Bulletin of the North Carolina Board of Health

Volume 15
(April 1900 – March 1901)

DOCUMENT NO. NCHH-03-015
Election of County Superintendents of Health.

We beg leave to call the attention of all Boards of County Commissioners to the fact that they are required by the law as amended by the General Assembly of 1897 to elect a County Superintendent of Health at their meeting in May. The Amended law reads: “From this number (all registered physicians resident in the county) one physician shall be chosen by the Board of Commissioners of each county annually on the first Monday in May of each year to serve with the title of Superintendent of Health.” We trust that this important matter will not be overlooked.

Politics and Small-Pox.

The inauguration of the political campaign brings to our mind the dangers in the matter of small-pox incident thereto, and we feel that a word of warning would not be out of place. Unusual interest in the issues involved seems to be felt, and the indications are that the meetings will be very numerous and very largely attended, and of course by all sorts and conditions of men, as they should be in a democracy.

In the past six months small-pox has prevailed in nearly half the counties of the State. The monthly reports for March show 437 cases for the month in 28 counties, and “a number of cases” in another county (for details see Review of Diseases on a subsequent page). Generally the disease is very mild in character. Not infrequently it is so mild that the patient does not feel sick enough to go to bed, but being a little “under the weather” with what he calls, with the endorsement of some complaisant or ignorant physician, “chicken-pox,” he is exactly in the right condition for visiting around among the neighbors, or loafing at the railway station, or above all, attending a gathering of any kind—political preferred. In many cases the eruption is so
insignificant as not to attract attention, but nevertheless it is the genuine article, and capable of causing in the unvaccinated the most virulent and fatal form of the disease.

Again, small-pox may be spread by infected clothes. Too often it happens that the disinfection after recovery is not as thorough as it ought to be, and the poison that has attached itself to the clothing (fomites) remains active. It is hardly worth while to say that an unvaccinated man wedged in behind such a coat and breathing the exhalations from it would catch small-pox almost to a certainty.

The idea of the possibility of a deliberate and malicious spreading of the disease by some bitter partisan entered our mind but was immediately dismissed as absurd. We read, however, in this very morning's paper a statement of a case exactly in point, where a man had had "three buggy whips worn out on him" because he refused to be vaccinated, and threatened if possible to catch small-pox and spread it among his political enemies. But be that as it may, there is no question of the danger attached to large gatherings of any kind in communities where small-pox—and especially small-pox of exceptionally mild type, that is too often falsely called chicken-pox—is prevalent or has recently prevailed. Indeed, there is danger now in all large gatherings anywhere in this section, for small-pox "bobs up serenely" in a most unexpected manner in all sorts of places. We are fairly well supplied with points of infection ourselves, but our sister States continue to re-inforce us in a most unpleasant and undesirable way, and one never knows when he may come in contact with it.

The conclusion of the whole matter is this: Be Vaccinated. That is the simplest, most certain and practically only solution of the difficulty.

The Annual Meeting of the Board.

According to the law creating the State Board of Health the annual meeting must be held at the same time and place as that of the State Medical Society. The latter will assemble at Tarboro on Tuesday, May 22d, and the Board will meet on the evening of the same day. The next day, Wednesday, at 12 m., will occur the usual conjoint session of the Board with the Society, when we all take counsel together. It is extremely desirable that as many county superintendents and municipal health officers should attend this meeting as possible. We feel justified in promising all who come both a pleasant and profitable time.

The Slaughter of the Innocents.

After a very unusual delay spring has at last arrived. The vegetable world is springing into renewed life and growth. Bacteria belong to the vegetable kingdom and their growth is promoted by the same conditions that influence plants visible to the naked eye. The infection of milk by certain bacteria and the toxines produced therein by their rapid development in a temperature above 60° is the chief cause of cholera infantum and the infantile diarrheas, which are responsible for such a large per cent. of the mortality of the summer season. The fact that ninety-seven per cent. of the deaths from these causes occur in bottle-fed babies is significant. A large proportion of these deaths could be prevented by a little care. Of course the hygiene of the dairy is important, but this is beyond the control of the consumer in most instances. The question therefore is largely limited to the treatment of the milk after it has come into her possess-
ion. It is practically impossible to prevent the infection of the milk, so that the object to be sought is to destroy, or at least inhibit, the growth of the bacteria before they can develop the poison. This can be accomplished by attention to three things: pasteurization of the milk as soon after delivery as possible, keeping it cool after this has been done and perfect cleanliness of all vessels containing the milk, the nursing-bottle and nipple in particular.

Pasteurization is a big word, but it is not a very big thing outside of its beneficent results. There are special apparatus for the purpose which can be bought at a low price, but in the absence of such it can be practically done in this way: Get a sufficient number of eight-ounce bottles from the drug store. After the first time wash them as clean as possible and then boil them every morning while breakfast is cooking. Fill the requisite number with the milk. Stop their mouths lightly with raw cotton—germs cannot pass through raw cotton, it is an effective strainer for them. Place the bottles of milk in a tin bucket filled with water up to their necks, together with a thermometer. Set the bucket on the stove and let it remain there until the temperature reaches 155° or 160°. Then remove the bucket and wrap it in a blanket or some other woolen material, leaving it near the stove in order to keep the temperature as near that point as possible for a half hour. At the end of that time take out the bottles and put them in the refrigerator or the coolest place available. Give the baby a fresh bottle every time he is fed. After the cotton stopper is removed the milk will be re-infected. If possible, all bottles should be nursing-bottles of such a character as to permit the fitting on of the nipple. This would avoid trouble and the danger from possible carelessness in thoroughly cleansing the nursing-bottle if only one is used. The nipple should be washed clean each time, and kept in a solution of boric acid of the strength of one ounce to a quart of water. The nursing-bottle should be boiled at least once every day.

If these directions can be brought to the attention of mothers so unfortunate as to be unable to nurse their children, and they can be induced to conscientiously carry them out, many a little life will be saved, and many a mother's heart spared the keenest anguish.

---

Leprosy.

The General Government through the Marine Hospital Service and the American Medical Association through a special committee are engaged in an investigation of leprosy in the United States. Appeals for information as to the existence of the disease in this State have come to us from both sources. We have replied, with much satisfaction, that so far as we were informed there was not a single case of leprosy in North Carolina. But it may be that we are not sufficiently informed. Our system of health reports outside of the cities and larger towns is very imperfect. It seems to be impossible to get physicians generally to report at all to their county superintendents of health. We therefore avail ourselves of the fact that the Bulletin is sent to every physician in the State to ask each one who reads this if he knows of a case of leprosy to report it to this office promptly.

---

A Serious Endemic of Pneumonia in Carteret County.

On the 20th inst. we received a letter from a physician in the eastern part of the State saying that a man from Atlantic in
Carteret county told him that a fatal disease affecting the "throat" and accompanied by "swelling of the tongue" was prevailing in his neighborhood, that it was extremely fatal, and that the people were almost panic-stricken. He added that he would call our attention to it and ask that it be investigated. Dr. Clarke, the Superintendent of Health of Carteret, mentioned in his report for February the occurrence of a very fatal outbreak of pneumonia in one locality in the county, but reported nothing special for March. We immediately wrote Dr. Clarke the facts as stated to us, and we append his tragically interesting reply:

Beaufort, N. C., April 23, 1900.

R. H. Lewis, M. D.,
Raleigh, N. C.

Dear Sir:—Replying to your letter of April 20th ult., I have to inform you that the disease of which you inquire is, or rather was, for no new cases have been reported since two weeks ago, pneumonia. I referred in one of my last two reports to the fact that numerous deaths had occurred in one or two localities along Core Sound, "presumably from pneumonia." Since my last report I have made two visits to Atlantic. Every case seen (five) was unmistakably acute lobar pneumonia, and all young men.

Between twenty and twenty-five deaths have occurred at Atlantic—all men, so far as I learned. No children nor women were affected, and no two cases, so far as learned, occurred in one house.

Pneumonia (presumably) first appeared in a locality about twenty miles from Atlantic earlier in the season, and numerous deaths occurred. Several intervening communities have been unaffected (uninfected).

Atlantic is a thickly settled community of several hundred people, really a town. The fact that practically men only have suffered is accounted for by the fact that after infection they have been exposed to the weather, frequently wet by rain or salt water (they all live by fishing, crabbing or catching oysters).

The women and children are even more exposed to the primary infection, being more closely confined to the house, but lack the secondary or inciting cause, and in their cases pneumonia has not been developed.

I may say that at a first visit I invariably found a house packed with people, so that infection was general after one or two cases had occurred. I of course gave them different instructions, both on their own and the patients' account, and advised them to avoid exposure and getting chilled until mild weather appeared.

No new cases have occurred since my last visit. I saw some men from Atlantic this morning who left home yesterday (Sunday) and questioned them.

Yours truly,

F. M. Clarke.

Small-pox in Mississippi.

The small-pox has existed in mild form in Mississippi for three years. In February in Hinds county it suddenly assumed a virulent and loathsome form, and during the past six weeks there has been over 100 deaths. One some days the death rate has been so large that it was impossible to secure coffins. Whole families have been wiped out of existence, and of several large families only one or two children are left. The absence of deaths in the beginning, the disagreement concerning diagnosis among the physicians, the apathy of the business men and the general failure to support preventive measures, all contributed their part to this finale. It is good business to put out even little fires, and it is equally good business to put out even little epidemics.

—Bulletin of Indiana Board of Health.
Review of Diseases for March, 1900.

EIGHTY-FIVE COUNTIES REPORTING.

Ninety-three counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of March the following diseases have been reported from the counties named:

MEASLES.—Alamance, 200; Alleghany, general; Ashe, 60; Beaufort, several; Bertie, several; Caswell, several; Chatham, many; Cherokee, many; Clay, 2; Cleveland, a few; Columbus; Craven, 20; Duplin, many; Graham, several; Granville; Greene, 300; Guilford; Halifax, general; Harnett, 50 to 100; Hertford, 4; Iredell, 5; Johnston, general; Jones, several; Martin, 50; Montgomery, 6; Moore, 5; Nash, epidemic; New Hanover, 8; Orange; Pasquotank, 2; Person, 7; Pitt, general; Rutherford, a few; Sampson, a few; Swain, 1; Vance, several; Wake, 6, many others in one section; Watauga, general; Wayne, 30; Wilkes, in many parts; Wilson, general; Yadkin, 4—42 counties.

WHOOPING-COUGH.—Beaufort, several; Caldwell, 10; Cleveland, many; Columbus; Craven, 8; Currituck, 2; Duplin, a few; Durham, a few; Graham, several; Granville; Greene, 200; Halifax, general; Harnett, a few; Henderson, many; Iredell, 4; Johnston, general; Macon, several; Martin, 50; Mecklenburg; Montgomery, 10; Nash, epidemic; Orange; Pitt, general; Richmond, general; Robeson; Stanly, several; Swain, 2; Transylvania, 10; Wake, 3; Watauga, general—30 counties.

SCARLET FEVER.—New Hanover, 1; Pasquotank, 1; Vance, 1.

DIPHTHERIA.—Mecklenburg, 1; Montgomery, 2; New Hanover, 1; Wake, 1.

Typhoid Fever.—Alamance, 3; Ashe, 6; Beaufort, a few; Cabarrus, 4; Chatham, a few; Columbus, 1; Dare, 2; Harnett, a few; Hertford, 1; Madison, 2; Mecklenburg; Montgomery, 4; New Hanover, 2; Robeson; Stanly, several; Union, 4; Vance, 1; Wake, 2; Warren—19 counties.

MALARIAL FEVER.—Beaufort; Craven; Hyde; Johnston; Person; Wake.

MALARIAL FEVER, HEMORRHAGIC.—Craven, 1; Hyde, 2; Person, 1; Wake, 1.

INFLUENZA.—Alleghany, Beaufort, Bertie, Caldwell, Carteret, Caswell, Catawba, Chowan, general; Cleveland; Craven; Currituck; Duplin; Forsyth, Graham, Guilford, Halifax, general; Hertford; Iredell, general; Johnston; McDowell; Macon, Martin, Mitchell, Moore, New Hanover, general; Northampton; Onslow, Pender, general; Person; Richmond, general; Robeson; Sampson, in many parts; Stokes, general; Surry; Swain; Union; Wake; Washington, Wilkes, general—30 counties.

PNEUMONIA.—Alleghany; Buncombe; Carteret; Catawba; Chowan, in all parts; Dare, 2; Forsyth, in all parts; Franklin; Gaston, common; Gates, in grave form, with many deaths; Granville, in all parts; Hyde; Martin, more than ever before; Northampton, in some parts; Onslow; Pasquotank; Person; Sampson, in many parts; Swain; Union; Wake; Washington, in all parts; Yadkin—23 counties.

MUMPS.—Caswell, in nearly all parts; Cumberland, in all parts; Halifax, in all parts; Pitt, in all parts; Washington, 1; Watauga, in all parts—6 counties.
ROSEOLA.—Caswell, Gaston, general.

VARICELLA.—Cumberland, Halifax, general.

SMALL-POX.—Alamance, 20; Alexander, 3; Buncombe, 15, under control; Burke, 1; Cabarrus, 1; Caswell, 1; Chowan, 6; Davidson, 3; Davie, 8, one death; Durham, 3; Gates, 2; Guilford, 61; Harnett, 5; Henderson, 1, stamped out; Hertford, 3; Iredell, 1; Johnston, 1; Mecklenburg, 18, in the western part chiefly; Moore, 67; Nash, 10; New Hanover, 2; Orange, 20; Person, 17; Randolph, 1, confluent; Robeson, 27; Rockingham, 120, six deaths; Rutherford, a number of mild cases; Stanly, 1, following 20 in February, no spread after quarantine and vaccination; Warren, 1—29 counties.

CHOLERA IN FOWLS.—Hyde.

CHOLERA IN HOGS.—Bladen; Columbus, less than in former years; Hyde; Moore.

HYDROPHOBIA IN DOGS.—Ashe; Caswell.

PINK EYE IN HORSES.—Cherokee.

No diseases are reported from Bladen, Edgecombe, Haywood and Polk.

No reports received from Anson, Brunswick, Jackson, Lenoir, Lincoln, Perquimans, Rowan and Yancey.

---

**Summary of Mortuary Reports for March, 1900.**

(Twenty towns).

Only those towns from which certified reports are received are included.

<table>
<thead>
<tr>
<th>White</th>
<th>Col'd.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>68,875</td>
<td>50,075</td>
<td>118,950</td>
</tr>
</tbody>
</table>

Aggregate deaths... 91 74 165

Representing temporary annual death rate per 1,000... 15.9 17.7 16.6

**Causes of Death.**

| Typhoid fever | 1 | 2 | 3 |
| Malarial fever | 1 | 1 | 2 |
| Measles | 0 | 1 | 1 |
| Pneumonia | 24 | 14 | 38 |
| Consumption | 12 | 10 | 22 |
| Brain diseases | 5 | 1 | 6 |
| Heart diseases | 6 | 6 | 12 |
| All other diseases.. | 40 | 37 | 77 |
| Accident | 2 | 2 | 4 |

91 74 165

Deaths under five years............ 17 17 34

Still-born............ 4 8 12
### Mortuary Report for March, 1900.

<table>
<thead>
<tr>
<th>Towns and Reporters</th>
<th>Population</th>
<th>Temporary Annual Death Rate per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Races</td>
<td>By Races</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
<td>Asheville</td>
<td>W.</td>
<td>8,900</td>
</tr>
<tr>
<td></td>
<td>C.</td>
<td>5,900</td>
</tr>
<tr>
<td>Dr. B. A. Cheat.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. J. M. Blair.</td>
<td>W.</td>
<td>1,800</td>
</tr>
<tr>
<td></td>
<td>C.</td>
<td>600</td>
</tr>
<tr>
<td>Dr. S. H. Conaway.</td>
<td>W.</td>
<td>1,200</td>
</tr>
<tr>
<td></td>
<td>C.</td>
<td>1,100</td>
</tr>
<tr>
<td>Dr. T. F. Lee.</td>
<td>W.</td>
<td>11,000</td>
</tr>
<tr>
<td></td>
<td>C.</td>
<td>9,000</td>
</tr>
<tr>
<td>Dr. J. M. Covington.</td>
<td>W.</td>
<td>1,500</td>
</tr>
<tr>
<td></td>
<td>C.</td>
<td>500</td>
</tr>
<tr>
<td>Dr. G. L. Wimberly.</td>
<td>W.</td>
<td>1,000</td>
</tr>
<tr>
<td></td>
<td>C.</td>
<td>1,000</td>
</tr>
<tr>
<td>Dr. J. H. Butner.</td>
<td>W.</td>
<td>4,100</td>
</tr>
<tr>
<td></td>
<td>C.</td>
<td>450</td>
</tr>
<tr>
<td>Dr. W. W. McKenzie.</td>
<td>W.</td>
<td>6,000</td>
</tr>
<tr>
<td></td>
<td>C.</td>
<td>3,900</td>
</tr>
<tr>
<td>Dr. J. A. Perry.</td>
<td>W.</td>
<td>775</td>
</tr>
<tr>
<td></td>
<td>C.</td>
<td>425</td>
</tr>
<tr>
<td>Dr. R. B. Staton.</td>
<td>W.</td>
<td>2,000</td>
</tr>
<tr>
<td></td>
<td>C.</td>
<td>1,400</td>
</tr>
<tr>
<td>Dr. P. A. Nicholson.</td>
<td>W.</td>
<td>3,500</td>
</tr>
<tr>
<td></td>
<td>C.</td>
<td>2,700</td>
</tr>
<tr>
<td>Dr. J. T. Gooch.</td>
<td>W.</td>
<td>700</td>
</tr>
<tr>
<td></td>
<td>C.</td>
<td>750</td>
</tr>
<tr>
<td>Dr. W. D. McMillian.</td>
<td>W.</td>
<td>12,000</td>
</tr>
<tr>
<td></td>
<td>C.</td>
<td>15,000</td>
</tr>
<tr>
<td>Dr. W. S. Anderson.</td>
<td>W.</td>
<td>2,500</td>
</tr>
<tr>
<td></td>
<td>C.</td>
<td>2,500</td>
</tr>
</tbody>
</table>

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.

*In addition ten non-residents died of tuberculosis, two of heart disease and two of Bright's disease.*
County Superintendents of Health.

Alamance  Dr. T. S. Faucette.
Alexander  Dr. T. F. Stevenson.
Alleghany  Dr. B. E. Waddell.
Anson   Dr. E. S. Ashe.
Ashe    Dr. Manley Blevins.
Beaufort  Dr. P. A. Nicholson.
Bertie  Dr. H. V. Dunstan.
Bladen  Dr. Newton Robinson.
Brunswick  Dr. D. B. McNell.
Buncombe  Dr. E. R. Morris.
Burke  Dr. J. L. Laxton.
Caswell  Dr. R. S. Young.
Caldwell  Dr. A. F. Houck.
Camden.
Carteret  Dr. F. M. Clark.
Caswell  Dr. S. A. Malloy.
Catawba  Dr. Geo. H. West.
Chatham  Dr. H. T. Chapin.
Cherokee  Dr. J. F. Abernathy.
Chowan  Dr. J. T. Hoskins.
Clay  Dr. J. M. Sullivan.
Cleveland  Dr. B. H. Palmer.
Columbus  Dr. I. Jackson.
Craven  Dr. R. Du Val Jones.
Cumberland  Dr. J. Vance McGougan.
Currituck  Dr. H. M. Shaw.
 Dare  Dr. W. B. Fearing.
Davidson  Dr. Joel Hill.
Davie  Dr. James McGuire.
Duplin  Dr. F. H. Arthur.
Durham  Dr. T. Z. Brooks.
Edgecombe  Dr. L. L. Staton.
Forsyth  Dr. John Bynum.
Franklin  Dr. E. S. Foster.
Gaston  Dr. J. H. Jenkins.
Gates  Dr. W. O. P. Lee.
Graham  Dr. R. J. Orr.
Granville  Dr. S. H. Cannady.
Greene  Dr. Joseph E. Grimley.
Guilford  Dr. R. L. Rierson.
Hoke  Dr. I. E. Green.
Harnett  Dr. O. L. Denning.
Haywood  Dr. F. M. Davis.
Henderson  Dr. J. G. Waldrop.
Hertford  Dr. John W. Taylor.
Hyde  Dr. E. H. Jones.
Iredell  Dr. Henry F. Long.
Jackson  Dr. Wm. Self.
Johnston  Dr. L. D. Wharton.
Jones  Dr. S. E. Koonce.
Lenoir  Dr. W. T. Parrott.
Lincoln  Dr. W. L. Crouse.
McDowell  Dr. B. A. Cheek.
Macon  Dr. F. L. Siler.
Madison  Dr. Jas. K. Hardwicke.
Martin  Dr. W. H. Harrell.
Mecklenburg  Dr. C. M. Strong.
Mitchell  Dr. C. E. Smith.
Montgomery  Dr. M. P. Blair.
Moore  Dr. Gilbert McLeod.
Nash  Dr. J. P. Battle.
New Hanover  Dr. W. D. McMillan.
Northampton  Dr. H. W. Lewis.
Onslow  Dr. E. L. Cox.
Orange  Dr. C. D. Jones.
Pamlico.
Pasquotank  Dr. H. T. Aydlett.
Pender  Dr. George F. Lucas.
Perquimans  Dr. C. C. Winslow.
Person  Dr. J. A. Wise.
Pitt  Dr. C. O'H. Laughinghouse.
Polk  Dr. W. C. Bostic.
Randolph  Dr. T. T. Ferrree.
Richmond  Dr. J. M. Covington.
Robeson  Dr. H. T. Pope.
Rockingham  Dr. Sam Ellington.
Rowan  Dr. W. L. Crump.
Rutherford  Dr. W. A. Thompson.
Sampson  Dr. R. E. Lee.
Scotland.
Stanly  Dr. J. W. Littleton.
Stokes  Dr. W. L. McCanless.
Surry  Dr. John R. Waltz.
Swain  Dr. R. L. Davis.
Transylvania  Dr. M. M. King.
Tyrrell.
Union  Dr. J. E. Ashcraft.
Wake  Dr. P. E. Hines.
Warren  Dr. T. B. Williams.
Washington  Dr. W. H. Ward.
Watauga  Dr. E. F. Bingham.
Wayne  Dr. W. J. Jones.
Wilkes  Dr. J. W. White.
Wilson  Dr. W. S. Anderson.
Yadkin  Dr. B. B. Hansen.
Yancey  Dr. W. B. Robertson.
Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough .................................... Typhoid Fever ..........................
Measles ............................................ Typhus Fever ............................
Diphtheria .......................................... Yellow Fever .........................
Scarlet Fever ...................................... Cholera .................................
Pernicious Malarial Fever ......................... Smallpox ..............................
Hemorrhagic Malarial Fever ...................... Cerebro-spinal Meningitis ....

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:

---------------------------------------- M. D.
---------------------------------------- 189 ..................................... N. C.
Drinking Water.

It is with genuine satisfaction that we lay before our readers the truly excellent paper on the above subject, read at our last Health Conference by Dr. Pate. It is directly to the point and presents the subject of drinking water in its relation to disease in a clear, forcible and practical manner. The same thing has been done time and again by writers on sanitation, but we do not remember to have ever seen it better done in the same space, if at all.

We desire to commend especially to the thoughtful and conscientious consideration of our medical readers what Dr. Pate says in regard to the responsibility of the family physician in this connection. As we have repeatedly said in these columns, no board of health, no matter how complete in organization, equipment and endowment, can do thorough work without the action and hearty co-operation of the medical profession. The disastrous consequences of the indifference or opposition of an occasional individual member of the profession is attested by more than one widespread epidemic of small-pox in our State in the recent past. The family physician should be the sanitary as well as medical adviser of those who intrust themselves to his care. No one can be such an effective health officer as he directly, as he is the maker of public opinion on medical and sanitary lines, and the failure of the best directed efforts to protect the health of the people is too often due to his indifference and failure to say a few words in season. This very thing has discouraged us more than all else, but there has been, we are gratified to say, a marked improvement of late in this respect. May it increase:

DRINKING WATER.

Read at the Wilson Health Conference.

BY DR. W. T. PATH, OF GIBSON, N. C.

It has been my observation that there is no surer way to displease a friend, or block the avenues to friendly relations with a stranger, than to condemn his drinking water. Associations have invested our water supplies with a senti
ment next to home itself. It seems hard to realize that the spigots that have administered to our wants and necessities in days of health and pleasure could in an evil hour dispense sickness and bereavement; or that the well that had furnished water to raise a family could also exterminate it. It is not my purpose to rob this necessary element to our existence of any of its sentiment, but to try to make it more deserving by calling attention to the fact that the good and bad are so thoroughly mixed in all things that it even applies to water supplies.

All drinking water, unless it be that from deep artesian wells, contains bacteria, or unicellular vegetable organisms, which are like vegetables of a higher type, in that some kinds are harmless—even wholesome,—while other kinds are poisonous. We speak of water as being contaminated when it contains some of these poisonous organisms. The chief source of the bacteria found in drinking water is from the soil. For our purpose we will speak of the modes of contamination as direct and indirect. Direct when the dangerous bacteria are introduced into the water from first hands. Indirect when the bacteria are deposited upon the earth and then carried into the drinking water by the rain that falls upon the surface or the water that percolates through the soil.

About 7 per cent. of the population of North Carolina obtain their drinking water from public supplies, the source of nearly all of which is surface-water exposed to both direct and indirect contamination. But these supplies are better than private wells in city soil. They are easier to protect, and are capable of such intelligent management as will place them within the bounds of safety. But this will hardly be accomplished before an educated public sentiment demands it. When the consumers of public water fully realize that pure water and a good health record go hand in hand to attract desirable home-seekers and capital; when they thoroughly appreciate the fact that their own prosperity, happiness, health and lives may depend upon the purity of their drinking water; when they feel that the suffering and death from typhoid fever in the community are due to some one’s carelessness and might be prevented—then they may be depended upon to see that every precaution known to sanitary science is thrown about the public water supply.

The men occupying the best position to teach these truths of sanitation and create this public sentiment are the physicians of the town. Any town having a public water supply that is causing an unusual number of cases of typhoid fever and other water-borne diseases is a reproach to the physicians of the community. Every man of means and influence has a family physician, and if that guardian of the health of the home will take the pains to impress upon his patron the importance of pure drinking water, he will not only demand it, but will support any reasonable measure to improve and protect the public supply. I say this with all due respect to our efficient State Board of Health. Its work is gaining in appreciation among the people, and is attracting attention beyond our own borders. I have heard its work commended from the State of Maine. But the Board can at best only direct, map out the work and suggest plans. If the highest practical good is to be accomplished for the community and the State, the Board must have the hearty, active co-operation of her intelligent citizens, and especially that of the medical profession.
The remaining 93 per cent. of our population represent the inhabitants of the smaller towns and the country, who are less fortunate than their city cousins, in that each home has its own supply, and must bear the expense and exercise the necessary care to keep their drinking water in a safe condition or suffer the consequences. The chief burden of these supplies is sustained in complying with the last named condition. These supplies consist principally of dug or open wells and driven wells. The latter are safer, since they are exposed only to indirect contamination. Open wells from which the water is brought to the surface in buckets, are filthy and dangerous. Any one who has seen one of these wells cleaned out knows what a quantity of filth finds its way into the water from the open top. Every one that draws a bucket of water handles the wet bucket and chain and sends it down to be washed off by the water in the well, which amounts to about the same thing as washing the hands in the drinking water, not to speak of contamination by mosquitoes and other insects. Such wells undoubtedly cause many cases of gastro-intestinal troubles, not usually fatal, except among small children. And, if typhoid fever is carried to a home using an open well, it takes intelligent management to prevent the drinking water from becoming contaminated, and servants do not always possess the necessary intelligence, as was shown in a case that came under my observation at a farm-house two miles east of Gibson.

This well had been in use more than five years. It was the boast of the owner that he had the best water in his section, and that there had never been a case of typhoid fever on his plantation. During the winter of 1895 a son was carried to this home with a well developed case of typhoid fever. A nurse was employed at once, the patient isolated, and the physicians in attendance thought every precaution had been taken to protect the other members of the household; but in about three weeks two other members of the family were sick with the fever. The physicians were puzzled until it was learned that the lauderer had remarked that the ‘doctors might know something about medicine, but that they didn’t know anything about washing; and instead of carrying the linen, bundled by the nurse, from the sick-room to the kettle and boiling for a half hour before washing, as directed by the physicians, he had first washed the clothing in warm suds, drawing his own rinsing water at the open well. This act of carelessness and ignorance cost the life of one member of the family.

Another case showing the extreme liability of open wells to typhoid contamination occurred just across the line from Gibson in South Carolina. Another plantation home—an open well with sweep, hand-pole and bucket—a bench adorned by a row of tubs—a wash-pot, and a mud-hole with a few brickbats in it—all within a radius of 15 feet—the counterpart of many domestic water supplies in North Carolina to-day.

There had been no case of typhoid fever here. During the winter of 1884 a married daughter died of typhoid fever in another county. Her sick child was carried by its grandmother to this home, some 15 miles away. The child died; members of the household and neighbors and friends who visited them in due time began to have fever; an epidemic broke out in the community; and if it were possible for any one to state the number of cases that were carried directly and in-
directly from that well, the cost of life and property to the community, it would seem incredible. I know that some families were so reduced by sickness, death and debt that their homes went into other hands.

Where it is practicable only driven wells should be used to obtain water for domestic purposes. Where it is necessary to dig wells, after an unfailing flow of water is secured, terra-cotta well-pipe should be placed in the well and the well filled in, the top closed and the water raised by suction. Where the terra cotta pipe is too costly a two inch iron pipe can be carried to the bottom of the well, this filled around with stones above the level of the water, three feet of chalk and clay packed in above the stones and the well filled with clean earth. This will prevent direct contamination, and lessen the attraction for surface-water. Indirect contamination can be prevented by a clean soil. A circle with a radius of 100 feet should be drawn around the well and the perimeter designated the danger line, and nothing that would pollute the soil should be allowed within this circle—not even an open well. I have seen driven wells placed within a few feet of an open well to improve the water supply. It is needless to say that there was no improvement. All waste-water from the well, wash-basins, etc., should be conveyed beyond the danger line in water-tight pipes. Another important matter is surface drainage. The stables, pig-styes, etc., should be so placed on the premises that the surface—drainage will be away from the well. One hundred feet, nor any other reasonable distance, will not protect a well on a slope below polluted soil. I have seen a driven well 28 feet deep on a slope 300 feet away from a basin polluted for a generation, contain intestinal bacilli from the first. Another instance is that of a factory village built on an eastern slope. Near the brow of the hill is a row of out-houses. One hundred feet or more down the grade is a broad street, a row of houses on either side of the street, and driven wells along its centre, more than 100 feet from the out-houses, along the brow of the hill. For the first few years the village was not infected with typhoid fever. In December, 1895, I was asked by the president of the company to see a boy in the village that was thought to be crazy. I found him sitting up, temperature 104, delirious, with other symptoms of typhoid fever. The attention of the president of the company was called to the bad arrangement of the village, and warned of the danger. A meeting of the directors was called, but nothing was done. The number of cases have increased year by year until now. In September I was informed by one of the three physicians who practice among the operatives that he then had thirty cases of typhoid fever under treatment in the village, and that the death rate was high. This is due to the surface-water from the row of out-houses along the brow of the hill running down the slope and infecting the wells.

