omit anything not pertaining to our purposes.

At the close of the morning session a photograph of the members of this Society will be taken by a representative of one of the local papers.

### RELATIVE VALUES AND FINANCIAL EQUIVALENTS IN COMMUNICABLE DISEASE CONTROL.

By J. S. MITCHENER, M. D., Edenton, N. C.

Would a number of doctors here be interested in organizing a partnership with the aim to reduce morbidity and mortality in North Carolina for which they would receive 25% of the financial equivalent saved the state? Would such an undertaking by these physicians appeal to our state officials? Would our tax payers agree to such taxation if they were given a guarantee to reduce their aches and pains, give them more work days per week, and help them to reach their three score years and ten and then some? To make public health work go we must put it on a business basis, and, to use a slang expression, deliver the goods.

By financial equivalent we mean the ratio between the expense of conducting such a business and the dollar value of lives saved, days of sickness prevented, number of work days increased, and the gain in school attendance.

What should be the capital of this partnership? North Carolina has a population of 2,500,000, which divided by 100 will give 25,000 to each unit, the average of each county. An allotment of \$10,000 for a director and assistants to the unit will call for an appropriation of \$1,000,000. For an executive staff at the central directing office an additional \$100,000 may be added to the budget, making a total of \$1,100,000. Would such an investment be likely to bear a dividend in an effort to control the communicable disease phase of health work?

There were reported to the Bureau of Epidemiology and Vital Statistics for 1919:

3,519 cases Diphtheria, with 242 deaths.  
1,512 cases Scarlet Fever, with 21 deaths.  
5,725 cases of Measles, with 114 deaths.  
5,669 cases Whooping Cough, with 209 deaths.  
2,322 cases Small Pox, with 9 deaths.  
1,575 cases Chicken Pox, with 0 deaths.  
2,956 cases Typhoid Fever, 427 deaths.  
? Other fifth-borne diseases, 1,377 deaths.

And there are many other cases yet to be heard from.

This vividly presents the possible field. It shows that thousands are feasting on the various kinds of excreta of others—such can be stopped.

Our effort to control the two most prevalent diseases, measles and whooping cough, is by education, the poster, and restriction of the infected as soon as possible and to as limited a number of individuals as possible. Is the poster effective? Yes, emphatically so. People respect more than many think. It brings home to the householder the doctrine of individual responsibility and it impresses the gravity of the disease upon all more forcibly. Personally, I think the poster does more good in saving the life behind it in this way than in preventing the spread of contagion.

With protection against smallpox and diphtheria, these deaths and cases should be eliminated.

With prevention of soil pollution the filth-born diseases could be wiped out at one blow. The hook worm infected, which in some parts of our state is by no means extinct, is not included in the statistical reports. May I add that legislation is needed and is an important factor in the means to our end.

We shall now make a financial study of smallpox, diphtheria, and typhoid, three diseases that are definitely preventable, considering the average number of days of sickness for smallpox as 21, diphtheria 10, and typhoid 42, and estimating the cost of a day of sickness at \$10 and a life at \$4,000.

The statistics for 1919 show that there were

Cases.	Disease.	Deaths.	Days of Sickness.	Days of Sickness.	Cost of Deaths.
2,322	Smallpox .....	9	48,800	\$ 488,000	\$ 36,000
3,519	Diphtheria .....	242	35,500	355,000	968,000
2,956	Typhoid .....	427	118,240	1,182,400	1,708,000
Total .....		678	202,540	\$2,025,400	\$2,702,000

There were also 1,377 infants who died from filth poisoning which would have been eliminated with typhoid.

Based upon the statistics for 1919 just given, we see that with an annual expenditure of \$1,100,000, in a few years there can be an annual saving of \$4,757,000 to our state. Prevention of these three diseases—smallpox, diphtheria and typhoid—will protect against others, as a cleaner life will offer resistance to other diseases. Educate people to sanitation and you educate them to efficiency, a by-product.

The above statistics may be said to be speculative, so we shall now see what North Carolina has actually done: In 1914 there were 839 deaths

from typhoid, and at this rate we should have had for the five following years 4,195 deaths, or a loss in human dollars of \$16,780,000. As an actual fact, we have had 1,049 deaths less, a decrease in the number at the rate of 210 per year. This reduction has been on the increase each year, not spasmodic as after an epidemic, and has varied directly with the intensity of the preventive steps taken.

Let me cite specifically again: There were 9 counties with an average of 120 deaths for the group from typhoid for three years prior to the opening of full time departments. Two years' work has been completed in these counties and the yearly average of deaths is 31 for the group—an example and monument to intensive whole time health work.

In my county, Chowan, where two typhoid campaigns have been conducted, fewer cases were reported last year than I had in my private practice the summer previous to this work.

Possibly I may digress from my subject when I mention venereal diseases, but how can I pass them by in silence when our state institutions for the mentally affected, our blind schools, our still birth records, our sterile men and women and the multitude of pelvic diseases and operations bespeak the need of exploring this field more intensively. We cannot depend upon the education our soldiers received to remedy this. We need more sex education and to train our young women to exact of their partners the same standard of life that is required of them. As men, let us endeavor to help the young boy of today enter the holy bonds of wedlock with the same purity that he demands of his wife, that the sins of the father may not be visited upon his innocent children.

In this brief sketch I have tried to give facts, to show the field of work, to casually mention the manner of procedure to make emphatic the good that can be accomplished if it is but undertaken. By giving statistics of past years I have tried to prove to you that this can be done and that we have already begun to realize the dream of our leader "in life saving and disease prevention" in North Carolina.

#### Discussion of Dr. Mitchener's Paper:

##### Dr. F. M. Register:

You will notice that Dr. Mitchener's most excellent paper depends upon case reporting and vital statistics. We realize that we must have these reports, but it is a question how best to get them. There are two diseases for the reports of which the doctors are responsible—diphtheria and typhoid fever. These two diseases are reported by physicians. Whooping cough, measles and chickenpox are reported by other persons, not always by doctors, because these cases do not always have a physician. I would suggest that health officers have a chart in the office, and chart all the doctors in the county, so that they can tell exactly what each doctor is doing in the reporting of contagious diseases. We try to do that in our office by counties. The health officer should chart each doctor individually, and occasionally show each doctor his record. Individualize the reporting of cases.

It is very hard sometimes to get physicians to report. I think failure to report is caused usually by negligence. I believe most of the physicians are interested in the reporting of diseases. We do not have many violations

of this law, and those we have I think come purely from negligence. The health officer or quarantine officer has to keep behind the doctors and remind them of this reporting, send them report cards, etc.

It is very important to get early reports, because the health officers cannot do anything in the way of preventing disease unless early reports are made. If the reports are late they do not amount to much to the health officer so far as the prevention of disease is concerned.

#### RELATIVE VALUE AND FINANCIAL EQUIVALENTS IN CONTROL OF MEASLES AND WHOOPING COUGH.

DR. C. E. LOWE, Wilmington.

Whatever may be the difficulties, and there are certainly many, of keeping any system of accounting which will determine the actual cost of any method of control of a particular disease, I think it may be safely assumed that many of our smaller health departments practice too little public health accounting and make too little study of statistical data concerning their work.

I wonder how many of our smaller departments the country over have a complete set of the Mortality Reports of the Federal Census Bureau, and how many of those who have them make adequate use of them?

In discussing the relative value and financial equivalents of the control of measles and whooping cough, I shall take the liberty of freely quoting figures from the Mortality Reports and shall here admit that I have no data whereby the cost of our attempts to control the spread of these two diseases may be ascertained.

The amount of effort and the expense incident to methods of control of these diseases should, of course, be governed both by their relative importance in affecting the general morbidity and mortality rates and by the result which a given amount of effort and expense will produce in decreasing morbidity and mortality.

The medical profession has been slow to realize the seriousness of either measles or whooping cough, and this attitude has been reflected in that of the public. As a result, the morbidity statistics of these diseases are very incomplete and their control rendered much more difficult. However, I think it must be conceded that they are the most prevalent of the communicable diseases and that the financial cost is tremendous when the care of the sick, the loss of school time and disruption of school organization is considered in connection with the mortality loss, even though the lives of children are not reckoned to be worth as much from the purely economic standpoint as those of middle aged adults.

A study of the Mortality Reports concerning the more important communicable diseases from 1900 to 1917, inclusive, will show that the death rate per 100,000 for typhoid fever gradually decreased from 35.9 to 13.4; the average rate for the eighteen years being 24.2, that for the first nine years being 31.2 and for the second nine years 17.1. This was a very gratifying result and shows that the efforts directed to the control of typhoid have been efficient.

The rate for diphtheria and croup gradually declined from 43.3 in 1900 to 16.5 in 1917, the average rate for the eighteen-year period being 23.6;

that for the first nine years being 29.1 and for the second nine years being 18.0, which rates show another very gratifying decrease. Measles, whooping cough and scarlet fever are pre-eminently diseases which occur in epidemic cycles of three to six years that vary greatly in virulence, and for this reason comparison of one year with another might be valueless or lead to erroneous conclusions.

The average mortality rate for measles in the entire registration area for the period of 1900 to 1917, inclusive, was 9.9. For the seven years 1911 to 1917, inclusive, it was 9.6, which shows practically no decrease. During the latter period the average rate for North Carolina was 16.3, with a much higher average rate for the last three years of the period. During the 1911 to 1917 period the North Carolina white rate was 20.8 and the colored 15.4, which at least shows that measles is much more frequently recognized as a cause of death amongst the white as compared to the negro race. Statistics for all the Southern States in the registration area show a similar condition, and I assume that part of this may be due to the greater difficulty of recognizing the acute exanthems in the negro race.

The average rate for the larger cities of North Carolina for the period of 1911 to 1917 varies greatly from 8.5 in Greensboro to 26.6 in Asheville, and in this group Wilmington occupies a middle position, with a rate of 12.5. This period of eight years covers the entire time for which North Carolina statistics are available. As already pointed out, the North Carolina rate is much in excess of that of the registration area, but the period is perhaps too short to give a reliable index of average conditions.

The average mortality rate for whooping cough in the entire registration area for the eighteen-year period 1900 to 1917 was 10.7. For the registration for the seven-year period 1911 to 1917 the average rate was 9.9, or a decrease of only .8 per 100,000. This average rate for North Carolina during the 1911 to 1917 period was 24.3, which is a very great excess over the rate of 9.9 for the registration area. All the Southern states in the registration area show similar high rates, which fact is due to the abnormally high mortality from the disease amongst the negroes. For the year 1917 the only states in the registration area having rates above .20 were North Carolina, with 23.1; Virginia, with 22.4, and Kentucky, with 20.7. For the seven-year period 1911 to 1917, inclusive, the average white rate was 16.2, which is greatly above the total rate for the entire registration area, while the average colored rate of 39.8 for the same period was four times that of the average rate for the registration area.

The average rate for the larger North Carolina cities varied from 12.7 in Asheville to 42.7 for Wilmington. The mortality reports for 1911 give Wilmington the enormous rate of 239.3, which is tremendously in excess of any rate recorded for any other city over the entire period for which statistics have been published. The nearest approach to it being the rate of 116 for Key West, Florida, for the same year.

In contrast with practically stationary rates for measles and whooping cough we find that the rate for scarlet fever has continually though slowly declined, as shown by the average rate of 8.8 in the registration area for the period 1900 to 1917 when compared to the rate of 5.9 for the same area during the period 1911 to 1917.

In summarizing these statistics we find that most of the acute infectious

diseases have shown more or less regular and continuous decreases during the past twenty years, while measles and whooping cough have remained practically stationary. This indicates that our past methods of control have not been very effective and leads to the question of why they failed and whether they may yet prove effective under more rigid application.

Whooping cough certainly and measles qualifiedly are to be classed among the acute respiratory infections, and of practically all of these it may be said that we have signally failed to secure much preventive control.

It is my honest conviction that present methods of control are almost useless, if not absolute failures—because, despite Koplik spots and catarrhal symptoms, cases of measles are not always diagnosed before the eruptive stage, nor is whooping cough diagnosed before the whooping stage of the disease. Isolation at these late periods does little good because the time when the diseases are most communicable is during the early and catarrhal conditions. Despite the difficulties of early recognition and isolation of the mild cases of scarlet fever, we have apparently secured better results because it is less contagious and because the characteristic rash and sore throat which lead to diagnosis appear earlier than the typically characteristic symptoms of the other diseases. Another factor is the public dread of scarlet fever which induces more prompt recognition and reporting of that disease, although roughly speaking measles and whooping cough each cause 100,000 deaths in this country to 6,000 from scarlet fever.

I firmly believe that our best method of preventing measles and whooping cough lies in a long and thorough campaign of publicity and educational effort, in which we must teach the physician and the public the nature and dangers of all the acute respiratory infections, until the lesson is learned that promiscuous dissemination of matter from the respiratory tract is equally as dangerous as promiscuous defecation or urination. Pertussin vaccine is no doubt useful as a preventive of whooping cough and on that and education of physician and layman we must largely depend for the prompt reporting and early isolation of these diseases. These appear to be the only methods available until medical science develops more certain immunity producing measures.

## DIPHTHERIA AND SCARLET FEVER.

DR. E. R. HARDIN, Health Officer Robeson County, Lumberton.

### DIPHTHERIA:

We know the cause of diphtheria and its modes of transmission, we are able to check its spread and we possess a specific preventive and curative agent of great potency. Yet from an economic standpoint diphtheria is still an item to the people of any community where it is regarded carelessly by the laity or the local practitioners.

By way of illustration I will describe some cases that have come under my observation in Robeson County:

Mr. A. had been sick with sore throat for two days when he was seen by his doctor. His case looked like tonsillitis, and he was given only local treatment—no antitoxin. He went about his business as usual. In about a week two children in his home developed diphtheria, and in twenty-four hours from this time three children of Mr. A.'s brother, that lived next door, came down with diphtheria.