In conclusion, I would say: Use only underground wells; raise the water by suction; see that the soil is free from pollution within 100 feet radius of the well, and drain all polluted soil on the premises away from the well. By a strict observance of these simple precautions it is possible, in a primitive soil, to obtain water with less than 100 harmless bacteria per cubic centimeter.
Mr. Wells, the Pennsylvania Food and Dairy Commissioner, states that chemical companies have agents traveling all over the State selling to butchers chemicals for preserving meat. The packages are labeled, telling how they are to be used. And some of them are used when the putrefaction has already commenced. In the last annual report of the Connecticut Experimental Station it is stated that of sixty-three samples of jellies, two-thirds were adulterated, not only with starch and glucose, but with aniline dye and salicylic acid. Out of forty samples of marmalades and jams only three were pure. Of forty-seven samples of beer and ale, twelve contained salicylic acid, and nineteen samples of sausages and oysters were found embalmed by boric acid. Salicylic acid as a food preservative has been forbidden by several European governments. Here it is largely used by canners and butchers. The Department of Agriculture found it in fifteen out of twenty samples of string beans, in ten out of twelve samples of baked beans, and in twenty out of forty-one cases of corn. Is it any wonder, in face of this adulteration of so many of the common articles of daily food, that so much dyspepsia and general derangement of the system, produced by it, exists to so large an extent in our populous towns and cities? Salicylic acid, the favorite preservative used, has been pronounced by the Paris Academy of Medicine not only provocative of, but especially injurious to, dyspepsia. The bodily sufferings of hosts of individuals, for which no adequate cause is assigned, are undoubtedly due in many, very many, cases, to the systematic food poisoning for the profit of dishonest dealers. The coal-tar products are used to a large extent in cheap confectionery and in the
flavoring extracts of the kitchen. In a Western hotel nearly all the guests became sick, and the cause was traced to the cheap coal-tar extracts used in the kitchen. To remedy this wholesale poisoning from adulterated food it has been suggested that a national food commission be organized with the power of examining manufactured products and testifying as to their quality, these products of food and drink to have on printed labels the contents of the packages. Every physician, if properly trained in laboratory work, would be entirely competent to determine the condition of every product of food or drink, as it regards adulteration, submitted to him. But to accomplish this, more efficient instruction should be given in chemical analysis in our medical colleges, and questions introduced into the State medical examinations fully testing the knowledge of students in the action of drugs used in all adulterations connected with food and drink, and their ability to detect these poisons by the necessary unfailing scientific tests. The examination by the State Board of Examiners in this department of medical studies should be so minute and so exhaustive as to leave no doubt that the student was thoroughly competent for all the details of the work as it regards examination, and the medicinal action of the materials used upon the human system. We respectfully call attention of the Regents to the importance of this suggestion.—N. Y. Medical Times.

Review of Diseases for April, 1906.

EIGHTY-FOUR COUNTIES REPORTING.

Ninety-three counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of April the following diseases have been reported from the counties named:

Measles.—Ashe, 40; Bertie, many; Buncombe, 50; Carteret; Caswell, several; Chatham, many; Cherokee, many; Cleveland, a few; Columbus; Craven, 8; Cumberland, in all parts; Davidson; Graham, 25; Granville; Greene, 800; Halifax, in many parts; Harnett, 300; Hertford, 2; Martin, 200; Nash, epidemic; New Hanover, 55; Northampton; Pasquotank, 2; Perquimans, 6; Person; Pitt in all parts; Richmond, general; Robeson, epidemic; Rockingham; Rutherford, many; Sampson, a few; Surry, 6; Wake, 8; Warren, some; Washington, 20; Watauga, general; Wayne, 25; Wilkes, 1; Yadkin, in all parts—39 counties.

Whooping-cough.—Beaufort, several; Bertie, many; Buncombe, many; Bladen, a few; Caldwell, 10; Cleveland, a few; Columbus, general; Craven, 6; Gates, many; Graham, 20; Greene, 500; Halifax, in many parts; Iredell, many; Macon; Madison, 40; Martin, 50; Mecklenburg; Nash; New Hanover, 9; Person; Stanly, several; Warren, a few; Watauga, general—23 counties.

Scarlet Fever.—Mecklenburg, 3; Rockingham, 1; Vance, 1.

Diphtheria.—Craven, 2; Mecklenburg, 1; Surry, 1.

Typhoid Fever.—Alamance, 3; Ashe, 2; Cabarrus, 6; Chatham, a few; Columbus, 2; Craven, 2; Durham, 1; Greene, 1; Haywood, 3; Nash, 2; Perquimans, 2;
Rockingham; Stanly, 4; Union, 3; Vance, 1; Warren, a few—16 counties.

MALARIAL FEVER.—Hyde.

MALARIAL FEVER, HEMORRHAGIC.—Hyde, 1.

MALARIAL FEVER, PERNICIOUS—Hyde, 2.

INFLUENZA.—Alamance; Ashe, general; Bertie, in many parts; Buncombe; Caldwell, in most parts; Carteret; Catawba, general; Chatham, general; Chowan, general; Clay, influenza; Columbus; Currituck; Davidson; Franklin; Gaston; Gates, general; Graham, general; Greene, general; Harnett, general; Henderson, general; Hertford; Hyde, general; Iredell, general; Lenoir, general; Lincoln, general; McDowell; Macon, general; Martin, general; New Hanover, general; Northampton; Orange, general; Pender, in many; Perquimans, 5; Person; Pitt, general; Randolph, much; Richmond, general; Robeson; Rutherford; Sampson; Stanly, general; Swain; Transylvania; Union; Vance, general; Wake, general; Watauga; Wayne; Wilkes; Vance, general—51 counties.

PNEUMONIA.—Ashe, general; Buncombe, Carteret; Catawba, general; Cherokee; Gaston; Gates, general; Harnett, general; Jackson; Pender; Pitt, general; Rutherford; Sampson, general; Wake, general; Wilkes; Wilson, general; Yadkin, general—17 counties.

MUMPS.—Beaufort, general; Carteret; Caswell, in all parts; Davidson; Halifax; DeDowell; Northampton; Person; Washington, in all parts—9 counties.

ROSEOLA.—Bladen; Caswell, in all parts; Union.

RUBELLA.—Craven, epidemic.

RUTHERFORD.—Mecklenburg; Sampson, in all parts.

VARICELLA.—Cumberland, in all parts; Halifax; Richmond, in all parts.

SMALL-POX.—Alamance, 18; Alexander, 12; Buncombe, 21; Cabarrus, 4; Caswell, 14; Chatham, 11; Cleveland, 11; Cumberland, 1; Davidson, 6; Davie, 14; Durham, 16; Forsyth, 1; Gaston, 3; Granville, 1; Guilford, 32; Harnett, 8; Haywood, 1; Hertford, 6; Johnston, 32, for February the number should have been given as 8; Mecklenburg, 18; Nash, 25; Orange, 17; Pender, 8; Person, 11; Randolph, 6; Robeson, 6; Rockingham, 291; Stanly, 2; Wake, 9; Wilkes, 1—30 counties.

CHOLERA IN HOGS.—Columbus, to some extent.

DISTEMPER IN HORSES.—Richmond, Wake.

HYDROPHOBIA IN DOGS.—Richmond.

No diseases are reported from Dare, Edgecombe, Mitchell, Polk and Stokes.

No reports received from Alleghany, Anson, Brunswick, Cherokee, Duplin, Jones, Montgomery, Moore and Rowan.

Summary of Mortuary Reports for April, 1900.

(NINeteen TOWNS).

Only those towns from which certified reports are received are included.

<table>
<thead>
<tr>
<th>White Col'd Total</th>
<th>67,375</th>
<th>49,575</th>
<th>116,950</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate population</td>
<td>92</td>
<td>97</td>
<td>189</td>
</tr>
<tr>
<td>Aggregate deaths</td>
<td>16.3</td>
<td>22.8</td>
<td>19.2</td>
</tr>
<tr>
<td>Representing temporary annual death rate per 1,000</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Typhoid fever</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Scarlet fever</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Whooping cough</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>15</td>
<td>16</td>
<td>31</td>
</tr>
<tr>
<td>Consumption</td>
<td>8</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>Brain diseases</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Heart diseases</td>
<td>6</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Diarrhoeal diseases</td>
<td>4</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>All other diseases</td>
<td>49</td>
<td>63</td>
<td>112</td>
</tr>
<tr>
<td>Accident</td>
<td>4</td>
<td>5</td>
<td>9</td>
</tr>
</tbody>
</table>

Deaths under five years | 1 | 30 | 43 |

Still-born | 4 | 15 | 19 |
### Mortuary Report for April, 1900.

<table>
<thead>
<tr>
<th>Towns and Reporters</th>
<th>Population</th>
<th>Temporary Annual* Death Rate per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>By Races</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td>By Races</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Typhoid Fever</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Scarlet Fever</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Malaria</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diphtheria</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Whooping-cough</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pneumonia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumption</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heart Diseases</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diarrhoeal Diseases</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Neuritic Diseases</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All Other Diseases</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Accident</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suicide</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Deaths</td>
</tr>
<tr>
<td></td>
<td></td>
<td>By Race</td>
</tr>
<tr>
<td></td>
<td></td>
<td>By Towns under five years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Still-born</td>
</tr>
</tbody>
</table>

#### RACES

<table>
<thead>
<tr>
<th>Towns and Reporters</th>
<th>W.</th>
<th>C.</th>
<th>W.</th>
<th>C.</th>
<th>W.</th>
<th>C.</th>
<th>W.</th>
<th>C.</th>
<th>W.</th>
<th>C.</th>
<th>W.</th>
<th>C.</th>
<th>W.</th>
<th>C.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asheville</td>
<td>8,000</td>
<td>13,000</td>
<td>18.0</td>
<td>12.0</td>
<td>1</td>
<td>5</td>
<td>1.3</td>
<td>1.1</td>
<td>1.5</td>
<td>1.6</td>
<td>16</td>
<td>35</td>
<td>17</td>
<td>12</td>
</tr>
<tr>
<td>Dr. M. H. Fletcher.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charlotte</td>
<td>10,175</td>
<td>29,000</td>
<td>10.0</td>
<td>12.8</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>11</td>
<td>16</td>
<td>16</td>
<td>31</td>
<td>17</td>
<td>12</td>
</tr>
<tr>
<td>Dr. F. O. Hawley.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durham</td>
<td>4,000</td>
<td>6,000</td>
<td>24.0</td>
<td>29.0</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>8</td>
<td>10</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Dr. E. Z. Brooks.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fayetteville</td>
<td>3,500</td>
<td>6,000</td>
<td>13.7</td>
<td>16.0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Dr. J. V. Mathia.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Henderson</td>
<td>2,250</td>
<td>4,250</td>
<td>25.7</td>
<td>26.9</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Dr. W. J. Judd.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hillsboro</td>
<td>400</td>
<td>700</td>
<td>30.0</td>
<td>34.3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dr. C. D. Jones.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lenoir</td>
<td>1,250</td>
<td>1,500</td>
<td>9.6</td>
<td>8.0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dr. Albert Hock.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marion</td>
<td>800</td>
<td>1,200</td>
<td>0.0</td>
<td>10.0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dr. B. A. Cheek.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monroe</td>
<td>1,800</td>
<td>2,400</td>
<td>0.0</td>
<td>0.0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dr. J. M. Blair.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxford</td>
<td>1,200</td>
<td>2,200</td>
<td>20.0</td>
<td>15.6</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dr. S. H. Cannady.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raleigh</td>
<td>11,000</td>
<td>20,000</td>
<td>8.7</td>
<td>13.2</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>14</td>
<td>32</td>
<td>25</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T. P. Sale, Clerk B. H.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rockingham</td>
<td>1,500</td>
<td>2,000</td>
<td>8.0</td>
<td>12.0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dr. J. M. Coogin.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rocky Mount</td>
<td>1,600</td>
<td>2,600</td>
<td>7.5</td>
<td>4.6</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dr. G. L. Wimbley, Jr.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salem</td>
<td>4,100</td>
<td>4,550</td>
<td>20.5</td>
<td>21.1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>S. E. Butner, Mayor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salisbury</td>
<td>6,000</td>
<td>9,000</td>
<td>12.0</td>
<td>16.0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dr. W. W. McKenzie.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scotland Neck</td>
<td>775</td>
<td>1,200</td>
<td>15.5</td>
<td>10.0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>J. A. Perry, Mayor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tarboro</td>
<td>2,000</td>
<td>3,000</td>
<td>6.0</td>
<td>8.0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dr. L. L. Staton.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washington</td>
<td>5,300</td>
<td>6,000</td>
<td>3.4</td>
<td>10.0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dr. P. A. Nicholson.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weldon</td>
<td>700</td>
<td>1,450</td>
<td>0.0</td>
<td>16.5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>J. T. Gooch, Mayor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wilmington</td>
<td>12,000</td>
<td>27,000</td>
<td>13.0</td>
<td>15.5</td>
<td>1</td>
<td>3</td>
<td>10</td>
<td>2</td>
<td>22</td>
<td>35</td>
<td>8</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. W. D. McMillan.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wilson</td>
<td>2,500</td>
<td>4,800</td>
<td>24.0</td>
<td>27.5</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>11</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dr. W. S. Anderson.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the **whole** number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.  

*In addition eleven non-residents died of consumption.*
County Superintendents of Health.

Alamance ..........Dr. T. S. Faucette.
Alexander ..........Dr. T. F. Stevenson.
Alleghany ..........Dr. B. E. Waddell.
Anson ..........Dr. E. S. Ashe.
Ashe ..........Dr. Manley Blevins.
Beaufort ..........Dr. P. A. Nicholson.
Bertie ..........Dr. H. V. Dunstan.
Bladen ..........Dr. Newton Robinson.
Brunswick ..........Dr. D. B. McNeill.
Buncombe ..........Dr. E. R. Morris.
Burke ..........Dr. J. L. Laxton.
Cabarrus ..........Dr. R. S. Young.
Caldwell ..........Dr. A. F. Houck.
Camden ............Dr. F. M. Clark.
Carteret ..........Dr. S. A. Malloy.
Caswell ..........Dr. Geo. H. West.
Catawba ..........Dr. H. T. Chapin.
Chatham ..........Dr. J. F. Abernathy.
Cherokee ..........Dr. T. J. Hoskins.
Chowan ..........Dr. J. M. Sullivan.
Clay ..........Dr. H. H. Arthur.
Cleveland ..........Dr. Joel Hill.
Columbus ..........Dr. W. B. Fearing.
Craven ..........Dr. James McGuire.
Cumberland ..........Dr. J. Vance McGougan.
Currituck ..........Dr. H. M. Shaw.
Dare ..........Dr. W. O. P. Lee.
Davie ..........Dr. R. J. Orr.
Davison ..........Dr. S. H. Cannady.
Duplin ..........Dr. H. H. Arthur.
Durham ..........Dr. R. L. Rierson.
Edgecombe ..........Dr. L. L. Staton.
Forsyth ..........Dr. Joel Hill.
Franklin ..........Dr. John Bynum.
Forsyth ..........Dr. E. S. Foster.
Gaston ..........Dr. J. H. Jenkins.
Gates ..........Dr. W. O. P. Lee.
Graham ..........Dr. S. H. Cannady.
Granville ..........Dr. Joseph E. Grimsley.
Guilford ..........Dr. E. E. Green.
Harnett ..........Dr. O. L. Denning.
Haywood ..........Dr. F. M. Davis.
Henderson ..........Dr. J. G. Waldrop.
Hertford ..........Dr. W. J. Taylor.
Hyde ..........Dr. E. H. Jones.
Iredell ..........Dr. Henry F. Long.
Jackson ..........Dr. Wm. Self.
Johnston ..........Dr. L. D. Wharton.
Jones ..........Dr. S. E. Koonce.

Lenoir ..........Dr. W. T. Parrott.
Lincoln ..........Dr. W. L. Crouse.
McDowell ..........Dr. B. A. Cheek.
Macon ..........Dr. F. L. Siler.
Madison ..........Dr. Jas. K. Hardwicke.
Martin ..........Dr. W. H. Harrell.
Mecklenburg ..........Dr. C. M. Strong.
Mitchell ..........Dr. C. E. Smith.
Montgomery ..........Dr. M. P. Blair.
Moore ..........Dr. Gilbert McLeod.
Nash ..........Dr. J. P. Battle.
New Hanover ..........Dr. W. D. McMillan.
Northampton ..........Dr. H. W. Lewis.
Onslow ..........Dr. E. L. Cox.
Orange ..........Dr. C. D. Jones.
Pamlico ..........P. A. Blevins.
Pasquotank ..........Dr. H. T. Aydlett.
Pender ..........Dr. George F. Lucas.
Perquimans ..........Dr. C. C. Winslow.
Person ..........Dr. A. A. Wise.
Pitt ..........Dr. C. O'H. Laughinghouse.
Polk ..........Dr. W. C. Bostic.
Randolph ..........Dr. T. T. Ferree.
Richmond ..........Dr. J. M. Covington.
Robeson ..........Dr. H. T. Pope.
Rockingham ..........Dr. Sam Ellington.
Rowan ..........Dr. W. L. Crump.
Rutherford ..........Dr. W. A. Thompson.
Sampson ..........Dr. R. E. Lee.
Scotland ..........Dr. J. W. Littleton.
Stokes ..........Dr. W. L. McCauley.
Surry ..........Dr. John R. Waltz.
Swain ..........Dr. R. L. Davis.
Transylvania ..........Dr. M. M. King.
Tyrrell ..........Dr. J. R. Strong.
Union ..........Dr. E. Ashcraft.
Wake ..........Dr. P. E. Hines.
Warren ..........Dr. T. B. Williams.
Washington ..........Dr. W. H. Ward.
Watauga ..........Dr. E. F. Bingham.
Wayne ..........Dr. W. J. Jones.
Wilkes ..........Dr. J. W. White.
Wilson ..........Dr. W. S. Anderson.
Yadkin ..........Dr. B. B. Hauser.
Yancey ..........Dr. W. B. Robertson.
Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

- Whooping-cough
- Typhoid Fever
- Measles
- Typhus Fever
- Diphtheria
- Yellow Fever
- Scarlet Fever
- Cholera
- Pernicious Malarial Fever
- Smallpox
- Hemorrhagic Malarial Fever
- Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:

M. D. 190  N. C.
BULLETIN
OF THE
North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

Geo. G. Thomas, M. D., Pres., Wilmington.
S. Westray Battle, M. D., Asheville.
Henry W. Lewis, M. D., Jackson.
Henry H. Dodson, M. D., Milton.

Richard H. Lewis, M. D., Secretary and Treasurer, Raleigh.

Vol. XV. JUNE, 1900. No. 3.

Annual Meeting of the Board of Health.

The annual meeting of the Board was held at Tarboro May 22—23, all the members being present.

Among other things, resolutions were adopted requesting the State Board of Agriculture to slightly amplify their proposed biological laboratory so as to provide for the bacteriological examination of drinking waters, when requested by the Secretary of the Board of Health. These resolutions were duly presented to the Board of Agriculture at its recent meeting, and we are glad to say were received with favor, unanimous action being promptly taken with a view to carrying out our request. Much good will doubtless be accomplished by this enlightened action of the Board of Agriculture, and, for the people of the State, as well as the Board of Health, we wish to express our appreciation of it.

The conjoint session with the State Medical Society was called to order at 12 m. of Wednesday, the 23d, the second day of the meeting of the Society, according to the custom of many years, Dr. Charles J. O'Hagan presiding, in the necessary absence of President Thomas at that time. Dr. O'Hagan on taking the chair, with the readiness and grace as a speaker so characteristic of him, delivered a very interesting address on general lines, literally on the spur of the moment, as he was entirely without notice.

The annual report of the Secretary, and the two small-pox inspectors, Drs. Harrill and Tayloe, were read.

On motion, the Secretary was thanked for his labors, and a copy of his report ordered printed and distributed to the physicians and the county commissioners of the State.

Resolutions in regard to pure food legislation, the outside insane, and small-pox adopted.

The reports and the resolutions were as follows:

ANNUAL REPORT OF THE SECRETARY OF THE NORTH CAROLINA BOARD OF HEALTH.

The work of the Board, since my last report, in addition to the regular routine of the Secretary's office, made up chiefly
of advice on sanitary subjects to individuals, municipalities, corporations, and health officers in person, by letter, and by telegram, and the preparation of matter for the monthly Bulletin, has consisted in inspections of some of the State institutions, the holding of the annual health conference with the people, and the effort to direct, as far as our powers permitted, the management of the epidemic of small-pox, which I regret to say has prevailed quite extensively throughout the State during the past year.

INSPECTIONS OF STATE INSTITUTIONS.

Inspections by committees from the Board, appointed by the President, have been made of the three Hospitals for the Insane, the University, the Normal and Industrial College, the two Agricultural and Mechanical Colleges, the school for the Deaf and Dumb at Morganton, and, at the special request of his Excellency, the Governor, of the abandoned convict camp at Castle Hayne, with a view to its healthfulness for that purpose. With the exception of the State Normal and Industrial College at Greensboro, we found all the institutions in a good sanitary condition, although a more abundant water supply is needed at the University.

Learning that the Board of Trustees of the Normal and Industrial College would meet before the report of the regular Committee of Inspection could reach them, I felt it my duty to make a personal visit to that institution and supplement the investigation already made, so that I might be in a position to advise directly with the Board. I was invited to appear before the Board and make to them a verbal report of my investigations, and to give them my views as to the situation. Having done this, I was requested to prepare a full and candid report, suppressing nothing, and give it to the leading newspapers of the State. This was promptly done, and sent to all the morning dailies in the State. It was also printed in the Bulletin, and as every physician whose address is known receives regularly a copy of that publication, you have already read it, or have had an opportunity to do so, at any rate, and it would, therefore, be superfluous to repeat it here. After this report was given to the newspapers, I made two other visits to the Normal and Industrial College, and learned certain additional facts which confirmed the view first expressed, that the cause of the outbreak of typhoid fever was the water of the central well which was drunk by all the students taking their meals in the College, to whom the sickness was limited, and which was found by two bacteriologists, Drs. Albert Anderson, of Wilson, and A. C. Abbott, of Philadelphia, to be infected with intestinal bacilli. These new facts were set forth in a supplementary report, which was printed, together with the original report, in the Bulletin for December, 1899. The medical report of the fever by Dr. W. P. Beall, of Greensboro, the chief consultant, was given to the profession through the columns of the Carolina Medical Journal, and was reprinted in the Bulletin for February.

In round numbers, one-third of the total college population had fever, and there were fourteen deaths. As every county in the State had a representative in the student body, and most of them one among the sick, the deep solicitude and wide spread interest felt throughout the State, not only in that particular outbreak, but in the subject of typhoid fever in general, its causation and its prevention, can be easily understood. Realizing this, I availed myself of the opportunity to "point a moral" at the conclusion of the report referred to in the following words:
“Every city and town should have an expert inspector of plumbing, and require inspection by him of every job before it is covered up and accepted, and all public institutions and private boarding schools and other establishments with plumbing should require a similar inspection. Wells near sewers, or any accumulation of filth, especially of human origin, are dangerous. Guard with jealous care the purity of your drinking water.”

Whether any of our cities and towns have acted upon the suggestion as to the employment of an expert inspector of plumbing, and the requirement that all plumbing work should be inspected and approved by him before being accepted, I have not been informed, but the suggestion as to drinking water did bear some fruit. The University and the Agricultural and Mechanical College for whites, of the State schools, and St. Mary’s, at Raleigh, and the Horner Military School at Oxford, of the private educational institutions, had bacteriological examinations made of their water supplies, thereby exhibiting a progressive and enlightened spirit that is worthy of commendation, and setting an example that it would be wise for others to follow.

While the outbreak of typhoid fever at the Normal and Industrial College is greatly to be deplored, its educational effect upon the people has been great, and the final result in the coming years will no doubt be the saving of many more lives than were lost. The history of sanitary science shows that no material advance in its practical application has ever been made, except as a consequence of some tragedy of this sort.

THE HEALTH CONFERENCE.

In the hope of interesting and instructing the people of some of our largest cities and towns in matters pertaining to the public health, meetings of the Board with the people for the purpose of discussing before and with them, in a practical and popular way, sanitary subjects, were inaugurated at Salisbury in 1883. Since that time similar meetings have been held in order at Washington, Charlotte, Goldsboro, Winston-Salem, and Wilson. We have been assured that they were helpful in promoting the cause they were designed to serve, but it must be confessed that appreciation by the people of these efforts on the part of the Board has not increased, the first two having been the most successful. It is true that rival attractions of a more entertaining character have interfered on three occasions, and they may have been the explanation of the comparatively small attendance, although it has invariably been excellent in quality and respectable in numbers. It certainly cannot be attributed to a falling off in the quality of the work done by the members of the Board participating, as the papers and addresses were never better, if so good, as those presented at the last conference at Wilson, the announcement and programme of which was as follows:

HEALTH CONFERENCE AT WILSON.

NOVEMBER 1, 1899.

AIMS AND OBJECTS.

The Conference is intended to be between the members of the State Board of Health and the people. Its object is to interest the people in sanitary matters by explaining and impressing upon them the great importance to the individual and to the community of a strict observance of the laws of health. Its proceedings will, therefore, be not technical but popular in character, and every one present will be invited to participate therein, by taking part in the discussions and by asking
questions, which the members of the Board will take pleasure in answering to the best of their ability.

As the enforcement of sanitary rules in the family is largely in the hands of the mistress of the household, the ladies are especially invited to attend.

Papers or addresses are promised on the following subjects:

Old Age and How to Attain it.—By Dr. J. L. Nicholson, Richlands, member of the Board.

Vaccination as an Economic Measure.—By Dr. Henry H. Dodson, Milton, member of the Board.

Malaria and Mosquitoes.—By Dr. Richard H. Lewis, Raleigh, Secretary of the Board.

A Discussion of the Health Laws now Operative and Reasons why they should be Earnestly Supported by the Public.—By Dr. George G. Thomas, Wilmington, President of the Board.

The North Carolina Health Law and the Local Health Officer.—By Dr. Henry W. Lewis, Jackson, member of the Board.

Practical Hints on Drinking Water.—By Dr. W. T. Pate, Gibson, one of the Bacteriologists to the Board.

There will be a Question Box, and persons in the audience too modest to speak out in meeting can write them out and deposit them in the same for answer by some member of the Board. Opportunity will be given for this at the end of the discussion of each set subject.

The meetings will be held in the courthouse at 10 a. m. and 7:30 p. m.

You are cordially invited to attend and bring your friends.

Richard H. Lewis, M. D.,
Secretary.

N. B.—The subjects will not necessarily come up in the order in which they appear above.

In view, however, of the sacrifice in time and labor required of the members of the Board, and the expense incident to the meetings, it is a question as to whether they should not be discontinued. An expression of opinion by members of the profession outside of the Board would be welcomed.

COUNTY SUPERINTENDENTS OF HEALTH.

In planning the construction of our health laws, the County Superintendent of Health was made what might be called the corner-stone. While the State Board is, in a general way, in charge of all matters relating to the public health, it has only advisory powers, and the actual practical work must be done by the Superintendent. In a word, a county without a superintendent has no sanitary organization, and the health laws cannot be applied to its people. In spite of every effort, until recently, a considerable number of counties have utterly ignored the law commanding them to elect a Superintendent. For years the number of counties having Superintendents was less than 70, then by special effort it was raised to eighty-odd. At the time of our last meeting there were eleven counties having no health officer. The Board, at a meeting held at the time of the Conference at Wilson, realizing their utter helplessness in case of the introduction of small-pox, which they anticipated would become widespread, instructed its Secretary to write to every County Commissioner in the derelict counties individually, calling attention to these facts, and urging the importance of the immediate election of a Superintendent. The Secretary was also instructed to write to the Judge holding the nearest court in said counties, asking him to charge the grand jury on our health law, and to suggest the indictment of the commissioners re-
fusing to perform their duty. At the same time, a letter to every commissioner in the State setting forth the importance of making preparations for the probable appearance of small-pox, was ordered. I wrote to one Judge, but whether he acted upon our request or not, I have never learned. The letters were sent to the Commissioners and eight new Superintendents were elected, so that now only three counties—all very small—Camden, Pamlico, and Tyrrell, have no health officer. The value of this official is coming to be more and more appreciated every day, thanks chiefly to small-pox, and it is to be hoped that in time, he will be adequately remunerated for his services. Some counties, I am glad to say, have shown a disposition to do this by paying the Superintendent $10 a day when engaged in small-pox work, although it must be admitted that more pay less, and that many add nothing to the regular pittance.

THE OUTSIDE INSANE.

While the insane constitute a class of their own under the special care of other guardians, they cannot be properly ignored in a general consideration of the public health. Although our State has made generous provision for these unfortunate in three well-equipped and admirably managed hospitals, the present accommodations are not adequate for the care of all who need it. Basing an opinion upon the recent excellent report of the State Board of Public Charities on this subject, which gives the number of insane, epileptics and idiots located at 766, it is not unreasonable to assume that there are at least one thousand of these stricken ones in jails, county homes and private families. It would be a work of supererogation to detail to a body of medical men, who are only too familiar with such sad sights, the horrors of the situation of many of them. No matter how good the intentions of their keepers may be, they cannot obtain the care and attention to which, as a matter of simple humanity, they are entitled, owing to the lack of facilities and of knowledge and experience in this particular kind of work on the part of those in charge. By a comparatively inexpensive amplification of our three State hospitals, all of the insane and most of the epileptics could be given expert care and treatment at a cost, in the aggregate, very much less than that incurred under the present system. It is to be hoped that the next Legislature will take action in this matter, and, as our law-makers are largely influenced by public opinion, it seems to me that the adoption of a resolution setting forth the views of this body, which represents the medical profession of the State would be in order.

PURE FOOD AND DRUG CONGRESS.

By appointment of the President I attended, as a delegate from this Board, the third annual session of the National Pure Food and Drug Congress, which was held at Washington, March 7—9. The meeting was largely attended by representatives of all the interests involved from all parts of the United States. After a very full discussion of the relative merits of two bills setting forth the objects sought, which had been introduced in the House of Representatives by the Honorable Messrs. Brosius and Babcock, respectively, it was decided that the Brosius bill was the more satisfactory, and it was adopted as embodying the views and wishes of the Food Congress. The outlook for desirable legislation on this line is said to be favorable, if action can be obtained at this session. I would, therefore, respectfully suggest that a resolution calling attention to the importance of the
subject, and asking the support of the Brosius bill by our Senators and Representatives in Congress be adopted by the conjoint session and forwarded to them at once.

SMALL-POX.

The history of small pox in the State for the past twelve months has been an almost exact repetition of that of the preceding year, in every respect, except the number of cases, which has been nearly five times as great.

An exact comparative statement is as follows:

From January 12, 1898, to May 1, 1899—
Number of cases (in 38 counties), white, 162; colored, 454; total, 616.

Number of deaths, white, 8; colored, 9; total, 17.

Death rate, per cent., white, 4.93; colored, 1.97; total, 2.76.

From May 1, 1899, to May 1, 1900—
Number of cases (in 55 counties), white, 731; colored, 2,075; total, 2,806.

Number of deaths, white, 35; colored, 30; total, 65.

Death rate, per cent., white, 4.78; colored, 1.44; total, 2.31.

From this statement it appears that the proportion between the two races is almost exactly the same, the number of colored attacked, being nearly three times as large as the number of white in both periods. The death rate has remained also nearly the same—a trifle less—the decrease being slightly more marked in the colored race.