These children had played together and had mingled in the homes. These gentlemen lived near the public school, and their children had played with the school children. Six days after the children in these two families became sick, two school children from another home in the community came down with diphtheria. At the same time diphtheria appeared in the home of two other school patrons. Thus we have following one missed case, five cases in two families, where the contact was in the home, and four cases in three other families where the contact was in the school. Had this one missed case been properly controlled, there would most probably have been no more cases. The cost to the families involved in this epidemic was \$235, an average of \$47 per family. The cost of quarantine in the first missed case should have been about \$35. quarantine in the first missed case should have been about \$4.35.

#### ANOTHER EXAMPLE:

These cases were seen late or reported late by the doctors. Three families involved, three cases to each family. The cases were reported on an average of  $3\frac{1}{2}$  days after onset. (First case reported four days late, cost \$117; second, three days late, cost \$26; third, three days late, cost \$37; fourth, four days late, \$60). Total cost \$250, or an average of \$60 per family. The cost to each family should have been, according to the average in ten cases, where there was proper control, \$27. The cost of early quarantine and control in each case would have been about \$35. The time lost by the children in the above families from school has not been included in this estimate.

#### SCARLET FEVER.

Scarlet fever is one of the hardest of all contagious diseases to control in rural sections. This is due mainly to the fact that it is not recognized by the laity, and mild cases are often overlooked by the physicians. The following epidemic that I observed in Robeson County is a practical illustration:

Two children in a rural community were kept out of school by their parents, because they complained of feeling sick. Two days later one of them broke out with a scarlet rash, and the next day the same rash appeared on the other child. The family and neighbors thought the children had roseola, and paid little attention to it. No doctor was called. The teacher was told that the children had roseola. About the same time the school children in three other families of this community broke out with the same rash, and in one of these families seven children had the disease. None of these cases were seen by a doctor; two of these children returned to school after a few days. Within another week six other school children in three families of the community developed the same disease. One of these families was seen by a doctor when the children had the scarlet rash; later five other children in this family had the disease. The first cases in this home were reported and quarantined. There was good control in this last family. No other cases were known to develop in the community after this time. Twenty-one children in seven different families in the community had the disease. All of these people thought it was roseola. The total cost to these seven families was about \$98.00, or an average of about \$14.00 per family. The cost of quarantine in the first case would have been about \$35. The time the children lost from school of these seven families is not included in this estimate. Two cases were complicated by nephritis.

#### SMALL POX AND CHICKEN POX.

Discussion by WM. JONES, M. D., Greensboro, N. C.

From a casual consideration of this subject, one is apt to fall into the error of thinking that these two diseases are associated simply on account of euphony. While they have many common characteristics, they are dis-

tinct each from the other. Both are eruptive skin diseases of unknown etiology, and in which atypical cases may bear a very close resemblance in their local manifestations with consequent difficulties in differentiation. On account of this not infrequent similarity in appearance of the objective, and in consideration of the fact that we are seldom able to obtain an accurate account of the subjective symptoms, these two diseases should be handled in the same way.

Before we consider the questions of control, I think we might spend a few minutes in an endeavor to ascertain some of the reasons why we have failed to get control, especially of Small Pox, when we consider the fact that more than one hundred years ago Edward Jenner clearly and unmistakably demonstrated the fact that vaccination was effective in preventing the occurrence of this disease.

In 1806, Thomas Jefferson, having been so favorably and forcibly impressed with the work as done by Jenner, wrote him and said: "Future generations will know by history only that the loathsome Small Pox has existed and by you extirpated." The general public has known this to be a possibility for at least one hundred years, yet we are far from seeing the fulfillment of Jefferson's prophecy.

One reason why we have not obtained a better control of all communicable diseases than we have, is because of the fact that we have been working from the wrong angle, for we have been endeavoring to drive the public and not to lead them.

Mankind, for almost time immemorial, has looked upon disease, deformity, and death, as a burden or penalty placed upon him by an All-Wise God, for some mysterious reason, and in consequence has made little or no effort to protect himself from what he considered the inevitable. Against prejudice and superstition it is almost impossible to make headway, as no argument is strong enough to overcome such a combination. This class, which is controlled by ignorance, opposes vaccination of themselves and family only, and we have another class who oppose it for the general public. This latter class cannot always be called ignorant, but they are certainly prejudiced, and this is a worse state than that of ignorance. For they have the ability to argue very effectively to the uninitiated and especially so upon the ignorant. As an illustration of one of this class, I call your attention to an editorial as published in one of our state papers, which is in part as follows:

"We boldly stated and repeat the proposition that in ——— men had died from the direct effect of being vaccinated, and that many people would not undergo the operation of vaccination, preferring Small Pox to it. We didn't care what it cost in dollars and cents to keep a loathsome disease from spreading, and we didn't think, incidentally, that North Carolina had accomplished anything in doing away with quarantine and suggesting vaccination. . . . There is in this world today an international organization composed of brilliant physicians, men of letters and men of learning, who insist that vaccination does no good."

"Solus populi suprema lex" is the foundation of all civil government. Burke says, "All government is a necessary evil." But it is certainly much less than no government at all. Today the pendulum has gone entirely too far, and we are having entirely too much government, so much so that it



is attempting the impossible, and even attempting to legislate morals. We have such a multiplicity of laws that there is confusion, and not only confusion, but lack of respect for law. The respect for law is in direct proportion to the number of laws, and when you increase them to infinity, then you proportionately decrease the respect of the public for all law. We do this in spite of the fact that we have in the Jew an excellent example, a race that so far as we know is thousands of years older than our own, and who have withstood innumerable and untold hardships and persecution, and yet have survived. We know that their great law giver, Moses, gave them only ten laws, and we also know that Jesus Christ, the only Divine law giver, gave only two by the observance of which mankind was not only to live here, but upon which depended his hope of the future.

How then shall we control these diseases, and especially Small Pox? Shall we institute shot-gun quarantine as the above quoted editor would have us do? Before doing so, let me call your attention to what did actually occur in the very town in which the above editorial was written and in which the editor now lives.

Some years ago a well-defined case of Small Pox was imported into this town. The case was at once quarantined and four blocks of the town were roped off and guards were placed to patrol the district both day and night. Food, drugs, and medicine were supplied by the town, which was also compelled to furnish whiskey to the guards. The case was released at the expiration of forty-nine days, and a bill presented to the town for \$2450.00 for medical services alone, and in addition there was food, salary of the guards, and expenses to the entire neighborhood incident to the roping off, inconvenience, etc. I think we might conservatively place the cost at \$6000.00, and say to be certainly on the safe side we divide this estimate in half, making \$3000.00.

Now what would have been the financial equivalent in my county last year, even provided we could have gotten the whiskey for the guards? Well, outside of the cities of Greensboro and High Point we had one hundred and thirty-two cases, which would have amounted to \$396,000.00.

The general public knows as well as we do that vaccination is the only effective way to control Small Pox, and I see no reason of bothering ourselves with quarantine, which is only a fake. No sane man will endeavor to long argue against facts, and statistics show that in Sweden, where they have vaccination, and in Spain, where they do not, that the deaths from Small Pox are in proportion of one to nine hundred and sixty-three (1 : 963), and this not for one year, but for four consecutive years.

I believe that compulsory vaccination is the only way to completely and absolutely control Small Pox, but I do not know that this is necessary. It may be a good thing to have a small amount of it with us all the time, in order that we may not become negligent about vaccination. If compulsory vaccination is desired, we have all the law necessary, for not only has the Supreme Court of North Carolina passed upon the question and sustained it, but also the Supreme Court of the United States. I think the no-quarantine plan an excellent one, but I do not think we should advise this and then upon the first appearance of an epidemic, especially when the epidemic is about to affect big business, change your position and recommend rigid quarantine. When you do this, one of two things is the trouble with

you, either you have no back-bone (and this I would hate to think), or you have not faith in the no-quarantine plan.

If you believe, and you must believe in the efficiency of vaccination, then by the no-quarantine, go-as-you-please plan, you will have indirect compulsory vaccination, for that neighborhood at least. It is estimated that every case of Small Pox costs the state \$100.00, that is, in time lost from work by the patient and attendants, etc.; and how much more would the cost be and with no fewer cases under the quarantine plan.

So far I have had nothing to say about Chicken Pox, further than that it should be handled similarly to Small Pox, but this has reference to the handling in general, and not in the detail. I do not think we should even placard for Chicken Pox were it not for the fact that you sometimes get a Chicken Pox report for a Small Pox case. I do not believe in vaccinating for Chicken Pox, except under special conditions. Whenever a case occurs in a family where there are several children, then vaccinate the other members. Or when it occurs in an orphanage where you have many children living together, I think vaccination should by all means be used.

## TYPHOID AND OTHER FILTH-BORNE DISEASES.

DR. C. W. ARMSTRONG.

In my opinion, in no other phase of Public Health work and disease prevention can greater results be shown both as to the saving of life and dollars, than in the prevention of the filth-borne diseases.

There is probably nothing which so devitalizes a community as an epidemic of typhoid fever, and nothing that can give parents and physicians more anxiety than the diarrheas and dysenteries of children. In a community where these diseases are prevalent and where no steps have been taken to prevent them, it is often difficult to make the town and county officials see the advisability of taking such steps. It is sometimes hard to make see that it would be a good financial investment should they appropriate a sum of money to be used in the prevention of these and other diseases. Even a very rich community will hesitate in some instances to make such appropriations. But if they can be shown that for every dollar they invest they will get that much and more in return, and also make their community a better place in which to live, it makes it a much easier proposition to put over.

It pays to have your community free from typhoid fever not alone because of the fact that the citizens save their money which they would otherwise pay out for doctor's bills, medicine, nursing, etc., but also because of the fact that if you have a low typhoid rate in your own town or county it is a distinct business asset. For the purpose of illustration I will cite an instance in the town of Salisbury. During the past year two wealthy capitalists were considering establishing business in the city of Salisbury which would mean a great deal to our town in the way of increased population, increased taxation (both as to corporation and individual), a good deal of money coming to the town and all the other things which a large corporation means to the community in which it is located. One of the first questions asked by these men was "How much typhoid fever have you here, and what steps are being taken to prevent it?" The fact that we were able to say to them that every known means was being used for the



eradication of typhoid, and that the rate in the county had been reduced from 109 cases in 1918 to 54 cases in 1919, and from 44 cases in the City in 1918 to 2 cases in 1919; went a long way toward bringing these manufacturing plants to our town.

It has been estimated that every case of typhoid fever costs the individual at least \$200. I consider this a very low estimate. This represents actual cash expenditure for doctors' bills, nursing, medicine, etc. In addition to this an individual, if he be of working age, must lose time from his work for six weeks to two months, with the resulting loss to him in wages and the loss to the community for his non-production during this time. At this rate typhoid fever cost the people of Salisbury \$8,800 in actual cash put out in 1918, and \$400 in 1919. The people of Rowan County spent in 1918 on typhoid fever \$21,800; and \$10,800 in 1919. This represents a saving to the people of the county of \$11,000 during the year of 1919, and \$8,400 to the people of Salisbury. This amount of money which they saved on typhoid fever alone is sufficient to maintain a full-time county health department consisting of full-time health officer, office assistant, two nurses and a sanitary inspector, for a year's time.

For a county to have accomplished this work without the services of a full-time health department would have cost them not less than \$8,485.40, as the following figures show:

4609 people were vaccinated against typhoid fever, which would have cost the county at least fifty cents a dose; totaling \$2304.50.

2446 sanitary closets built in the county which would easily have cost them \$2.00 each; totaling \$4892.00.

100 public meetings held and lectures given on sanitation with a total attendance of 12,889; at the estimated cost of ten cents for each person—total of \$1288.90.

The total amount of Public Health Work done in Rowan County during the past year cost the County, they paying 60% of the total budget, \$3,664, and in return for this amount expended, they got work done for the prevention of filth-borne diseases alone, to the value of \$8,485.40. The people of the County saved \$11,000 to say nothing of the prevention of death and suffering all over the County.

The question has been asked, "Is Public Health purchasable?" These figures indicate to me very clearly that it is.

## RELATIVE VALUES AND FINANCIAL EQUIVALENTS IN RELATION TO DEGENERATIVE DISEASES.

By L. JACK SMITH, M. D., Wilson, N. C.

The subject of degenerative diseases is today claiming the attention of a great many people. Hygienists, Physicians and Life Insurance Companies have caught a vision of the needless and appalling waste of human life and working efficiency. The necessity for the conservation of human life and efficiency has never before been so forcibly impressed on the minds of everyone as at the present time. Now that production is far below demand, and the problem of high cost of living still running riot, the saving of a human life and rendering it more efficient has a financial value never before fully realized. The burden of this paper, therefore, is an effort to set a value

in dollars and cents on the measures now being employed to prolong the life and increase the efficiency of persons afflicted with degenerative diseases, and to show what dividends such measures are returning. The conclusions arrived at in this paper are not from the viewpoint of a statistician alone, but rather the viewpoint of a health officer's experience and observation in the conduct of Life Extension work. Estimating the value of human life is a task that cannot be covered by a knowledge of mathematics alone. However, it is necessary to introduce a few figures as a basis for discussion. Therefore, the following table of values prepared by Dr. Eugene L. Fisk, Medical Director of the Life Extension Institute of New York, is herewith inserted verbatim:

### ESTIMATION OF ECONOMIC GAINS PER ANNUM FOR LIFE EXTENSION EXAMINATIONS CALCULATED ON AN ASSUMED GROUP OF 1000.

#### ESTIMATION OF SAVINGS.

Expected mortality per 1000 in population examined.....	10 lives
Probable number of substandard lives per 1000 population examined .....	300 lives
Expected mortality without examination per 1000 substandard lives...	20 lives
Probable mortality with examination substandard lives per 1000.....	10 lives
Gain in mortality (lives per annum) in substandard group.....	3 lives
Estimated economic value of mature adult life.....\$8,000.00	
(Farr's formula modified to allow for present wage scale)	
Mortality gain to state for each 1000 examined.....	\$24,000.00
Assuming 2 people constantly ill for each death occurring in group, the saving of 3 lives means the elimination of 6 cases of chronic illness from the group, or a reduction of 2190 days of illness. At a medical cost \$1.00 per day, the saving equals.....	2,190.00
	\$26,190.00
Add at least 1 life saved in standard group.....	8,730.00
	\$34,920.00
Cost of examining 1000 at \$2.50.....	2,500.00
(Simplest routine completely covered by salaried examiner)	
Profit to state and community .....	\$32,420
Also excess dividends in	

Health,  
Happiness,  
Satisfaction in living,  
Prevention of pain,  
Prevention of sorrow,  
Prevention of discontent.