The character of the disease has, as a rule, been very mild, and from that fact have arisen nearly all the difficulties in the management; the indifference, and often positive opposition, on the part of the people to vaccination; the reluctance of the authorities to institute and support effective measures of prevention; and the mistakes in diagnosis, including the disastrous effect upon public opinion of the efforts of the physicians making the mistakes to support their position. From the last of these three things has come the chief trouble. The matter has been so fully discussed in various issues of the Bulletin during the year that I will not weary your patience by a repetition of it, but will merely cite two instances: the counties of Guilford and Rockingham. In both these counties the disease was diagnosed chicken-pox by the attending physician, and in the latter the position was persisted in, notwithstanding the opinion to the contrary of an expert. In consequence, the proper precautions were not promptly taken, and the result was, in Guilford 509 cases with 9 deaths, and in Rockingham 520 cases with 20 deaths, to which should be added the direct cost to the counties of thousands of dollars in handling the widespread epidemics, and the loss of tens of thousands in trade. In justice to the Superintendents of both these counties, it should be said that the harm in the way of numberless exposures of unvaccinated persons was done before the disease was reported to them as small-pox, when only their responsibilities began. I have no reason to believe otherwise than that they are both good men, and efficient health officers.

The work of our two inspectors, Drs. Joshua Tayloe, of Washington, and L. Harrill, of Statesville, whose reports are attached, has been of great value in settling disputed diagnoses, instructing Superintendents new at the business, impressing upon the authorities the gravity of the situation, and explaining the best way to meet it.

In response to special requests from Greensboro, Winston, and High Point, for a United States expert, I asked Surgeon-General Wyman, of the Marine
Hospital Service, to send one of his men to those points. He promptly granted my request, and sent Passed Assistant Surgeon Wertenbaker, whose efforts were of material aid in setting public opinion right, and in inaugurating the proper precautions.

Upon the occurrence of a case of suspected small-pox in one of the students, I personally visited the University, at the request of President Alderman and Dr. Whitehead. I confirmed the diagnosis of small-pox already made by Dr. Whitehead, endorsed the precautionary measures already planned and in part inaugurated and addressed the student body, particularly upon the value and importance of vaccination. The entire absence of panic among the 500 students, and the failure to spread from the first case under such circumstances, is sufficient testimony to the admirable management of those in charge there. I also personally visited Reidsville, at the urgent and repeated request of Superintendent Ellington, to aid him in securing the cooperation of the County Commissioners with those of the town. I addressed both bodies in joint session, and was much gratified to learn that the County Commissioners took action in the manner desired immediately upon adjournment, and to be assured since that my visit was really helpful.

Owing to the extreme mildness of the disease in many instances, no physician has been called in, and absolutely no precautions in the way of disinfection have been taken. This means, of course, a great many foci of infection for time to come. According to the reports of the Superintendents, hardly more than 10 per cent. of the people have been vaccinated on an average, though it should be said to the honor of this county of Edgecombe, whose hospitality we are now enjoying, that she heads the list in this good work with 80 per cent of her entire population, rural as well as urban, vaccinated. The conclusion from these two facts is inevitable. There must be a recrudescence of small-pox next winter, unless the people are generally vaccinated between now and then on a much more extensive scale. Since the decision of the Supreme Court, in State Appellant v. W. E. Hay from Alamance, affirming the right of county and municipal authorities to enforce compulsory vaccination—a copy of which opinion, delivered by Justice Clark, was printed in the March Bulletin—there need be no trouble about it. The responsibility rests upon the said authorities. Let us hope they will meet it. And in this connection, let me say one word as to the duty of the medical profession in the premises. It is clear. They should, without ceasing, teach, preach and practice vaccination, and cordially support all authorities trying to bring it about.

In conclusion, I would say that the Board of Health, owing to the small-pox epidemic and the outbreak of fever at the Normal and Industrial College, has never been so much in evidence, and, apparently, so much appreciated by the people as during the past year.
RECORD OF SMALL-POX IN NORTH CAROLINA FROM MAY 1st, 1899, TO MAY 1st, 1900.

<table>
<thead>
<tr>
<th>Counties</th>
<th>Cases</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>White</td>
<td>Colored</td>
</tr>
<tr>
<td>Alamance</td>
<td>11</td>
<td>51</td>
</tr>
<tr>
<td>Alexander</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>Anson</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>Bertie</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>Buncombe</td>
<td>27</td>
<td>6</td>
</tr>
<tr>
<td>Burke</td>
<td>27</td>
<td>34</td>
</tr>
<tr>
<td>Cabarrus</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Caldwell</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Carteret</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Caswell</td>
<td>8</td>
<td>31</td>
</tr>
<tr>
<td>Catawba</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>Chatham</td>
<td>1</td>
<td>60</td>
</tr>
<tr>
<td>Cherokee</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>Chowan</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Cleveland</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Craven</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Cumberland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Currituck</td>
<td>22</td>
<td>2</td>
</tr>
<tr>
<td>Davidson</td>
<td>11</td>
<td>34</td>
</tr>
<tr>
<td>Davie</td>
<td>8</td>
<td>21</td>
</tr>
<tr>
<td>Durham</td>
<td>2</td>
<td>19</td>
</tr>
<tr>
<td>Edgecombe</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Forsyth</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Gaston</td>
<td>18</td>
<td>100</td>
</tr>
<tr>
<td>Grayville</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Guilford</td>
<td>64</td>
<td>445</td>
</tr>
<tr>
<td>Halifax</td>
<td>12</td>
<td>150</td>
</tr>
<tr>
<td>Harnett</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Haywood</td>
<td>24</td>
<td>8</td>
</tr>
<tr>
<td>Henderson</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Hertford</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>Iredell</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Johnson</td>
<td>15</td>
<td>24</td>
</tr>
<tr>
<td>Mecklenburg</td>
<td>2</td>
<td>48</td>
</tr>
<tr>
<td>Moore</td>
<td>16</td>
<td>78</td>
</tr>
<tr>
<td>Nash</td>
<td>22</td>
<td>24</td>
</tr>
<tr>
<td>New Hanover</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Northampton</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Orange</td>
<td>20</td>
<td>24</td>
</tr>
<tr>
<td>Pender</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>Person</td>
<td>26</td>
<td>14</td>
</tr>
<tr>
<td>Randolph</td>
<td>17</td>
<td>29</td>
</tr>
<tr>
<td>Richmond</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Robeson</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Rockingham</td>
<td>144</td>
<td>376</td>
</tr>
<tr>
<td>Rowan</td>
<td>130</td>
<td>179</td>
</tr>
<tr>
<td>Rutherford</td>
<td>1</td>
<td>50</td>
</tr>
<tr>
<td>Stanly</td>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td>Surry</td>
<td>105</td>
<td>12</td>
</tr>
<tr>
<td>Union</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Vance</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Wake</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td>Warren</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Washington</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total (counties 55)</td>
<td>731</td>
<td>2,075</td>
</tr>
</tbody>
</table>

Death rate, per cent: 4.78 1.44 2.31
REPORT OF SMALL-POX INSPECTORS.

REPORT OF DR. TAYLOE.

Dr. R. H. Lewis, Secretary,  
State Board of Health, Raleigh, N. C.

SIR:—I submit herewith to the State Board of Health the following report of my work as Small-pox Inspector, from May, 1899, to May, 1900. In this report I give the towns, counties, number of cases examined, how managed and by whom. Also what precautions had been taken up to my inspection.

MAY, 1899—I made a trip to Gates county, this being my first inspection, examined a good many patients suffering from the mild forms of small-pox, two-thirds being white people. There existed in Gates county, at the time of my visit, thirty-five infected houses. No precautions had been taken. No superintendent of health.

MAY, 1899—I inspected the conditions in Currituck county. Saw six cases, two white and four colored, in charge of Dr. H. M. Shaw, Superintendent of Health. Some precautions had been taken.

JUNE 23, 1899—Hertford county, at Ahoskie, I examined three cases, negroes, in charge of Dr. Tayloe, Superintendent of Health. They were well cared for.

SCOTLAND NECK, HALIFAX COUNTY—Five cases were examined by me, all negroes. More negroes afterwards developed the disease, also some whites. No precautions had been taken until the time of my inspection, as a positive diagnosis was not made until then. Dr. Green, Superintendent of Health, then took charge, and with the assistance of Dr. Wimberley, managed the cases well.

JUNE 3, 1899—BEAUFORT, CARTERET COUNTY—Examined one case, white. Well managed by Dr. Frank Clark, Superintendent.

MARCH 29, 1900—ROBESON COUNTY—Inspected eight cases, five white and three colored. Some precautions had been taken. Drs. McNatt and Utley in charge.

HENDERSON, VANCE COUNTY—I inspected one case, white. All necessary precautions had been taken by Drs. Cheatham and Bass, Health Officers.

APRIL 1, 1900—SELMA, JOHNSTON COUNTY—Thirteen cases were inspected by me, seven white and six colored. Of these two suffered with confluent type, one died. Moderate precautions had been taken by Drs. Wharton and Noble, health officers of county and town respectively.

APRIL, 1900—FRANKLIN COUNTY—Inspected four cases, all colored. Proper precautions were at once taken by Dr. Foster, Superintendent.

Small-pox has existed during this epidemic in all its forms, from the mildest varioloid to the most malignant confluent type, as expressed by Dr. Long.

In every town and county in which I made inspections I made reports to the Town and County Commissioners and Local Health Boards, advising them as to the best possible means of stamping out and controlling the disease, without further spread. Also described the full technique of caring for patients and handling suspects, suggesting as thorough vaccination as possible in every section which I visited.

I advocate vaccination because I believe it to be the most powerful means of preventing the disease. I regard vaccine virus as the most active material that can be admitted into the list of our prophylactic remedies, and the only weapon of defence in overcoming the worst of human maladies.

The large majority of small-pox in the State has existed in a very mild type, in fact, the virtue of vaccination has so
modified the disease that it is only in exceptional cases we have the opportunity of studying the malignant forms. I have had the opportunity in the present epidemic to examine only a few cases of the malignant forms of small-pox, and I am firmly of the opinion that such types of the disease can only exist in those who are absolutely without history of vaccination, and I mean by that, those whose parents and grandparents have not been vaccinated.

The protective influence of vaccination is so great that, from my experience, I am willing to assert that the vaccinated can only contract the disease by close and continuous contact or exposure. And if contracted then, it is of a mild and modified form.

Respectfully submitted,

JOSHUA TAYLOE, M. D.,
Small-pox Inspector.
Washington, N. C., May 21st, 1900.

REPORT OF DR. HARRILL.

STATESVILLE, N. C., May 19, 1900.

Dr. R. H. LEWIS, Secretary,
State Board of Health.

My Dear Doctor:—At your request I hereby submit a statement of visits made by me as Inspector. My appointment was made about the middle of January last.

JANUARY 20—I visited New London, Stanly county, where I found seven cases of small-pox, colored.

FEBRUARY 4—At Thomasville, I saw two cases, colored.

FEBRUARY 10—At Asheville, I saw twelve cases, whites.

FEBRUARY 20 to 22—Near Walnut Cove, Stokes county, saw two cases besides six or eight others recovered, and in the same county, at Pinnacle, saw three cases. A local doctor refused to accept my diagnosis. The leading case, and the one upon which I based my opinion, was in a woman, forty to forty-five years of age, with an eruption about nine days old when I saw her. The cases at Walnut Cove and Pinnacle all white people.

FEBRUARY 23—I saw one case at Pilot Mountain. I visited Reidsville and saw the celebrated cases in a seminary there. I have been informed that persistent efforts were made by a local physician to discredit my opinion. Repeated vaccinations were made, but without results. I am informed that one of the patients afterwards carried the contagion to her home in some of her clothing, and from this source there were two malignant cases resulting in death. I saw in Reidsville twelve to fourteen cases, but the actual number at that time was probably three or four times as many.

FEBRUARY 24—Visited Hillsboro. Saw two cases.

MARCH 2—Visited Taylorsville and found six cases, all whites. Dr. H. F. Long also saw one of these cases, and confirmed my diagnosis.

MARCH 24—I visited Jonesboro and found six cases in one family, all white. The mother and grandmother in the same house had both been vaccinated when young, and both escaped the disease. I saw one other white man and two negroes with the disease.

APRIL 16—Visited Shelby and found six cases in the same family of negroes. Another family of negro children had chicken-pox. At Fallston, in same county, I saw one case in a white man. At Mooresboro, one case, a negro man. Near Cleveland Springs, same county, I saw one case, a negro woman.

APRIL 27—Visited Henrietta, Rutherford county, where I saw three cases, all negroes. One case reported at Caro- leen, and one west of Rutherfordton that I did not see.
BULLETIN OF THE NORTH CAROLINA BOARD OF HEALTH. 33

April 30—Visited Spray and saw three cases, all whites, besides several recovered and convalescent cases that I believe were the same disease.

May 1—Visited Madison and found that small-pox had been there four to six weeks. I saw one partly confluent case here. There had been in all about fifteen cases.

May 2—Visited Stem, Granville county, and found one case only developed, but a number of exposures.

This closes my list of official visitations. There is a strong prejudice against vaccination, and decided opposition to any restriction or isolation of patients. Also a determination to not believe there is any small-pox in the State. Unfortunately this belief extends to some of the doctors, and when one or more of that kind are in a community it is almost impossible to control the disease. I persuaded one doctor, a non-believer in vaccination, to go with me within thirty or forty feet of a well developed case. After seeing it, he decided that as he was practising in the neighborhood, and had never been vaccinated, he ought to be.

In communities where the disease has been for several months, it is to be feared that there is already, and will continue to be, a relaxation of proper efforts to stamp out the disease.

Public meetings have been called in many places, and I have tried to advise the people about vaccination and other necessary regulations. Hoping this imperfect report will be satisfactory, I remain,

Yours very truly,

L. Harrill, M. D.,
Small-pox Inspector.

Resolutions adopted.

The following resolutions were adopted by the Conjoint Session of the State Board of Health and the State Medical Society:

In regard to pure food, by Col. A. W. Shaffer.

Whereas, The health of the people is largely dependent upon the purity of their food and the reliability of their medicine, and is injuriously affected by the adulterations now so common in very many of the articles in daily use; and

Whereas, A bill to prevent such injurious adulterations, introduced by the Hon. Mr. Brosius, is now pending in Congress; therefore be it

Resolved, by the North Carolina Board of Health and the Medical Society of the State of North Carolina, in conjoint session assembled, that our Senators and Representatives in Congress be requested to give this measure their prompt and cordial support.

In regard to outside insane, by Dr. Henry W. Lewis.

Whereas, Recent official reports from the State Board of Charities show that there are in North Carolina, uncared for in asylums or other proper institutions, insane, epileptics and idiots to the number of 765, and that there are probably as many more in the State who have not been reported; and

Whereas, It is a notorious fact that many of these people are confined in jails and county homes without proper care and attention, and undergo hardships and in many cases maltreatment—which of itself precludes the hope of improvement or recovery from their mental or physical condition; therefore be it

Resolved, 1st. That the paramount consideration is that these patients have proper treatment at the hands of the State of North Carolina, whereby the reproach now resting on us may be removed.

2d. That it being notorious that the State institutions are already overcrowded, we urge the pressing necessity of such early increase of hospital facilities as will insure these proper care and treatment,
and to this end we commend the plan referred to by Dr. P. L. Murphy, in his paper read before the students of the A. & M. College at Raleigh, March 16, 1900—said plan being known as "The Cottage System."

IN REGARD TO SMALL-POX, BY DR. S. WESTRAY BATTLE.

The total number of cases of small-pox in the State for the year from May 1, 1899, to May 1, 1900, was 2,806, as against 616 for the fifteen and a-half months preceding—from the beginning of the epidemic on January 12th, 1898, to May 1st, 1899, an increase of 455.5 per cent. This means innumerable foci of infection, which in an indefinite number of instances, owing to entire neglect or imperfect practice of disinfection, are and will continue for months or years still active. Reports from Superintendents of Health show, on an average, about 10 per cent. only of the people as being vaccinated. The people seem to be generally indifferent or actively opposed to vaccination. The authorities, county and municipal, except in the actual presence of small-pox, do not appear to realize the gravity of the situation and the dangers which menace their people. In view of these facts, be it

Resolved, by the North Carolina Board of Health and the Medical Society of the State of North Carolina, in conjoint session assembled, that it is their opinion that in the present conditions the continued spread of small-pox is inevitable, with the strong probability of its reaching pestilential proportions during the coming winter, small-pox being much more virulent in cold weather;

That quarantine and disinfection in the present state of public opinion, and in view of the lukewarm support, to say the least, too often given the health officer, cannot be depended upon to prevent the spread of the disease;

That the thorough and complete vaccination of all the people is alone adequate to meet the situation;

That this, in most instances can only be accomplished by compulsion, legal authority for which has been affirmed in the recent decision of our Supreme Court in State v. Hay;

That we feel it to be our duty to notify the people of these facts, and the grave dangers which threaten them, and to call upon those who represent their interests, the various boards of county commissioners, boards of city aldermen and town commissioners to take at the earliest practicable moment the necessary steps to secure the vaccination of the people, and we urgently appeal to our professional brethren throughout the State, individually, as well as collectively, to render every aid in their power, by both word and act, to the accomplishment of this most important object.

A resolution in favor of establishing the Appalachian Park was introduced and adopted, and copies ordered sent to our Senators and Representatives.

------------

Death of Dr. Cheatham.

It is with much regret that we chronicle the death on the 23d instant of Dr. W. T. Cheatham of Henderson. Dr. Cheatham was one of the prominent physicians of the State, having been for many years a leading practitioner in his community, and in 1892 President of the State Medical Society. At the time of his death he was Superintendent of Health of his county.
Review of Diseases for May, 1900.

EIGHTY-SIX COUNTIES REPORTING.

Ninety-three counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of May the following diseases have been reported from the counties named:

Measles.—Alamance, 30; Ashe, 6; Bertie, general; Bladen; Brunswick, 3; Caldwell, 1; Caswell, several; Cherokee, many; Chowan, 3; Clay, 1; Cleveland, a few; Columbus; Craven, 24; Currituck, 2; Dare, epidemic, severe; Forsyth, general; Gates, 20; Granville, 10; Greene, 100; Halifax, 10; Harnett, a few; Hertford, 4; Hyde, 1; Johnston, 14; Martin, 50; Moore, 4; Nash, epidemic; New Hanover, 170; Northampton, many; Onslow, 3; Pasquotank, 25; Pender, 5; Perquimans, 26; Pitt; Robeson, epidemic; Rockingham; Surry, 6; Swain, 12; Wake, 43; Washington, 44; Watauga, general—41 counties.

Whooping-cough.—Beaufort, 3; Burke, 8; Cabarrus, many; Caldwell, 10; Cleveland, a few; Columbus; Craven, 25; Currituck, 7; Gates, 20; Graham several; Granville, 10; Greene, 50; Halifax, 15; Hertford, 3; Jones, several; Macon; Madison, 50; Martin, 50; Mecklenburg, 15; Nash, epidemic; New Hanover, 6; Perquimans, 2; Richmond, many; Wake, 25; Washington, 2; Watagua, general—26 counties.

Scarlatina.—Craven, 1; Rockingham.

Diphtheria.—Pitt, 1.

Typhoid Fever.—Alamance, 7; Ashe, 3; Beaufort, 2; Burke, 4; Chowan, 2; Craven, 2; Currituck, 2; Halifax, 2; Harnett, a few; Haywood, 4; Johnston, 3; Macon, 1; Mitchell, a few; Nash, 1; Onslow, 1; Pender, 1; Perquimans, 2; Pitt, 1; Richmond, 1; Rockingham; Union, 3; Wake, 3; Watauga, 1; Wayne, 1; Wilson, 1—25 counties.

Malarial Fever.—Alamance, Cabarrus, Currituck, Dare, Gaston, Halifax, Hertford, Johnston, Jones, Martin, Onslow, Orange, Perquimans, Person, Washington, Wayne, Yadkin—17 counties.

Malarial Fever, Pernicious.—Johnston, 4; Jones, 2.

Malarial Fever, Hemorrhagic.—Hertford.

Influenza.—Bladen; Brunswick, general; Cleveland; Graham; Lenoir; Lincoln, general; McDowell; Mecklenburg; Onslow; Pitt; Randolph, epidemic; Sampson; Transylvania; Wake; Wilson, general—16 counties.

Pneumonia.—Brunswick; Cherokee; Gates, much, of severe type; Jackson; Lenoir; Pitt; Randolph; Wilson; Yadkin—9 counties.

Diarrheal Diseases.—Bladen, Brunswick, Burke, Cabarrus, Chatham, Columbus, Currituck, Dare, Davidson, Gaston, Granville, Greene, Halifax, Hertford, Jones, Lincoln, McDowell, Mecklenburg, Moore, Northampton, Onslow, Pender, Perquimans, Person, Pitt, Robeson, Rockingham, Rutherford, Surry, Transylvania, Union, Vance, Wake, Wilkes—34 counties.

Mumps.—Sampson, Watauga, Yadkin.

Roseola.—Lincoln, epidemic.

Röteln.—Sampson.
Small-pox.—Alamance, 2; Burke, 12; Cabarrus, 3; Caswell, 10; Chatham, 1; Cleveland, 5; Davidson, 1; Davie, 9, one a child five weeks old; Durham, 8; Forsyth, 8; Franklin, many, of mild type, in one section, no new cases for several weeks; Granville, 21; Guilford, 22; Halifax, 1; Haywood, 5; Henderson, 4; Hertford, 1; Johnston, 16; Mecklenburg, 20; Nash, 2; Orange, 7; Person, 4; Randolph, 3; Rockingham, 131; Rutherford, a few—25 counties.

Cholera in Fowls.—Chatham.

Cholera in Swine.—Hyde.

Distemper in Dogs.—Jackson.

Distemper in Horses.—Ashe, Burke, Cleveland, Macon, Swain.

Hydrophobia in Dogs.—Ashe.

No diseases are reported from Alexander, Buncombe, Carteret, Edgecombe, Iredell, Warren and Yancey.

No reports received from Alleghany, Anson, Cumberland, Duplin, Montgomery, Rowan and Stanly.

Summary of Mortuary Reports for May, 1900.

(eighteen towns).

Only those towns from which certified reports are received are included.

White. Col’d. Total.

Aggregate population.................. 70,901 51,599 122,500
Aggregate deaths........................ 60 103 163
Representing temporary annual death rate per 1,000 .................. 10.1 23.9 15.9

Causes of Death.

Typhoid fever ............. 1 2 3
Malarial fever............. 1 1 2
Whooping cough........... 0 1 1
Measles ..................... 0 4 4
Pneumonia ................. 5 7 12
Consumption .............. 9 18 27
Brain diseases............ 2 1 3
Heart diseases............ 1 4 5
Neurotic diseases........ 0 1 1
Diarrheal diseases....... 7 8 15
All other diseases....... 33 53 86
Accident................... 1 3 4

Deaths under five years........ 23 28 51
Still-born.................. 7 9 16
### Mortuary Report for May, 1900.

<table>
<thead>
<tr>
<th>Towns and Reporters</th>
<th>Population</th>
<th>Temporary Annual Death Rate per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>My Rates</td>
</tr>
<tr>
<td></td>
<td>Rates</td>
<td></td>
</tr>
</tbody>
</table>

#### Charlotte
- Dr. F. O. Hawley

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. E. L. Whaley</td>
<td>16,176</td>
</tr>
</tbody>
</table>

#### Durham
Dr. W. J. Judd

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. W. J. Judd</td>
<td>6,000</td>
</tr>
</tbody>
</table>

#### Henderson
Dr. C. D. Jones

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. C. D. Jones</td>
<td>4,250</td>
</tr>
</tbody>
</table>

#### Hillsboro
Dr. A. A. Kent

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. A. A. Kent</td>
<td>4,000</td>
</tr>
</tbody>
</table>

#### Lenoir
Dr. J. M. Blair

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. J. M. Blair</td>
<td>2,400</td>
</tr>
</tbody>
</table>

#### Monroe
Dr. S. D. Booth

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. S. D. Booth</td>
<td>1,200</td>
</tr>
</tbody>
</table>

#### Raleigh
T. P. Sale, Clerk B. H.

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>T. P. Sale</td>
<td>9,000</td>
</tr>
</tbody>
</table>

#### Rockingham
Dr. J. M. Ledbetter

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. J. M. Ledbetter</td>
<td>5,000</td>
</tr>
</tbody>
</table>

#### Rocky Mount
Dr. G. L. Wemberly, Jr.

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. G. L. Wemberly, Jr.</td>
<td>2,600</td>
</tr>
</tbody>
</table>

#### Salisbury
Dr. W. W. McKenzie

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. W. W. McKenzie</td>
<td>9,000</td>
</tr>
</tbody>
</table>

#### Scotland Neck
W. T. Clement, Mayor

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>W. T. Clement, Mayor</td>
<td>800</td>
</tr>
</tbody>
</table>

#### Tarboro
Dr. L. L. Staton

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. L. L. Staton</td>
<td>3,000</td>
</tr>
</tbody>
</table>

#### Washington
Dr. Jno. G. Blount

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Jno. G. Blount</td>
<td>6,000</td>
</tr>
</tbody>
</table>

#### Weldon
Dr. J. T. Gooch, Mayor

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. J. T. Gooch, Mayor</td>
<td>1,450</td>
</tr>
</tbody>
</table>

#### Wilmington
Dr. W. D. McMillan

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. W. D. McMillan</td>
<td>15,000</td>
</tr>
</tbody>
</table>

#### Wilson
Dr. W. S. Anderson

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. W. S. Anderson</td>
<td>4,800</td>
</tr>
</tbody>
</table>

**N. B.**—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the **whole** number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.
County Superintendents of Health.

Alamance ......Dr. T. S. Faucette.
Alexander ......Dr. T. F. Stevenson.
Alleghany ......Dr. B. C. Waddell.
Anson ......Dr. E. S. Ashe.
Ashe ......Dr. Manley Blevins.
Beaufort ......Dr. P. A. Nicholson.
Bertie ......Dr. H. V. Dunstan.
Bladen ......Dr. Newton Robinson.
Brunswick ......Dr. J. A. McNeill.
Buncombe ......Dr. E. R. Morris.
Burke ......Dr. J. L. Laxton.
Cabarrus ......Dr. D. G. Caldwell.
Caldwell ......Dr. A. A. Kent.
Camden ......
Carteret ......Dr. F. M. Clark.
Caswell ......Dr. S. A. Malloy.
Catawba ......Dr. Geo. H. West.
Chatham ......Dr. H. T. Chapin.
Cherokee ......Dr. J. F. Abernathy.
Chowan ......Dr. T. J. Hoskins.
Clay ......Dr. J. M. Sullivan.
Clay ......Dr. B. H. Palmer.
Columbus ......Dr. I. Jackson.
Craven ......Dr. R. DuVal Jones.
Cumberland ......Dr. J. Vance McGougan.
Currituck ......Dr. H. M. Shaw.
Dare ......Dr. W. B. Fearing.
Davidson ......Dr. Joel Hill.
Davie ......Dr. James McGuire.
Duplin ......Dr. E. H. Arthur.
Durham ......Dr. Z. T. Brooks.
Edgecombe ......Dr. L. L. Staton.
Forsyth ......Dr. John Bynum.
Franklin ......Dr. E. S. Foster.
Gaston ......Dr. J. H. Jenkins.
Gates ......Dr. W. O. P. Lee.
Graham ......Dr. R. J. Orr.
Granville ......Dr. S. D. Booth.
Greene ......Dr. Joseph E. Grimsley.
Guilford ......Dr. R. L. Rierson.
Halifax ......Dr. I. E. Green.
Harnett ......Dr. O. L. Denning.
Haywood ......Dr. F. M. Davis.
Henderson ......Dr. J. G. Waldrop.
Hertford ......Dr. John W. Taylor.
Hyde ......Dr. E. H. Jones.
Iredell ......Dr. Henry F. Long.
Jackson ......Dr. Wm. Self.
Johnston ......Dr. L. D. Wharton.
Jones ......Dr. S. E. Koonce.
Lenoir ......Dr. W. T. Parrott.
Lincoln ......Dr. J. W. Sain.
McDowell ......Dr. B. A. Cheek.
Macon ......Dr. F. L. Siler.
Madison ......Dr. Jas. K. Hardwicke.
Martin ......Dr. W. H. Harrell.
Mecklenburg ......Dr. C. M. Strong.
Mitchell ......Dr. C. E. Smith.
Montgomery ......Dr. M. P. Blair.
Moore ......Dr. Gilbert McLeod.
Nash ......Dr. J. P. Battle.
New Hanover ......Dr. W. D. McMillan.
Northampton ......Dr. H. W. Lewis.
Onslow ......Dr. E. L. Cox.
Orange ......Dr. C. D. Jones.
Pamlico ......
Pasquotank ......Dr. H. T. Aydlett.
Pender ......Dr. L. L. Ardrey.
Perquimans ......Dr. C. C. Winslow.
Person ......Dr. J. A. Wise.
Pitt ......Dr. C. O'H. Laughinghouse.
Polk ......Dr. Earle Grady.
Randolph ......Dr. T. T. Ferree.
Richmond ......Dr. J. M. Ledbetter.
Robeson ......Dr. H. T. Pope.
Rockingham ......Dr. Sam Ellington.
Rowan ......Dr. W. L. Crump.
Rutherford ......Dr. W. A. Thompson.
Sampson ......Dr. R. E. Lee.
Scotland ......
Stanly ......Dr. J. W. Littleton.
Stokes ......Dr. W. L. McCanless.
Surry ......Dr. John R. Waltz.
Swain ......Dr. R. L. Davis.
Transylvania ......Dr. M. M. King.
Tyrrell ......
Union ......Dr. J. E. Ashcraft.
Wake ......Dr. J. J. L. McCullers.
Warren ......Dr. T. B. Williams.
Washington ......Dr. W. H. Ward.
Watauga ......Dr. E. F. Bingham.
Wayne ......Dr. William Spicer.
Wilkes ......Dr. J. W. White.
Wilson ......Dr. W. S. Anderson.
Yadkin ......Dr. B. B. Hauser.
Yancey ......Dr. W. B. Robertson.
[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

<table>
<thead>
<tr>
<th>Disease</th>
<th>Number of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whooping-cough</td>
<td></td>
</tr>
<tr>
<td>Typhoid Fever</td>
<td></td>
</tr>
<tr>
<td>Measles</td>
<td></td>
</tr>
<tr>
<td>Typhus Fever</td>
<td></td>
</tr>
<tr>
<td>Diphtheria</td>
<td></td>
</tr>
<tr>
<td>Yellow Fever</td>
<td></td>
</tr>
<tr>
<td>Scarlet Fever</td>
<td></td>
</tr>
<tr>
<td>Cholera</td>
<td></td>
</tr>
<tr>
<td>Pernicious Malarial Fever</td>
<td></td>
</tr>
<tr>
<td>Smallpox</td>
<td></td>
</tr>
<tr>
<td>Hemorrhagic Malarial Fever</td>
<td></td>
</tr>
<tr>
<td>Cerebro-spinal Meningitis</td>
<td></td>
</tr>
</tbody>
</table>

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks: ________________________________

M. D.

190 N. C.
Mosquitoes and Malaria.

Read before the Raleigh Academy of Medicine by Gerald McCarthy, Entomologist of the N.C. Department of Agriculture.

It is scarcely necessary, before an audience like the present, to allude to the scourge-like character of malaria in all warm moist countries.

Malaria we know to be a germ disease. The specific germ causing malaria in humans was first described by Laveran in 1880. Subsequently other investigators, chiefly in Italy, took up the study of the etiology of the disease. Golgi, in 1885, found what he supposed was the same parasite in the blood of birds suffering from fever. The German Koch, and other of his countrymen, have added much valuable work, but it is to the British army surgeon, Ronald Ross, that we owe the final clearing up of the subject and a most convincing demonstration of the method in which malaria is spread.

It is well known, alike to the medical profession and to laymen, that most swampy regions in warm countries are malarious in summer time. It is said in a loose sort of way that such swamps breed malaria. But we know that malaria is due to a protozoan parasite in the blood stream. This parasite has never been isolated from swamp or any other natural water. According to the researches of Ross and numerous collaborators in Italy and Germany, the parasite of human malaria is never found but in the human body and in certain organs of mosquitoes of the genus anopheles. Ross' work is not a year old. It has created a most profound sensation among economic entomologists and those who have to do with public health.