The above table represents a condensed report covering a study of millions of lives, among all classes of people, over a period of many years, and should be accepted as representing as nearly the facts as is possible. A study of this table reveals some interesting and useful information, which will be used for further discussion.

It will be seen from Dr. Fisk's figures that we may expect to find about one-third of the population examined, to be defective or substandard lives. This, in our experience, is too conservative, as the following tabulation of some of the most common defects will show:

1—Oral sepsis and sequelæ.....	75%
2—Pulmonary Tuberculosis .....	6%
3—High Blood Pressure.....	17%
4—Valvular heart disease.....	4%
5—Kidney disease (Bright's and Diabetes).....	3%

Out of 1000 people examined (on the basis of 17%) we would expect to find 170 people with high blood pressure. Now what is it worth to these 170 men and women to know they have high pressure and to be given the proper advice as to diet and hygiene? We know that a large per cent of these high blood pressure cases are amenable only to hygienic and dietetic treatment. In this group we find the average age to be about forty years, men and women in the most useful period of life. How are we to arrive at a proper estimate of the value of the number of years added to these 170 lives and what is it worth in dollars and cents? For the sake of aiding us to a proper conclusion the following experience is related: Four brothers, ages 34, 36, 38 and 40 years, were examined and found to have high blood pressure. The oldest, who had the highest pressure, was beginning to feel definite symptoms. The history revealed the fact that their father died of apoplexy at the age of forty-two years. Is it not reasonable to assume that the sons of this man would have their lives cut short at approximately the same age as their father? Is it not reasonable to expect that by proper hygiene and diet these four sons will have their lives extended at least ten years each, beyond the age of their father? Dr. Fisk tells us that the economic value of mature life is worth \$8000.00. Could we not say then that the ten years saved on each of the four sons, forty years, represent a mature life, and its economic value therefore would be \$8000.00? It would seem that these figures are conservative enough to be accepted by the most inquiring mind.

As formerly stated, we would expect to find 170 people out of every 1000 examined with high blood pressure. Now let us lay claim to a saving of only five years each on the lives of these 170 people, making a total saving in years of five times 170, or 850 years. This would represent approximately twenty adult lives, each being worth \$8000.00 or a total of \$160,000.00. Now add to this 6% or sixty tuberculous out of each 1000; 4% or forty valvular heart lesions; 3% or thirty kidney lesions, making a total of 130 defectives found in 1000 examined; 130 multiplied by 5 equals 650 years added to the lives of these 130 people; 650 years would represent approximately thirteen mature adult lives, worth \$8000.00 each, or a total of \$104,000.00; this added to \$160,000.00 makes a grand total of \$264,000.00 saved in these four diseases alone. For fear of being accused of overestimating the facts and real monetary value of this work, we will cut this figure to one-half of \$264,000.00 or \$132,000.00, and then it would seem too large to the average person who has not duly considered all the facts pertaining to this subject. Every effort has been made to arrive at a conservative valuation. No consideration of excess profits, such as health, happiness, satisfaction in living, prevention of pain, prevention of sorrow, prevention of discontent and the educational values have entered into the sum total of the preceding figures. Neither have we mentioned the money saved in doctors, nurses and medicine bills and the valuable time lost by illness.

A full discussion of all these would make a lengthy paper within itself. Special mention should be made, however, of the educational value in relation to the other activities of a Health Department. Coming in personal and intimate contact with the adult population in the conduct of Life Extension work gives the Health Officer his golden opportunity to reach out and touch directly and indirectly the lives of nearly every individual in his community. Especially is this true in dealing with the more illiterate people. If you convert one man and show him the right way to live, he in turn will act as a missionary for the cause of Public Health. Here is a concrete example of the cumulative action of this public health therapeutic measure: An illiterate man about fifty years old appeared for examination and was found to have high blood pressure. As usual in this class of people, he had the patent medicine habit. After being told of the dangers and useless expense, he was advised to stop this habit. He was instructed as to diet and proper hygiene. Eighteen months later this same man appeared at the office of the Health Department for a different purpose, pertaining to the welfare of his grandchild, a baby of a few months, weighing less than at birth. After making a butter fat test of the mother's milk, of which he had brought a specimen, it was found poor in quality. This baby was put under the care of the Infant Hygiene Nurse for proper feeding, and as was expected the little one is now a fat, happy baby, and a still happier mother, grandmother, grandfather, aunts, uncles and all the other numerous relatives. What are the present results in this case:

- 1—One man with his high blood pressure markedly reduced and under control.
- 2—One baby's life saved.
- 3—A conversion of relatives and friends to the value of proper diet and hygiene.

Who can say what the results of the future will be?

Now that we have discussed rather in detail, from different angles, certain facts which have led us to conclusions as to approximate values, we will summarize by rendering a financial statement in tabulated form. This calculation is based on an assumed group of 1000 persons examined in one year.

#### INVESTMENT OR COST TO THE COUNTY.

1—Number days necessary for Health Officer to examine 1000 persons	
per day .....	100 days
2—Salary per day based on \$3600.00 per year .....	\$ 10.00
3—Total cost to examine 1000 persons .....	1,000.00

#### DIVIDENDS.

1—Amount saved by extension of lives based on foregoing calculations.	\$132,000.00
2—Amount saved on difference of cost of examination by full time Health Officer, as against private or Insurance Examination.....	4,000.00

Total saving ..... \$136,000.00

Excess dividends or profits:

Health,  
Happiness,  
Satisfaction in living,  
Prevention of pain,  
Prevention of sorrow  
Prevention of discontent,  
Relative educational value.

Discussion of Dr. Smith's paper: Relative Values and Financial Equivalents in Relation to Degenerative Diseases.

Dr. Long:

My department has done about 400 so-called life extension examinations. In listening to Dr. Smith's report and his tabulations of the conditions found, I learned that they are very similar to our own. We began this work about two years ago. Announcements were made at about twenty meetings we were having in connection with dental dispensaries in the county, simply stating that the Department would do physical examinations for the adults of the county between the ages of twenty and sixty-five years. That was the only announcement we made, except one newspaper article. We anticipated trouble in getting applicants, but instead we have had trouble in keeping up with the number of applications. It has proven, I believe, the most popular feature, or unit, rather, of the work that our Department has undertaken.

The performance of a large number of routine physical examinations, embracing a comprehensive history and record of findings enables the examiner to acquire an increasing degree of skill and precision in his work. A peculiar significance attaches to the fact that, in my series of 400 cases, not a single specimen of physical perfection was found. Associating the physical findings with the case histories, all of which were written by the applicant, the striking fact that not a single applicant examined reveals a personal history indicating even a near approach to an intelligent observance of all Nature's requirements for the sustenance, maintenance and upbuilding of the human machine to a high degree of efficiency is still more significant. Sins of omission and commission are glaringly apparent. Especially because of the fact that a majority of my cases are among the most intelligent people of my county, such as school teachers, ministers, professional and business men.

The whole idea of the life extension service is to teach the individuals who believe themselves to be well to take advantage of periodic physical examinations. To take stock of their physical well being and then to bring forcibly to their attention the vital necessity of associating their physical shortcomings with apparent errors of personal hygiene. We have isolated numerous advanced cases of chronic disease as well as an almost unvarying score of accumulated minor deficiencies, more slowly, but none the less certainly, deadly in their insidiously persistent effect.

Certain phases of public health work require not only persuasion, but occasional resort to legal procedures to enforce necessary protection to the community against contagious diseases. This militates against spontaneous co-operation in organizing and extending valuable phases of voluntary work. The intimate personal relationship established in performing physical examinations of a comprehensive character is a powerful factor in educating the public to appreciate the possibilities of increasing human efficiency and prolonging human life.

We usually receive enthusiastic support from the family and friends of persons who have had the benefit of life extension examinations in every phase of public health work in which we engage.

Discussion of Dr. Smith's paper: 'Relative Values and Financial Equivalents in Relation to Degenerative Diseases.

Dr. E. T. Hollingsworth, Clinton:

We started this life extension unit in Sampson County, and have run it for eight months. We have examined about thirty applicants, and in these thirty ran across six cases, two of diabetes in school children. They had gone from one doctor to another, and finally they floated into our clinic and we discovered that they had diabetes. We gave them no medicine, but advised a change of diet. They have gotten better and have now gone back to school. The little money we spent for the health officer's salary would be more than saved by the improvement in the health of these two children.

### RELATIVE VALUES AND FINANCIAL EQUIVALENTS IN TUBERCULOSIS PREVENTION WORK.

DR. L. B. McBRAYER.

After hearing the most splendid address of Dr. Chapin this morning, it is perfectly apparent to all of us that it is very difficult to fix relative values in health work, and that relative values change as places and conditions change.

Now, without attempting for a moment to criticise anything that Dr. Chapin said, for I feel that in his presence I should take the shoes from off my feet, because the place whereon I stand is holy ground, I just want to call your attention to the place he has given to privy sanitation. I will venture the assertion that he has spent more money on sewers and water and water closets in the city of Providence in doing away with privies than he has spent on all the other work of his entire health department since he has been the wonderful health officer of Providence. It costs a lot of money to lay sewers and put in waterworks. It is worth more than it costs, like vital statistics. It is a necessity—ordinary humanity and decency require it, and it is worth the cost from that standpoint. It is worth it also from the standpoint of the decrease in typhoid and diarrheal diseases. It is worth more than the equivalent at which Dr. Chapin has rated it, and there are a great many other things worth more on that same basis.

The Metropolitan Life—February, 1920.

"The eradication of tuberculosis would add as much to the life span as has resulted from all sanitary improvements in the last 25 years."

The following table shows the relative values attached to the various lines of health work by Mr. Franz Schneider, Jr.:

Tuberculosis .....	12.1
Venereal diseases .....	6.6
All other communicable diseases .....	25.3
Infant hygiene .....	20.3
Privy and well sanitation .....	3.5
Milk control .....	2.7
Fly and mosquito suppression .....	2.4
Food sanitation .....	0.1
Inspection of school children .....	7.0
Vital statistics .....	5.0
Education .....	5.0
Dispensary and clinics .....	5.0
Laboratory .....	5.0

Total .....100.0

Snyder, to whom Dr. Chapin referred this morning, in his table gave tuberculosis twelve points out of one hundred, all other communicable diseases twenty-five, and infant hygiene twenty. That would be open to discussion, also. There was a time, not so long ago, when there were more deaths from tuberculosis in North Carolina than from any other communicable disease. At this time, I believe the diarrheal diseases of infants and pneumonia are above it. But if you are going to put that on a financial basis you would want to value the life of the child. The mother would say that this is impossible, and, of course, it is. But certainly a lot is worth more when a house is put on it than it was before. It is worth more when the street is paved than it was before. Now, what is the worth of a child dying with diarrheal diseases as compared with a man thirty to thirty-five years old? The child is about two years old, and very little money has been spent on it. When a man is twenty-five years old, the State of North Carolina has educated him, very largely, then his father or his mother or he himself has paid his way through college. If he decides to be a professional man of any kind, after he has finished college he has taken time and money to make himself proficient in whatever profession or calling, whether farming or medicine, he has selected. Of course, these are merely arbitrary estimates, and, of course, we are all wrong. We may as well admit that in the beginning. However, I have seen it estimated that any man or woman who lives to finish a college course has cost somebody \$25,000 in money. Of course, if they turn around and die, you would have a considerable loss.

Then, again, it is difficult to evaluate various items in health work, because every single piece of health work that is done reacts on every other single piece of health work. I have stated privately, and I am willing to state it publicly, that *per se* the hookworm work done in North Carolina was not worth very much. That is my opinion. But as a piece of educational work in North Carolina it has had its reaction on every single thing that has been done in this State in public health work since that day, and it has been worth a thousand times more than it cost from that standpoint alone. So it is difficult to make these separate evaluations. I would not want to be in charge of the Bureau of Tuberculosis of the State Board of Health if I had to be in strong competition with another bureau, if I could not lend them a hand occasionally and if I could not get a service from them occasionally when I needed it.

I just mention these things to show you how difficult it is to separate these things and evaluate them separately. In estimating the value of tuberculosis work I wish to give others a large share of the credit, and not give it to the Bureau of Tuberculosis alone.