Entomologists are now busy in most regions where malaria is endemic in studying the species of anopheles found therein. So far publications show that this genus is very poor in species, and that the number of individuals belonging to any species of anopheles is in any particular region few in comparison with the individuals of the genus culex. Culex is everywhere the common mosquito. It is concerned in spreading the malarial
disease of birds, but so far, the parasite of human malaria has not been found in any species of *culex*. Before we go further, I may say that entomologists classify mosquitoes into five genera, of which three are rare and of no economic importance. The remaining genera are *culex*, of which we have in the United States about twenty-two species, of which seven are known in North Carolina. Of *anopheles* we have in the United States only three species, so far as known. All three of these occur in North Carolina. If I should go out and capture 1,000 mosquitoes anywhere in this vicinity, from 900 to 999 of them would probably belong to *culex*, the remainder to *anopheles*.

Now as to the method in which the insect propagates the parasite. It would seem reasonable that if a drop of human blood containing the malarial parasite be injected into a vein of a healthy person, not immune, the parasites will multiply in the body of the new host and produce malarial fever of the same variety as in the person from whom the blood was taken. Therefore any insect whatever which should suck the blood of a malarial patient may transmit the disease by afterwards puncturing a blood vessel of another person. In practice, however, it is found that malaria is not transmitted in this way by any mosquitoes except *anopheles*. It seems that the protozoans, which adhere to the puncturing apparatus of the insect, rapidly perish in the free air and are dead before the insect finds an uninfected person to bite.

The parasites of human malaria exist in the blood stream at first in the form of ameboid, motile jelly dots. They grow fast and usually in from one to three days attain full size. They then pass into the spore form as sporocytes and gametocytes. The sporocyte is the asexual form. It at once begins to form a sort of capsule in which appear asexual spores. These spores, according to the species, mature in from one to three days. The capsules then burst, the spores fall into the serum and soon after assume the ameboid form. They move about in the blood serum until they find a red capsule to attack. The bursting of the spore sacks and the storming of the blood corpuscles by the new generation of protozoans is correlated to the period of recurrence of the fever, and is the cause of the same.

The gametocytes are the sexual form. They do not undergo any further change in the human body except as they may degenerate and die. They may, in this way, circulate in the blood stream for days and weeks. If a mosquito of the genus *anopheles* sucks the blood of a person in whose blood stream the gametocytes are circulating the cysts as soon as they reach the fore crop of the insect burst. The microbe resumes the cycle of its development. Some of the cysts produce male, some female germs. These coalesce and the result is a new individual or zygote. These grow rapidly, are very active and repel the attacks of the phagocytes of the human blood in which they were borne into the alimentary tract of the insect. The zygotes soon bore through the stomach walls of the mosquito and fix themselves upon the external surface in the form of oval cells of from 8 to 10 micromillimeters in diameter. These cells subdivide much like the egg of a vertebrate, and eventually form a capsule full of small spores—each capsule, when mature, is 60 micromillimeters to 80 micromillimeters in diameter, and may contain several thousand spores.
The whole process from the time the gametocyte enters the body of the insect until the spores are formed is about ten to twelve days in summer. It is longer in cooler weather. These sexual spores are motile and move about until they reach the blood stream of the insect. In this they are carried into the salivary glands. When such a mosquito bites a person she injects into the wound some of the saliva and with it the spores of the protozoan. These once in the human blood stream assume the amœboid form from which we started, and so begins a new cycle.

It may be asked what becomes of gametocytes which do not find their way into the body of an anopheles. They eventually degenerate and are eaten by the phagocytes. The same fate, sooner or later, overtakes the sporophytes in the human blood. If, instead of anopheles, it is culex, which receives the gametocytes, so far as we know, the latter do not develop further but are digested with the blood in which they are imbedded.

Now a few words as to the classification of the protozoan parasite.

The latest authors make two genera:

I. Hemanaebidae.

II. Hemomenas.

The first genus contains four species. Two of these produce malaria in birds. The other two in man.

Hemamaeba malaris causes quartan fever.

Hemamaeba vivax causes tertian fever.

Hemomenas has but one species.

II. precocis (Laverania malaris of older authors).

It causes pernicious autumn malaria in man.

The life histories above outlined are not based upon theory, but upon microscopic dissections. They are as true as anything can be in science.

So much for the scientific portion of our theme. Now for some practical applications.

It is apparent, in the light of the new knowledge, that too much stress has been laid by hygienists upon the value of pure water as a preventative of malaria. Since the germ does not usually or at all exist in water, it is, so far as this point is concerned, of no importance what one drinks. It is certain that mosquitoes do die and fall into wells and tanks, and when the body dissolves the contained protozoans will be set free. But we have seen that the protozoan can exist very briefly, or not at all, in air, and the same condition will hold good as regards water. Moreover the anopheles mosquitoes never breed in reasonably clean water, or in wells, tanks, or water barrels. They are a peculiarly wild and ferocious race. They breed only in retired pools which are full of algae and aquatic plants. Rice fields and sluggish streams, with numerous permanent pools or holes, such as we find along Walnut creek, are the favorite breeding places of the anopheles mosquitoes.

There is a wide-spread idea that the tearing up of surface soil in hot weather produces malaria. This cannot be true, if by malaria we mean the specific disease due to the presence in the blood of hemamaebida or hemomenas. These parasites do not exist in the soil, nor does the mosquito, which harbors them, exist there.

It may be that several distinct diseases are confused and included under the common name of malaria, or it may be that impure water or emanations from freshly turned soil break down the resisting power of the body against the parasite. But since exhaustive and fully competent research has failed to show the presence
of the protozoan, either in the water or soil of notoriously malarious neighborhoods, it is neither scientific nor just to say that either soil or water can cause the disease.

The second point to be emphasized, is this:

Very few mosquitoes live over winter. These few hibernate as adults. It is possible that some of these hibernating mosquitoes harbor the sexual spores of anopheles, and may be able to start a new epidemic of malaria the succeeding summer. But if this was the only way the protozoans could pass from one warm season to another the disease would die out in many localities. The more common way of passing the cold season by the parasite is, as spores in the blood of persons who had acute malaria the preceding summer. The spores are well known to be very sensitive to the destructive power of quinine and methylene blue. If all convalescents from summer or autumn malaria were isolated or treated during the winter with enough quinine or methylene blue to kill the spores in their blood streams the mosquitoes of the next season would find no parasites to disseminate and malaria must die out.

Of course the destruction of the protozoans in any section will not entail any trouble upon the mosquitoes. The latter are as much the victims of the parasite as are mankind. To keep the malarial parasite out we would have to quarantine against every outsider not having a certificate of freedom from the parasite. One infested person might start an epidemic and undo all the work of clearing it out before.

Another point to be brought out is, that mosquito screens upon doors and windows and mosquito netting over beds should form a part of all prescriptions for epidemic malaria. The use of unguents on the exposed parts of the person and of smudges in or about the houses are valuable preventives.

The best repellant for mosquitoes is oil of pennyroyal. This may be mixed in proportion of one part oil to fifteen or twenty-five parts of lard or vaseline and rubbed on hands, arms, neck and face. The odor of pennyroyal is very persistent, and a little will suffice. A small uncorked phial of the same is a good thing to keep in sleeping-rooms at night. A strong onion, or, what is much better, a clove of garlic, rubbed on hands and face is very effective against mosquitoes.

Finally we come to the question of destroying the mosquitoes, who are the innocent agents for disseminating the malarial parasite. It seems to me that the reduction of the members of these insects to the point of practical harmlessness is not only possible, but, when compared with the cost of suffering and treating malaria, comparatively small.

Since anopheles breeds only in remote permanent pools or holes, we must seek these out and with oil kill the breeding larvae. I am personally of the opinion that three-fifths or more of all the anopheles mosquitoes bred in Raleigh township are produced in the holes made along Walnut creek by the N. C. Penitentiary in taking out clay to make brick. If these holes were filled up or their surfaces kept covered with a film of crude petroleum, there would be a very great reduction in the number of mosquitoes which carry malaria. The filling up of mud holes along Walnut creek and around the rock quarry would do most of the rest.

In proposing to President Goodwin to bring this subject before the Raleigh Academy of Medicine, it was my intention to ask the Association to appoint a
committee to study the mosquito-malaria theory from a local and experimental stand-point. I hoped to be able to assist in the microscopic dissections and make specific identifications. But since then changes have occurred which will probably cause my services to be transferred to another field after September 1st, and I shall be unable to follow up the matter as I proposed. I have gathered numerous testimony as to the relationship between the mosquitoes named and malaria. Personally, I am entirely convinced that the relationship is real. This being so, it seems to me to be well worth the trouble and cost to make a practicable trial of the measures I have suggested for reducing the numbers of the parasite-harboring mosquito.

I trust that the physicians of this city and State will exert their influence upon those who have the appointing power to make some provision for making investigations along this line. And such investigations to be of any value must be based upon and bolstered by real work, not talk or hearsay.

We are glad to have the privilege of printing this very interesting paper of Mr. McCarthy's, but we are not yet prepared to accept all his statements, no matter how accurate and scientific they may be. We are a thorough believer in the mosquito theory of malarial transmission, but we still believe in the drinking water theory, which Mr. McCarthy flatly denies. The connection between drinking water and malarial diseases is so plain and so strong that it simply cannot be ignored or broken. Knowing that the female mosquito, the blood-sucker, laid her eggs on the surface of stagnant water, immediately died, sank to the bottom and disintegrated, thereby liberating in the water the germs of malaria; and knowing that according to overwhelming evidence persons drinking the water of shallow, open wells, are much more subject to malarial diseases than other persons in identically the same environment in every single respect, except water, drinking the water of cisterns, driven pumps or bored wells, we reconciled the two theories by taking it for granted that the malaria-bearing mosquito poisoned in the manner indicated the shallow open wells.

Some years ago, as most of our readers probably remember, the Board distributed widely throughout the malarious sections of the State a pamphlet, entitled "Drinking Water in its Relation to Malarial Diseases," in which a large amount of evidence showing the connection was given. This pamphlet, we are gratified to know, has borne abundant fruit in an improvement in the domestic water supply in innumerable instances, with a corresponding improvement in health as regards the diseases of this class. Many physicians in those localities scoff at the assertion that malaria is not conveyed by drinking water, for, as Uncle Remus would say, "dey dun had de spe'unc un it."

Mr. McCarthy meets the overwhelming evidence in support of the drinking water theory by saying that there may be other diseases presenting identically the same clinical features, but lacking the plasmodium in the blood. This of course is a mere assumption—an assumption that we believe would be disproved by the microscope. Practically, however, it is a matter of no moment whether the parasite can be demonstrated in the blood or not, if the clinical symptoms are identical and the remedy is the same. It seems to us that before the mosquito
theory can be regarded as meeting all the conditions the connection between the mosquito and drinking water must be established.

In reply to an inquiry as to how to distinguish between the culex and the anopheles varieties, Mr. McCarthy stated that the simplest way was to observe their behavior in stinging—that the culex, or domestic mosquito, took his meals squatting or sitting down, while the anopheles regaled himself standing on his head. So, that when we see a mosquito with his bill in our skin and his heels in the air we may know that he is a "wild and ferocious" anopheles, and look out for chills.

It is not our desire or intention to belittle in any way the mosquito theory. As we said in the beginning, we thoroughly believe in it, considering it as practically demonstrated, and therefore we desire to endorse Mr. McCarthy's suggestions as to wire screens, mosquito nets and the drainage or covering with oil, during the breeding season, of all stagnant pools. Attention to these precautions and to the character of the drinking water would, in our judgment, reduce malarial diseases to a minimum.

We would be greatly obliged to our physicians in the malarial regions if they would write us their experience and their views on this subject.

The Iowa Way.

The State Board of Medical Examiners has notified three Iowa physicians to appear before it at the meeting of the Board to be held in August to show cause why their certificates should not be revoked for incompetency, in failing to recognize and properly diagnose and report infectious diseases, in consequence of which the efforts of the State and local boards of health to protect the people were defeated; the diseases were disseminated; and lives were lost.

American Public Health Association.

Please make notice in your next issue that the date of the next meeting of the American Public Health Association at Indianapolis has been changed to October 22, 23, 24, 25, 26. The meeting of the Section of Bacteriology and Chemistry will be held Monday, October 22d, in the Pathological Laboratory of the Central Insane Hospital at Indianapolis, called to order at 10 a. m.

The meeting of the regular Association will open Tuesday, October 23d, 10 a. m. in Amphitheatre of the German House.

J. N. Hurty,  
Local Secretary.

Review of Diseases for June, 1900.

EIGHTY COUNTIES REPORTING.

Ninety-three counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of June the following diseases have been reported from the counties named:

Measles.—Alamance, 25; Ashe, 8; Bertie, many; Burke, 3; Cabarrus, 9; Caldwell, 5; Carteret; Cherokee, many; Chowan, 4; Clay, several; Columbus,
epidemic; Craven, 45; Cumberland, 5; Dare, epidemic; Davidson; Franklin; Granville, 8; Greene, 10; Halifax, 25; Harnett, 15; Hertford, many; Hyde, 3; Iredell, 12; Macon, 2; Martin, 50; Mecklenburg, 10; Nash; New Hanover, 160; Pasquotank, 25; Pender, epidemic; Robeson, a few; Rockingham; Rowan, 50; Rutherford, a few; Sampson, several; Wake, 13; Washington, 250; Watanga, a few—38 counties.

Whooping Cough.—Brunswick; Burke, epidemic; Cabarrus, many; Carteret; Cherokee, many; Craven, 31; Cumberland, 10; Franklin; Graham, several; Granville, 10; Greene, 15; Jones, several; McDowell, 5; Macon; Martin, 50; Nash; New Hanover, 12; Richmond, many; Transylvania, 5; Watanga, a few—20 counties.

Scarlatina.—Richmond, 5.

Typhoid Fever.—Alamance, 3; Alexander, 1; Ashe, 1; Beanfort, 3; Burke, 5; Cabarrus, 6; Caldwell, 4; Catawba, 1; Chowan, 2; Clay, 2; Craven, 16; Davidson, a few; Gaston, 3; Granville, 1; Greene, 2; Halifax; Harnett, a few; Iredell, 8; Jackson, 5; Jones, 2; McDowell, 3; Macon, 2; Madison, 2; Martin, 6; Mecklenburg, 4; New Hanover, 12; Orange, 1; Pender, 3; Polk, 1; Randolph, 5; Richmond, a few; Robeson, several; Rockingham; Rowan, 12; Rutherford, a few; Union, 4; Wake, 15; Warren, a few; Wilkes; Yadkin—40 counties.

Malarial Fever.—Bladen, a few; Cabarrus; Caswell; Gaston; Gates, a few; Greene, general; Halifax, general; Harnett; Hertford; Iredell; Jones; Lenoir; Martin, general; Person; Randolph; Richmond, a few; Robeson; Rowan; Sampson; Wilson—20 counties.

Malarial Fever, Pneumonic.—Hertford, 1; Jones, 1.

Malarial Fever, Hemorrhagic.—Cabebarus, 1; Hertford, 1.

Influenza.—Brunswick; Cleveland; Randolph; Sampson; Stokes, general.

Diarrheal Diseases, including Dysentery.—Ashe, general; Bertie, general; Bladen; Burke, general; Cabarrus; Catawba; Dare, general; Gaston, a few; Gates; Graham; Granville; Halifax, general; Haywood; Henderson, general; McDowell; Martin; Person; Polk, several; Richmond; Robeson; Rockingham, general; Union; Wake, general; Yadkin, general—24 counties.

Mumps.—Martin, general; Moore, 3.

Pneumonia.—Lenoir.

Varicella.—Caswell.

Small Pox.—Buncombe, 5; Burke, 10; Cabarrus, 2; Caswell, 9; Craven, 10; Durham, 2; Edgecombe, 2; Gates, 1; Granville, 4; Harnett, 8; Hertford, 1; Iredell, 5; Johnston, 1; Mecklenburg, 15, in northeastern part; Moore, 14, confined to two houses; Nash, 3; New Hanover, 7; Randolph, 5; Rockingham, 21—19 counties.

Cholera in Chickens.—Alamance, Graham.

Cholera in Hogs.—Bertie, Graham, Jackson, Moore.

Distemper in Horses.—Ashe.

No diseases are reported from Chatham, Davie, Lincoln, Mitchell, Northampton, Pitt, Vance and Yancey.

No reports received from Alleghany, Anson, Currituck, Duplin, Forsyth, Guilford, Montgomery, Onslow, Perquimans, Stanly, Surry, Swain and Wayne.

<table>
<thead>
<tr>
<th>Summary of Mortuary Reports for June, 1900.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Twenty towns).</td>
</tr>
</tbody>
</table>

Only those towns from which certified reports are received are included.

<table>
<thead>
<tr>
<th>White. Col’d. Total.</th>
<th>86,501</th>
<th>59,549</th>
<th>146,050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate population</td>
<td>108</td>
<td>89</td>
<td>197</td>
</tr>
<tr>
<td>Aggregate deaths...</td>
<td>1,000</td>
<td>14.9</td>
<td>17.8</td>
</tr>
<tr>
<td>Representing temporary annual death rate per</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Causes of Death.

| Typhoid fever ...... | 4      | 1      | 5      |
| Malarial fever ...... | 2      | 3      | 5      |
| Whooping cough...... | 0      | 1      | 1      |
| Measles ............ | 2      | 1      | 3      |
| Pneumonia .......... | 3      | 4      | 7      |
| Consumption ....... | 7      | 7      | 14     |
| Brain diseases...... | 5      | 1      | 6      |
| Heart diseases...... | 6      | 6      | 12     |
| Neurotic diseases... | 2      | 3      | 5      |
| Diarrheal diseases . | 22     | 13     | 35     |
| All other diseases. | 52     | 48     | 100    |
| Accident .......... | 3      | 0      | 3      |
| Violence ........... | 0      | 1      | 1      |
| Deaths under five years | 108    | 89    | 197    |
| Still-born .......... | 4      | 4      | 8      |
## Mortuary Report for June, 1900.

<table>
<thead>
<tr>
<th>Towns and Reporters</th>
<th>Populations</th>
<th>Temporary Annual Death Rate per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Typhoid Fever</td>
</tr>
<tr>
<td>Asheville, Dr. C. V. Reynolds</td>
<td>8,000</td>
<td>13,000</td>
</tr>
<tr>
<td>Charlotte, Dr. F. O. Hawley</td>
<td>10,176</td>
<td>25,900</td>
</tr>
<tr>
<td>Durham, Dr. Z. T. Brooks</td>
<td>4,000</td>
<td>9,800</td>
</tr>
<tr>
<td>Fayetteville, Dr. J. V. McCougan</td>
<td>3,500</td>
<td>6,900</td>
</tr>
<tr>
<td>Henderson, Dr. W. J. Judd</td>
<td>2,500</td>
<td>4,250</td>
</tr>
<tr>
<td>Hillsboro, Dr. C. H. Jones</td>
<td>400</td>
<td>700</td>
</tr>
<tr>
<td>Lenoir, Dr. A. A. Kent</td>
<td>1,250</td>
<td>1,800</td>
</tr>
<tr>
<td>Marion, Dr. B. A. Cheek</td>
<td>800</td>
<td>1,250</td>
</tr>
<tr>
<td>Monroe, Dr. J. M. Blair</td>
<td>1,200</td>
<td>2,400</td>
</tr>
<tr>
<td>Oxford, Dr. S. D. Booth</td>
<td>1,250</td>
<td>2,500</td>
</tr>
<tr>
<td>Raleigh, T. P. Sale, Clerk B. H.</td>
<td>11,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Rockingham, Dr. J. M. Ledbetter</td>
<td>1,500</td>
<td>2,000</td>
</tr>
<tr>
<td>Rocky Mount, Dr. G. L. Wimberley, Jr</td>
<td>1,000</td>
<td>2,600</td>
</tr>
<tr>
<td>Salem, S. E. Butner, Mayor</td>
<td>4,100</td>
<td>4,550</td>
</tr>
<tr>
<td>Salisbury, Dr. W. W. McKenzie</td>
<td>6,096</td>
<td>9,000</td>
</tr>
<tr>
<td>Scotland Neck, W. T. Clement, Mayor</td>
<td>775</td>
<td>1,200</td>
</tr>
<tr>
<td>Tarboro, Dr. L. L. Staton</td>
<td>2,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Washington, Dr. Jno. G. Blount</td>
<td>3,500</td>
<td>6,000</td>
</tr>
<tr>
<td>Weldon, J. T. Gooch, Mayor</td>
<td>700</td>
<td>1,450</td>
</tr>
<tr>
<td>Wilmington, Dr. Chas. T. Harper</td>
<td>12,000</td>
<td>27,000</td>
</tr>
<tr>
<td>Wilson, Dr. W. S. Anderson</td>
<td>2,500</td>
<td>4,800</td>
</tr>
</tbody>
</table>

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the **whole** number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.
County Superintendents of Health.

Alamance .......... Dr. T. S. Faucette.
Alexander ........ Dr. T. F. Stevenson.
Alleghany ......... Dr. B. C. Waddell.
Anson ............ Dr. E. S. Ashe.
Ashe ............. Dr. Manley Blevins.
Beaufort .......... Dr. P. A. Nicholson.
Bertie ........... Dr. H. V. Dunstan.
Bladen ........... Dr. Newton Robinson.
Brunswick ......... Dr. J. A. McNeill.
Buncombe ......... Dr. E. R. Morris.
Burke ............ Dr. J. L. Laxton.
Cabarrus ........ Dr. D. G. Caldwell.
Caldwell ......... Dr. A. A. Kent.
Cumberland ...... Dr. F. M. Clark.
Caswell .......... Dr. S. A. Malloy.
 Catawba ......... Dr. Geo. H. West.
Chatham .......... Dr. H. T. Chapin.
Cherokee ......... Dr. J. F. Abernathy.
Chowan ........... Dr. T. J. Hoskins.
Clay ............. Dr. J. M. Sullivan.
Cleveland ....... Dr. B. H. Palmer.
Columbus ......... Dr. I. Jackson.
Craven ........... Dr. R. DuVal Jones.
Cumberland ...... Dr. J. Vance McGougan.
Currituck ....... Dr. H. M. Shaw.
Dare ............. Dr. W. B. Fearing.
Davidson ....... Dr. Joel Hill.
Davie ........... Dr. James McGuire.
Duplin ........... Dr. F. H. Arthur.
Durham .......... Dr. Z. T. Brooks.
Edgecombe ....... Dr. L. L. Staton.
Forsyth ......... Dr. John Bynum.
Franklin ......... Dr. E. S. Foster.
Gaston ........... Dr. J. H. Jenkins.
Gates ........... Dr. W. O. P. Lee.
Graham .......... Dr. R. J. Orr.
Granville ....... Dr. S. D. Booth.
Greene ........... Dr. Joseph E. Grimesley.
Guilford ......... Dr. R. L. Rerson.
Halefax .......... Dr. I. E. Green.
Harnett .......... Dr. O. L. Denning.
Haywood ......... Dr. F. M. Davis.
Henderson ....... Dr. J. G. Waldrop.
Hertford .......... Dr. John W. Taylor.
Hyde ............ Dr. E. H. Jones.
Iredell ......... Dr. Henry F. Long.
Jackson .......... Dr. Wm. Self.
Johnston ......... Dr. L. D. Wharton.
Jones ........... Dr. S. E. Koonce.

Lenoir .......... Dr. W. T. Parrott.
Lincoln .......... Dr. J. W. Sain.
McDowell ......... Dr. B. A. Cheek.
Macon ........... Dr. F. L. Siler.
Madison .......... Dr. Jas. K. Hardwicke.
Martin .......... Dr. W. H. Harrell.
Mecklenburg .... Dr. C. M. Strong.
Mitchell .......... Dr. C. E. Smith.
Montgomery ....... Dr. M. P. Blair.
Moore ........... Dr. Gilbert McLeod.
Nash ........... Dr. J. P. Battle.
New Hanover ...... Dr. W. D. McMillan.
Northampton ...... Dr. H. W. Lewis.
Onslow .......... Dr. E. L. Cox.
Orange .......... Dr. C. D. Jones.
Pamlico .......... Dr. E. A. Penland.
Pasquotank ....... Dr. H. T. Aydlett.
Pender ........... Dr. L. L. Ardrey.
Perquimans ....... Dr. C. C. Winslow.
Person ........... Dr. J. A. Wise.
Pitt ........... Dr. C. O'H. Laughinghouse.
Polk ........... Dr. Earle Grady.
Randolph ........ Dr. T. T. Ferree.
Richmond ....... Dr. J. M. Ledbetter.
Robeson ........ Dr. H. T. Pope.
Rockingham ...... Dr. Sam Ellington.
Rowan ........... Dr. W. L. Crump.
Rutherford ...... Dr. W. A. Thompson.
Sampson .......... Dr. R. E. Lee.
Scotland ........
Stanly ........... Dr. J. W. Littleton.
Stokes ........... Dr. W. L. McCanless.
Surry ........... Dr. John R. Woltz.
Swain ........... Dr. R. L. Davis.
Transylvania ...... Dr. M. M. King.
Tyrrell ..........
Union ........... Dr. J. E. Ashcraft.
Vance ........... Drs. W. T. & G. Cheatham.
Wake ........... Dr. J. J. L. McCullers.
Warren .......... Dr. T. B. Williams.
Washington ...... Dr. W. H. Ward.
Watauga ....... Dr. E. F. Bingham.
Wayne .......... Dr. William Spicer.
Wilkes .......... Dr. J. W. White.
Wilson .......... Dr. W. S. Anderson.
Yadkin .......... Dr. B. B. Hausser.
Yancey .......... Dr. W. W. Robertson.
[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough ............................................ Typhoid Fever ..............................
Measles .................................................. Typhus Fever ..............................
Diphtheria ................................................ Yellow Fever ..............................
Scarlet Fever .............................................. Cholera ..............................
Pernicious Malarial Fever .......................... Smallpox ..............................
Hemorrhagic Malarial Fever ........................ Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks: .............................................

__________________________________________________________M. D.

__________________________________________________________N. C.
Stamina.

WITH SPECIAL REFERENCE TO THE CONSUMPTION OF FAT FOOD FOR ITS MAINTENANCE AND AS A PREVENTIVE OF TUBERCULOSIS.

By A. N. Bell, A. M., M. D.

While every observer recognizes the progress that has been made during recent years in the prevention of, and the reduction of mortality from, tuberculosis, by dealing with unsanitary surroundings, the establishment of sanitaria, changes of climate, etc., it seems to me that no one who even approximately comprehends the universality of microbic life—and of none more than tubercle bacilli—can fail to perceive that, however much we may be able to modify the external relations bearing upon liability to tuberculosis, nevertheless every individual, no matter where his dwelling-place, is more or less subject to tubercle bacilli; for, besides the utmost restriction of their prevalence by human effort, unless the individual is possessed of an organism sufficiently fortified to resist and overcome conflict with them—for the conflict is certain everywhere—he is liable to contract tuberculosis. Indeed, every predisposing cause of disease is a challenge to one's power of resistance. Every intelligent person knows that the power of resisting the ordinary exciting causes of illness, such as sudden changes of temperature, exposure to damp soil, room or sheets, or night air with the windows closed, depends upon one's state of health. The power of resisting microbes as an exciting cause of disease is no exception.

Health fortified by such conditions as the organism depends upon for its fabrication and maintenance opposes itself to all exciting causes of disease by the relative integrity, strength and vigor of all the organs and functions of the body. A person thus equipped, if beset by tubercle bacilli or other microbes, effectually resists them, devours them by oxidation and casts them off.

Feebleness, on the contrary, though not always appreciated and sometimes cultivated, indeed, by the practice of that
altogether too popular fad, abstemiousness, is always and everywhere a prevailing "predisposition" to disease; and associated as it commonly is with inadequate nourishment, it is the most frequent of all incitants to tuberculosis. Abstemiousness, however, is variable in its practice, and uncertain; one may overeat and yet abstain from some essential food necessary for the maintenance of health. Adequate nourishment and stamina depend upon the supply of nutriment in the kinds and proportions required by our bodies.

By a somewhat extended observation and careful study of the relation of tuberculosis to food, I have come to the conclusion, which it is the purpose of this essay to vindicate, that, other conditions being equal, tubercular diseases are prevalent in the inverse ratio to the use of fat of some kind as an article of diet.

Antecedently, in persons on the verge of pulmonary consumption, inability to digest fat food is one of the most prominent symptoms. They are afflicted with dyspepsia, of the kind in which an acid stomach is predominant—that kind of dyspepsia which is the common effect of the excessive and too exclusive use of farinaceous food, insomuch as, in some cases, to have created a loathing of fat food in every form. Nevertheless, in medical practice generally, this condition is an indication for the use of fat food. Cod-liver oil, emulsified or otherwise, is almost universally the first remedy resorted to and the most persistently urged. Butter or bacon, the most digestible of all fat foods, I have often found to be more acceptable. Fat is the needful thing to energize both digestion and nutrition. And that form of it which is the most acceptable is the best.

In this relation I am reminded of a conversation on the subject with an old naval colleague, the late Dr. Richard McSherry, of Baltimore, some thirty odd years ago. He related a case then but recently under his care, in substance as follows:

A much emaciated German shoe-maker with pronounced phthisis and a particularly rebellious stomach, had been an office patient for several months. He had tried various ways to render cod-liver oil acceptable, but with discouraging results. The patient was evidently losing ground and the intervals between his calls increased until they had ceased altogether; his condition was such, at his last call, as to leave but one inference. About two years had elapsed, when, on responding to an early morning call and going to his office, he faced a full-bearded and healthy-looking man, who accosted him familiarly, and then, checking himself, said: "Doctor, you seem to forget me. Don't you remember the old half dead patient that you tried to feed wid cod-liver oil two years ago?" He did remember, and he said to me that he was never more astonished in his life—he could hardly believe his senses. And before hearing the purpose of his old patient's call he pressed him to tell where he had been and what he had done—what treatment he had been under—to account for the wonderful change in his condition. He replied briefly, because he was in a hurry: "Vell, when I couldn't call on you no more a countryman of mine tole me that he was wunst jist as bad as I vas and somebody tole him to take dog fat. So I kill my dog, tried out his fat and went taking it. I been taking dog fat mos' ever sence—doctor, won't you please go see my wife; she's goin' to have a baby."

It was only the fat.

I would be second to none in my ap-
preciation of the success that has attended the efforts of sanitarians and others, in England and elsewhere, for the prevention of tuberculosis, before, as well as since Koch’s immortal discovery of the tubercle bacillus; nor of my appreciation of the benefit of change of climate, or resort to an ocean atmosphere as means of lessening the susceptibility to and treatment of, and reducing the mortality from, tuberculosis. But for the prevention of the disease, none of these means, nor all of them together are, in my judgment, comparable with the benefit derivable from a generous supply of fat in the dietary.

As regards the general history and geographical distribution of tuberculosis, its prevalence, more or less, is contemporary with mankind everywhere. The number of localities throughout the world alleged to be exempt from it is so small as to justify the conclusion that no place in habitable by man is exempt, that tubercle bacilli are universally distributed. They are proportionately active with the prevalence of conditions favorable to their reception and tolerance, and the deficient power of man’s resistance. The accessory conditions are, in general, density of population, foul soil, foul air, deficient sunlight and exclusion of fat food. Diminution of the prevalence of tuberculosis by the amelioration of these conditions, though very great—about fifty per cent. in England and Wales alone—during the last fifty years, is on a par with the reduction of the prevalence of other diseases.

Some writers are wont to refer to Iceland and some other Arctic and sub-Arctic regions, whose inhabitants rarely or never have consumption, though they commonly sleep in stifling huts, reeking with offensive emanations, that are but rarely or never cleaned. Furthermore, the denizens of such huts at night habitually expose themselves in the daytime to the worst possible conditions of weather. Their exemption from tuberculosis is commonly attributed to the extreme cold of such regions, and the erroneous inference drawn that outdoor exposure in frigid climates is commendable for consumptives.

The food of these exempt communities is almost wholly of an animal character, the fattest portions, and “toodnou,” a kind of butter made of the separated fat of reindeer, of which they eat enormous amounts.

Moreover, besides their power of resistance to the tubercle bacillus, the Esquimaux and other inhabitants of the arctic regions who live on such food are possessed of gigantic muscular powers. They are able to lift and carry burdens twice as heavy as those which the seamen visiting them are able to carry.

In similar regions where the inhabitants or immigrants do not consume much fat food, tuberculosis is no less, indeed, among some of them it is much more, rife than it is among communities in temperate latitudes.

Fat, as an article of diet, furnishes the potential force necessary for the conversion of other food material into organic tissue and to maintain the bodily functions.

Professor W. O. Atwater, in one of his most recent contributions to the Department of Agriculture (Farmer’s Bulletin, No. 23, 1894), on the nutritive value of foods, in comparing nutrients in respect to their fuel values, their capacities for yielding heat and mechanical power, states that “a pound of protein, lean meat or albumen of egg, is just about equivalent to a pound of sugar or starch, and a little
over two pounds of either would be required to equal one pound of the fat of meat or butter."

The mistake commonly made with reference to the use of fat food is, that it is only, or especially applicable in cold climates—an erroneous inference, the same as that that cold is preventive of tuberculosis. That fat is the almost exclusive food in arctic regions is because other food is not obtainable, not because of the frigid climate. It is necessary food, though not in such excess, at all times and everywhere, to supply the potential energy required by the organism to construct the tissues and maintain the body, the temperature of the body being about the same in all climates. Fat does not stand alone in this regard, except under such extraordinary circumstances as those referred to. Carbohydrates of various kinds contribute to the same functions as fat, under ordinary conditions, but they do not suffice to maintain the stamina of the organism to the highest degree anywhere without the assistance of, or being supplemented by, some kind of fat.

A correct appreciation of the benefit of fat food in the arctic regions serves as an index to its advantages under other conditions. It is not limited to blubber, "toodnoo" or oil, even among the Laplanders. It includes the solid portions of reindeer, seal and other meat. And this in its composition doubtless compares favorably with the choicest cuts of beef and mutton, which consist of from 20 to 30 per cent. of fat; or possibly with good bacon or ham, about 35 to 50 per cent. Good butter, it hardly need be said, is almost wholly fat—85 to 90 per cent.

Of approximate stamina and exemption from tuberculosis, it is not far-fetched to refer to the history of most of the North American Indians, before the cultivation of cereals was introduced by the white settlers. Their food was almost exclusively the fat game which they hunted and killed in such a manner as to retain the blood. Of the wonderful physical strength and endurance of those savages, the history of them furnishes many examples. And the earliest records of consumption among them are contemporary with the attempted methods of civilizing them—inducing them to leave their tents and live in houses; restricting their game supply and supplying them with their farinaceous food. They have ceased to be a hardy race and tuberculosis is common among them. The Gauchos of the South American pampas, who live almost exclusively upon fat animal food, are alike remarkable for their extraordinary stamina. The flesh-eating Mahometans of India are described by historians as being the most powerful, active-minded and hardy race of human beings in the world, presenting the widest possible contrast in physical development to the rice-eating and feeble Hindoos, of whom but few reach the age of forty years.

A striking example of what appears to be the result of a change from an almost exclusive fat meat diet to one largely farinaceous, in relation with tuberculosis, is afforded by the history of the New Zealanders, who, until about fifty years ago, were cannibals, eating their captives in war, but who besides consumed an enormous amount of fat pork. Dogs also composed a part of their dietary, and fish to some extent. They were remarkable for their physical development and exemption from tubercular diseases. But soon after the introduction of the potato as a staple food, at about the time mentioned, scrofula and other forms of tuberculosis began to prevail among them, and
have attained a degree of prevalence even greater than among the poorest people in Ireland, where the staple food is of the same kind, but beneficially supplemented to a considerable extent by the use of buttermilk.

Moreover, I have observed among people in the tropics, as well as in temperate latitudes, that there is a marked difference in the health of persons, whose chief food is farinaceous, between those who but rarely eat anything else and are particularly feeble, lymphatic and serofulous; and those who eat butter or oil with their rice and similar food, or supplement it with sardines in oil, or oil-dressed salads.

Recurring to what I have remarked on the superiority of meat that retains the blood as well as the fat, every epicure knows, and every physician ought to know, that the meat of animals of every kind so killed as to retain the blood is more delicious than that of animals otherwise killed. It is also more digestible and more nutritious.

All fresh meat is more or less acid, and that from which the blood has been drained requires to be kept until alkalinity is induced by incipient decomposition before it becomes tender and digestible. On the contrary, that which retains the blood only requires thorough cooling before it is ready for cooking and is tender and digestible from the outset, because the alkalinity of the blood speedily acts upon and neutralizes the acid. Hence, the meat of the buffalo, as it used to be killed and prepared by the North American Indians; the jerked beef of the Gauchos; the beef of cattle that have been knocked in head, or preferably, by dividing the spinal marrow in the neck, as now practiced in the abattoirs of Chicago (if not afterward drained of its blood), is greatly superior to that which is prepared after the method of the Jews. Besides, the draining or soaking away the blood from meat impairs its nutritive value. The blood is essentially of the same composition as the flesh, but besides, it holds in solution phosphates of soda, salts of potash, iron and sulphates: all nutritives of vital importance to the human economy. But there is no method of slaughtering animals that entirely divests the flesh of blood, hence to attempt to prohibit eating it to be effective should prohibit the eating of meat altogether.

While this note was in process came a press announcement that "tuberculosis has increased more than 80 per cent. in certain districts of Norway within the last thirty years, and this despite the invigorating cold of the Norwegian clime and the hardy physique of the Norwegian people. Statistics also show a steady gain in the number of deaths from consumption in Sweden, Russia and northern countries generally."

If there is truth in this publication, it will or may be accounted for, I think, by too exclusive use of farinaceous foods.

Relative exemption from tuberculosis, under all circumstances, is, according to my observation, due to the generous use and potentiality of fat food.

My conclusion in this regard is fortified by many years' observation and study of the liability to consumption of peoples collectively, families and individuals, more or less proportional to their abstinence from fat foods: the most prominent example of whom, I have never lost sight of from youth up—the negro race in America.

I began my professional life among them when they were slaves and were always supplied with an abundance of "hog and hominy," not by any means restricted to these articles, but pork or
bacon was a standing portion of at least one daily meal. Consumption among them was relatively rare.

My observation in this respect was not singular but in accord with all other medical observers of the time of whom I have knowledge. Conversely, it seems hardly necessary to invite attention to the prevalence of consumption among the same people now, under their changed conditions with regard to diet. "Hog" at least, is notable by its absence from the daily fare of most of them and no other fat meat has taken its place; and consumption among them is more than twice as great as it was formerly.

The same observation extends to smaller communities, families and individuals. Consumption is most prevalent among those who are stunted or who stint themselves of "bacon" and "butter." I mention these as ideal and, as before remarked, because they are the most digestible of fat food; other fat foods are commendable.

Everybody has learned, when it is unfortunately, in most cases, too late, that cod-liver oil is good for consumptives, but few seem to have learned that food of the same character as cod-liver oil, suitable for the table, is preventive of consumption.

In the whole course of my professional observation, now covering a period of nearly sixty years, I have known but rarely a family or an individual that was brought up on a liberal supply of butter and bacon who became tuberculous. Moreover, such food fortifies the system against other diseases as well as consumption; it establishes stamina.—The Sanitarian.

Review of Diseases for July, 1900.

EIGHTY-THREE COUNTIES REPORTING.

Ninety-three counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of July the following diseases have been reported from the counties named:

Measles.—Bertie, many; Cabarrus, 6; Cherokee, many; Chowan, several; Clay, several; Cleveland; Columbus, 18; Craven, 18; Currituck, 75; Dare, general; Gates, 30; Graham, several; Granville, 5; Hertford, 2; Hyde, 4; Martin, 10; New Hanover, 30; Pasquotank, 20; Pender, 4; Perquimans, 75, of a severe type; Robeson, several; Sampson, a few; Swain, 25; Wake, 13; Washington, epidemic; Watauga—26 counties.

Whooping-cough.—Ashe, 8; Beaufort, 3; Brunswick; Cabarrus, many; Caldwell, several; Carteret; Columbus; Craven, 30; Currituck, many; Gates, declining; Graham, several; Granville, 5; Hyde, 3; Jackson, 4; Jones, several; Macon: Martin, 10; Mecklenburg, 20; New Hanover, 14; Richmond; Wake, 3; Wayne, a few; Yadkin—23 counties.

Scarlatina.—Alamance, 3; Durham, 1; Iredell, 10; Wake, 1.

Diphtheria.—Alamance, 1; Cabarrus, 1; Union, 2; Wake, 2.

Typhoid Fever.—Alamance, 4; Alexander, 2; Ashe, 4; Beaufort, 14; Bun-
Summarized Mortuary Reports for July, 1900.

(20 towns).

Only those towns from which certified reports are received are included.

White Col'd. Total.

Aggregate population 84,501 57,549 142,050

Aggregate deaths 107 114 221

Representing temporary annual death rate per 1,000 15.2 23.8 18.6

Causes of Death

Typhoid fever 4 5 9
Malarial fever 3 4 7
Whooping cough 1 0 1
Measles 2 0 2
Pneumonia 3 3 6
Consumption 6 3 9
Brain diseases 7 2 9
Heart diseases 1 3 4
Neurotic diseases 4 4 8
Diarrheal diseases 28 26 54
All other diseases 45 58 103
Accident 3 5 8
Violence 0 1 1

107 114 221

Deaths under five years 46 47 93
Still-born 2 10 12
Mortuary Report for July, 1900.

<table>
<thead>
<tr>
<th>Towns and Reporters</th>
<th>Population</th>
<th>Temporary Annual Death Rate per 1,000</th>
<th>Total</th>
<th>Typhoid Fever</th>
<th>Scarlet Fever</th>
<th>Diphtheria</th>
<th>Whooping-cough</th>
<th>Measles</th>
<th>Pneumonia</th>
<th>Consumption</th>
<th>Heart Diseases</th>
<th>Nervous Diseases</th>
<th>Danropical Diseases</th>
<th>All Other Diseases</th>
<th>Accident</th>
<th>Suicide</th>
<th>Violence</th>
<th>By Races</th>
<th>By Towns under five years</th>
<th>Stillborn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asheville</td>
<td>W. 8,000</td>
<td>C. 5,000</td>
<td>15,0</td>
<td>20.3</td>
<td>11</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>10</td>
<td>22</td>
<td>3</td>
<td>6</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Charlotte</td>
<td>W. 10,176</td>
<td>C. 9,824</td>
<td>19,996</td>
<td>9.4</td>
<td>12</td>
<td>11</td>
<td>11</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>15</td>
<td>29</td>
<td>5</td>
<td>11</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>Durham</td>
<td>W. 4,000</td>
<td>C. 2,000</td>
<td>6,000</td>
<td>27.0</td>
<td>22</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>9</td>
<td>11</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Henderson</td>
<td>W. 2,250</td>
<td>C. 2,000</td>
<td>4,250</td>
<td>21.3</td>
<td>22</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>8</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Hillsboro</td>
<td>W. 400</td>
<td>C. 400</td>
<td>800</td>
<td>7.5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Monroe</td>
<td>W. 1,400</td>
<td>C. 800</td>
<td>2,200</td>
<td>18.0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Oxford</td>
<td>W. 1,200</td>
<td>C. 1,100</td>
<td>2,300</td>
<td>10.0</td>
<td>15</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Raleigh</td>
<td>W. 11,000</td>
<td>C. 9,900</td>
<td>20,900</td>
<td>23.2</td>
<td>25</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>8</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>18</td>
<td>42</td>
<td>11</td>
<td>5</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>Rockingham</td>
<td>W. 1,500</td>
<td>C. 500</td>
<td>2,000</td>
<td>8.0</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Rocky Mount</td>
<td>W. 1,000</td>
<td>C. 1,000</td>
<td>2,000</td>
<td>12.0</td>
<td>4.6</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Salem</td>
<td>W. 4,100</td>
<td>C. 450</td>
<td>4,550</td>
<td>8.8</td>
<td>7.9</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Salisbury</td>
<td>W. 6,000</td>
<td>C. 3,000</td>
<td>9,000</td>
<td>15.0</td>
<td>16</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>12</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Scotland Neck</td>
<td>W. 775</td>
<td>C. 425</td>
<td>1,200</td>
<td>15.0</td>
<td>20</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Tarboro</td>
<td>W. 2,000</td>
<td>C. 1,000</td>
<td>3,000</td>
<td>6.0</td>
<td>4.0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Washington</td>
<td>W. 3,500</td>
<td>C. 2,500</td>
<td>6,000</td>
<td>17.0</td>
<td>14</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>7</td>
<td>2</td>
<td>8</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Weldon</td>
<td>W. 700</td>
<td>C. 700</td>
<td>1,450</td>
<td>0.0</td>
<td>16</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Wilmington</td>
<td>W. 12,000</td>
<td>C. 15,000</td>
<td>27,000</td>
<td>27.0</td>
<td>28</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Wilson</td>
<td>W. 2,500</td>
<td>C. 2,300</td>
<td>4,800</td>
<td>9.0</td>
<td>15</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

N.B.—The reporters for the cities and towns printed in Black Type have signed this certificate: "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.
County Superintendents of Health.

Alamance ..........Dr. T. S. Faucette.
Alexander ..........Dr. T. F. Stevenson.
Alleghany ..........Dr. B. C. Waddell.
Anson ..........Dr. E. S. Ashe.
Ashe ..........Dr. Manley Blevins.
Beaufort ..........Dr. P. A. Nicholson.
Bertie ..........Dr. H. V. Dunstan.
Bladen ..........Dr. Newton Robinson.
Brunswick ..........Dr. J. A. McNeill.
Buncombe ..........Dr. James Sawyer.
Burke ..........Dr. J. L. Laxton.
Cabarrus ..........Dr. D. G. Caldwell.
Caldwell ..........Dr. A. A. Kent.
Cameron ..........Dr. F. M. Clark.
Catawba ..........Dr. S. A. Malloy.
Catawba ..........Dr. Geo. H. Coggin.
Chatham ..........Dr. H. T. Chapin.
Cherokee ..........Dr. J. F. Abernathy.
Chowan ..........Dr. T. J. Hoskins.
Clay ..........Dr. J. M. Sullivan.
Clay ..........Dr. B. H. Palmer.
Columbus ..........Dr. I. Jackson.
Craven ..........Dr. R. DuVal Jones.
Cumberland ..........Dr. J. Vance McGougan.
Curtiss ..........Dr. H. M. Shaw.
Dare ..........Dr. W. B. Fearing.
Davidson ..........Dr. Joel Hill.
Davie ..........Dr. James McGuire.
Duplin ..........Dr. F. H. Arthur.
Durham ..........Dr. Z. T. Brooks.
Edgecombe ..........Dr. L. L. Staton.
Forsyth ..........Dr. John Bynum.
Franklin ..........Dr. E. S. Foster.
Gaston ..........Dr. J. H. Jenkins.
Gates ..........Dr. W. O. P. Lee.
Graham ..........Dr. R. J. Orr.
Granville ..........Dr. S. D. Booth.
Greene ..........Dr. Joseph E. Grimsley.
Guilford ..........Dr. R. L. Rierion.
Hartford ..........Dr. I. E. Green.
Harnett ..........Dr. O. L. Denning.
Haywood ..........Dr. F. M. Davis.
Henderson ..........Dr. J. G. Waldrop.
Hertford ..........Dr. John W. Taylor.
Hyde ..........Dr. E. H. Jones.
Iredell ..........Dr. Henry F. Long.
Jackson ..........Dr. Wm. Self.
Johnston ..........Dr. L. D. Wharton.
Jones ..........Dr. S. E. Koonce.
Lenoir ..........Dr. W. T. Parrott.
Lincoln ..........Dr. J. W. Saine.
McDowell ..........Dr. B. A. Cheek.
Macon ..........Dr. F. L. Siler.
Madison ..........Dr. Jas. K. Hardwicke.
Martin ..........Dr. W. H. Harrell.
Mecklenburg ..........Dr. F. M. Winchester.
Mitchell ..........Dr. C. E. Smith.
Montgomery ..........Dr. M. P. Blair.
Moore ..........Dr. Gilbert McLeod.
Nash ..........Dr. J. F. Battle.
New Hanover ..........Dr. W. D. McMillan.
Northampton ..........Dr. H. W. Lewis.
Onslow ..........Dr. E. L. Cox.
Orange ..........Dr. C. D. Jones.
Pamlico ..........Dr. F. T. Aydlett.
Pasquotank ..........Dr. H. T. Aydlett.
Pender ..........Dr. L. L. Ardrey.
Perquimans ..........Dr. C. C. Winslow.
Person ..........Dr. J. A. Wise.
Pitt ..........Dr. C. O'H. Laughinghouse.
Polk ..........Dr. Earle Grady.
Randolph ..........Dr. T. T. Ferree.
Richmond ..........Dr. J. M. Ledbetter.
Robeson ..........Dr. H. T. Pope.
Rockingham ..........Dr. Sam Ellington.
Rowan ..........Dr. W. L. Crump.
Rutherford ..........Dr. W. A. Thompson.
Sampson ..........Dr. R. E. Lee.
Scotland ..........Dr. J. W. Littleton.
Stokes ..........Dr. W. L. McCanless.
Surry ..........Dr. John R. Waltz.
Swain ..........Dr. R. L. Davis.
Transylvania ..........Dr. M. M. King.
Tyrrell ..........Dr. J. E. Ashcraft.
Wake ..........Dr. J. J. L. McCullers.
Warren ..........Dr. T. E. Williams.
Washington ..........Dr. W. H. Ward.
Watauga ..........Dr. E. F. Bingham.
Wayne ..........Dr. Williams Spicer.
Wilkes ..........Dr. J. W. White.
Wilson ..........Dr. W. S. Anderson.
Yadkin ..........Dr. B. B. Hauser.
Yancey ..........Dr. W. M. Austin.
[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

---

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

- Whooping-cough
- Measles
- Diphtheria
- Scarlet Fever
- Pernicious Malarial Fever
- Hemorrhagic Malarial Fever
- Typhoid Fever
- Typhus Fever
- Yellow Fever
- Cholera
- Smallpox
- Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:

---

M. D. 190

N. C.
A Preventable Death Under Christian Science Treatment.

The recent death, from malarial fever, of a boy in New Bern, under the treatment of a Christian Scientist, has excited much interest, and called to mind in a pathetic and tragic manner the dangers that threaten our people by the practice of this and allied methods by incompetent persons. In the News and Observer, of September 12, there appeared this editorial:

IS IT A CRIME?

The New Bern Journal says that the people of New Bern are stirred up over the case of a boy in that city, whose death is attributed to the Christian Science "doctors," or "practitioners." It seems a young boy, Henry Parsons by name, was sick with a slight attack of malarial fever. A Christian Scientist woman was called in, no medicine was given him, and the boy died. When asked if she had called a doctor, his mother said she had "somebody better than a doctor." After the boy's death an autopsy was held, and the coroner held an inquest. The evidence showed that the boy had been given no food, medicine or water. "God is with you, Henry; you are all right," said the Christian Scientist doctor, just before the boy died. The coroner's jury returned this verdict: "We, the coroner's jury, impaneled to investigate the cause of the death of Henry Parsons, a child of eleven years of age, find, from the evidence, the following facts: "The child was suffering from malarial fever, and did not receive medical treatment because he was under the care of Miss Hattie Harrison, a Christian Scientist. "We find, from the evidence, his death was the result of improper treatment and neglect. We further find, from the evidence, that the child, in all probability, would have recovered if he had had proper medical treatment.

(Signed)

"J. W. Biddle, Foreman,
"J. J. Baxter,
"A. E. Hubbard,
"John Dunn,
"George Green,
"Ralph Gray."

This is the first case of this character recorded in North Carolina. It ought to arouse the doctors and the law-makers of
the State to take the necessary action to prevent a recurrence of this sad death. If it is not a crime for a boy to be allowed to die from such neglect, it ought to be made one. "An ounce of prevention is worth a pound of cure."

On the same date the editor of that paper addressed a letter to a number of physicians, including myself, asking their views on the subject. Three replies were received, and printed in its issue of the 16th. We give them in the order in which they appeared, with the introductory remarks of the editor:

**WAS THE NEW BERN CASE A CRIME?**

**VIEWS OF DR. RICHARD H. LEWIS, JULIAN M. BAKER AND JAMES MCKEE—THE MATTER ONE OF GREAT INTEREST TO ALL THE PEOPLE.**

In New Bern, some days ago, an eleven year old boy died of malarial fever. The coroner's jury gave as their verdict that the boy came to his death as "the result of improper treatment and neglect." He had no medical attendance, but was in the care of a Christian Science healer. She gave him no nourishment or medicine, and the coroner's jury said: "We further find, from the evidence, that the child, in all probability, would have recovered if he had had proper medical treatment."

In view of the horror of this death, a letter was addressed by the *News and Observer* to a few prominent physicians, asking for their opinion as to "What should the State do?" Only three answers have been received. They are as follows:

**VIEWS OF DR. R. H. LEWIS.**

To the Editor:—Your note, calling my attention to the article in reference to the death of the boy in New Bern, under "Christian Science Treatment," and asking, "Is there no law with reference to it; if not, what can be done?" is received.

Occupying the official position of Secretary of the State Board of Health, whose duty, under the law, it is to use every effort to protect the people of the State against disease and death, I feel that it is perhaps peculiarly incumbent upon me to discuss the matter for the benefit of the public.

It is unnecessary to say that one of the serious dangers to the public health is the practice of medicine by incompetents. The State has attempted to remove that danger, as far as possible, by the enactment of laws regulating the practice of medicine within its borders. No one can legally practice medicine in North Carolina without a license from the State Board of Medical Examiners, and no one can apply for a license without exhibiting a diploma from a medical college in good standing, requiring an attendance of not less than three years, and furnishing clinical instruction satisfactory to the Board. As the standard established by the Board is a very high one—eighty per cent.—it is plain that those who propose to heal the diseases of our people—if they call themselves physicians—must very thoroughly prepare themselves by years of study, and earnest study, of the structure of the human body, anatomy; of the function of its various organs, physiology; of departures from the normal, which constitute disease, pathology; of the best methods, by drugs or other agencies, as electricity, for example, acting through the circulation or nervous system, practice of medicine; of special methods, involving the use of the knife, or mechanical appliances, surgery, etc. But it seems that those, no matter how ignorant or unprincipled they may be, who set themselves up to cure disease by any method which does not involve the administration of drugs, or the use of surgical procedures, are not required to know anything whatever about the structure and functions of the body, nor of the nature and history of disease, as set forth in the writings of some of the world's ablest men after a life-time of study and experience, but are permitted to assume the responsibilities of life and death, without let or hindrance. The result of this is seen in the sacrifice of the life of the boy referred to in the article you mention. If there is one disease more than another curable by drugs, it is malarial fever. Quinine is universally regarded as a specific for it, and any physician failing to use quinine, except where contraindicated by idiosyncracies of the pa-
tient, would, in case of death, be liable in a suit for malpractice. And why should not the Christian Scientist be equally liable, not only for malpractice, but for prosecution for practicing medicine without a license? What action would lie against the father of the child, I am not lawyer enough to say, but he must have been either criminally negligent, or the victim of a delusion, and in so far insane—apt subject, therefore, for either the penitentiary or the insane asylum.

The whole question hinges on the legal meaning of "physician" and of "practitioner of medicine." In State vs. Van Doran, from Tyrrell, our Supreme Court held that it was not necessary to administer drugs to constitute the practice of medicine, but that it was sufficient for one to hold himself out to the public as a physician. But who is a physician? According to the Century Dictionary, it is "one who practices the art of healing disease and of preserving health; a prescriber of remedies for sickness and disease; specifically, a person licensed by some competent authority, such as a medical college, to treat disease and prescribe remedies for them; a doctor; a medical man." Since the only "competent authority" to license in North Carolina is its own Board of Medical Examiners, no one is legally a physician, in the specific meaning of the word, who has not his license, while under the general meaning the Christian Scientist, faith healer, osteopathist, et id omne genus, would be physicians. So that it appears that any one, whether having a diploma or not, "who practices the art of healing disease," etc., would be a violator of law.

What is "medicine"? According to the same authority it is, among other things, "something which is supposed to possess curative, supernatural, or mysterious powers." The spirit of the law, it seems to me, is plain enough, but what the technical interpretation by the court might be is I am unable to say, though I assume it would be in accordance with its spirit.

The remedy in the case under discussion, in my opinion, would be to lay the facts before the next session of the grand jury of Craven county, and have the Christian Scientist indicted and prosecuted for practicing medicine without a license, the penalty for which is a fine of not less than twenty-five dollars, nor more than one hundred dollars, or imprisonment, at the discretion of the court, for each and every offense. The alternative remedy, should the court hold that the practice of Christian Science and allied methods is not practicing medicine, would be a special act by the next Legislature forbidding, under heavy penalties, attempts to cure disease for fee or reward by any method whatever without first having obtained a license from the Board of Medical Examiners. If these methods be good and effective, let them be employed, but insist upon it that the practitioner who assumes such terrible responsibility knows what he is about.

It is sincerely to be hoped that this tragic object lesson will bear fruit in saving our people from the fads and vagaries of ignorant, if sometimes sincere, persons.

Richard H. Lewis.

---

DR. BAKER'S VIEWS.

To the Editor:—Replying to your question, "What should the State do in regard to the death of the little boy in New Bern, under the treatment of a Christian Scientist," I would say that a liberal construction of the laws of North Carolina, regulating the practice of medicine and surgery, makes the "operator," or "healer," guilty of a misdemeanor, and liable to punishment accordingly. The Laws of 1881 and 1889, it seems, are conclusive on this point. Chapter 181, part of sections 4 and 5, Laws of 1889, says: "Any person who shall practice, or attempt to practice, medicine or surgery in the State without first having registered and obtained a certificate as aforesaid, shall be guilty of a misdemeanor," etc. The Supreme Court, in State vs. Van Doran, 109 N. C., page 864, says: "To constitute the offense of practicing medicine under Acts of 1881 without registration, etc., it is not necessary to allege or prove the person practiced upon. It is sufficient if the defendant held himself out to the public as a physician." A physician is one who practices medicine. Medicine is defined (Standard Dictionary): "The healing art; the science of the preservation of health, and the treating diseases for the purpose of cure. Among the North American Indians, anything supposed to influence the gods' favor."
The practice of medicine is not simply the administration of drugs, or the direction for the internal use of certain vegetable or mineral substances. It includes all means used for the cure of disease, or the practice of the art of healing. Any person holding himself out to the public as a "healer," although he may not call himself a physician, is attempting to practice the healing art, and in such capacity should be compelled to comply with the laws, or suffer the penalty.

The recent case in New Bern is the first warning of the invasion of the State by a fanatical sect of charlatans. By claiming a certain dependence upon religion, and under the cognomen of Christian Science, a most dangerous application of hypnotism is practiced. Suggestive therapeutics, in the hands of an honorable and intelligent practitioner, has its field of usefulness; but in the hands of ignorant and fanatical laymen, making use of the natural inclination to look with reverence for, and awe upon, things connected with the Divine, it is both dangerous and blasphemous. It is in violation of both civil and religious laws. The words Christian and Science, used in the combination, are simply terms to conjure with, and to fix more firmly and readily upon the mind of the individual the hypnotic influence sought to be exerted.

The New Bern case, according to the report, was one of ordinary malarial infection. Scientifically considered, it is a disease produced by the entrance into the blood of a peculiar form of parasite, whose life has been studied and whose ravages are well known, as is also the method of destroying it. To stand over the sick child and tell him he "was well," expecting thereby to destroy this parasite, is arrogating to the operator superhuman power. To attempt this by suggestion, or hypnotic influence, is a display of criminal ignorance of the power attempted to be exerted. As well might the "operator," or "healer," allow one to plant a seed of cotton or corn, under favorable environments, and stand over it and tell it not to germinate and grow, expecting it to do as commanded.

The failure to recognize well established principles, and to use the means of relief well known in every household in the land, resulted in this case, as it always will, in disastrous results. The combination of ignorance, superstition, fanaticism, charlatanism makes victims of the innocent, and the State should protect them. If, as we believe, the laws cited are sufficient, the judges of the criminal courts should be asked to call the attention of the grand jury to all violations of this character. If the laws regulating the practice of medicine do not cover the case, then certainly the criminal statutes do, and the solicitors should be urged to investigate each case, and whenever such criminal carelessness or negligence can be discovered as to justify it, indictments for manslaughter should follow. But as no law can be enforced unless it has the endorsement of the community, the people should be made to understand the folly and the danger of such evils. Should this be done, there would be an earnest co-operation with the officers of the law in their efforts to punish the offender, and eradicate the evil. If, on the other hand, the present laws do not cover the case, then, certainly, the coming Legislature should be asked to pass a law that would be sufficient to protect the citizens of the State.

Yours truly,

JULIAN M. BAKER.

DR. MCKEE'S VIEWS.

To the Editor:—Replying to your communication of the 12th instant, will state that, in my opinion, the State's deepest obligations are due her population, especially in the protection of their health and their lives. The poison of malaria has its antidote in quinine, and to withhold it is criminal. Experience has taught us that it aborts the manifestation of the poison, and that subsequent treatment, addressed to the building up of the blood supply, will thoroughly eliminate the toxic condition, and restore the person to full health and duty.

Very truly yours,

JAMES McKee.

In the same issue there also appeared the following editorial:

CHRISTIAN SCIENCE AGAIN.

The people of New Bern did well to require a coroner's jury to hold an inquest over the little boy who died for lack of medical attention. The Christian Sci-
ence healer, who was in attendance, is undoubtedly a sincere and pious woman, who thought she was doing God's service. The jury declares that the boy died from neglect, and gave it as their opinion that "the child, in all probability, would have recovered if he had had proper medical treatment."

In the New Bern case, where the patient was a child, the State could easily step in and require medical treatment, but in the case of an adult, who declined to receive any except Christian Science treatment, how could the State proceed to prevent the neglect? One gentleman, in a private note, writing of this phase of the question, said:

"I do not believe that legislation will prevent such occurrences. These people—the Christian Scientists—hold their beliefs as an expression of their religion, as they declare, and attempts to *legislate against them* will be construed as persecution of them, because their religious beliefs and practices, and fail of its purpose on that account. They hold—and not without some show of reason—that each individual has a right to choose for himself what method of treatment he will have in sickness, or whether he will have any treatment at all, and that no one may rightly force upon him a treatment which he does not want, or deny him a treatment which he desires."

We publish elsewhere the views of three leading physicians in answer to the question, "What ought the State to do to prevent such deaths as the one in New Bern? The subject is one that has given trouble elsewhere and that is not easy to deal with. But because it is difficult the State ought not be deterred from interfering to prevent death for the failure to use known remedies.