Quoting Dublin again, he has estimated that the value of the human life for one year is \$100—less than the ordinary hod carrier makes in a month. He estimates the number of years that every person would live longer if tuberculosis were eradicated at four years. On the basis before mentioned, Dr. Dublin has estimated the value of eradication of tuberculosis in North Carolina at \$1,000,000,000, and the eradication of tuberculosis in the United States at \$50,000,000,000. Now, we might take another arbitrary argument, and discuss it along the lines Dr. Smith used. I take it for granted that all the health officers are doing better work along that line

than Dr. Smith, but I doubt if it is so. Anyway, he is setting a mighty good example to health officers. In 1910 I believe it was estimated from that part of North Carolina which had vital statistics that there were in round numbers 4,800 deaths from tuberculosis. In 1918 there were 3,300. That is 1,500 fewer deaths in 1918 than there were eight years previous, from tuberculosis. I have thought a good deal about what those 1,500 lives are worth, and how to go about computing the value.

In studying the matter I have thought that we might go about it in this way, that the total incapacity from tuberculosis would be about three years' total incapacity for each death. If I were to multiply that by ten I think I would be about right, but I do not want to get the figures too high. An ordinary laborer gets about \$4.00 a day. Taking out Sundays and holidays, and other days on which he does not care to work, and saying that he works about 300 days a year, he makes \$1,200 a year. Now, of course, a great many of us do not make as much as an ordinary hod carrier, but he does not have to be able to write his name and he does not have to be able to read. But one thing is necessary—he must not have tuberculosis or typhoid fever, he must be well and strong. Suppose he works only one-fourth of his time, still he pays six per cent interest on \$5,000. If he is going to be sick for three years he will buy a lot of patent medicine, and he is going to have a doctor some time or other, or perhaps a nurse. He may have nobody in the world, and unless the community is going to let him die worse than a dog dies, or a horse, the community will send him to a hospital. Suppose it costs about \$1.50 a day—and that is putting it pretty low—and when he dies the undertaker will charge him something. Now, if he has children, eighty per cent of them will be infected. We do not know exactly how it is done, but we know that eight of ten people who are closely associated in a house with a case of tuberculosis are going to have it. We have proved this statement within forty miles of Charlotte, and the United States Public Health Service has proved it in Wisconsin. So he has infected his family. In round numbers, let us say that he has cost \$10,000. Now, if there are 1,500 fewer deaths now than eight years previous, that is \$15,000,000.

I have talked long enough, I am sure, and have no doubt proved to you, as I stated in the beginning, that it is impossible to fix a value on these things. But if we do not know, as Dr. Chapin says, just what it takes to transmit tuberculosis, if we should spend every year all the money that has been spent up to the present time, and if at the end of 100 years we were to find out how it is transmitted and how to stamp it out, it would be worth all the money, and many times more.

Discussion of Dr. McBrayer's paper: Relative Values and Financial Equivalent in Tuberculosis Prevention Work.

Dr. A. C. Bulla, Winston-Salem, N. C.

I do not feel capable of standing up here and talking about tuberculosis after Drs. Chapin and McBrayer have already had their say. But we do know a few things about tuberculosis. We know that people contract it, develop it, die with it, and we know about how many people are so unfortunate. I shall not attempt to say exactly when it is contracted, how soon developed after the first initial infection, because Dr. Chapin says that he does not know.



I have been associated with tuberculosis for three years, and the more I see of it the more I am convinced that it is contracted in early childhood or in infancy. When we consider the extent to which the disease is passed on within the family group, which is so conspicuous that up until a few years ago everybody believed it was hereditary, with its varying period of latency, we see more reasons why early health supervision of children is important. Then, too, when we consider the great prevalence of the disease, its pre-eminence as a life taker, its hidden existence, the long period of suffering for each case, we can see why we should put forth a greater effort to learn more about the disease.

In looking at Dr. Chapin's chart of relative values in health work I notice that he has given hospitalization a real value, which I am convinced is true. We have in Forsyth County a Tuberculosis Hospital, and I am convinced that it serves a valuable place in Public Health Work. While I am not of the opinion that every county should have a tuberculosis hospital, but I am convinced that a county or a group of counties should have a general hospital; one ward which could be used for tuberculosis patients; another ward for indigent patients of a general nature; a children's ward and an operating room. This, in my estimation, would serve the problem of a hospital in a general way more satisfactorily than one especially for tuberculosis. In my opinion, a county or group of counties with a population of fifty to seventy-five thousand people is justified in having a general hospital.

Discussion of Dr. McBrayer's paper: Relative Values and Financial Equivalent in Tuberculosis Prevention Work.

Prof. L. M. McCormick, Asheville:

I agree so heartily with Dr. McBrayer that it seems as though there is nothing more to say. Tuberculosis is one of those diseases which are so obscure in their origin that we have not found out much about them. It is only a few years ago that it was regarded as an organic disease. When it was announced to be communicable, the whole medical world hooted at the idea. The great advance which has been made in the control of this disease is in education. We can do very little until the people find out the nature of the disease, how to prevent it, and what precautions to take to minimize the possibility of contagion. In my city of Asheville we have probably one of the lowest death rates from tuberculosis among the residents of any city in the world. While the average T. B. death rate is 146 per hundred thousand, in Asheville it has fallen as low as 13, and it will probably stay at about 75 from year to year. I think this is due probably to the fact that in Asheville everybody sees so much of tuberculosis and hears so much about it that the prevention of tuberculosis becomes part of their education. Sometimes, of course, this degenerates into phthisiophobia. On the whole, however, the citizens of Asheville are not afraid of it, but they take precautions from the beginning, and for this reason Asheville has, as I said, one of the lowest death rates from tuberculosis of any city in the country. People come there suffering with tuberculosis, and we welcome them—more or less. Our motto is: "Asheville opens wide her gates to the sick and the well from every clime, but she demands that the sick shall

so comport themselves that they shall not become a menace to the health of her citizens or the stranger within her gates."

The greatest relative value in the treatment, prevention and eradication of tuberculosis is education. The worst foe of the prevention of tuberculosis is unreasoning fear of the disease. For, like the fabled chimera, tuberculosis can be conquered only by fearless, intelligent attack. Panic dread is as potent a factor in the spread of the disease as is the carelessness and indifference that is bred of ignorance.

As has been pointed out by Dr. Chapin and Dr. McBrayer, it is impossible to fix a relative value between the different methods of preventive work in tuberculosis, for the weapon which is effective today may be useless tomorrow. All preventive work, whether it is education, hospitalization, or sanitation, has its place, but their effectiveness shifts so rapidly that I am not capable of placing a relative value on any one of them.

Discussion of Dr. McBrayer's address.

Dr. D. C. Absher, Health Officer, Kinston, N. C.:

When I was health officer for Vance County a few years ago, we had a County Board of Health regulation which required all cases of tuberculosis to be reported to the county health officer. The health officer was then required to visit the case and give proper instructions for hygiene and prevention of spread. He then forwarded the report of the case to the State Sanatorium.

It is my belief that all counties and cities having full time health officers should handle tuberculosis in this way, and where there is a public health nurse the cases should be followed up. The nurse can also follow up those incipient cases found in making Life Extension examinations.

Dr. Meyer, of the International Health Board, in a paper recently published gives relative values for units of public health work as follows:

Tuberculosis .....	12.1
Venereal Diseases .....	6.6
All other communicable diseases.....	25.3
Infant Hygiene .....	20.3
Privy and Well Sanitation .....	3.5
Milk Control .....	2.7
Fly and Mosquito Suppression.....	2.4
Food Sanitation .....	.1
Inspection School Children .....	7.0
Vital Statistics .....	5.0
Education .....	5.0
Dispensary and Clinics .....	5.0
Laboratory .....	5.0

In view of these values and the co-operative county health work of the State Board of Health, it is seen that many of our counties would have health departments of higher efficiency if a little more work were done on tuberculosis.

## AFTERNOON SESSION—DR. LONG IN THE CHAIR.

## FINANCIAL EQUIVALENT OF THE PRIVY.

H. E. MILLER, C. E., Raleigh.

The privy is an indispensable institution. Whether or not its presence constitutes a menace or blessing to its users and their neighbors, depends upon the manner in which it is constructed and maintained. Sanitarians have demonstrated the effectiveness of the sanitary privy as a factor in the reduction of fecal-bourne disease. Although not remarkable, it is generally recognized that, wherever improved sanitary conditions have effected a decrease in the prevalence of fecal-bourne disease, a general decrease of other diseases, not commonly recognized as fecal-bourne, occurs.

Evidence of this character is convincing to the man of a trained analytical mind, but cannot be comprehended by the average layman. The one universal standard which he and all mankind can fully understand and comprehend is the money value, the financial equivalent.

The health officer must recognize that he is a public commercial agent in the field of competition with commercial industry. His customers are stockholders of a firm with paid in capital of \$250,000,000,000 (vital assets of the United States in human life, on basis of figures current for 1907), while an official estimate on the same basis places all other wealth of the United States at 107 billion dollars. He has something to sell to these stockholders which will make their shares pay dividends. In order to make sales he must be able to show that a dollar invested in a sanitary privy will yield greater dividends than any other investment of the same amount. For this purpose the Health Officer must have a supply of economic data, showing what dividends have accrued to other investors under similar conditions.

Unfortunately, in the past there have not been sufficient precedents of universal community installations of sanitary privies, from which reliable data can be secured. Figures, more or less reliable, have been obtained from four Southern towns ranging in population from ten to twenty thousand, in which complete sanitary privy systems have been installed.

Let us assume that X represents the financial equivalent of the sanitary privy, then

$$X \text{ equals } \frac{R-C}{N}$$

R represents the economic value of the deaths and cases of sickness prevented. Since we know that a reduction in the prevalence of other fecal-bourne diseases than typhoid as well as a general improvement of the health of the community is effected by the installation of sanitary privies, we will balance these factors against the effect of vaccination and other measures, and assume that the privy is responsible for all typhoid fever reductions. C represents the cost of that part of the Health Department activities, necessary to bring about the installation of sanitary privies. N represents the number of open back surface privies replaced by either sanitary privies or sewer connections.

In order to obtain R we must know the value of human life and the average cost per case of sickness. On the basis of values current in 1909

Fisher estimates the value of the average human life at \$1700. The value of the items of consideration have more than doubled since then, therefore a reasonable figure based on present values would make each death prevented an economic saving in earning power of \$3,000. On the same basis the average cost per case of sickness is \$30, therefore we may conservatively estimate every case of sickness from typhoid fever prevented as an economic saving of \$50. The value of R then becomes: Number of lives saved times, \$3,000, plus the number of cases of sickness prevented times \$50. C and N are self-explanatory.

By means of the data in the following table values for R C and N of our equation may be obtained. When these values are substituted for the symbols, the equation may be solved for X.

1, Greenville, S. C.; 2, Anniston, Ala.; 3, Salisbury, N. C.; 4, Rocky Mount, N. C. The case and death rates for Anniston and Rocky Mount for the period prior to sanitary privy installation appear to be abnormally high, but balanced against Greenville and Salisbury a reasonable average is obtained.

REDUCTION		R-C		C	UNIT	N	X
						Number open surface privies re- duced by san. privies & sewerage	Net saving per privy.
Cases	Deaths	Saving in hu- man life value		Cost	Cost		
1	44.4	3.2	\$ 9,850	\$1350	\$0.85	1,600	\$ 6.15
2	102.1	8	27,100	2000	0.96	2,098	12.90
3	42	3	9,100	2000	1.06	1,891	4.80
4	113	7.5	24,600	2000	1.14	17,505	14.10
Average	75	5.25	17,765	1837	1.00	1,835	9.48

1. 127 cases and 9 deaths reported Nov. 1 to Dec. 31, 1917; 43 cases and 1 death reported 1918; 6 cases and no deaths 1919. Average for 1918 and 1919, 25 cases and 1 death; 1698 privies and 400 sewer connections.

2. Estimated.

3. Pro rata figures.

4. (Average several years prior. Deaths estimated. (Since 1915 no cases of local origin.

5. 120 cases in 1916; 8 deaths estimated. Past three years average 7 cases and one death; 1500 privies, 250 sewer connections.

Striking an average therefore for the data at hand, we find that X equals \$9.00, the financial equivalent of the sanitary privy.

The figures of the foregoing table apply to towns and cities. Statistics for North Carolina show that there occurs annually one case of typhoid fever per thousand population in rural districts, while there are five to six cases per thousand population in the unsewered towns, villages and suburbs. A further item of consideration is the fact that the privy in rural sections is in fly range usually of only one home, that for which the privy is provided, while in the towns and villages the privy is within fly range of from 15 to 20 homes. The foregoing figures would indicate that the risk in rural districts is only one-fifth of the value arrived at for privies in towns and villages, or \$1.80.



It has been demonstrated in many instances that sanitary privies are not a permanent protection against filth-bourne disease unless they are properly maintained. Maintenance is just as essential as construction. The U. S. P. S. records cite three instances in which successful privy construction campaigns were conducted. All three communities rated high and in approximately the same figures at the close of the campaigns. One community employed an inspector to enforce maintenance. The other two did not. After three years the three communities were rated again. The first community received a rating higher than the original. The privies in the other two communities had consistently reverted to E type. Therefore if by effective maintenance inspection, the Health Departments hold this yearly typhoid fever rate down to or below the figures for the first year or two years after privy construction, as great an annual dividend accrues from maintenance as from construction.

Discussion of Dr. Miller's paper: Financial Equivalent of the Privy.

Dr. A. J. Warren, Charlotte, N. C.:

I wish to present a concrete example of the financial equivalent of the privy. For this illustration we will take the city of Charlotte. Prior to 1919 there were over three thousand open surface closets in the city. For the five-year period just prior to 1919 the average annual cases of typhoid was 153.5, while the average annual deaths were 17.5. What does this mean in the language of the dollar? The economic value of an average human being is variously estimated at from \$3,000 to \$8,000. For our purpose we will take the smaller figure \$3,000. Three thousand times 17.5 equals \$52,500 in human values alone. If we estimate the cost of a case of typhoid fever, doctor's bill, druggist's bill, nurse's bill and time lost from labor at the ridiculously low figure of \$50 per case, we have again  $50 \times 153.5$  equals \$7,675—making a total annual economic loss for the five-year period of \$60,175 for this one preventable soil pollution disease.