In regard to the views set forth in the private letter to the editor, given above, we would say this: The State, through its laws regulating the practice of medicine, does not pretend to say that the individual citizen shall, or shall not, call to his aid, when sick, any particular kind of physician, or any physician at all. His individual liberty is not interfered with by the law. He is free to summon a thoroughly educated physician of character and experience, or he can place himself under the care of anybody he chooses—a "witch doctor," an "old granny," a "conjuror," a "Christian scientist," a "magnetic healer," an "osteopathist," a "root and yarb doctor," a "hypnotist," or a "horse doctor," provided he can find him. But the State, in its wisdom, knowing the dangers to its citizens incident to the treatment of their diseases by persons utterly ignorant of the structure and functions of the human body, the nature of disease, and the best remedies for it, has said that no one who has not demonstrated his fitness for such responsible work to the satisfaction of an impartial board of "regular graduated physicians," shall "practice medicine or surgery, nor any of the branches thereof, nor in any case prescribe for the cure of diseases for fee or reward." The law is necessarily general in character. It does not forbid any amateur to prescribe, provided it be done "for love" only, but it does say that no one shall engage in the business of healing disease without a license, as shown by his charging a fee. No one will take the time and trouble involved in this kind of work long without reward, and so the danger from that source is not very great. But a very large measure of protection is afforded by shutting out the professional quacks—those who go into it for the money there is in it, and who, as a rule, are not only ignorant, but utterly unscrupulous and unprincipled.

The suggestion that legislation against Christian Scientists would not avail, because they "hold their beliefs as an expression of their religion," it seems to us, would have no weight in the eye of the law. If so, all that would be necessary for quacks to secure immunity would be to form a cult, or sect, and base
their operations nominally on certain texts in the Bible. On this principle, inasmuch as the right to worship God according to the dictates of one’s own conscience is one of the fundamental rights in this free country of ours, the “medicine man” of the Indians, who is also the “high muck-a-muck” in the religious line of his tribe, or the immigrant from Dahomey, with his fetich, would be equally free to practice his system. We do not believe that the cry of persecution would be effective in cases treated for fee or reward—the only cases to which the law would apply—for the sincerity of those who use their religion for the purpose of making money is always discounted.

The reasonableness of the requirement by the State of adequate knowledge of the various branches of medicine of those who propose to practice that profession is to be found chiefly in a certain aspect of the case that we believe to be largely overlooked by the public. The most difficult part of the practice of medicine is not the treatment of disease, but the diagnosis, the finding out what the disease is. The accurate diagnosis of disease often demands the exercise of the highest intellectual faculties, re-enforced by a very full knowledge of the nature and history of disease. The greatest physicians are those who are the best diagnosticians, for while some are more skilful than others in treatment, the variation is by no means so great as in diagnosis. The diagnosis having been correctly made, the proper treatment can easily be ascertained by reference to the best authorities. The preventable disasters in the practice of medicine are the result, nine times out of ten, not of improper treatment, but of a mistaken diagnosis. It is a statement of simple elementary common sense to say that a person who does not know what the disease is, cannot treat the patient successfully. And it is just as plain common sense to say that the class, or classes, of “healers” under consideration are not competent to make a diagnosis. And this applies with special force to Christian Scientists, because they claim there is no such thing as disease, physical disease, but what we ordinary people call disease is a “discord,” the result of “sin.” The boy, Henry Parsons, did not have malarial fever, according to their view, but a “discord,” or a “belief,” that he was sick. He was not sick at all, but had a “belief” that he was sick. Yet the poor little fellow died, when the administration of one of our simplest drugs, quinine, would doubtless have saved his life—whether by destroying the blood parasite, which causes malarial fever, by harmonizing the “discord,” or by exorcising the “belief,” we leave to the reader to say.

There is a widespread feeling of horror and indignation among our people at this useless sacrifice of an innocent life by a course of action plainly contrary to both reason and experience, and we sincerely hope that it will result in securing protection in future against such dangerous practices.

**Review of Diseases for August, 1900.**

**EIGHTY-TWO COUNTIES REPORTING.**

Ninety-three counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given,
or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of August the following diseases have been reported from the counties named:

**Measles.**—Ashe, 10; Bladen, a few; Buncombe, 1; Cherokee, many; Chowan; Cleveland, many; Columbus; Cumberland, 8; Currituck, many; Dare; Durham, 6; Gates, 40; Granville, 3; Henderson, 1; Hertford, 4; Iredell, 12; Lincoln, epidemic; Mecklenburg, 100; Perquimans, 40; Rockingham; Sampson; Swain, 15; Union, epidemic;湿地—24 counties.

**Whooping-cough.**—Alexander, 2; Beaufort, 2; Buncombe, 1; Caldwell, several; Carteret; Chowan; Cleveland, a few; Columbus; Craven, 8; Cumberland; Gates, 40; Graham, several; Henderson, 4; Hyde, 3; Jackson, 8; Jones; Lincoln, general; Macon; Mecklenburg, 50; New Hanover, 26; Perquimans, 2; Richmond, several; Rowan, 6; Sampson, a few; Transylvania, 10; Wataga—26 counties.

**Scarlatina.**—Alamance, 10; Brunswick, 1; Cabarrus, 4; Davidson, 1; Iredell, many; Macon, 1; Mecklenburg, 10; New Hanover, 2; Richmond, 1; Wataga—10 counties.

**Diphtheria.**—Alamance, 2; Brunswick, 1; Buncombe 1; Cabarrus, 1; Durham, 1; Gaston, 1; Mecklenburg, 1; New Hanover, 1; Polk, 12; Randolph, 5—10 counties.

**Typhoid Fever.**—Alamance, 8; Alexander, 1; Ashe, 8; Beaufort, 4; Buncombe, 4; Burke, 10; Cabarrus, 6; Caldwell, 15; Catawba, 3; Chatham, a few; Columbus, many; Craven, 14; Cumberland, 3; Dare, 6; Davidson; Durham, 8; Gaston; Gates, 3; Granville, 2; Guilford, 3; Halifax; Haywood, 8; Henderson, 4; Hertford, 4; Iredell, many; Jackson, 4; Jones, 6; Lenoir; Lincoln; McDowell, in most parts; Macon, 5; Madison, 21; Martin, 8; Mecklenburg, 40; Nash; New Hanover, 6; Northampton, many; Onslow, 4; Orange, 4; Pender, 3; Perquimans, 8; Pitt, general; Randolph, 15; Richmond; Robeson, a great many; Rockingham; Rowan, 30; Rutherford, a few; Sampson, many; Stokes, 2; Surry, 8; Transylvania, 1; Union, 6; Vance, in many parts, mild; Wake, 16; Warren, a few; Wayne, 2; Yadkin, 4—58 counties.

**Malarial Fever.**—Alamance, general; Bladen; Brunswick, general; Cabarrus; Carteret; Chatham; Craven; Currituck, general; Davie; Franklin; Gaston; Gates, general; Granville; Greene, general; Halifax; Hyde; Iredell, general; Johnston; Lenoir; Martin, general; New Hanover, general; Onslow, general; Perquimans, general; Person; Robeson; Rowan; Sampson; Wake, general; Warren, general; Wilson general—30 counties.

**Malarial Fever, Pernicious.**—Brunswick, 1; Johnston, 1.

**Malarial Fever, Hemorrhagic.**—Craven, 2; Hyde, 4; Johnston, 1; New Hanover, 1; Perquimans, 1.

**Influenza.**—Stokes, general.

**Mumps.**—Chatham, Sampson, Surry.

**Diarrhoal Diseases.**—Ashe, Cabarrus, Dare, Richmond and Rockingham.

**Contagious Impetigo.**—Mecklenburg, epidemic, mild.

**Varicella.**—Sampson, Surry.

**Small-pox.**—Cherokee, 2; Craven, 16; Davidson, 8; Durham, 1; Forsyth, 10; Lenoir, 1, vigorous measures taken; Nash, 7; Randolph, 5; Rockingham, 1; Vance, several mild cases of varioloid—10 counties.

**Cholera in Hogs.**—Columbus, Gates, Graham, Northampton and Robeson.

**Cholera in Chickens.**—Chatham, Cleveland and Haywood.

**Distemper in Horses.**—Macon.

**Pink-Eye in Horses.**—Buncombe, Cleveland and Transylvania.

No diseases are reported from Edgecombe, Harnett, Pasquotank and Wilkes.

No reports received from Alleghany, Anson, Bertie, Clay, Duplin, Mitchell, Montgomery, Moore, Stanly, Washington and Yancey.
Removal of Small-pox Patients to Pest-House.

Hengenhof vs. City of Covington, the Court of Appeals of Kentucky says, was an agreed case wherein it was asked to decide these questions: 1. Has a city of the second class in Kentucky power to pass an ordinance providing for the removal of small-pox patients to a pest-house? 2. Can such city by ordinance vest such power, to remove such persons as afflicted to a pest-house, in its health board, or in any three members thereof, or in the health officer? 3. Can such removal of persons so afflicted be made by the board of health or by the health officer, notwithstanding the physician attending the patient shall certify in writing that the patient's life would be endangered by such removal, or that he has given and careful attention and his removal would not be advisable as a sanitary measure? In answering these questions, the court says that the preservation of the public health has always been held a proper exercise of police power. There can be no doubt that in order to prevent the spread of disease, and provide healthful conditions for the public, boards of health and like commissions may be created and invested with power necessary and proper for such purposes; and, in determining the validity of the acts of such boards and their officers, a liberal construction is justified, in view of the public good to be accomplished. There can be no doubt of the power of the State Legislature to create state boards of health for the preservation of general health of the State, to confer upon cities and counties authority to make regulations for the health of their communities and even to create separate corporations differing from political subdivisions, with like powers within their limits. Both in England and the United States such powers have been almost uniformly delegated to boards of health of municipal corporations to enact rules for the preservation of the public health, having the force of law within the respective communities; and it would seem that, in the absence of express authority, municipalities have implied power to enact reasonable ordinances to preserve the public health and to prevent and remove nuisances. Under its general power to guard against epidemic diseases, a board of health may control and isolate persons affected with the disease. And this power, the court goes on to say, seems to be expressly delegated to the local boards by the provision of the Kentucky statutes which empowers them to inaugurate and execute such sanitary regulations as the local board may consider expedient to prevent the outbreak and spread of epidemic diseases, and to this end may bring the infected population under prompt and proper treatment during premonitory and other stages of disease. It is certainly a reasonable regulation, the court thinks, which provides for the removal of such cases to a pest-house in good sanitary condition, provided with nurses and physicians for the treatment of patients suffering with the disease. Therefore the court is of the opinion that the local board, or a quorum thereof, has undoubtedly power to order the removal of an infected patient to the pest-house. Taking up what it denominates a narrower question, the court calls attention to its being a general rule upon this subject that laws establishing State boards and laws establishing local boards shall be construed together, so as to give effect to both. Applying this rule, in this case, to the general law as to the powers of local boards and the charter of cities of the second class, in Kentucky, which expressly authorizes them to establish and enforce quarantine laws and regulations to prevent the introduction and spread of contagious diseases, and to secure the general health of the inhabitants by any necessary measure, the court says that it follows that the city is authorized to make additional reasonable regulations to prevent the spread of epidemic diseases. And a regulation empowering three members of the board, or the health officer elected by the board, to order the removal of a small-pox patient, it holds is a reasonable regulation, especially where there is provided an appeal to the board, and a requirement of action by the board itself upon a certificate by the attending physician that the removal would endanger the patient's life. In such cases, it adds, the necessity for immediate action is imperative, and it is not unreasonable to permit the health officer, or less than a quorum of the board, to order such removal, in a case where it does not appear that removal would endanger the patient's life.

Summary of Mortality Reports for August, 1900.

(Twenty Towns.)

Aggregate popula- White. Col'd. Total. tion .................. 86,201 59,449 145,650
Aggregate deaths... 90 101 200
Representing tem- porary aannual d death rate per 1,000 .......... 13.8 20.4 16.5

Causes of Death.

Typhoid fever ...... 9 12 21
Malarial fever...... 3 6 9
Whooping-cough... 3 4 7
Measles ............. 1 0 1
Pneumonia .......... 3 0 3
Consumption ....... 4 7 11
Brain diseases..... 9 1 10
Heart diseases..... 9 6 15
Neurotic diseases... 1 1 2
Diarrheal diseases 14 14 28
All other diseases 40 47 87
Accident............ 3 2 5
Violence ........... 0 1* 1

Deaths under five years......... 99 101 200
Still-born ........... 6 11 17

*Hanged by law.
## Mortuary Report for August, 1900.

<table>
<thead>
<tr>
<th>Towns and Reporters</th>
<th>Population</th>
<th>Temporary Annual Death Rate per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Races</td>
<td>Total by Races</td>
</tr>
<tr>
<td></td>
<td>W.</td>
<td>C.</td>
</tr>
<tr>
<td>Asheville</td>
<td>W. 8,000</td>
<td>C. 5,500</td>
</tr>
<tr>
<td>Dr. C. V. Reynolds</td>
<td>19.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>W. 10,176</td>
<td>C. 8,924</td>
</tr>
<tr>
<td>Charlotte</td>
<td>19.2</td>
<td></td>
</tr>
<tr>
<td>Dr. F. O. Hawley</td>
<td>15.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>W. 4,500</td>
<td>C. 2,600</td>
</tr>
<tr>
<td>Durham</td>
<td>18.0</td>
<td></td>
</tr>
<tr>
<td>Dr. Z. T. Brooks</td>
<td>13.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>W. 3,500</td>
<td>C. 2,000</td>
</tr>
<tr>
<td>Fayetteville</td>
<td>4.8</td>
<td></td>
</tr>
<tr>
<td>Dr. J. V. McGoogan</td>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td>Henderson</td>
<td>W. 9,250</td>
<td>C. 5,000</td>
</tr>
<tr>
<td>Dr. F. R. Harris</td>
<td>7.0</td>
<td></td>
</tr>
<tr>
<td>Hillsboro</td>
<td>W. 400</td>
<td>C. 300</td>
</tr>
<tr>
<td>Dr. C. D. Jones</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>Lenoir</td>
<td>W. 1,200</td>
<td>C. 400</td>
</tr>
<tr>
<td>Dr. A. A. Kent</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Marion</td>
<td>W. 800</td>
<td>C. 400</td>
</tr>
<tr>
<td>Dr. B. A. Cheek</td>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td>Oxford</td>
<td>W. 1,200</td>
<td>C. 1,100</td>
</tr>
<tr>
<td>Dr. S. D. Booth</td>
<td>24.0</td>
<td></td>
</tr>
<tr>
<td>Raleigh</td>
<td>W. 11,000</td>
<td>C. 9,000</td>
</tr>
<tr>
<td>T. P. Sale, Clerk</td>
<td>13.0</td>
<td></td>
</tr>
<tr>
<td>B. H.</td>
<td>12.0</td>
<td></td>
</tr>
<tr>
<td>Rockingham</td>
<td>W. 1,500</td>
<td>C. 500</td>
</tr>
<tr>
<td>Dr. J. M. Ledbetter</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>Rocky Mount</td>
<td>W. 1,090</td>
<td>C. 1,000</td>
</tr>
<tr>
<td>Dr. G. L. Wimberley, Jr.</td>
<td></td>
<td>12.0</td>
</tr>
<tr>
<td>Salem</td>
<td>W. 4,100</td>
<td>C. 450</td>
</tr>
<tr>
<td>S. E. Butner, Mayor</td>
<td>8.8</td>
<td></td>
</tr>
<tr>
<td>Salisbury</td>
<td>W. 6,000</td>
<td>C. 3,000</td>
</tr>
<tr>
<td>W. 3,000</td>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>Scotland Neck</td>
<td>W. 775</td>
<td>C. 425</td>
</tr>
<tr>
<td>W. T. Clement, Mayor</td>
<td></td>
<td>12.0</td>
</tr>
<tr>
<td>Tarboro</td>
<td>W. 2,000</td>
<td>C. 1,000</td>
</tr>
<tr>
<td>Dr. L. L. Staton</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>Washington</td>
<td>W. 3,500</td>
<td>C. 2,500</td>
</tr>
<tr>
<td>Dr. Jac. G. Blount</td>
<td>14.4</td>
<td></td>
</tr>
<tr>
<td>Weldon</td>
<td>W. 700</td>
<td>C. 750</td>
</tr>
<tr>
<td>J. T. Gooch, Mayor</td>
<td>12.0</td>
<td></td>
</tr>
<tr>
<td>Wilmington</td>
<td>W. 12,000</td>
<td>C. 7,900</td>
</tr>
<tr>
<td>Dr. Charles T. Harper</td>
<td>22.7</td>
<td></td>
</tr>
<tr>
<td>Wilson</td>
<td>W. 2,500</td>
<td>C. 2,300</td>
</tr>
</tbody>
</table>

N.B.—The reporters for the cities and towns printed in Black Type have signed this certificate: "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.

*Hanged by law.*
County Superintendents of Health.

Alamance Dr. T. S. Faucette.
Alexander Dr. T. F. Stevenson.
Alleghany Dr. B. C. Waddell.
Anson Dr. E. S. Ashe.
Ashe Dr. Manley Blevins.
Beaufort Dr. P. A. Nicholson.
Bertie Dr. H. V. Dunstan.
Bladen Dr. Newton Robinson.
Brunswick Dr. J. A. McNeill.
Buncombe Dr. James Sawyer.
Burke Dr. J. L. Laxton.
Cabarrus Dr. D. G. Caldwell.
Caldwell Dr. A. A. Kent.
Camden
Carteret Dr. F. M. Clark.
Caswell Dr. S. A. Malloy.
Catawba Dr. Geo. H. West.
Chatham Dr. H. T. Chapin.
Cherokee Dr. J. F. Abernathy.
Chowan Dr. T. J. Hoskins.
Clay Dr. J. M. Sullivan.
Cleveland Dr. B. H. Palmer.
Columbus Dr. I. Jackson.
Craven Dr. R. DuVal Jones.
Cumberland Dr. J. Vance McGougan.
Currituck Dr. H. M. Shaw.
Dare Dr. W. B. Fearing.
Davie Dr. James McGuire.
Duplin Dr. F. H. Arthur.
Durham Dr. Z. T. Brooks.
Edgecombe Dr. L. L. Staton.
Forsyth Dr. John Bynum.
Franklin Dr. E. S. Foster.
Gaston Dr. J. H. Jenkins.
Gates Dr. W. O. P. Lee.
Graham Dr. R. J. Orr.
Granville Dr. S. D. Booth.
Greene Dr. Joseph E. Grimsley.
Guilford Dr. R. L. Rierson.
Halifax Dr. I. E. Green.
Harnett Dr. O. L. Denning.
Haywood Dr. F. M. Davis.
Henderson Dr. J. G. Waldrop.
Hertford Dr. John W. Taylor.
Hyde Dr. E. H. Jones.
Iredell Dr. Henry F. Long.
Jackson Dr. Wm. Self.
Johnston Dr. L. D. Wharton.
Jones Dr. S. E. Koonce.
Lenoir Dr. W. T. Parrott.
Lincoln Dr. J. W. Saine.
McDowell Dr. B. A. Cheek.
Macon Dr. F. L. Siler.
Madison Dr. Jas. K. Hardwicke.
Martin Dr. W. H. Harrell.
Mecklenburg Dr. F. M. Winchester.
Mitchell Dr. C. E. Smith.
Montgomery Dr. M. P. Blair.
Moore Dr. Gilbert McLeod.
Nash Dr. J. P. Battle.
New Hanover Dr. W. D. McMillan.
Northampton Dr. H. W. Lewis.
Onslow Dr. E. L. Cox.
Orange Dr. C. D. Jones.
Pamlico
Pasquotank Dr. H. T. Aydllett.
Pender Dr. L. L. Ardrey.
Perquimans Dr. C. C. Winslow.
Person Dr. J. A. Wise.
Pitt Dr. C. O' H. Laughinghouse.
Polk Dr. Earle Grady.
Randolph Dr. T. T. Ferree.
Richmond Dr. J. M. Ledbetter.
Robeson Dr. H. T. Pope.
Rockingham Dr. Sam Ellington.
Rowan Dr. W. L. Crump.
Rutherford Dr. W. A. Thompson.
Sampson Dr. R. E. Lee.
Scotland
Stanly Dr. J. W. Littleton.
Stokes Dr. W. L. McCanless.
Surry Dr. John R. Woltz.
Swain Dr. R. L. Davis.
Transylvania Dr. M. M. King.
Tyrrell
Union Dr. J. E. Ashcraft.
Vance Drs. W. T. & G. Cheatham.
Wake Dr. J. J. L. McCullers.
Warren Dr. T. B. Williams.
Washington Dr. W. H. Ward.
Watauga Dr. E. F. Bingham.
Wayne Dr. Williams Spicer.
Wilkes Dr. J. W. White.
Wilson Dr. W. S. Anderson.
Yadkin Dr. B. B. Hauser.
Yancey Dr. W. M. Austin.
Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

- Whooping-cough
- Measles
- Diphtheria
- Scarlet Fever
- Pernicious Malarial Fever
- Hemorrhagic Malarial Fever
- Typhoid Fever
- Typhus Fever
- Yellow Fever
- Cholera
- Smallpox
- Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:

---

M. D. 190 N. C.
A Verification of the Mosquito-Malaria Theory.

We have referred several times to the interesting experiments which some English observers had undertaken during this summer in the hope of definitely verifying or disproving the mosquito theory of the spread of malaria. These experiments were to be conducted both in Italy and in England. That in Italy, which is still going on, consists in the residence of several men in one of the most malarious parts of the Roman Campagna, near Ostia, drinking the water and exposed to the night air, taking no quinine, and protected only from the bites of Anopheles, the malarial mosquitoes. We learn from the *British Medical Journal* of September 22d, that it is highly probable this experiment will be successful. A telegram to Dr. Manson from Professor Grassi, dated September 13th, stated that the health of the experimenters had, up to that time, remained perfect. Certainly, if these men (Drs. Sambon and Low, and Signer Terzi, with their servants) escape malaria, we shall have negative evidence of much value to the effect that malaria is not conveyed by the water or the air.

The other experiment, which has just been concluded in England, has furnished us with very positive and conclusive evidence of the part played by mosquitoes in the transmission of this disease from the sick to the well. In a leaflet inserted in the *Journal of Tropical Medicine* for September, 1900, it is stated that the experiment of inoculating malaria in England by mosquitoes fed on malaria patients in Rome has succeeded. "At Dr. Manson's request, three batches of Anopheles were fed in Rome by Dr. Bastianelli on three separate malarials (tertians) and forwarded in cages to the London School of Tropical Medicine. Dr. Manson's son, P. Thurburn Manson, was bitten every second day by the insects until they died—usually about ten days after their arrival in London. The first batch was
fed in London on the first and second week of July, the second at the end of August, and the last during the second week of this month. The subject of this experiment remained in perfect health till the morning of September 13th, when headache, bone-ache, lassitude, and anorexia, with rise of temperature to 102°, set in. On the 15th there was a distinct intermission during the forenoon. High fever, 104°, set in about 4 p.m., with delirium, relieved during the night by profuse diaphoresis. The same series of events recurred on the 16th. On the morning of the 17th, tertian parasites were found in the blood."

The editor of the journal from which we have quoted adds to this account that he has himself seen the parasites, and that Dr. Manson has been careful to have the observation verified by several competent observers. This is unquestionably the most conclusive of the inoculative experiments yet made, for the possibility of infection by other channels, which was present in the Roman experiments, and to a less degree in a similar one which we understand was carried out in New York this summer, was here eliminated. Dr. Manson's son could not get tertian fever in London in any ordinary way, and he had not been in a malarious country since his childhood, therefore there can be little room for doubt as to the agency of the imported mosquitoes in the causation of his illness.—Medical Record.

---

The Bacillus Icteroides and its Relation to Yellow Fever.

Paris, France, August 20, 1900.

Sir:—I have the honor to submit herewith a paper by Proust and Wurtz, on the subject of yellow fever, read before the International Congress of Hygiene and Demography.

The conclusions reached by the authors are of special importance in confirming the cause of yellow fever.

Respectfully,

M. J. Rosenau,
Passed Assistant Surgeon, U. S. M. H. S.
The Surgeon-General,
U. S. Marine Hospital Service.

YELLOW FEVER.

by PROUST AND WURTZ.

[Translated by M. J. Rosenau, Passed Assistant Surgeon, U. S. M. H. S.]

Of the three great epidemic diseases of the tropics, plague, cholera, and yellow fever, it is the last whose manifestations during the past years have been least widespread.

Plague, since 1894, has spread from Indo-China into India and from Bombay to the four quarters of the globe. Cholera has reappeared in India with formidable intensity.

On the contrary, yellow fever, if we may except the large number of cases which occurred in the Cuban campaigns and which decimated to a dreadful extent the Spanish and American troops, does not seem to have spread alarmingly, as we have observed more particularly in the case of bubonic plague.

On account of the restraint imposed upon the countries where yellow fever is epidemic (Central America and certain portions of the eastern coast of South America as well as the western coast of Africa) it has not made its appearance in Europe for a long time. So rigidly has this restraint been enforced that it has been possible to discontinue without inconvenience the international prophylactic measures taken to prevent the introduction of the disease into France.

Since the International Congress of Hygiene of 1889, the etiology of two_of
these formidable tropical epidemics has been demonstrated. The bacillus of bubonic plague was discovered by Yersin and Kitasato at Hongkong in 1894, and this discovery has been unanimously confirmed by bacteriologists throughout the world.

On the other hand, in 1897, Sanarelli announced the discovery of the organism pathogenic for yellow fever. Although this discovery has been less widely and less brilliantly confirmed than that of the bacillus of Yersin, it remains without doubt that the menace of the extension and the dramatic reawakening of plague which lay dormant for so long has made yellow fever of secondary importance.

The microbe isolated by Sanarelli, which he considers specific for yellow fever, has been called by him bacillus icteroides. It is found in the blood and in the tissues of individuals sick or dead of yellow fever and not in the gastrointestinal cavity. It is always associated with other microbes.

This fact makes it very difficult to recover it from the cadavers of subjects dead of yellow fever. Its dissemination in the organism is, in fact, very transitory. Sanarelli established this interesting fact experimentally by killing daily animals inoculated with this bacillus. From the second to the seventh day the bacillus icteroides is found only in the spleen; after that time the bacillus invades the whole organism.

The constant presence of microorganisms of secondary infection is a singular complication in the search after the specific bacillus, and it is this special property of this organism, as well as of its toxin, that favors secondary infections. This phenomenon is constant, not only in man, but also in the majority of animals inoculated experimentally.

In man, Sanarelli found the bacillus in but half the cases which he examined.

The bacillus icteroides is a rod with rounded ends frequently united in chains two to four long. Its dimensions vary. It is motile and has cilia.

Cultures on gelatin plates give punctiform colonies having the appearance and dimensions of a leucocyte. They are, in fact, round, colorless, without nucleus, and show a very fine, brilliant granulation. The bacillus never liquefies gelatin.

In the center of the colony there appears, about the sixth or seventh day, a characteristic black spherical point.

The colonies may also present atypical forms differing considerably from the ordinary (concentric rings in rosette, nucleus tangled reticula).

The colonies always keep their granular and brilliant appearance, and never take the yellow-brownish color that is observed in cultures of the colon bacillus.

Cultures of the bacillus icteroides which have grown on agar at 37° C., become thicker and whitish, in contrast to the original culture, and take the "seal ring" appearance.

This appearance of the cultures on agar is considered by Sanarelli the most typical characteristic of the cultures of bacillus icteroides.

It grows best in lactose bouillon with the addition of 2 per cent carbonate of lime.

The bacillus icteroides is a facultative anaerobe. It stains well with all the basic anilin dyes and does not stain by Gram's method.

Among the biological properties of bacillus icteroides there are some that have a particular interest.

Spontaneous desiccation at ordinary temperatures leaves the bacillus icteroides with considerable vitality (seven months).
It is known that the bacillus survives a much longer time in nature than is indicated by the results obtained in the laboratory, which explains the reappearance of the disease after several years.

The resistance to dry heat is considerable; it takes an hour and ten minutes to kill at a temperature of 100° C.; at 120° to 125° C. the bacillus icteroides dies quickly. On the other hand, its resistance to the sun is inconstant but weak—it dies in summer after seven hours at a temperature of 28° C.

The physical agent which acts the most surely and rapidly is moist heat. In water at 60° C. the bacillus icteroides dies in a few minutes, and immediately at 65° C. Boiling water, therefore, is the best disinfectant for yellow fever.

Sanarelli has further demonstrated that in media the presence of molds favors the development of the bacillus icteroides considerably. On plates inoculated but not showing growth the bacillus may be brought to life by sowing any kind of mold on the plate.

The development of molds, being favored, as is known, by heat, moisture, and lack of ventilation, would be indirectly favorable to the development and multiplication of the bacillus icteroides.

Humidity should be, then, one of the most active causes in the development of yellow fever.

The bacillus of yellow fever lives in sea water for a very long time. This confirms what has been known for a long time of the development of yellow fever in sea-ports.

The bacillus icteroides is pathogenic for most of the domestic animals. Birds are completely refractory. In mice, guinea-pigs, rabbits, and especially in dogs and monkeys, it causes a cyclic disease analogous to that observed in man.

The bacillus, therefore, possesses 3 principal pathogenic properties, which together give it characteristics which could almost be considered specific. These properties are steatogenic, congestive, hemorrhagic, and emetic.

The filtered culture of the bacillus icteroides contains an extremely active toxin, and when injected, into the dog in particular, produces the same symptoms and the same lesions as the bacillus.

Finally, Sanarelli injected 5 individuals with a buillon culture fifteen to twenty days old, filtered and sterilized with several drops of formaldehyde. The injection of filtered culture in relatively small doses produced typical yellow fever, accompanied by all its symptoms and anatomical conditions.

It is to be noted, however, that of the 5 individuals injected, 3 subcutaneously into the cellular tissue, 2 into veins, but 1 showed the clinical aspect of yellow fever.

The bacillus icteroides was discovered in 1897; in three years a certain number of researches have been made confirmatory of that of Sanarelli.

The first point to verify was whether bacillus icteroides is found in the organs of those sick or dead of yellow fever. This was found to be the fact in the work of Pothier (52 autopsies), Hamilton Jones, Archinard, Geddings, Wasdin, Mendoza, Buberrier, and Pieto Ramos. The bacillus icteroides was isolated by these different authors in a variable proportion, sometimes in almost all the cases examined; 32 in 39 (Archinard); 79.93 per cent. (Geddings); 70 per cent. (Horlbeck), and by the commission of the United States Marine-Hospital Service, 100 per cent. during one year in Cuba.

In France, M. Gauthier isolated the organism from a patient sick of yellow fever. The patient arrived at Marseilles
on the packet *Provenza*, on which a little epidemic of yellow fever existed. Therefore the presence of the bacillus icteroides has been confirmed a very large number of times, both during life and after death.

A relatively limited number of bacteriologists have studied yellow fever in the epidemic foci during the past three years.

But the cultures of the bacilli isolated, both by Sanarelli and by the authors mentioned, have been studied with confirmatory results as far as the biological properties of this bacillus are concerned. Lacarda, Foa, Belfanti and Renoud, Rovere, and more recently Bruschettini, have studied the morphology, the pathogenesis, the toxins of the bacillus icteroides. All have confirmed the facts announced by Sanarelli, and they have completed the work in certain details—inoculations of birds, etc.

The conditions necessary to consider a microbe specific for a certain disease are the following: The microbe must be found in every case of the disease, and in these cases only. The inoculation of the microbe into animals must reproduce the lesions and the symptoms of the disease.

Now these conditions are filled in the case of the bacillus icteroides. That it has not been isolated in every case of yellow fever examined bacteriologically is due to the difficulties of the work caused largely by the secondary infections.

The experimental disease is almost identical with that in man. The injection of the toxin in man reproduces the symptoms of yellow fever.

Further, the serum of individuals attacked by yellow fever agglutinates the bacillus icteroides (Archinard and Woodson, Sanarelli, Foa, Mendoza). This specific reaction seems to us to be the decisive proof that the bacillus icteroides discovered by Sanarelli is the cause of yellow fever.

The mode of its entrance into the organism does not seem to be definitely decided. Laboratory experiments have demonstrated the possibility of infection by inhalation.

The infection by water as well as the infection by the air have not been demonstrated in man.

The soil, especially newly worked earth in the neighborhood of cadavers dead of yellow fever, seems to have played an important rôle in the spread of the infection in certain African epidemics (Sondan, 1897, Anvray and Boury).

This infection actually took place by direct contact (hands) or by inhalation.

The theory of Finlay, that the mosquito plays an important rôle as a carrier of yellow fever, has not furnished any of the proofs that have accumulated for malaria. Finlay has recently expressed the opinion that the mosquito has the power of transmitting the contagion by its eggs. Before accepting this view it will be necessary to confirm in all instances the presence of the infectious agent.

Although we now believe that we know the specific cause of yellow fever, it must be admitted that from the point of view of prophylaxis less progress has been made than from the etiological standpoint. There is nothing to change in the prescribed measures for preventing yellow fever. Disinfection is equally efficacious against an unknown infectious agent as against a well-described and thoroughly studied microbe.

"Humidity, heat, darkness and lack of air seem to be the most favorable factors for the bacillus icteroides." Epidemiologists knew this long ago. Sanarelli has given a new explanation of the
resistance of the bacillus icteroides and its mysterious longevity on board of vessels. That is to say that ordinary molds of the air favor the development of the bacillus icteroides.

The sanitary measures actually employed are therefore the same as formerly, as well as the necessity for the improvement of the hygienic conditions.

As far as individual prophylaxis is concerned, Sanarelli shows, in his last communications, that this important problem has not yet been solved. He hopes to arrive at a solution by means of serum therapy.

The difficulty is to make animals tolerate heavy doses of the icteroides and to obtain a serum having both preventive and curative power. "The serum acts against the microbes but cannot destroy their toxins once they are formed." The serum, then, acts only as a preventive and can have curative power only when employed very early. However this may be, of the first group of 8 cases (Hospital de San Sebastien at Rio Janeiro) 3 were treated at the commencement of the disease, 1 on the second day, 2 on the third day; of these, 3 recovered. Of 5 treated on the fourth day by 80 c. c. of serum there were 4 recoveries.

Of the second group of 22 cases (Ville de San Carlos), where the average mortality is 80 to 90 per cent. instead of 50 per cent., as it is on the coast, 2 children treated at the commencement of the disease, on the second and third days, recovered; 4 out of 6 adults recovered under similar conditions. The serum injected intravenously resulted in 10 cures out of 14 treated.

From the point of view of the prophylactic value of the serum, we recall the experience in San Carlos prison where 4 cases appeared within several days. All the prisoners and 2 soldiers were injected with antiamaryllis serum. There was not another case.

Conclusions.

1. The bacillus icteroides discovered by Sanarelli seems to us to be the specific agent of yellow fever.

That microorganism injected into certain animals, especially dogs, reproduces symptoms and lesions strikingly analogous to those observed in man.

The toxin of this bacillus produces in animals the same effects as the microbe. The injection of this toxin into five individuals reproduced in man typical yellow fever, accompanied by its symptoms and anatomical lesions.

The serum of individuals attacked with yellow fever agglutinates cultures of the bacillus icteroides.

2. The bacillus has a prolonged vitality both in air and water (fresh and sea). It is certain that it is the same in the soil. Molds favor its development. These facts confirm conditions that have been known a long time. They explain the reawakening of yellow fever a long time after the extinction of an epidemic, and the longevity of the disease aboard vessels in bad hygienic conditions.

No new prophylactic measures have come out of this knowledge of the etiology of the disease. As formerly, the prevention of yellow fever consists in applying the measures of isolation and of disinfection, and of improving the hygienic conditions.—Public Health Report.

Results of the Study of Bacteria on Modern Public Hygiene.

By A. C. Abbott, M. D.

In 1831-'32 England was awakened to activity through fear of cholera, and it is well for the world that she was, for with
During the past twenty years the field of greatest activity for the student of practical hygiene has been, as you may be aware, the biological side of the subject. Since the introduction by Koch of reliable methods of bacteriological investigation, our horizon has been enormously broadened. We have learned much of the causation of disease, much of the channels through which disease is disseminated and the portals through which it is contracted; and we have become more or less intimately acquainted with the principles that underlie the processes of disinfection and sterilization. Light has been thrown upon many of the phenomena involved in protective vaccination, and we have been enabled to familiarize ourselves with the bacteriological and general biological characteristics of water, soil, sewage and air, the manner in which they become polluted, and the steps taken by nature and by man for the elimination of pollution.

When, from our present-day standpoint, we recall the social conditions that obtained during the time of the great pestilences that swept large parts of the inhabited earth, carrying off thousands of lives, it is easy for us to comprehend that advances of inestimable advantage to humanity must have been made to account for the comparative rarity of some and the almost complete disappearance of other maladies that were common in those times. It is not that the peculiar morbid agents directly concerned in the causation of those diseases have necessarily been annihilated, but with an advance in civilization there have been corresponding advances in our understanding. Consider for a moment the history of typhus fever. Formerly it was of comparatively frequent occurrence in public institutions, jails, reformatories,
etc. To-day it is a medical rarity, not because the exciting factors of the disease have changed, but simply because by sanitary vigilance the conditions known to favor its development have been eliminated.

During the past five or six years, that historical pest, bubonic plague, has been present in certain localities in the Orient, with which we have regular commercial intercourse, and yet, even though an occasional case has come to our shore, the disease has gained no foot-hold, nor caused needless alarm, for the simple reason that we have justifiable faith in the precautions taken to prevent it.

Through the proper drainage of the soil and sanitary control of public water supplies the death rates from water-borne diseases have steadily fallen. In illustration of this it is only necessary to mention that in thirty years the death rate from typhoid fever in Munich fell from 291 to 10 per 100,000 of population, approximately 90 per cent. This resulted from the establishment of a complete system of drainage and the introduction of an unpolluted water supply. In less than a year after the new in-take had been finished at Chicago, there was a reduction in the death-rate from typhoid fever in the district supplied of something like 60 per cent. Within less than a year after the water supplied to Lawrence, Mass., was subjected to filtration, there was a reduction in the death-rate from this fever of something over 57 per cent. In the few months that have passed since the introduction of filtration in Albany, N. Y., there has been a reduction in the typhoid death-rate of about 70 per cent.

Whatever advances have been made in our knowledge of transmissible diseases, can, I think, be properly credited to the development of modern bacteriology. Not that this new science has enlightened us upon exciting causes of all diseases, for there are many that are commonly with us of the etiology of which we know nothing; scarlet fever and measles may be cited as familiar examples, while of the less common contagious maladies of whose causation we are ignorant, may be mentioned yellow fever, small-pox and typhus fever. On the other hand, we are fairly familiar with the specific morbid agents concerned in the causation of cholera, bubonic plague, typhoid fever, diphtheria, erysipelas and tuberculosis in man, while on the infective processes of domestic animals we have equally important data.

The application of bacteriological methods to the study of these diseases has resulted in much more than the simple detection of the causative agents. We have become familiar with the manner in which the dangerous matters are thrown off from the diseased body; in many instances their behavior outside the body; and the principal portals through which infection may occur.—University Medical Magazine, July, 1900, in Microscopical Bulletin.

The Conditions of Infection by Tubercle.

Arthur Ransome says that the conditions necessary for infection by the tubercle bacillus to take place are: (1) A virulent state of the microbe. It is often overlooked how easily the bacillus loses its power of infection. (2) The bacillus needs a certain kind of organic impurity upon which alone it can sustain its virulence. Tuberculosis is essentially a "filth disease," and seldom spreads unless organic impurity is present in houses, workshops or place of public assembly,
and this is generally to be discovered in the aqueous vapor of the air of these places. (3) The third condition of infection is that it must have a susceptible body to attack. Race, age and hereditary tendency all influence this factor. (4) The danger of infection from food is the last and least important factor, inasmuch as perfect sterilization by heat is possible. Although the bacillus stands freezing, dessication and putrefaction, and resists nearly all the aerial disinfectants, it is easily destroyed by a moderately high temperature. In deducing from these conditions the factors necessary to prevent infection he concludes: (1) All tuberculous matter, sputum, etc., must be destroyed or rendered innocuous by disinfection. (2) Houses inhabited by consumptives should be subjected to a thorough cleansing and disinfection, preferably by Delepine's method of washing all surfaces with a one per cent. solution of chloride of lime. (3) Local sanitary authorities should use all the means in their power to render the districts under their control healthily habitable. The same obligation rests on owners of property. (4) Legislation should enforce ventilation of workshops, theatres, etc., and forbid expectoration in public places. (5) The State should insist on the use of the tuberculin test for cattle. Meat and milk should be sterilized by thorough heating before use. — Medical Record.

**Review of Diseases for September, 1900.**

**EIGHTY-FOUR COUNTIES REPORTING.**

Ninety-four counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendant has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of September the following diseases have been reported from the counties named:

**Measles.**—Ashe, 8; Beaufort, 11; Bertie, a few; Cherokee, many; Cleveland, a few; Columbus; Currituck, 25; Durham, a few; Gates, abating; Jackson, 28; Martin, 25; Mecklenburg, a few; Pasquotank, 50; Richmond, 2; Rockingham; Rutherford, a few; Sampson, many; Stanly; Swain, 10; Washington, 20; Wayne, a few—21 counties.

**Whooping-cough.**—Beaufort, 3; Bertie, several; Buncombe, 1; Cabarrus, a few; Caldwell, 50; Cleveland, a few; Columbus, a few; Gates, abating; Graham, several; Granville, 6; Jackson, 2; Lincoln, many; Macon; Mecklenburg, a few; New Hanover, 7; Richmond, 2; Rutherford, several; Sampson, a few; Stanly; Union, 8 or 10; Warren, 1; Wayne, 1—22 counties.

**Scarlet Fever.**—Buncombe, 1; Guilford, 1; Halifax, 3; Iredell, many; Mecklenburg, a few; Richmond, 2; Robeson, 3; Yancey, 1—8 counties.

**Diphtheria.**—Alexander, 2; Brunswick, 3; Buncombe, 1; Cabarrus, 2; Durham, 4; Gaston; McDowell, 1; Polk, epidemic in one part, with a number of deaths, now abated; Randolph, 2; Rutherford, a few; Stanly; Surry, 2; Union, 1; Wake, 1—14 counties.

**Typhoid Fever.**—Ashe, 6; Beaufort, 4; Buncombe, 9; Burke, 4; Cabarrus, 10; Caldwell, 15; Chatham, a few; Cleveland, a few; Columbus, many; Craven, 4; Dare, 3; Durham, a few; Forsyth, a few in all
parts; Franklin, 2 or 3; Granville, 2; Greene, 4; Guilford, 3; Harnett, many; Haywood, 8; Henderson, 1; Hertford, a few; Iredell, many; Jackson, 4; Johnston, 1; Jones, 3; Lenoir, a few; McDowell; Macon, 1; Madison, 25; Martin, 4; New Hanover, 2; Onslow, 1; Orange, 4; Pasquotank, 3; Perquimans, 3; Person; Polk, 2; Randolph, 15; Richmond, several; Robeson, a few; Rockingham, many; Sampson, many; Stanly, in all parts: Stokes, 10; Surry, 8; Transylvania, 1; Union, 6; Wake, 12; Warren, 7; Washington, 2; Wayne, 3; Wilkes, in nearly all parts; Yadecy, several—53 counties.

**Malarial Fever.**—Beaufort; Bertie, general; Brunswick, general; Caswell, general; Chatham, a few; Chowan, general; Cumberland, general; Craven; Currituck, general; Davie, a few; Franklin, a few; Gates, general; Granville, general; Greene, general; Guilford; Halifax, a few; Harnett, in many parts; Hyde; Iredell, general; Johnston; Jones; Lenoir, in a few parts; Lincoln, general; Nash; New Hanover, general; Northampton, a few; Onslow; Orange, several; Pasquotank; Pender, general; Perquimans, general; Person; Richmond; Robeson, in several parts; Sampson, in nearly all parts; Stanly, general; Vance, general; Wake, general; Washington, general; Wayne; Wilson, general—41 counties.

**Malarial Fever, Pernicious.**—Beaufort, 1; Brunswick, 2; Chowan, 3; Columbus, 1; Hyde, 2; Johnston, 1; Jones, 4; Pasquotank, 2—8 counties.

**Malarial Fever, Hemorrhagic.**—Chowan, 1; Craven, 1; Hyde, 1; Johnston, 1; Nash, 1; Perquimans, 1—6 counties.

**Diarrheal Diseases.**—Sampson.

**Influenza.**—Henderson; Richmond.

**Meningitis.**—Stanly, a small epidemic.

**Mumps.**—Chatham; Lincoln, in all parts; Surry.

**Pneumonia.**—Gaston.

**Simple Continued Fever.**—Graham.

**Verecella.**—Cabarrus, a few; Sampson, in nearly all parts.

**Small-pox.**—Cherokee, 2; Craven, 1; Forsyth, 5; Henderson, 1; Randolph, 4; Wilkes, 12—6 counties.

**Cholera in Chickens.**—Cleveland.

**Cholera in Hogs.**—Bertie, Columbus, Robeson.

**Pink-Eye in Horses.**—Henderson, Macon.

No diseases are reported from Bladen, Carteret, Catawba, Clay, Davidson, Edgecombe, Mitchell, Pitt, and Watauga.

No reports received from Alamance, Alleghany, Anson, Cumberland, Duplin, Montgomery, Moore, Rowan, Pamlico and Yadkin.

---

**Summary of Mortuary Reports for September, 1900.**

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>Aggregate deaths</th>
<th>Represents temporary annual death rate per 1,000</th>
<th>Causes of Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typhoid fever</td>
<td>3</td>
<td>13.8</td>
<td>18.0</td>
</tr>
<tr>
<td>Malarial fever</td>
<td>2</td>
<td>13.8</td>
<td>18.0</td>
</tr>
<tr>
<td>Diphtheria</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Consumption</td>
<td>6</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>Brain diseases</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Heart diseases</td>
<td>6</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Neurotic diseases</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Diarrheal diseases</td>
<td>14</td>
<td>15</td>
<td>29</td>
</tr>
<tr>
<td>All other diseases</td>
<td>42</td>
<td>57</td>
<td>99</td>
</tr>
<tr>
<td>Accident</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

---

Deaths under five years | 32 | 50 | 82 |
Still-born | 5 | 14 | 19 |
Mortuary Report for September, 1900.

<table>
<thead>
<tr>
<th>Towns and Reporters</th>
<th>Population</th>
<th>Temporary Annual Death Rate per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rates</td>
<td>By Races</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>By Races</td>
</tr>
<tr>
<td>Charlotte</td>
<td>19,176</td>
<td>W. 11.6</td>
</tr>
<tr>
<td>Dr. E. O. Hawley</td>
<td>9,824</td>
<td>C. 26.0</td>
</tr>
<tr>
<td>Durham</td>
<td>4,000</td>
<td>W. 0.0</td>
</tr>
<tr>
<td>Dr. Z. T. Brooks</td>
<td>2,500</td>
<td>C. 1.0</td>
</tr>
<tr>
<td>Henderson</td>
<td>2,250</td>
<td>W. 1.0</td>
</tr>
<tr>
<td>Dr. F. R. Harris</td>
<td>2,000</td>
<td>C. 0.0</td>
</tr>
<tr>
<td>Hillsboro</td>
<td>400</td>
<td>W. 0.0</td>
</tr>
<tr>
<td>Dr. C. D. Jones</td>
<td>300</td>
<td>C. 1.0</td>
</tr>
<tr>
<td>Lenoir</td>
<td>900</td>
<td>W. 0.0</td>
</tr>
<tr>
<td>Dr. A. A. Kent</td>
<td>300</td>
<td>C. 1.0</td>
</tr>
<tr>
<td>Marion</td>
<td>800</td>
<td>W. 0.0</td>
</tr>
<tr>
<td>Dr. B. A. Cheek</td>
<td>1,200</td>
<td>C. 1.0</td>
</tr>
<tr>
<td>Monroe</td>
<td>1,800</td>
<td>W. 0.0</td>
</tr>
<tr>
<td>Dr. J. M. Blair</td>
<td>2,400</td>
<td>C. 1.0</td>
</tr>
<tr>
<td>Oxford</td>
<td>1,200</td>
<td>W. 0.0</td>
</tr>
<tr>
<td>Dr. S. D. Booth</td>
<td>2,500</td>
<td>C. 1.0</td>
</tr>
<tr>
<td>Raleigh</td>
<td>11,000</td>
<td>W. 15.6</td>
</tr>
<tr>
<td>T. P. Sale, Clerk B. H.</td>
<td>8,000</td>
<td>C. 15.6</td>
</tr>
<tr>
<td>Rockingham</td>
<td>1,500</td>
<td>W. 10.0</td>
</tr>
<tr>
<td>Dr. J. M. Ledbetter</td>
<td>1,000</td>
<td>C. 10.0</td>
</tr>
<tr>
<td>Rocky Mount</td>
<td>4,100</td>
<td>W. 13.2</td>
</tr>
<tr>
<td>Dr. G. L. Wimblerly, Jr.</td>
<td>4,500</td>
<td>C. 13.2</td>
</tr>
<tr>
<td>Salem</td>
<td>6,000</td>
<td>W. 9.3</td>
</tr>
<tr>
<td>S. E. Butner, Mayor</td>
<td>9,000</td>
<td>C. 9.3</td>
</tr>
<tr>
<td>Salisbury</td>
<td>3,000</td>
<td>W. 6.0</td>
</tr>
<tr>
<td>Dr. W. W. McKenzie</td>
<td>1,000</td>
<td>C. 6.0</td>
</tr>
<tr>
<td>Tarboro</td>
<td>2,500</td>
<td>W. 12.0</td>
</tr>
<tr>
<td>Dr. L. L. Staton</td>
<td>3,000</td>
<td>C. 12.0</td>
</tr>
<tr>
<td>Washington</td>
<td>2,500</td>
<td>W. 12.0</td>
</tr>
<tr>
<td>Dr. J. G. Blount</td>
<td>6,000</td>
<td>C. 12.0</td>
</tr>
<tr>
<td>Weldon</td>
<td>700</td>
<td>W. 0.0</td>
</tr>
<tr>
<td>J. T. Gooch, Mayor</td>
<td>1,450</td>
<td>C. 1.0</td>
</tr>
<tr>
<td>Wilmington</td>
<td>12,000</td>
<td>W. 34.2</td>
</tr>
<tr>
<td>Dr. Chas. T. Harper</td>
<td>27,000</td>
<td>C. 34.2</td>
</tr>
<tr>
<td>Wilson</td>
<td>2,500</td>
<td>W. 28.8</td>
</tr>
<tr>
<td>Dr. W. S. Anderson</td>
<td>4,800</td>
<td>C. 28.8</td>
</tr>
</tbody>
</table>

N.B.—The reporters for the cities and towns printed in Black Type have signed this certificate: "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.
County Superintendents of Health.

Alamance........Dr. T. S. Faucette.
Alexander..........Dr. T. F. Stevenson.
Allegany..........Dr. B. C. Waddell.
Anson.............Dr. E. S. Ashe.
Ashe...............Dr. Manley Blevins.
Beaufort..........Dr. P. A. Nicholson.
Bertie............Dr. H. V. Dunstan.
Bladen............Dr. Newton Robinson.
Brunswick.........Dr. J. A. McNeill.
Bruncombe.........Dr. James Sawyer.
Burke..............Dr. J. L. Laxton.
Cabarrus.........Dr. D. G. Caldwell.
Caldwell.........Dr. A. A. Kent.
Camden............
Carteret..........Dr. F. M. Clark.
Caswell...........Dr. S. A. Malloy.
Catawba..........Dr. Geo. H. West.
Chatham..........Dr. H. T. Chapin.
Cherokee..........Dr. J. F. Abernathy.
Chowan...........Dr. T. J. Hoskins.
Clay..............Dr. J. M. Sullivan.
Cleveland.........Dr. B. H. Palmer.
Columbus..........Dr. I. Jackson.
Craven...........Dr. R. DuVal Jones.
Cumberland.......Dr. J. Vance McGougan.
Currituck........Dr. H. M. Shaw.
Dare..............Dr. W. B. Fearing.
Davidson.........Dr. Joel Hill.
Davie.............Dr. James McGuire.
Duplin............Dr. James W. Blount.
Durham...........Dr. Z. T. Brooks.
Edgecombe.........Dr. L. L. Staton.
Forsth...........Dr. John Bynum.
Franklin.........Dr. E. S. Foster.
Gaston...........Dr. J. H. Jenkins.
Gates............Dr. W. O. P. Lee.
Graham...........Dr. R. J. Orr.
Granville........Dr. S. D. Booth.
Greene...........Dr. Joseph E. Grimley.
Guilford.........Dr. R. L. Rierson.
Halifax...........Dr. I. E. Green.
Harnett..........Dr. O. L. Denning.
Haywood..........Dr. F. M. Davis.
Henderson........Dr. J. G. Waldrop.
Hertford..........Dr. John W. Taylor.
Hyde..............Dr. E. H. Jones.
Iredell..........Dr. Henry F. Long.
Jackson..........Dr. Wm. Self.
Johnston.........Dr. L. D. Wharton.
Jones............Dr. S. E. Koonce.
Lenoir...........Dr. W. T. Parrott.
Lincoln..........Dr. J. W. Saine.
McDowell.........Dr. B. A. Cheek.
Macon............Dr. F. L. Siler.
Madison..........Dr. Jas. K. Hardwicke.
Martin...........Dr. W. H. Harrell.
Mecklenburg....Dr. F. M. Winchester.
Mitchell.........Dr. C. E. Smith.
Montgomery.......Dr. M. P. Blair.
Moore............Dr. Gilbert McLeod.
Nash..............Dr. J. P. Battle.
New Hanover.....Dr. W. D. McMillan.
Northampton.....Dr. H. W. Lewis.
Onslow..........Dr. E. L. Cox.
Orange..........Dr. C. D. Jones.
Pamlico..........Dr. G. A. Katon.
Pasquotank.......Dr. H. T. Aydlett.
Pender..........Dr. L. L. Ardrey.
Perquimans.......Dr. C. C. Winslow.
Person..........Dr. J. A. Wise.
Pitt...............Dr. C. O' H. Laughing-house.
Polk...............Dr. Earle Grady.
Randolph........Dr. T. T. Ferree.
Richmond........Dr. J. M. Ledbetter.
Robeson..........Dr. H. T. Pope.
Rockingham......Dr. Sam Ellington.
Rowan...........Dr. W. L. Crump.
Rutherford......Dr. W. A. Thompson.
Sampson..........Dr. R. E. Lee.
Scotland.........
Stanly...........Dr. V. A. Whitley.
Stokes...........Dr. W. L. McCanless.
Surry............Dr. John R. Woltz.
Swain...........Dr. R. L. Davis.
Transylvania.....Dr. M. M. King.
Tyrrell..........Union..................Dr. J. E. Ashcraft.
Wake...............Dr. J. J. L. McCullers.
Warren..........Dr. T. B. Williams.
Washington......Dr. W. H. Ward.
Watauga.........Dr. E. F. Bingham.
Wayne...........Dr. Williams Spicer.
Wilkes........Dr. J. M. Turner.
Wilson...........Dr. W. S. Anderson.
Yadkin..........Dr. B. B. Hauser.
Yancey.........Dr. W. M. Austin.
[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

- Whooping-cough
- Measles
- Diphtheria
- Scarlet Fever
- Pernicious Malarial Fever
- Hemorrhagic Malarial Fever
- Typhoid Fever
- Typhus Fever
- Yellow Fever
- Cholera
- Smallpox
- Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:

M. D.

N. C.
A Review of Our Knowledge of Malaria.

We have printed so much in our columns on the subject of malaria that we ought, perhaps, to hesitate about imposing further on our readers still more of the same sort, but malaria plays such a part in the sickness of our people that its importance is manifest, and anything on the subject that is to the point can never come amiss. But the subjoined résumé of our knowledge of malaria to date, which we find in the last number of The New York Medical Journal, is so interesting, so clear and so convincing as to one cause, at any rate, of that disease—and we believe the principle cause—that we feel sure that no one who reads it will consider an apology for reprinting it necessary.

A REVIEW OF OUR KNOWLEDGE OF MALARIA.*

BY JOSEPH MCFARLAND, M. D.,
PHILADELPHIA,
PROFESSOR OF PATHOLOGY AND BACTERIOLOGY
IN THE MEDICO-CHIRURGICAL COLLEGE.

I wish you to take away with you an illustration of the gradual evolvement of medical knowledge and the metamorphoses our ideas pass through as discovery succeeds discovery, and therefore invite you to indulge me while I review for you our knowledge of the disease called malaria.

The word malaria comes from the Italian mala, bad, and aria, air, and was originally intended to express a diseased condition arising from the inspiration of bad air.

The disease has been known for several thousand years, and about one hundred

*The greater portion of an address delivered at the opening of the twentieth annual session of the college.
years before Christ a Roman physician named Varro wrote a treatise upon it, in which he suggested a kind of germ theory. His idea was that small animals growing in marshes arose in the atmosphere, were inhaled or swallowed by men, and made them ill.

Until 1880 we really learned little more about the disease than Varro knew, and in every text-book up to that time, and in most of those up to the present time, it is described as the typical miasmatic disease and referred to "bad air."

Briefly summarized, the accumulated knowledge of malaria in 1880 was as follows:

1. The disease is not universally prevalent, but is confined to well-defined and usually rather circumscribed districts, in some of which it is continuously prevalent and extremely pernicious, in others intermittently prevalent and milder in type.
2. The districts in which the disease prevails are usually marshy lowlands.
3. The disease is most prevalent and severe in the summer, especially in damp seasons and toward the autumn.
4. The danger of infection is greatest after sunset and during the night.
5. All ages, both sexes, rich and poor, black and white may become affected, though the negro resists the disease better than the white man.
6. New-comers in a malarious district are more liable to infection than the regular inhabitants.
7. The infection occurs most readily near the ground, and by living in tall buildings, sleeping in trees, ascending to neighboring hills at night, may be avoided.
8. The danger of infection is increased by sleeping with the windows open at night, especially on the side of the house toward the marsh.
9. The danger of infection is greater in still than windy atmospheres.
10. Trees planted between a domicile and a swamp seem to keep off the infection.
11. Winds carry the infection but a short distance.
12. Thin clothing predisposes to the disease if worn at night.
13. The disease is not contagious.

The important advances in our knowledge of the disease began in 1880. Speaking of them, Koch says that there have been three important discoveries:

1. The discovery of the malarial parasite by Laveran.
2. The discovery of its developmental cycle in man by Golgi.
3. The discovery of its developmental cycle in the mosquito by Ross.

1. *The malarial parasite* was discovered by Laveran, a French military surgeon, in 1880. He found that when he examined the blood of a malarial patient under the microscope, the red blood corpuscles frequently contained small hyaline and larger pigmented bodies with active amoeboid movements. He called the bodies "plasmodia" and suggested that they might be the cause of the disease.

Observers all over the world immediately repeated his observations and fully confirmed them, the parasite then being accepted as the specific cause of the disease because:

a. It was invariably present in the blood in typical cases of the disease.

b. Its appearance, which varied with its developmental stages, invariably coincided with the stages of the disease.

c. It was never found in the blood except in malarial fever.
d. Its developmental stages, which correspond perfectly with other well-known forms of animal life, showed it to be a minute animal parasite.

e. When blood containing it was injected into healthy men and apes they became affected with the disease.

II. The development of this little animal was discovered by an Italian named Golgi. In its earliest stages it appears as a minute, hyaline, usually ring-shaped body within or upon a red blood corpuscle. The parasite seems to feed upon the corpuscle, and in a short time pigment granules make their appearance from alteration of the coloring matter of the corpuscle.

The parasite continues to increase in size, the pigment granules become more numerous, and are frequently observed to be in active motion in the protoplasm. When the parasite attains about the size of a red corpuscle, the pigment granules cluster in the center and the protoplasm begins to segment, finally dividing into from six to twenty rounded hyaline bodies of small size, known as spores. The spores immediately penetrate new corpuscles and begin again the cycle of development.

Golgi, in 1885, first observed coincidence between the occurrence of a paroxysm of the disease and the segmentation of the organism. In a typical case the parasites, all being of the same age, divide at about the same time, and at this time the chill, fever and sweat characteristic of the disease come on.

The intermittent character of the fever, therefore, depends upon the length of time during which the parasites develop from spores to segmenting bodies, and varies in different parasites from forty-eight to seventy-two hours.

Laveran observed that, in addition to the intra-corpuscular parasites, certain large free forms, usually of crescentic shape, were present. Their number was greatest in the testivo-autumnal form of the disease. From their shape they became known as “crescents,” or “crescentic bodies.” Two forms could be observed, one more rounded than the other. If the blood containing these bodies was withdrawn and examined under the microscope, a change was observed to take place in the more rounded body, which in the course of about fifteen minutes became peculiarly agitated, and then discharged delicate elongate filamentous processes which lashed actively to and fro, stirring up the blood corpuscles in the neighborhood, and finally becoming detached and swimming away.

Although these flagellated bodies were observed by Laveran and studied by Golgi, neither investigator was able to interpret their function, and a feeling gradually developed that they were artefacts or accidental entities produced by the death of the parasite. Some investigators regarded them as permanent forms assumed to maintain the existence of the dying parasite.

Manson was sagacious enough to realize that this wriggling and independent flagellum could not be evolved from a disintegrating parasite, and arguing by analogy from our knowledge of the life history of filaria, concluded that it must be a permanent form of the parasite adapted to existence in some intermediate host, probably the mosquito.

This thought that the mosquito must have something to do with the occurrence of malaria was not new. It had been previously seriously considered by King in this country, and, strange as it may seem, there has been for years a widespread belief among the common people of this country and of Europe, as well as
among many savage peoples of Africa, that malaria is caused by mosquito bites.

The theory of Manson was that the mosquito preyed upon malarial blood, the flagellated body developing in its intestine, penetrated its wall and entered the tissues, where it took up its residence until the insect, seeking water in which to lay its eggs, dropped dead there, disintegrated, and thus liberated the parasite, which completed its very complicated development in the water, with which it entered the human body to set up a new infection.

This theory was erroneous, and the real significance of the flagellum was later demonstrated by MacCallum.

Before briefly outlining the work of this American observer, I must mention to you the fact that the human malarial parasite is only one of a considerable number of blood parasites of like nature, some of which infect the lower animals. Koch includes as true malarial parasites (1) that of human quarten fever; (2) that of human tertian fever; (3) that of human septivo-autumnal fever; (4) the organism found in the blood of African apes by himself and Kossel; (5) the Proteosoma Grossii (Labbé), which infects many of the smaller birds (sparrows, canaries, etc.); and (6) the Halteridium Danilevskyi (Labbé), which infects many of the larger birds (crows, jays, owls, etc.). Somewhat similar parasites also occur in frogs, rats, and cattle in various diseases and sometimes in health.

All these organisms have met with careful study during recent years, and it is very largely through these studies, especially those referring to the Halteridium and Proteosoma, that we have attained to our present knowledge of human malaria.

MacCallum’s important contribution was the discovery of the function of the flagellated body. He was studying the Halteridium parasite, and, observing the large ellipsoid bodies which correspond to the crescentic bodies of the human parasite, found that he was able to divide them into hyaline and granular forms, the former alone giving rise to the flagella.