The Health Department of the City of Charlotte installed in the City a system of improved privies where sewer was not available. This work was not completed until the spring of 1919. And yet for the year 1919 the very thing we had promised the City happened. The morbidity and mortality rate for typhoid fever took such an abrupt "slump" that it almost startled a somewhat staid city. The morbidity rate fell from 153.5 to 34. and mortality rate from 17.5 to 5. The total economic loss for 1919 from typhoid fever being only \$16,700. The net gain over the average five-year period being \$43,475 for this disease alone. A dividend of \$43,475 on the privy investment. And was this not the only dividend that the investment paid in the same year?

Diarrhea and enteritis under two years of age in the South is a filth-born disease to a very great extent; the open surface closet playing an important role in its propagation. For the two years just previous to 1919, the average mortality for this classification of diseases was 54 babies. If the death rate from a given number of cases is 10%, and this I believe to be too high, this number of deaths—54—would indicate an average morbidity rate from this disease of 540 for the two-year period. If we take as the economic value of these children not \$3,000 but \$1,700 we would have

an item of \$91,800—loss from deaths alone. If we place the total cost of each case at \$10 per case we have another item of \$5,400—making a total average yearly loss of \$97,200.

The first year after the privy system was installed, the morbidity rate fell from 540 to 220, while the mortality rate fell from 54 to 22. The total loss for 1919 being \$39,600. A difference of \$57,600—which is a second investment on the privy system installed.

I realize that the morbidity rate used in this discussion is only an approximation, but the mortality rate, which is by far the largest item, is accurate, according to our official mortality statistics.

### FINANCIAL EQUIVALENTS IN HEALTH WORK.

DR. W. S. RANKIN, Secretary State Board of Health.

You will recall, Mr. President, that you and the Secretary, when you were making up the program, very kindly mentioned to me some of the ideas in which you were interested, and we discussed this question of financial equivalents. It is to me the most important thing we can consider in the health work of North Carolina right now, and I have a very decided opinion that you will see the entire program of local health work, so far as the State is interested in it, shifted to a basis of financial equivalents within the next six months.

There are two important administrative principles that an individual or an agency may use in getting a piece of work done. One principle is to employ a man or an officer and pay him a salary to do a piece of work. He may or he may not do it. Three times out of five he will succeed; two times out of five he fails. That is one principle of getting health work done. That principle has two very decided disadvantages. In the first place, the man who pays for the work is assuming all of the risk. The second disadvantage is that if a man holds a public office and follows that principle, sooner or later he will build up a large personnel. We have never had that to deal with in North Carolina, but we have had to use considerable influence in the placing of local health officials. I do not think that we have taken much initiative in the appointment of health officers, but county after county comes to us and asks us to suggest one or more available men. Now, I do not like that kind of business—I do not like even to furnish three or four names to a county from which to make a selection.

The other principle of getting work done through a public office is not to pay salaries, but to pay for the work done. If we can establish in North Carolina a financial equivalent—and I will show you how we can do it—for every single item of health work in the county in which the State is interested, we may quit paying so much a month on salaries, but we shall pay a proportion on the work done. Let me illustrate.

Dr. Cooper is employing about five public health nurses. They have their own machines, go into a county, see the parents of children who have bad throats, and persuade the parents to have the child operated upon. How much does it cost Dr. Cooper to have the average child operated upon? \$7.50. Now, don't you see how easy it would be to say to a health officer, "For every operation you have performed on a child for bad tonsils or adenoids we will pay \$7.50." If Dr. Jones, for instance, gets one hundred

operations done, we would pay him \$750.00. We would not be paying salaries any more, but paying for piece work.

Let us say, for example, that a reasonable cost for typhoid vaccination is \$1.00, and that the State is willing to pay one-third. Suppose Dr. Jones does three thousand vaccinations in a year. The State paying one-third, he would get a check for \$1,000.

If this principle is adopted in local health work, one does not spend a dollar except for work done. It makes no difference who is selected as health officer. If the county gets a poor man, the county pays the bill. If the county gets a good man, the State helps to pay the bill. The State will assume its share of financial responsibility for county health work. The system will fit whether a whole-time man is appointed or a part-time man. The system will fit any county. It makes no difference whether the town does the work or whether the county does it. The system of maintaining an office with a great big personnel is entirely done away with.

To inaugurate such a system, the Governor will be asked to appoint a commission of business men—not health officers, not doctors, but a commission of the best business men in the State—to take the data, some of which you heard this morning, regarding every single item of health work and to find a sum which represents the reasonable cost of each item of health work. Dr. Bulla, in Forsyth County, has four hundred dependents to look after each month, but he gets no more credit for it than those health officers who have only fifty to look after. If the care of dependents is worth 50 cents a month to the State, he would be allowed a credit of \$200 a month.

When the values are fixed, the State will send the health officer a check each month for one-third of the total cost of the work. All this discussion has tended to the establishment of a financial equivalent for every kind of health work—pay for the work, not for salaries. When we can go to the General Assembly and say, "For so much money you get so much work; if you don't get it, you do not lose a cent," there will be no more trouble in getting appropriations.

Another thing—when you go to a county to get a whole-time health department, you will have something to show them—you will have a table of values which has been worked by the best business men in North Carolina, and you can show them what they should reasonably expect for their money.

## PUBLIC HEALTH NURSING AS IT RELATES TO COUNTY HEALTH WORK.

ROSE M. EHRENFELD,

Director Bureau Public Health Nursing and Infant Hygiene, North Carolina State Board of Health.

I feel toward the Health Officers much like a U. S. P. H. S. man who recently spoke to 3000 nurses in Atlanta and said: It frightens me a great deal less to meet One of you 3000 times than to meet 3000 of you at Once. The Public Health Nurse is today the focus of interest in the whole public health movement: And—in view of the growing importance assigned

to the role of the p. h. nurse in State, County and Municipal health programs (while her profession is of no recent origin and still in formative stage) it is essential to provide a directing agency to guide in the development and standardization of her work.

The South especially is approaching their health problems with the COUNTY as a logical unit of health organization, and if so organized they can direct efforts along health lines through the proper channels.

The Bureau of Public Health Nursing and Infant Hygiene established jointly by the American Red Cross and State Board of Health—in addition to an extensive infant hygiene educational program—has become responsible for:

1. Organization and promotion of p. h. nursing on a County basis.
2. Establishment of minimum standards.
3. Securing of scholarships for, and appointment of nurses.
4. Supervision of their work. The Bureau has a public-health-nurse-

Director and two assistants who act as supervising nurses.

Supervision is a matter of co-operation and construction, and not (as so often assumed) of repression and restraint: and has been defined as "democratic leadership of a staff in such a way as to develop a high standard of work." The nurse does not so much need additional technical training, but rather aid in utilizing group methods—and a supervisor, by establishing such means as conferences, a system of reports and advisory visits, will bring her associates to *form policies* and will turn all the resources of the community to make her associates free to carry out and improve these policies.

The County nurse is a practical instrument in meeting the fundamental needs of the country people. Some of the Fundamental needs of the unreached family in the open country can best be determined by asking the question—"Why is an unreached family?" We remember puzzling (as children) over the question of "Why is a cow?" to which there seemed no answer, but to "Why the unreached family?" there is an answer:

1. Because there are no hospitals.
2. The number of people afraid of hospitals, prejudiced against them—or the limited capacity of the hospitals.
3. The country not supplied with physicians.
4. The fee attached for medical service.
5. No attendance for the sick-bed at time of confinement.
6. Because the state legislation does not provide for its people. (When a sheep dies it is money out of the pocket—when a person dies—"he has to die anyway.")
7. Because they live in a place where extension work ordinarily does not reach.

In no way is the nurse an acceptable substitute for a health officer. She may precede in a county the health officer, but a full time health department is one of the developments for which she works. Most of the nurses accept scholarships for public health training with in view "assignment to some particular field"; and the ones assigned to Counties all spend a day at the Bureau office in advance of taking up the work. On that occasion they are told of the opportunity that is theirs as pioneer workers and that public health nursing in their particular counties is going to reach just where they

take it and the effectiveness of it is going to be just what they make it. They are acquainted with the general working plan of the State Board of Health—given a copy of "compilation of public health laws for North Carolina" and receive detail instructions in the units of work to be undertaken; as well as the system of records and reports—and are made to realize they are not isolated workers in independent fields, but rather each in her own county (as representative of the two Agencies backing her work) is to have the advantage of information both the Red Cross and the State Board of Health furnish—and that her work is an integral part of their combined program.

Where there is a full-time county health department, the nurse is of course detailed to that department and works under the direction of the County health officer, although her work is usually financed by an outside volunteer agency. (At the present time provision in county health department budgets for a nurse is made in only two North Carolina counties.) In counties where there is no full time health department, she works under a council or committee for 5 to 15 members, (including representation of the Red Cross Chapter, Board of Health and other representative county organizations)—and does practically the same units of work as undertaken where a health department exists.

The greatest value of the public health nurse lies in the actual educational work in the field. Her humanity is the medium through which she wins people—her professional ability and advice, the gifts she is privileged to offer. The ultimate aim of the development is to have nurses in proportion to the population in sufficient numbers to do all kinds of public health nursing. But, in launching the work with one trained worker, the contribution she can make to as large a territory as a County depends upon the geography, condition of roads, transportation, etc.

Taking these into consideration, it is obvious that no appreciable amount of bedside care can be given, for which reason there is a possibility of her position in the county being misunderstood unless—upon arrival—she gets in touch with the individual physicians or the County Medical Society and offers her assistance in clearly defined lines and makes clear that her presence (as well as the instruction she will give the rural women in carrying out physician's orders and better caring for patients in the homes), will mean more intelligent co-operation on the part of their patients. It should be made clear at that time that she will stay within the jurisdiction of a nurse and that, if her work is successful, the physicians will receive calls earlier.

It must be remembered her work is primarily preventive and educational. While the position of bedside care in the program of one-nurse-to-a-county must necessarily be in the rear ranks, its value as an opportunity for teaching is appreciated. It is sometimes the only means of gaining family confidence and co-operation. For this reason it is to be recommended by periodic visits giving demonstrations, instruction and encouragement for like attention by a member of the family, rather than in the nature of spasmodic private duty as some of the physicians seem to expect.

After carefully studying the greatest need of the counties and planning for the utilization of one worker's service to the best advantage, the nature

of activities and scope of duties at present undertaken by the COUNTY P. H. Nurse are indicated in the following units:

I. *The Unit of Tuberculosis*—which calls for:

1. Securing the names of reported tuberculous cases in the county.
2. Visiting them in their homes as often as possible to give such nursing attention and the household such necessary instruction to secure best care of patient and proper protection for the family.
3. Visiting every discharged tuberculous soldier, sailor or nurse with the plan for sanatoria treatment as furnished by State Sanatorium.
4. Educational campaign through public schools by means of lantern slides, lectures and distribution of literature, furnished by sanatorium.
5. Investigating general health of families where there is or has within three years existed tuberculosis and arranging for diagnostic clinics. (A diagnostician from Sanatorium, nurse from Bu. P. H. N. & I. H. together with the county nurse make the clinical personnel. Three such clinics have been held and three appointments for May.)
6. The nurse will try to secure care or treatment for all Tb. cases found, according to available resources. (Either state or private sanatorium treatment or through a clinic, supervision of family physician, county health officer or county physician.)

II. *The Unit of Infant Hygiene*—which calls for:

1. Individual or group instruction of midwives in the principle of personal hygiene and hygiene of pregnancy.
2. Individual or group instruction of women in essentials of home sanitation; pre-natal and post-natal care; feeding of infants—and physical inspection of children brought by their mothers to the nurse.
3. Keeping track of breast-fed, bottle-fed babies and children under two years of age suffering from digestive disturbances and diarrheal disease. It is here especially that the State plan is proving itself practical and *carrying* to the unreached family at the head of the hollow—where the nurse visiting in the home is *interpreting* to the mother handicapped by lack of education, the pre-natal advisory letters sent. In sections of the open country where the boulevard fades into the squirrel track that runs up a tree, *is she* meeting the great need by planning a better balanced diet for the all-too-frequently-undernourished country child, from the limited variety within the reach of the mother. It is here that conspicuous pieces of *preventive work* are being accomplished—and from here that frequent expressions of gratitude are received.

III. *The Units of Quarantine and Soil Pollution* call for:

Assistance to the County health director in performing the duties required by law for the control of communicable diseases and in finding or treating children with hookworm—and by educational means seeking to bring about widespread adoption of sanitary privies.

I believe there will be no appreciable "Back to the Farm" movement until the sanitary conditions of the rural districts are improved. The nurse grounded in and making the principles of preventive-medicine part of her life, can do much to improve the health and increase the efficiency of rural

people by conscientiously agitating sanitary improvements. If a farmer is shown that money spent for Sanitation is a good investment, he will invest—and thus encourage the "Back to the Farm."

Unit IV calls for co-operation with the Bureau Medical Inspection of Schools in assisting the health officer record and classify cards of school children with defects and through educational means help to secure proper treatment. In counties where there are no health officers, the nurse follows such specific instructions given by Dr. Cooper for her particular county.

A great need (as the county nurses see it) is for courses in normal schools and at teachers' institutes to prepare teachers for handling health subjects. (Generally they know neither what nor how to teach.) Also, the pupil's physical progress being recognized as worth recording and one of the factors to be considered in passing from grade to grade. (I recently heard a story that indicates the unpreparedness of the rural teacher. It was a history class, and to the row of boys on the front seat was asked the question, "How did Lincoln spend his life?" Replies of "On a farm," "Splitting rails," "On a boat" and "Sawing wood." Each in turn were all answered by "NO" from the teacher, who, drawing a deep breath, said: "Why don't you boys learn your lesson—the BOOK SAYS 'his life was spent in HARDSHIPS'."

Now, the Rural Sections need information, and the way to inform them is through the schools, and the NEED for information is no greater than is the necessity of getting that information to work. If this story is an example of the way health subjects are being handled, has the time not come when the book with the number of bones, arteries and veins, together with their names, be cast aside and in its place THE MODERN HEALTH CRUSADE with the practical doing of health chores. The nurses have been instrumental in getting this movement introduced in some of the rural schools.

In some of the High Schools they are giving the standard courses of instruction in HOME HYGIENE and Care of the Sick; and we hope the time will come when this instruction will find a place in the curriculum.

We feel toward the school that there

1st. Should be required a thorough physical examination before the child is allowed to enter school.

2nd. A pair of scales in every school, to encourage physical progress by visible gain in weight, due frequently to proper diet; sufficient rest, less coffee as a substitute for milk, fewer movies, etc.

3rd. Time allowed for teaching health habits and teachers prepared to do it.

4th. So far as possible, a warm item in the school lunch.

5th. That every child's physical report should go home monthly with the school record.

In one mountain county the nurse has been instrumental in getting the moving pictures on health subjects run during Institute Week—and public health playlets given by the schools. These are instances of effective EDUCATIONAL WORK.

The following instances cited further testify to the need of the County Public Health Nurses:

(1) The nurse found seven midwives at a county-seat who were not registered with the State Board of Health, and an eighth in a nearby town. Another located four who claimed ignorance of the law regarding silver nitrate.

(2) We know of one county with 200 midwives; 75 of them have been reached by the Health Officer; 3 were men—1 white and 2 negroes. (Conditions such as these account for "accidents of pregnancy" and prevalence of blindness.)

(3) The Bureau of Vital Statistics issued in the year April, 1919, to April, 1920, 22,688 ampules of silver nitrate. In the last 4 months 10,904 were issued as compared with 11,784 in the preceding 8 months of the year. Dr. Register gives the County Nurses credit for half that increase.

From these instances—together with the value of such workers personally exemplified by the two county nurses on the program—it would seem that the action of a county in doing without a nurse to get a community building is the type of short-sightedness that leads a man to mortgage the home and buy an automobile. I believe the time will come when the County Nurse will be acknowledged as necessary as the county courthouse and when—through legislation—it will be made financially possible for her to do for humanity what scientific agriculture is doing for the crops in proportion JUST as these two resources are relatively valuable to the STATE.

### ONE NURSE TO A COUNTY WITHOUT A HEALTH DEPARTMENT.

MRS. MILDRED HARGRAVE, Ashboro, N. C.

I do not know why I have been asked to speak here, because I am not a speaker, but I want to tell you what we are trying to do in Randolph County.

I went into the county in July of last year. We had then in the county one small hospital with eight rooms. I knew that I had to have the school children's adenoids and tonsils removed, but I did not know anything about North Carolina at all. I wrote to Dr. Cooper and learned that we could get the emergency clinic.

A young bacteriologist was sent in to vaccinate, and 4,000 people were vaccinated. Afterward I vaccinated about 300.

Then the County Superintendent of Education decided that we must have the teachers' institutes and have health lessons of some kind, so he called on me for help. I gave them health lessons in the mornings of about forty-five minutes, and I used this opportunity to get in touch with all the teachers. I taught them every morning for forty-five minutes, and then went with the farm demonstrator to hold the farm institutes. Sometimes I went to a night institute, and one night I introduced all the speakers in the men's and women's meetings.

The next thing was the examination of school children.

In my office in the courthouse I have a desk, a pair of scales, a fairly good file, and two or three cupboards loaned me by the good ladies of the

town. Every Saturday I have office hours, when the mothers come to see about their babies and the girls come to talk things over. One afternoon a girl came in and said that she was always tired and had been losing weight. I took her temperature and found it to be 99, so I sent her to the Sanatorium for an examination and it was found that she had an incipient case of tuberculosis. I took her under my supervision for about three months until she could get into the Sanatorium.

Then the question came up as to how to get the teachers' examinations made. So we decided that I would help for two days, and we got it done. Then we decided to have a clinic and to try to get a specialist from the Sanatorium. We had a clinic of 120 people, and I think that twenty-seven of them were found to be incipient or open cases. Among these were four teachers. They are doing light school work in the county, coming to my office on Saturdays, when I weigh them and talk to them about what they eat, etc.

Then I began examining the school children; 5,000 of the 10,000 in the county have been examined. Some of the children were afraid of me at first, but finally decided to let me examine them. Quite a number I found had very bad teeth and enlarged tonsils. I gave the children a short talk, speaking of the teeth, personal hygiene, etc. The children seemed to enjoy these talks.

We have in the schools some crippled children, for whom there is no provision. In Franklinville I found a little crippled boy, Frank. I asked him why he was lame, and he answered: "When I was three years old I fell through the floor of the porch and knocked my knee-cap out of place." I wrote to Dr. Cooper about him (I always call on Dr. Cooper when I am in doubt), and he gave me the name of a surgeon. A big-hearted man gave me \$100 for Frank. So early one morning I took Frank and another child over to Dr. John Wesley Long in Greensboro. The parents of the other child were able to pay for her operation. Frank has had two operations, and is now walking. This child is unusually bright. Dr. Long will take out his tonsils and adenoids soon, because he wants him to have a chance with the other boys.

In another mill town (there are about ten mill towns in the county) we have a child crippled from infantile paralysis who will have an operation, and we hope will be all right again. Then Dr. Cooper is going to send a dental clinic into my county.

We have a community playground now with tennis and basket-ball courts and a gymnasium. We have a director for the gymnasium. We have back of the school room a place which we shall use as an open-air school room or as a rainy day play room.

That is about all we have done in Randolph county, but we want now to try to get home economics in all the schools.

#### SOME RESULTS OBTAINED BY A PUBLIC HEALTH NURSE.

MISS CLARA B. ROSS, R. N., Tarboro.

A beautiful interpretation of P. H. nursing was made a few years ago by an artist who painted a plaque showing a woman planting and tending a tree. This interpretation has been adopted by our national organization,

as our emblem. Can the result of work thus truly symbolized, any educational work, in fact, be reduced to rows of figures? Yet rings of growth on the tree can be found by the forester. Improvement in individual, family and community health as results of a year's plans and work are the rings we are to count.

At the beginning of the year a careful study of the county field and the splendid foundation for public health work built in the two previous years was made, and after hours spent over vital statistics and over county records with the Health Officer, it was decided that the usual Rural Health problems: (1) Communicable diseases, (2) Loss of infant life, (3) Indifference to the common ailments that sap strength and efficiency, (4) Much ignorance as to the relative value of food, (5) Seasonal rush of work, (6) Lack of modern home equipment and sanitary conveniences were ours. A few special ones seemed evident from the following facts:

Population 14,000 white, 21,000 colored.

Staple crops: Cotton, Tobacco, Corn, Peanuts.

No fences or few, 25,000 hogs and 3,840 cattle listed.

Large farms and tenant farmers.

The following tentative plan of Public Health Nursing was made:

(1) Instructive nursing visits to all cases of communicable disease reported to the Health Office and demonstration of nursing care in other cases of illness if asked for by the member of the family giving nursing care.

(2) Investigation and follow-up work in the 58 families who had a death from tuberculosis the preceding year—(no easy task among the tenant farmer class.)

(3) Child Welfare Study Classes were to be organized by a Weighing and Measuring Campaign among the pre-school children, to meet monthly, and bottle-fed infants and second summer babies were to be visited in their homes.

(4) A strenuous effort to add a colored nurse to the County Unit, which was composed of Health Officer, Nurse, Sanitary Inspector and Clerical Worker.

(5) Work in the schools to begin in September, which may be listed as follows:

(a) Demonstrations of tests for physical defects among school children to new teachers.

(b) Follow-up work, with Physical Defects referred to parents by the Health Officer, and in order to do this more intelligently to be present during examination—This follow-up work to be done by home visiting.

(c) Weighing and Measuring of school children monthly if possible and putting class room record on each wall showing under-weight, over-weight and monthly gain.

(d) Meetings with mothers to study cause of under-weight and how to get normal growth and gain for their children.

(e) Health talks to supplement the Health Crusade which had been put on by the County Superintendent and Supervisor of Teachers and the course of hygiene already well taught by many of the rural teachers.

Subjects to be stressed:

(1) Importance of a balanced diet.



- (2) Importance of protective foods, Milk, Eggs, Leaf Vegetables.
- (4) Economic possibilities of goat milk in the eastern coastal plain.
- (4) Importance of correction of Physical Defects.
- (5) One class in Hygiene and Home Nursing in the County seat High School—18 lessons as a part of the home economics course.

This plan was to be considered as a railroad ticket, good for one trip only, with stop-over privileges in a few places and one wreck near "Influenza Station."

A few results from the various phases will now be cited:

(1) A case of Tuberculosis was visited at a farm house, her father, brother, his wife and three small children were found in a comfortable home. Patient was coughing and spitting in a cloth in her lap, but was quite proud of the fact that she could help with the children. The mother of the children was shown the danger to her children, and in spite of the busy season, in less than two weeks, a porch was screened, the patient put to sleep and sit there and the most scrupulous care taken of dishes, linen and etc. The patient has progressed with the disease, but the family is being protected.

(2) Two children in a family where the mother died of tuberculosis in 1918 were found to be underweight. Chest examination and sputum test were negative. Temperature was found to be from 99.4-5 to 100.4-5. The boy dropped out of school, but the girl's P. M. temperature was taken by teacher for a period of three weeks and found to vary from 98.3-5 to 100.1-2. Home visits were made and the children are being watched by father and aunt and promised treatment is expected.

(3) The health study classes must be listed as vaccinations that "didn't take," although an important reaction was secured. It is a difficult matter to get mothers together in any center during the heated period, but by using Rural School Commencements with their all-day programs and County Club meetings, several hundred children were weighed and measured and checked up. Consultations with nurse and Health Officer given, copies of "Infant and Child Care" distributed. Many bottle babies were located and the mothers generally were assured the nurse was in the county to help them.

Dixie Consolidated School featured this weighing and measuring of the pre-school child with other numbers on physical education on its printed program of exercises for commencement day.

We gained a vision of the day when school trucks shall make a monthly trip to carry the pre-school child and its mother to the School Health Center and the day when our six-year-olds will enter school physically fit to do their school work.

(4) A home visit was made to the mother of a little girl who had a squint to advise seeing an oculist. She was waiting until the child was older, so that she would not break glasses, but went at once after the explanation.

Another when told about the need for an operation for adenoids was found to be waiting until the child was older.

A child refused his accustomed coffee and asked for milk which he didn't like when he found he was under-weight and wanted to come up to normal.

A high school girl took a quart of milk a day and taught her family to

eat cereals as a result of a consultation with the nurse about her under-weight and poor health.

Tobacco beds show an increased number of vegetable plants growing as a health measure, the result of the campaign for more leaf vegetables.

Fifteen mothers met the nurse and County Demonstration Agent at a school to study cause of under-weight and teachers asked that over-weight also be considered, as the children much over-weight were slow in school work.

(5) Through the Red Cross Seal Commission a colored nurse was provided for three months and through the Bureau of Public Health Nursing a suitable one was secured. The County and the colored people themselves have promised to see that her services are continued for the 21,000 of her race in the county.

One more result that happened because of no plan but that the nurse stopped to ask her way. A tenant farmer, his wife and sister, were found grading a \$3,000 tobacco crop and showed with great pride that much of it was grade A, also spoke of their cotton. They were living in typical four-roomed tenant houses, no care, no garden, five children in the two families. One baby five months old fed on Condensed Milk was pitifully mal-nourished. The other, nine months old, had been breast-fed, but was being given biscuit and coffee. The family feared it had spinal trouble, as it couldn't sit alone. A cow was suggested. The Health Officer later examined the children and found no organic trouble. After a third visit, a cow was purchased and the nurse was able to demonstrate milk modification and teach the family how to handle milk for babies. Six months after the first visit the babies were both up to normal weight and the older baby was pushing a chair across the porch. The farmer refused to sell, although offered \$40 more for the cow, because the babies needed her and the whole family felt so much better. A vegetable garden is already planted and was displayed with pride to the nurse. Pictures of the babies were taken when found and six months later and with the cow's picture between are being used as "Before and After Taking"; an "Ad." for a cow for every tenant farmer.

The results of this very definite success will not end with this family, but will influence others.

It is by better individual, family and Community health, that we count the rings of growth on our tree.

Dr. Reuben McBrayer, Sanatorium:

I would like to ask Dr. Rankin if he has any idea how long it is going to take him to get the General Assembly to appropriate enough money to pay for one-tenth of what his nurses are doing?

Dr. Rankin:

I do not expect ever to get the General Assembly to appropriate enough money to pay for what health work is really worth. We can determine, however, a financial equivalent for almost anything.

Take the matter of sanitary closets. That is a matter of record. Over 100,000 were built in this State and in other states, and the price was \$2.50.



Of course, \$2.50 is not the value of the privy, nor is \$7.50 the value of the child whose health is improved by an operation for tonsils and adenoids.

Dr. Cyrus Thompson:

Gentlemen, I am not in good speaking condition today, for I have been under the weather yesterday and today. But my friend, Dr. Reynolds here, insists upon my speaking. He is nervous, in view of the fact that he has to speak tomorrow.

I am exceedingly interested in the papers which have been read here, and in none of them more interested than in the papers read by the ladies—or if they do not have papers, they talk. Mrs. Hargrave talked, as you know, of the things she was doing in the county of Randolph. It made me glad when she talked of the things she is doing, and though I am not feeling very well it made me feel like the springtime. I am not very pious, but distinctly religious; and the narration of a good deed puts joy in the heart of every man who has a spark of goodness in him. And when you talk of the things you do for children you stir up the heart of every good man and every good woman. I pity the man who does not love children. The greatest asset in all the world is the children. Some one said one day that you cannot make a man out of a child. A rude carpenter said that it was the only thing you could make a man out of.

My friend, Dr. Reuben McBrayer, asks a question which Dr. Rankin gets up and with some degree of temerity answers; and I wonder if my friend, Dr. McBrayer, is making any sort of "vile insinuation" against the Legislature of North Carolina. I want to make a defense, though not on personal grounds. I do say it for the General Assembly of North Carolina that in these latter years in the matter of health they have not failed to measure up like men when Dr. Rankin has gone before them. It matters not whether they were Republicans or Democrats, whether they were "publicans or sinners," they have measured up to what we wanted. And now that we are going forward to a just valuation of property in North Carolina, without burdensome taxation we shall have enough money to do the work that Dr. Rankin wants done.

Dr. Charles E. Low, Wilmington:

I cannot let this opportunity go by without saying that I believe the greatest force at the command of all public health officers today is an efficiently organized nursing service. As individual health officers we have for a good many years been trying to get the facts that we know down to the people. The public health nurse is the person who will put them there. She is the soldierette on the firing line who is going to take the facts that we have long known and put them in practical operation. The piece of work of which I feel most proud in my several years of public health administration is that of taking an unco-ordinated body of willing nurses, most of whom were paid by various independent civic organizations, and putting them together as a unit under a supervising nurse, as a part of my departmental organization. The efficiency which has been brought about in my department by that accomplishment is yet to be measured and never can be measured in dollars and cents. Every county that has any idea of organizing public health work should consider the nursing service

as the first item. The nurse is really the crucial element in the whole matter of getting the facts down to the people. Of course, we appreciate the difficulty of taking a nurse who has been doing bedside nursing and getting her to do public health work. But don't count out bedside nursing entirely, because it is the very fact that a nurse goes into a home and renders this personal service at the bedside that makes her an efficient worker. After she has established a cordial personal relationship founded on bedside nursing service she can ask anything and get it done. For that reason I am against specialized nursing, particularly in small departments. If, after a nurse has done general work in a family and they have formed an attachment for her, she goes there and asks for some special thing in tuberculosis, pre-natal, maternity, infant-welfare, or other work, she is more than likely to get it done, because there is the personal element of regard and friendship in it, while the family might resent the same request or suggestion from a special tuberculosis nurse or other specializing nurse, because the close relation and friendship established by the kind of service that a family easily appreciates was lacking.

NIGHT SESSION—DR. LONG IN THE CHAIR.

## PUBLICITY AS A MEANS OF PROMOTING EFFICIENCY IN HEALTH WORK.

DR. R. L. CARLTON, Winston-Salem.

A year or two ago the membership secretary of the National Child Labor Committee of New York City said she had a friend who for many years was active in social work and especially in interesting the public in it and that this friend had changed the old adage, "Let not thy left hand know what thy right hand doeth," into another slogan: "Do all the good you can to all the people you can, and let everybody know it." This secretary says she likes to go him one better and adds: "Do all the good you can to all the people you can, let everybody know it, and get everybody to help." With this slogan, the speaker, a health officer of a few years experience, is in full accord. I believe you will all agree with me that, when through our publicity we have reached the people, have interested them in what we are trying to do and the means by which we propose to do something, we want them not only to say "It's a good work," but we want them to be inspired to do something to help in this work.

To my mind publicity and health education are synonymous terms. I am not sure the secretary of this association intended allowing me this great latitude when he assigned the subject of this paper—but he will pardon me if he did not so intend, if I use the two terms as practically interchangeable.

Health education is not an institution of long standing in this country. It is taking us a long time to realize that health is the one great asset of a nation and should be seriously considered. That it is being considered, nation-wide, is amply proven by the campaign against tuberculosis and by the child welfare campaign. These movements have demonstrated that curing is too slow a method of combating these evils and that better results can be obtained by intelligent care and by controlling predisposing factors—in other words, by prevention.

The kind of work which a health department can do will be that which a majority of the people wishes to have done; therefore, it is incumbent upon the department to so mould the feelings and knowledge of the individuals of the community that they will give their active support to the health administration.

People get their ideas of sanitation and hygiene from various sources—from tradition which is far more often inaccurate than correct; from physicians who will too often be easy going and not really see that their patients get the correct viewpoint as regards personal hygiene or proper ideas of prevention; from newspapers, which should be one of the most active sources of health propaganda, but which so frequently carry patent medicine advertisements and great headline news articles concerning some drugless quack healer nearly to the exclusion of statements of local or state departments of health; from the public schools, which are becoming more and more increasing sources of knowledge of public health matters; and, finally, from the activities of the health department which source of knowledge of public health matters to a certain extent includes all the others mentioned. Every health officer should be a teacher and every health department should be a school of instruction setting forth the fundamental principles upon which public activities are based and making clear, in language simple as the language of the street, if necessary, just what guarding one's health means, just how it is done and just what the department proposes to do to help the individual and the community to secure and apply those things necessary to prevent disease and to further the cause of good health.

Such instruction has as its objective legislation, the necessary funds, public co-operation and the effective carrying out of sanitary regulations.

The means at our command for such publicity or educational propaganda are legion. The newspapers constitute one of the most important means and should be used freely and sensibly. A health officer is fortunate when he can make a personal, confidential friend of the editor or reporter for one or more of the leading newspapers of his town. The papers will generally handle willingly all items of interest coming from the department if written simply and technical terms omitted. Just here let me say only items of interest should be handed out—and this does not mean that some of the activities of the department or that some of the items of public health matters should be purposely covered up—but that all items even those of statistics and regular reports should be so arranged that they will make an appeal to the public interest—that the public may be taken into the confidence of the department. Statements should be truthful and accurate and of value to the public—never should the department of health reach the point when it considers its duty to be to issue a continuous stream of bulletins, press notices, etc. Under such circumstances sooner or later advice or information not trustworthy will be given publicity. We do not have to go back very many months in our memory to recall just such circumstances when many of the health workers of this country were issuing instructions by the yard as to means of controlling influenza—which instructions in the final analysis frequently did not bear fruit to the credit of the department.

Hand-bills and special bulletins may be often used to advantage if some object is to be presented to large numbers of persons quickly. For instance, as means of announcing the opening of a clinic for tuberculosis, or a baby health station, circulars setting forth just such an item could be distributed through the schools by nurses, by sanitary inspectors, mailed out, etc.

Reprints of extracts from the annual report are of value—especially if setting forth some particular feature, such as the rating of dairies furnishing the milk supply, or the rating of food handling places, or mentioning some especial need, as additional public health nurses or additional clinics, etc.

Lectures, health exhibits, motion pictures portraying health subjects, are all of educational value by being a means of instruction to those in attendance and also by calling attention to the activities of the local board.

Another means of publicity is the campaign for some special object. The anti-tuberculosis campaigns of education have been one of the chief means of progress in public health work in the United States. The effects of such a campaign are always felt in all other lines of public health work.

Not only are newspapers, hand-bills, posters, bulletins, lectures, motion pictures, special campaigns, means of publicity and education, but the hundred and one little things coming up in the department of health are to be used with the objective—publicity and education in the mind. Every complaint received affords an opportunity to explain the sanitary principle involved; every case of contagious disease is a center for educating the family and neighbors; every case of contagious disease in school affords an opportunity of explaining to parents and children (our greatest asset), the methods of handling contagious disease; every daily inspection of school children is a means and a very valuable one, of publicity for the department and education for the child.

The speaker wishes to mention one or two items now in use in the department in Winston-Salem. The first is our practice of sending a circular letter of definite instructions to parents of children having contagious diseases, especially measles, diphtheria and whooping cough—and calling their especial attention to the dangers that might follow, warning particularly of tuberculosis.

Another custom is that of a monthly department letter to our dairymen. This letter is one of friendly interest in their business and each time calling attention to some particular item which should receive attention. These letters have been of value to all concerned—dairymen, milk consumers and health department.

Another thing we are doing since January 1st which is a particularly good stroke of publicity is the mailing to parents of every child born a certificate of registration of that child's birth, accompanied by a letter of congratulations and a baby record book. We are getting a most wholesome response to this activity on our part—the mother is pleased that we send her baby a book and a certificate of registration bearing the gold seal of the city and a blue ribbon and we are pleased that we are assured of her further co-operation.

Does publicity as a means of efficiency pay? We think most certainly it does, and we believe the activities of our own humble department of health bear out this statement. Three years ago we had two public health nurses, no clinics, no tuberculosis activity, practically no baby welfare work, dental clinics for school children were unknown.

Active, persistent setting forth the needs of the department and of just how we would proceed if given the right kind of co-operation was done. The newspapers helped, literature from our State department and from the United States Public Health Service was used, motion pictures pertaining to venereal diseases were shown, slides illustrating baby clinics were shown, leaflets entitled "Save the Babies" gave a few plain, unvarnished facts; leaflets entitled "Tuberculosis In Winston-Salem" did likewise; the health officer at opportune times appeared before local organizations, including the Board of Trade, with a few facts and suggestions—the result: legislation, funds and co-operation sufficient to provide seven nurses instead of two, two baby health stations, a central milk pasteurization plant, a venereal disease clinic, a tuberculosis clinic, a dental clinic for school children, a full time medical inspector for schools, other items in the same proportion.

Our conclusion is, that without education concerning health—and by this we mean sensible publicity—we can do very little.

Dr. G. M. Cooper, Secretary:

If you remember, last year the Committee on Resolutions brought out a resolution at the close of our meeting in Pinehurst requesting that the Secretary prepare certain blank forms to be sent to the health officers of the State on which they should prepare their reports. This resolution was adopted and I complied with it. I sent out these forms about six weeks ago, I think. I had intended, when I sent in this program, to put down a brief summary of reports from the counties by the Secretary, intending to get up a tabulation of these reports and giving the sum total of the salient features as a combined effort. But, in the first place, very naturally, most of the men waited until the last minute to mail their reports, and it has been absolutely impossible for me to make up a summary of them. So I will merely go over the few which I have received.

I have reports from forty-nine counties and three cities. That is by far the best response we have ever had in my experience of five years as Secretary. In addition to that, I might say that we have other counties represented at this meeting whose reports have not been turned in, which will bring up the total. We might run up the total to at least sixty counties represented here in this meeting today either by reports or by the presence of some representative, or both.

# REPORT OF COUNTY AND CITY HEALTH OFFICERS FOR THE YEAR ENDING APRIL 1, 1920.

\* before county indicates full time health officer.

COUNTY	Total visits to County Institution	Total Number Premises Quarantined	Vaccination Against Smallpox School Entrance Requirement	Total Number Persons Vaccinated Against		Total Number Laboratory Li. Made	Total Number Sanitary Privies Built		Sanitary Supply Act. Car. City	Total Number		Total No. Employees in Health Dept.	Remarks
				S. P.	Ty. F.		Con. Made	Sanitary		Exam.	Treated		
Alamance	75	248	Advised it	Very few	Very few	None	1000	None	No	None	1370	3	
Bertie	75	243	No	55	None	None	None	None	Yes	None	None	1	
*Beaufort	11	40	Hope to	55	None	None	None	None	Yes	None	None	1	
Buncombe	104	156	Only Lesson	800	2000	None	200	3	Yes	No record	No record	1	
Caldwell	25	133	Graded	20	30	None	8	None	Yes	4221	890	5	
				(about)	(about)		No report	No report		No record	10	2	
Carteret	25	90	No	None	100	None	None	None	Yes	1112	41	4	
Chatham	14	41	No	18	30	None	None	None	Yes	None	None	1	
Chowan	18	110	No	60	None	None	No record	No record	One	7654	1864	12	
*Cleveland			Recommended	No record	No record	None	399	40	Yes	1237	29	6	
*Cumberland	288	181	In city	6388	228	25	No record	None	No	1120	1193	4	
Dare	5		No	10	10		120	103	All		80	1	
*Davidson	193	267	In towns	10	10		400	None	No	451	None	1	
Davie	80	153	No	124	2922	17	268	16	on hnd		869	1	
*Durham		721	Yes in city	20	300	None	1155	None	No	97		3	
*Edgecombe	73	191	Yes	1018	4010	3117	Building	Nearly	No	None	None	1	
*Forsyth	438	346	No	1918	307	125	fast	all city	No	None	None	1	
		(about)	Only in infected districts	238	510	1346	2	None	Yes	1121	No record	4	
Franklin	63	800			Several thousand	Work- ing	300	None	Yes	300	236	1	
*Granville	25	464	No	10			1421		Yes	200		1	
*Guilford	156	411	No	4090	None	5	None		Yes	(est.)			
*Halifax	21	237	Yes	1165	1942	51	173	277	H. D.	2350	408	2	
Harnett	61	299	No	954	18	109	100	None	Yes	252	30	6	
Iredell	90		Yes	None			189	2	No				
*Lenoir	176	360	No	641	6787	None	400	336	H. D.	1785	971	2	
Mitchell	6	don't know	No	2917	242		221	1	Yes	1769	1012	2	
Montgomery	18	240	No	100	50	None	None	2	Yes		None	1	
*New Hanover				10	205	3	None	None	Yes	Schoole	Schoo's		
& Wilmington	191	844	Yes	741	401	5526	None		Yes	None	None	2	
Northampton	22	220	Yes	1571	8296	66	538	269	Yes	Many	Many		
Pamlico	needed	can't	No	don't know	don't know	None	No record	No record	Yes	25	5	1	
Pasquotank	120	267	Yes, in city	150	2000	None	578	30	Yes	1000	None	1	
Person	Report in form of lett	er. No definite figur		4383	2595	292	438	69	Yes	25	7	1	
*Pitt	130	863	No	150	3	None	30		Yes	2714	47	21	
Polk	12		In Tryon, yes	50	St. cam.	None	278	None	No	436	236	3	
Randolph	no record	405	No	703	2938	620	None	None	Yes	None	None	1	
*Robeson	94	207	No	677	4611	237	500	525	Yes	None	300	3	
*Rowan	61	2154	Yes				Notknown	Notknown	3	1976	700	2	
Rutherford	Report in form of lett	er.		257	5078	293	None	None	No				
*Sampson	163	139	No	760	1173	None	562	49	Yes	8633	1342	9	
*Surry	14	87	No	15	3				No	None	None	1	
Tyrrell	none		Yes				12	4	I do				
Union	Report in form of lett	er.		2486	10793	5	9	187	No	None	None	1	
		City, yes;		None	1500	None		(about)		1838	34	5	
*Wake		Co., no		(about)	(about)		None	100	Yes	None	None	1	
Warren	32	85	Not enforced	200	250	None	None	100	No	300	645	2	
Watauga	15 or 20	89	No	1021	2254	49	None	1400	No	558	356	12	
*Wilson		170	Yes	None	None	None							
Yadkin	41	170	No	72	8	None				250	414	8	
Yancy	22	107	No							5000	641	16	
CITIES													
Asheville		90	Yes	2500	Done by Co. H. O.	850							
Charlotte		100	Yes	2500		800							
Goldsboro		100	Yes	500	200	None							
*Winston-Salem		1520	Yes	4144	1200	1543				None	None	4	

COUNTY.	HEALTH OR QUARANTINE OFFICER.
Alamance .....	W. R. Goley
Beaufort .....	John H. Janny
Bertie .....	Hugo Muench, Jr.
Buncombe .....	W. H. Scruggs, Jr.
Caldwell .....	L. H. Coffey
Carteret .....	P. B. Loftin
Chatham .....	James S. Milliken
Chowan .....	J. H. Mitchener
Cleveland .....	B. H. Palmer
Cumberland .....	W. C. Verdery
Dare .....	Franklin P. Gates
Davidson .....	E. F. Long
Davie .....	J. W. Rodwell
Durham .....	Arch Cheatham
Edgecombe .....	Charles L. Outland
Forsyth .....	A. C. Bulla
Franklin .....	J. E. Malone
Granville .....	J. A. Morris
Guilford .....	Wm. M. Jones
Halifax .....	Paul C. Carter
Harnett .....	J. W. Halford
Iredell .....	Ross S. McElwee
Lenoir .....	D. C. Absher
Mitchell .....	C. E. Smith
Montgomery .....	C. Daligny
New Hanover .....	Charles E. Low
Northampton .....	Paul G. Parker
Pamlico .....	George S. Attmore
Pasquotank .....	Zenas Fearing
Person .....	W. A. Bradsher
Pitt .....	P. J. Chester
Polk .....	Earle Grady
Randolph .....	C. A. Hayworth
Robeson .....	E. R. Hardin
Rowan .....	C. W. Armstrong
Rutherford .....	J. C. Twitty
Sampson .....	E. T. Hollingsworth
Surry .....	L. L. Williams
Tyrrell .....	Howard J. Combs
Union .....	S. A. Stevens
Wake .....	Percy Ahrons
Warren .....	C. H. Peete
Watauga .....	J. W. Jones
Wilson .....	L. J. Smith
Yadkin .....	V. H. Couch
Yancey .....	J. B. Gibbs
Asheville—City .....	C. V. Reynolds
Goldsboro—City .....	H. B. Lerner
Greensboro—City .....	B. B. Williams
Winston-Salem—City .....	R. L. Carlton

## SOME IMPORTANT TOPICS.

DR. W. S. RANKIN, Secretary, State Board of Health, Raleigh.

I thought I would talk to you just a few minutes about some of the larger movements taking place outside of the State which will sooner or later have tremendous influence in North Carolina.

The first thing which is interesting is the situation at Washington, or the public health work of the Federal Government. You know that in the Executive Department of the National Government we have ten Cabinet Officers, and five of the ten Cabinet Departments are doing some public health work. That indicates that public health work is a very popular function with the Federal Government. Half of the Cabinet Departments are engaged in it. On the other hand, there is a very great disadvantage in having the Federal health administration so divided. The executive force behind the movement is divided and all effort at co-ordination is destroyed, and there is where we lose.

The Department of Agriculture, through the Bureau of Chemistry, is doing public health work. The Department of Commerce, through the Bureau of the Census, is doing health work, and so is the Department of Labor, through the Children's Bureau. The Department of the Interior is asking for an appropriation of \$10,000,000, this amount being apportioned to the States on condition that each State put up a like amount, the combined fund to be invested in the care of school children, in teaching hygiene, and in the correction of the physical defects of childhood. The Department of the Interior is attempting to enter the field with rather large forces. Last, and most important of all, is the Public Health Service, which is under the Treasury Department.

One trouble with such division is that there is a certain amount of inter-departmental jealousy. There is a subconscious feeling, creeping out now and then in pretty lively language, that if one department get what it asks for, the other will not get all for which it asks. But here, to illustrate with a recent proposal of the Children's Bureau, is the worst thing about it, and the thing that deeply concerns the states and the counties. The Federal Children's Bureau (and I want to commend that Bureau for the splendid work that it has done—it has one of the brainiest women in the country at the head of it, Miss Lathrop) introduced a bill establishing a fund for infant and maternal hygiene work. This Bureau felt that, inasmuch as the Children's Bureau is a separate organization, it should have organizations in the states and work through them, and it sought to establish in North Carolina and South Carolina and the other states a state agency corresponding to the Children's Bureau in Washington. The bill provides for a commission in each state, and takes the whole problem of child conservation out of the hands of the State Board of Health. In other words, we would have in the states the same divided form of health administration as in Washington.

The same tendency is shown in the Bureau of Education's bill, carrying a ten million dollar appropriation. The bill puts the State Departments of Education in charge of the work in the States. The public health officials and the American Medical Association opposed that, and now the

bill says that the state agency shall be the state department of education or such agency as the state legislature may designate. The mistake made in these bills is in designating the state machinery and not leaving this to the states. So this divided health administration at Washington is a danger to the states, in that it threatens to divide the state health work into several parts.

For the last year there has been going on, supported by the American Public Health Association, the American Medical Association, and the Conference of State and Provincial Boards of Health, a considerable amount of work to bring about co-ordination of the work in Washington. The American Medical Association and the American Public Health Association have a joint commission which has been in Washington and has seen a number of Congressmen and other friends, and there is now a resolution before Congress calling for a commission to investigate and see how much duplication there is. If this Congressional resolution goes through, there will be appointed a commission of three Congressmen and three Senators, and an appropriation made to make a thorough investigation and study of the health machinery of the Federal Government and to make recommendations for the co-ordination and enlargement of the work. This will result in one of two things, either a Federal Commission on Public Health or a Department of Public Health. I have always leaned toward a commission, and so do the state health officials as a group. A commission can be taken out of politics. The members can be appointed by the President, two for two years, two for four years, etc. They may represent both the political parties if desired. A commission would be removed from politics, and that is the chief advantage. The disadvantage, of course, is that it is not as close to the President as a department would be. Those who advocate a department realize the disadvantages of a political head, but believe that these disadvantages would be compensated by a cabinet officer who would speak for the President. I believe that the next six months will see the creation of either a commission or a department of health in the National Government.

I might say a few words in regard to the extra-governmental field, which is even more important in its possibilities than the governmental field. The situation outside of the Government, among the people generally, is like that in the Government. There is a tremendous interest in public health in this country, and all kinds of agencies are being organized. We have a cancer society, a social hygiene society, the American Public Health Association, the National Association for the Prevention of Tuberculosis, and I do not know how many others. The multiplicity of organizations is a good omen in that it represents a tremendous amount of interest in the public health problem, but it divides the public health forces of the country into such small fractions that they lack the strength to get anywhere. But the chief disadvantage lies in the fact that the time has come when the people of this country are no longer to be regarded as beneficiaries in the public health movement, but are to be made participants; and how can they be made to participate if the forces are divided? People will be asked to join four or five public health agencies. Under such conditions you cannot build up the people themselves into a strong organization. We have to unite all of these, and then we can build up a popular health



organization of five or six hundred thousand people. Then the day of begging congresses and begging legislatures for money will be over. This is the larger thing in contemplation, and it is gradually coming about, and I think that some time in the next year or two will see something like that happen. There are large financial agencies in this country that are willing to give \$100,000 to get a popular health organization on its feet. But these agencies cannot turn over their money to A or B or C without killing everything else, so these financial interests are waiting until these thirty or forty agencies get together. When the leaders of five or six of the large agencies, like the National Tuberculosis Association, the American Public Health Association, the American Social Hygiene Association, the American Infant Hygiene Association, can merge, money for organizing the people back of the public health movement will be available. It is proposed to be used in this way: Establish a public health magazine—a popular magazine. That will be made the binder, the means of tying people to this public health society, or whatever you want to call it. To my mind, that is the biggest thing on the public health horizon at present. Just now an able man has been employed for his full time to work out a plan of organization, and as soon as five or six of the large organizations can get together the thing will be done and the magazine will be started. The magazine is to be something like the National Geographic, except, of course, that it will deal with the general subject of health. We must have a great American health society, and I think that thing will come within the next year. It may be interesting, in this connection, to mention the fact that the National Geographic Society, a society built up around the idea of geography, has 630,000 members. Now, if the people can be interested in the idea of geography to that extent by means of a magazine, how many can be interested in a health program?

The American Medical Association is composed of two very distinct groups. It is divided into two parts, the scientific and administrative. The sections prepare the programs, invite the speakers, and so forth. The House of Delegates is the administrative body. Probably the public health society which I have suggested would be organized in much the same way.

## REPORTS OF COMMITTEES.

### *Auditing Committee*

Dr. A. Cheatham, Durham, reported for the Auditing Committee that they had examined the accounts of the Treasurer and found them correct. This report was adopted.

### *Committee on Resolutions*

The report of this Committee was presented by Dr. R. L. Carlton, of Winston-Salem, as follows:

Because of delays which frequently occur in the delivery of vaccines when shipped in the open mails we offer the following resolution: That the State Board of Health be requested to send vaccines, especially smallpox vaccine virus, by registered mail to health officers.

In view of the fact that others than Health Officers are becoming more and more interested in public health work and are becoming affiliated with

us as members of this Association, we beg to offer the following resolution: That the North Carolina Health Officers' Association consider a change in name, and that a committee be appointed to report concerning this at the next annual meeting.

Resolved, That this Association extend a cordial vote of thanks to the Y. M. C. A. management for the use of this hall for meetings and that our thanks be tendered the Entertainment Committee for their work in securing rooms for the members under very trying circumstances.

C. W. ARMSTRONG,

J. S. MITCHENER,

R. L. CARLTON.

The report of the Committee on Resolutions was adopted as read.

### *Committee on New Members and Visitors*

This Committee had no report to make.

## ELECTION OF OFFICERS.

Dr. Long: The election of officers is now in order.

Dr. Wm. M. Jones nominated Dr. Carl V. Reynolds for President. This nomination was seconded.

Dr. Reynolds:

I feel, Mr. President, that to be nominated as President of the State Health Officers' Association of North Carolina is indeed an honor. To be elected as President should inspire any man and every man who is doing health work. The prevention of disease and the preservation of life is very close to me, and always has been since I began practicing medicine twenty-five years ago. The Medical Fraternity of North Carolina have already honored me far beyond my expectations by making me President of the State Medical Society, and I am democratic enough and I hope considerate enough to ask you to distribute your honors. I thank you.

Dr. Cheatham:

In view of the fact that Dr. Reynolds is the President of the State Medical Society, I think it nothing but right that we comply with his wishes, and I rise to nominate Dr. J. E. Malone, of Louisburg. Dr. Malone is a pioneer in health work, and has done more work probably for less pay than any other man in the State.

Dr. Malone:

There is a Greek sentence that I remember: Glaucus euphifone catebrothen. Translated, it means: "And Glaucus was eaten up by his horses." I have so many offices already that I am exhausted by the empty honors of office, and I would ask my friend, Dr. Cheatham, to take that burden off an old man and put it on a young man. As there are so many here who are younger and more capable.

Dr. Jones withdrew the nomination of Dr. Reynolds.

Dr. L. B. McBrayer:

I think that Dr. Malone is one of the sweetest souls that we have, and if he were willing to accept the office of President no one would be more pleased than I for him to have it. I do not think, however, that we ought to burden him if he does not desire to have the burden of the office or the responsibility of the office. If Dr. Cheatham does not want to withdraw the nomination, I will not nominate anyone else, but if he does withdraw it I have in mind someone whom I would nominate.

Dr. Cheatham withdrew the nomination of Dr. Malone.

Dr. R. L. Carlton, of Winston-Salem, was nominated by Dr. McBrayer for President. The nominations were then closed, and Dr. McBrayer was asked to cast the ballot of the Association for Dr. Carlton. The new President was conducted to the chair by Dr. Warren, Dr. Cheatham and Dr. McBrayer.

Dr. Carlton called for nominations for Vice-President, and Dr. L. J. Smith, of Wilson, was nominated by Dr. Warren. This nomination was seconded by Dr. A. C. Bulla, and Dr. Smith was unanimously elected.

Dr. Cheatham moved that Dr. Cooper be unanimously re-elected to the office of Secretary-Treasurer. The motion was seconded and passed.

There being no further business, the meeting then adjourned.