Watching the organisms carefully, he observed the flagellation of a hyaline body, and then followed the wriggling flagellum as it swam away. With others of its kind it directed its motion toward one of the large granular ellipsoids, which as the filaments approached became violently agitated. Finally, one of the filaments entered the granular body and effected a symbiosis with it, the process no doubt being one of vital sexual fertilization. Following the fertilization came a short period of rest, after which the granular body gradually changed to a pointed, worm-like body, then slowly and steadily swam away, its pointed end foremost, dragging behind it a partially detached mass of pigment granules formerly contained within its protoplasm. This process of fertilization is, then, the office of the flagellum, and, being discovered, at once overthrow all Manson’s theories.

What MacCallum observed of the Halteridium, he was subsequently able to confirm in the case of the Septivo-Autumnal human parasite. Knowing their function, it ceased to be correct to speak of the filaments as flagella, and MacCallum calls the crescentic bodies microgametocytes, the filaments microgametocytes.

III. We now come to the third important discovery, that of the mosquito as the intermediate host, by Ross. A pupil of Manson, Ross became interested in his theory of the rôle of the mosquito in malaria, and determined to investigate it. Following the outline given by Manson, his first efforts were directed toward find-
ing out what became of the malarial parasites when taken into the body of the mosquito. His early researches were carried on in India, and concerning them it may be well to hear his own words: "Convinced by his (Manson’s) arguments, I commenced the experimental study of the subject in Secunderabad, India, in 1895. Hundreds of mosquitoes were fed upon patients whose blood contained gametocytes and examined a few minutes afterward. While it was, indeed, observable that a larger proportion of crescents yield motile filaments in the insect’s stomach than in vitro, I failed to find any further development of these filaments. I attributed this failure to the extreme delicacy of the bodies, and consequently determined to vary the procedure. Insects fed as before, instead of being examined almost at once for the filaments, were kept alive for some days and then searched for the parasites which, by hypothesis, the filaments should have developed into in the meantime. The difficulty here was that we possessed no indication as to the form and appearance which these parasites would adopt, while we did not even know what species of gnat (mosquito) would be able to accommodate them (and we had no right to assume that all species would have this power). Many hundreds of individuals of the common species of gnats (Culex) were searched during more than two years in vain. At last, in August and September, 1897, while working with two new species (Anopheles) bred from the larva and fed on patients containing crescents, I found certain peculiar spheroidal cells on the wall of the stomach, which at once aroused my suspicions, because I had never seen them before and because they contained the typical pigment of the parasites of malaria. In fact, I was convinced that these cells constituted the long-sought mosquito stage of the parasites."

At this point Ross’ work was interrupted for a time, during which MacCallum determined the function of the flagellum, or microgametocyte. When he next took up his work the positive knowledge at his command was that when a mosquito withdrew blood from a patient with malaria, the hyaline crescentic bodies underwent the change leading to the formation of microgametocytes, and by these the granular gametocytes were fertilized. The fertilized parasite, Ross supposed, was that which had attracted his attention in the muscular tissue of the mosquito’s intestine, whither it had migrated. To the parasite in this stage the name zygote is now given, and the next work to which Ross devoted himself was to determine what became of the zygotes. In 1898 Ross was placed on special duty in Calcutta and continued his investigations, not, however, with human malaria, as the bubonic plague was raging in Calcutta and the people were so alarmed that they would not permit any kind of experimentation, but with the proteosoma parasite of birds. As this parasite is common among birds in India and readily infects common mosquitoes, its study was unattended with great obstacles.

Ross found that "the zygotes of the proteosoma attach themselves to the outer coat of the insect’s stomach, where they first appear as small oval or rounded cells from 8 to 12 microns in diameter. Each little cell contains about 12 to 20 granules of melanin. The zygotes grow rapidly without movement or change of position or of shape, and protrude into the insect’s body cavity. As growth proceeds, the capsule becomes marked and the substance of the cell divides into about
a dozen meres, each mere containing some of the bioplasm and some of the chromatin of the zygote. In from one to three weeks, according to the external temperature, the zygote reaches maturity, each mere having produced a large number of delicate thread-like blasts from 12 to 16 microns in length, attached by their ends to a spherical blastophon which finally vanishes. The capsule of the zygote now ruptures and scatters the blasts into the insect’s blood, by which they are carried to all parts of its tissues. Many of them find their way into the cells of the gnat’s salivary glands, in which they lie ensconced, sometimes in large numbers. The salivary gland of the mosquito consists of six lobes, the ducts of which unite in a common vessel which passes along the middle stylet or lancet of the proboscis and opens at its extremity. Hence the secretion of the gland must be poured into the wound made by the insect’s bite, and is probably the cause of the irritation which the bite causes. Hence, also, the blasts must pass along with the secretion into the wound. The inference is obvious—the blasts enter the circulation of a fresh intermediary host, in which they set up a malarial infection, by becoming the amebule with which the life history of the parasite commenced. In other words, malarial infection is caused by the bites of infected gnats (mosquitoes).”

“To establish this important point beyond all possibility of doubt, I made the following experiments (June and July, 1898): A number of culex were fed upon sparrows infected with . . Proteosoma Grossii. The insects were kept alive for one week until many of them showed blasts in their salivary glands. The rest (many of which must, of course, have been similarly infected) were now fed again on healthy sparrows, another batch of healthy sparrows being in the meantime preserved from the bites of mosquitoes, for comparison. Out of twenty-eight healthy sparrows which had been subjected to the experiment, twenty-two became infected in from five to eight days afterward, while the control birds remained perfectly healthy.”

What Ross discovered to be the life history of the proteosoma in the mosquito was subsequently proved to be true of the human malarial parasite by the Italian investigators. They approached the subject in quite a different manner. It is well known that mosquitoes abound in malarious localities, so Grossi (1898) directed his attention to the study of the geographical distribution of the insects, to determine, if possible, whether in the districts known to be malarious there might be some mosquitoes invariably present, not found elsewhere, that alone might be suitable for the residence of the malarial parasite. He found that in malarious districts three chief species of mosquitoes abounded. One of them, the Anopheles claviger, is constantly present. It is a large mosquito, very common in Italy, where it is called zazaroni. The other species are Culex penicellaris and Culex malarix (not fully determined).

Bastianelli, Bignami, and Grossi (November, 1898) were successful in observing the development of crescentic malarial parasites in the intestinal wall of the Anopheles claviger. They placed patients suffering from aestivo-autumnal malarial fever in a room with six specimens of Culex pipiens, one of Anopheles nigripes, and four of Anopheles claviger. The subsequent examination of the insects gave a positive result only in the case of two of the last-named species. The developmental changes observed in the parasites
in the mosquito corresponded with those described by Ross. Subsequently Bastianelli, Bignami, and Grossi were successful (1) in infecting healthy mosquitoes by permitting them to prey upon infected men, (2) in infecting healthy men by allowing infected mosquitoes to bite them.

The mosquito chiefly concerned in the propagation of malarial fever is the Anopheles claviger, though two other species of the genus anopheles are also under suspicion. The common mosquitoes of the genus culex were found both by Ross and the Italian workers to be innocent.

I regret that lack of time and a due consideration of your patience, which must be by this time sorely taxed, will not permit me to point out the interesting field experiments conducted upon the Roman Campagna, or to enter into the details of the work done by various malarial commissions. It would also be of interest if I could pause to describe the guilty insect offenders and the means that have been suggested for their extermination. I must, however, content myself with the presentation of this much of the subject, and end by a summary that will bring together all the scattered facts discussed.

We now know that when a mosquito of the species Anopheles claviger sucks blood from a human being infected with malaria, the parasites undergo a cycle of development in the body of the insect, which is completed in from one to three weeks, according to the temperature, and results in the formation of a large number of minute embryo parasites—blasts—which find their way to the cells of the salivary glands, from which, together with the saliva, they pass into the next animal or man bitten by the mosquito, and there set up a malarial infection characterized by the parasites of Laveran, pursuing the same developmental cycle described by Golgi, and ready, as soon as mature, to infect the next mosquito sucking the blood.

Thus there is an alternating series of infection, man, mosquito, man, mosquito, etc., going on ad infinitum until cold weather or other accident destroys the mosquitoes or makes them inactive.

In order, therefore, that a person shall be infected with malaria, it is necessary that he shall be bitten by a particular kind of mosquito at a definite length of time after it has become infected by the blood of a malarial patient.

You will err in believing that the bite itself does it. No simple mosquito bite or any number of them do any harm so far as malaria is concerned. The essential is the presence of the blasts in the saliva of the mosquito, and these occur only in infected mosquitoes. Anopheles mosquitoes bred from the larva are harmless until accident brings them to some one suffering from malaria, and then, after from one to three weeks, they are ready to infect any one they bite. As Celli says: "The same mosquito may bite and infect many persons in a single night." The ability to infect is not imparted by the mosquito to its offspring. It is not impossible that malarial infection may take place in other ways than by mosquito bites, but the collected experimental evidence makes this so improbable that it can almost be denied. In the most malarial localities susceptible persons can remain healthy for indefinite periods if thoroughly protected from the mosquitoes.

The "mosquito theory" is, then, a clearly demonstrated fact, and fully explains every particular of the natural history of the disease.

Certain districts, and particularly mar-
The autumn is the most malarial season of the year, because there are more mosquitoes then, and because more of them have had opportunity to become infected. Infection takes place at night rather than in the day-time, because mosquitoes are nocturnal in their habits. The infection occurs near the ground, because the mosquitoes frequent the low-lands and do not fly high. It occurs in rooms with windows open, because the mosquitoes can readily enter. Still atmospheres predispose to it, because mosquitoes seek shelter from the wind. It is carried but short distances by the wind, because mosquitoes avoid flying in the wind. Its occurrence is favored by turning up the soil, because of the occurrence of puddles in which the insects breed. It disappears from marshy districts after they are drained, because the mosquitoes no longer find breeding places there. It disappears when the soil is well tilled, because the breeding places of the insects are interfered with.

The disease is readily transported from place to place by sufferers from it seeking salubrious localities, and by the transportation of mosquitoes in carriages, railroad cars, etc. The disease has an incubation of some days, so that its development in a patient at one place may not mean that it was not acquired at another place.

Where now is "mal-aria?" In the progress of information it has lost all its original significance, and from a disease thought to be caused by bad air we have found out that it is specific, infectious, and that the air has nothing to do with it.

Surely, after this account of one of the most interesting diseases, you will agree with me that the science of medicine is progressive and its collateral aids are innumerable; also, that for its intelligent understanding, one must free himself from every kind of prejudice, and be unrestrained by any fundamental dogma or "pathy."

---

Review of Diseases for October, 1900.

EIGHTY-FIVE COUNTIES REPORTING.

Ninety-three counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendant has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of October the following diseases have been reported from the counties named:

**Measles—** Beaufort, 12; Cleveland, several; Columbus, epidemic; Cumberland, 6; Durham, a few; Granville, 4; Haywood, several; Henderson, 30; Jones, 1; Mecklenburg, a few; Pasquotank, 10; Pender, epidemic; Polk, 1; Richmond, several; Stanly, epidemic; Swain, 25; Vance, several; Wake, 3; Washington, 4—19 counties.

**Whooping-cough—** Beaufort, 3; Bertie, several; Buncombe, 2; Chowan, several; Craven, 3; Currituck, 3; Durham, a few;
Graham, a great many; Granville, 8; Jackson, 2; Lincoln, 4; Macon; Mecklenburg, a few; Moore, several; New Hanover, 7; Richmond; Stanly; Union, 2; Watauga, a few; Wilson, 1—20 counties.

SCARLET FEVER—Brunswick, 3; Buncombe, 2; Caldwell, 10; Craven, 2; Davidson, 13; Franklin, 2; Halifax, 2; Henderson, 5; Iredell, many; Orange, 1; Polk, 1; Richmond, 1; Stanly, 2; Union, 3; Watauga, a few; Wayne, a few.—16 counties.

DIPHTHERIA—Brunswick, 6; Buncombe, 1; Gaston; Iredell, 2; Jackson, 1; Lincoln, 1; McDowell, 3; Macon, 2; Mecklenburg, 20; New Hanover, 1; Polk, 1; Rockingham; Wake, 1; Warren, 2; Wayne, 1; Wilkes—16 counties.

TYPHOID FEVER—Alamance, 3; Ashe, 2; Beaufort, 5; Brunswick, 2; Buncombe, 5; Cabarrus, 12; Caldwell, 5; Catawba, 3; Chatham; Chowan, 3; Columbus, 3; Craven, 1; Cumberland, 3; Currituck, 5; Davidson, several; Duplin, 1; Durham, a few; Gates, 1; Graham, 2; Granville, 3; Greene, 2; Harnett, many; Henderson, 1; Iredell, many; Jackson, 2; Johnston, 4; Jones, several; Lenoir; Lincoln, 1; McDowell; Macon, 2; Madison, 10; Martin, 8; Moore, 4; New Hanover, 14; Northampton, many; Orange, 4; Pasquotank, 5; Pender, 3; Person, 5; Pitt, in all parts; Polk, 6; Richmond, several; Robeson; Rockingham, a great many; Rutherford, a few; Sampson, a few; Stanly, in all parts; Surry, 6; Transylvania, 1; Union, 6; Vance, several; Wake, 19; Warren, 6; Washington, 2; Wilson, 1; Yancey, 2—57 counties.

MALARIAL FEVER—Alamance, Bertie, general; Bladen, several cases; Brunswick; Cabarrus, general; Chatham, several; Chowan, general; Columbus; Craven; Cumberland; Currituck; Dare, general; Davie; Duplin; Franklin; Gates, a few; Granville; Greene, general; Halifax; Harnett, in many parts; Hyde; Iredell, general; Johnston; Jones, general; Lenoir; Lincoln, general; Martin, general; Nash; New Hanover, general; Northampton; Onslow, general; Pasquotank; Pender; Person; Richmond, several; Robeson; Rockingham, a few; Sampson; Vance, general, mild; Wake, general; Warren; Washington, general; Wayne; Wilson, general, mild—44 counties.

MALARIAL FEVER, FERNICIOUS—Brunswick, 2; Chowan, several; Columbus, 2; Craven, 2; Greene, 2; Hyde, 1; Pasquotank, 2; Robeson, 1; Washington, 1—9 counties.

MALARIAL FEVER, HEMORRHAGIC.—Brunswick, 1; Chowan, 5; Craven, 4; Franklin, 2; Greene, 1; Hyde, 4; Johnston, 1; Martin, 2; Nash, 1; New Hanover, 12; Onslow, 2; Pasquotank, 1; Pender, 2; Washington, 5; Wayne, several—15 counties.

INFLUENZA—Henderson, in all parts; Richmond; Stokes, in all parts.

MUMPS—Chatham.

PNEUMONIA—Ashe, Franklin, Gaston, Rockingham.

SMALL-POX—Buncombe, 1; Forsyth, 2; Pamlico, 23; Richmond, 1; Wake, 5.

CHOLERA IN HOGS—Ashe, Columbus, Duplin, Hyde, Robeson.

PINK-EYE IN HORSES—Henderson.

No diseases reported from Alexander, Burke, Carteret, Caswell, Cherokee, Edgecombe, Mitchell and Randolph.

No reports received from Alleghany, Anson, Clay, Guilford, Hertford, Montgomery, Perquimans, Rowan and Yadkin.

---

Summary of Mortuary Reports for October, 1900.

(Twenty Towns).

Aggregate population White Col'd. Total. 86,926 56,524 146,450

Aggregate deaths... 143 114 257

Representing temporary annual death rate per 1,000 19.7 23.0 21.0

Causes of Death.

Typhoid fever 14 3 17

Malarial fever 8 12 20

Diphtheria 3 0 3

Whooping-cough 1 1 2

Measles 1 0 1

Pneumonia 7 2 9

Consumption 15 8 23

Brain diseases 5 4 9

Heart diseases 6 5 11

Neurotic diseases 3 6 9

Diarrheal diseases 21 16 37

All other diseases 59 56 115

Accident 0 1 1

Deaths under five years 61 38 99

Still-born 5 6 11

---
### Mortuary Report for October, 1900.

<table>
<thead>
<tr>
<th>Towns and Reporters</th>
<th>Population</th>
<th>Temporary Annual Death Rate per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Races</td>
<td>By Races</td>
</tr>
<tr>
<td>Asheville</td>
<td>W. 8,000</td>
<td>13,000</td>
</tr>
<tr>
<td></td>
<td>C. 5,000</td>
<td>25.6</td>
</tr>
<tr>
<td>Charlotte</td>
<td>W. 19,176</td>
<td>23,000</td>
</tr>
<tr>
<td></td>
<td>C. 9,824</td>
<td>25.3</td>
</tr>
<tr>
<td>Durham</td>
<td>W. 4,000</td>
<td>6,000</td>
</tr>
<tr>
<td></td>
<td>C. 2,000</td>
<td>12.0</td>
</tr>
<tr>
<td>Fayetteville</td>
<td>W. 3,500</td>
<td>6,000</td>
</tr>
<tr>
<td></td>
<td>C. 2,500</td>
<td>33.6</td>
</tr>
<tr>
<td>Henderson</td>
<td>W. 2,250</td>
<td>4,250</td>
</tr>
<tr>
<td></td>
<td>C. 2,000</td>
<td>30.0</td>
</tr>
<tr>
<td>Hillsboro</td>
<td>W. 400</td>
<td>700</td>
</tr>
<tr>
<td></td>
<td>C. 300</td>
<td>0.0</td>
</tr>
<tr>
<td>Lenoir</td>
<td>W. 900</td>
<td>1,500</td>
</tr>
<tr>
<td></td>
<td>C. 300</td>
<td>0.0</td>
</tr>
<tr>
<td>Marion</td>
<td>W. 800</td>
<td>1,300</td>
</tr>
<tr>
<td></td>
<td>C. 600</td>
<td>13.0</td>
</tr>
<tr>
<td>Monroe</td>
<td>W. 1,800</td>
<td>2,400</td>
</tr>
<tr>
<td></td>
<td>C. 1,100</td>
<td>32.7</td>
</tr>
<tr>
<td>Oxford</td>
<td>W. 1,200</td>
<td>2,300</td>
</tr>
<tr>
<td></td>
<td>C. 1,100</td>
<td>33.7</td>
</tr>
<tr>
<td>Raleigh</td>
<td>W. 11,000</td>
<td>20,000</td>
</tr>
<tr>
<td></td>
<td>C. 9,000</td>
<td>21.3</td>
</tr>
<tr>
<td>Rockingham</td>
<td>W. 1,500</td>
<td>2,000</td>
</tr>
<tr>
<td></td>
<td>C. 500</td>
<td>24.0</td>
</tr>
<tr>
<td>Rocky Mount</td>
<td>W. 1,000</td>
<td>2,000</td>
</tr>
<tr>
<td></td>
<td>C. 1,000</td>
<td>26.0</td>
</tr>
<tr>
<td>Salem</td>
<td>W. 4,100</td>
<td>4,550</td>
</tr>
<tr>
<td></td>
<td>C. 450</td>
<td>26.7</td>
</tr>
<tr>
<td>Salisbury</td>
<td>W. 6,000</td>
<td>9,000</td>
</tr>
<tr>
<td></td>
<td>C. 3,000</td>
<td>9.0</td>
</tr>
<tr>
<td>Tarboro</td>
<td>W. 2,000</td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td>C. 1,000</td>
<td>8.0</td>
</tr>
<tr>
<td>Washington</td>
<td>W. 3,500</td>
<td>6,000</td>
</tr>
<tr>
<td></td>
<td>C. 2,500</td>
<td>19.2</td>
</tr>
<tr>
<td>Weldon</td>
<td>W. 700</td>
<td>1,000</td>
</tr>
<tr>
<td></td>
<td>C. 750</td>
<td>32.0</td>
</tr>
<tr>
<td>Wilmington</td>
<td>W. 12,000</td>
<td>27,000</td>
</tr>
<tr>
<td></td>
<td>C. 15,000</td>
<td>23.2</td>
</tr>
<tr>
<td>Wilson</td>
<td>W. 2,500</td>
<td>4,800</td>
</tr>
<tr>
<td></td>
<td>C. 2,900</td>
<td>32.2</td>
</tr>
</tbody>
</table>

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.
County Superintendents of Health.

Alamance ........ Dr. T. S. Faucette.
Alexander.......... Dr. T. F. Stevenson.
Allegany........... Dr. B. C. Waddell.
Anson.............. Dr. E. S. Ashe.
Ashe.............. Dr. Manley Blevins.
Beaufort.......... Dr. P. A. Nicholson.
Bertie........... Dr. H. V. Dunstan.
Bladen.......... Dr. Newton Robinson.
Brunswick....... Dr. J. A. McNeill.
Buncombe....... Dr. James Sawyer.
Burke........... Dr. J. L. Laxton.
Cabarrus....... Dr. D. G. Caldwell.
Caldwell........ Dr. A. A. Kent.
Camden........
Carteret.......... Dr. F. M. Clark.
Caswell.......... Dr. S. A. Malloy.
Catawba........ Dr. Geo. H. West.
Chatham.......... Dr. H. T. Chapin.
Cherokee........ Dr. J. F. Abernathy.
Chowan.......... Dr. T. J. Hoskins.
Clay............ Dr. J. M. Sullivan.
Cleveland....... Dr. B. H. Palmer.
Columbus......... Dr. I. Jackson.
Craven........... Dr. R. DuVal Jones.
Cumberland...... Dr. J. Vance McGougan.
Currituck....... Dr. H. M. Shaw.
Dare............ Dr. W. B. Fearing.
Davidson........ Dr. Joel Hill.
Davie........... Dr. James McGuire.
Duplin........... Dr. James W. Blount.
Durham........... Dr. Z. T. Brooks.
Edgecombe....... Dr. L. L. Staton.
Forsyth......... Dr. John Bynum.
Franklin......... Dr. E. S. Foster.
Gaston.......... Dr. J. H. Jenkins.
Gates........... Dr. W. O. P. Lee.
Graham........... Dr. R. J. Orr.
Granville....... Dr. S. D. Booth.
Greene.......... Dr. Joseph E. Grimsley.
Guilford......... Dr. R. L. Rieser.
Halifax.......... Dr. I. E. Green.
Harnett.......... Dr. O. L. Denning.
Haywood......... Dr. F. M. Davis.
Henderson...... Dr. J. G. Waldrop.
Hertford........ Dr. John W. Tayloe.
Hyde........... Dr. E. H. Jones.
Tredell........ Dr. Henry F. Long.
Jackson......... Dr. Wm. Self.
Johnston....... Dr. L. D. Wharton.
Jones........... Dr. S. E. Koonce.
Lenoir........... Dr. W. T. Parrott.
Lincoln.......... Dr. J. W. Saine.
McDowell........ Dr. B. A. Check.
Macon........... Dr. F. L. Siler.
Madison.......... Dr. Jas. K. Hardwicke.
Martin.......... Dr. W. H. Harrell.
Mecklenburg..... Dr. F. M. Winchester.
Mitchell......... Dr. C. E. Smith.
Montgomery...... Dr. M. P. Blair.
Moore........... Dr. Gilbert McLeod.
Nash............ Dr. J. P. Battle.
New Hanover..... Dr. W. D. McMillan.
Northampton..... Dr. H. W. Lewis.
Onslow.......... Dr. E. L. Cox.
Orange.......... Dr. C. D. Jones.
Pamlico.......... Dr. G. A. Katon.
Pasquotank...... Dr. H. T. Aydlett.
Pender.......... Dr. L. L. Ardrey.
Perquimans...... Dr. C. C. Winslow.
Person.......... Dr. J. A. Wise.
Pitt............. Dr. C. O'H. Laughinghouse.
Polk............ Dr. Earle Grady.
Randolph........ Dr. T. T. Ferree.
Richmond........ Dr. J. M. Ledbetter.
Robeson......... Dr. H. T. Pope.
Rockingham..... Dr. Sam Ellington.
Rowan.......... Dr. W. L. Crump.
Rutherford...... Dr. W. A. Thompson.
Sampson......... Dr. R. E. Lee.
Scotland.........
Stanly........... Dr. V. A. Whitley.
Stokes.......... Dr. W. L. McCanless.
Surry............ Dr. John R. Woltz.
Swain........... Dr. R. L. Davis.
Transylvania.... Dr. M. M. King.
Tyrrell.........
Union........... Dr. J. E. Ashcraft.
Vance........... Drs. W. T. & G. Cheat-
Wake............ Dr. J. J. L. McCullers.
Warren.......... Dr. T. B. Williams.
Washington...... Dr. W. H. Ward.
Watauga......... Dr. E. F. Bingham.
Wayne........... Dr. Williams Spicer.
Wilkes........... Dr. J. M. Turner.
Wilson......... Dr. W. S. Anderson.
Yadkin.......... Dr. B. B. Hauser.
Yancey......... Dr. W. M. Austin.
[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

- Whooping-cough
- Measles
- Diphtheria
- Scarlet Fever
- Pernicious Malarial Fever
- Hemorrhagic Malarial Fever
- Typhoid Fever
- Typhus Fever
- Yellow Fever
- Cholera
- Smallpox
- Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:

----------------------------------------
M. D.
----------------------------------------
N. C.
Another Advance in Sanitation in North Carolina.

As our readers already know, the appropriation made by the State to the Board of Health is quite small, entirely insufficient for the proper administration of such a bureau. Bacteriology now plays such an important part in the elucidation of the problems of disease that no equipment of a State health board can be considered complete without a bacteriological laboratory. We made an attempt in this direction before the Legislature of 1899 by incorporating in "An act to protect water supplies" a section appropriating annually $500 for this work, but the celerity, the almost vicious celerity we might say, with which this section was stricken out made us despair. But learning early last spring that the State Board of Agriculture proposed establishing a bacteriological laboratory for its own special work, and not caring particularly under which name or who received the credit so the object was attained, a ray of hope appeared. We brought the matter to the attention of our Board at its annual meeting in May and the following preamble and resolutions were adopted:

WHEREAS, Typhoid fever, with the exception of tuberculosis, is the most fatal to our people of all the preventable diseases, the number of deaths in the State from that cause alone annually being more than 1,000, and the number of cases that recover probably ten times as many; and

WHEREAS, This disease is nearly always conveyed by infected drinking water, which infection can be only ascertained by a bacteriological examination; and

WHEREAS, The appropriation made by the State for the work of the Board of Health is entirely inadequate to provide for more than a very few such examinations of the public water supplies during each biennial period; and

WHEREAS, We have been informed that the Board of Agriculture proposes to establish a bacteriological laboratory, with an expert in charge, for the prosecution of its
work in relation to pure food and to the diseases of animals; therefore

Resolved, That the said Board of Agriculture be respectfully requested, for the good of the people of the State, to slightly and inexpensively extend the scope of its laboratory so as to include investigations into the purity of suspected drinking waters, especially of wells and springs in the country districts, said investigations to be made upon the request of the Secretary of the Board of Health, under such regulations and restrictions as the Board of Agriculture may prescribe.

Resolved, That if the Board of Agriculture considers this request favorably, the Secretary and the Engineer of the Board of Health confer with the officials or the committee having the matter in charge upon request, and arrange with them the details of the work.

The matter was brought before the Board of Agriculture at its meeting in June, and our request promptly and cheerfully granted. The order for the additional apparatus necessary was made, but the election of a bacteriologist was postponed until inquiries could be made as to the proper man. This step, however, was taken at the regular meeting in December, and Mr. Gerald McCarthy, who has done much work of this character, was elected.

It is proposed to examine, as soon as possible, the water supplies of all the State institutions and large schools, private as well as public, in order to establish this normal standard, and also the waters of all suspected wells and springs. The work cannot be done for mere fancy, simply to gratify the curiosity of one who just wants to know whether there are any "bugs" in his well, but only where there is reasonable ground to suspect the water of causing disease. Application should be made directly to the Commissioner of Agriculture, Hon. S. L. Patterson, or through the Secretary of the Board of Health. As the main motive is to help the farmers, we hope our country physicians, particularly, having cases of typhoid fever, will avail themselves of the service offered.

We cannot commend too highly the liberal and progressive spirit shown in this matter by the Board of Agriculture. We feel sure that more real good to the people, especially the country people, will come from the small expenditure for this purpose than from an equal amount devoted to any other work.

We append a paper on the subject by Mr. McCarthy:

**BIOLOGICAL EXAMINATION OF WATER SUPPLIES.**

**BY GERALD MCCARTHY,**

**BOTANIST, NORTH CAROLINA DEPARTMENT OF AGRICULTURE.**

Modern sanitarians are a unit in declaring that the first requisite for the healthfulness of any neighborhood is a water supply uncontaminated by human and animal excrements. Were good health held at its proper value, even from a financial standpoint, every public water supply and private wells and springs would be systematically examined at intervals short enough to prevent the unconscious use of contaminated water.

Massachusetts was the first State in the Union to undertake a systematic study of the public water supplies. The work there started in 1887 has marked the beginning of a new era in sanitary science. The New England States and New York now make over 10,000 annual biological water analyses. The Southern States, on account of their warmer climate and consequently more rapid development of micro-organisms, and the presence of a large, ignorant and shiftless laboring population, are much more liable than the New England States are to have
polluted water supplies. Yet here practically nothing has been done towards systematic examination of the purity of drinking water.

"Pure water," in a sanitary sense, is a relative term. Absolutely pure water does not exist in nature. The water of deep artesian wells and gushing springs, and rainwater caught on a clean surface after the atmosphere has been washed free of dust, are the purest natural waters.

An unfitted water containing less than 500 bacteria per cubic centimeter is considered very pure. The "purified" water supplied by city water companies usually contains from 5,000 to 20,000 bacteria per c. c. Most of these water bacteria are innocuous, but where they exist in large numbers pathogenic species are also liable to gain an entrance and multiply with disastrous results to the public.

A complete analysis of potable water should be threefold, viz.: Biological, physical and chemical. Where only partial analysis is given, by far the most important is the biological examination. The purpose and real value of analysis of potable water is misunderstood, even by many professed sanitarians! Except when testing for mineral constituents and metallic poisons, no sanitary analysis of water can do more than afford indications upon which the analyst may base a judgment of the quality of the supply. But many other factors must enter into such a judgment. The local environment, geology, climatology, the number and social condition of the population living upon the water-shed, are all prime factors in forming such a judgment. Another thing to be understood is, that isolated, occasional examination of water supplies possess very little intrinsic value. It is first necessary to determine, by a course of systematic examinations, the normal biology of the water supply. After this point is attained, subsequent work consists mainly in noting deviations from the normal mean. Any considerable variation from the mean indicates pollution from some source. A competent biologist can, from knowledge of the local environment and the specific character of the germs, determine their approximate source. To be of real protection to the consumers of water, such examinations must be sufficiently frequent to make it impossible for any dangerous bacterial invasion to escape notice. To ensure safety, a biological and physical examination of water supplies should be made once a week and a chemical examination once a month.

Water from deep wells is much less liable to sudden changes, or variations from its mean biology, than is surface-water. But any drinking water supply, which suddenly alters its usual taste, odor, or color, should be at once examined by a competent biologist. In the meantime such water should not be used unless it is first sterilized by boiling.

A few words upon domestic filters may not be out of place here. There are numerous patent forms upon the market. Upon all of these, except those of the Pasteur-Chamberland type, the biologist must pronounce an anathema! After being used a short time these filters pollute instead of purifying water. They collect and concentrate the filth suspended in the water and this forms a breeding nest for the microbes far more favorable for their increase than the original unfiltered water was! Many river waters carry considerable sediment, which render them unsightly. This sediment is easily removed by any form of filter, but such removal is a matter of aesthetics rather than health. The limpid, clear filtrate may be far more dangerous than the turbid unfiltered water. The safest way to clear a turbid drinking water is to filter it through a clean thin white flannel.
The organisms and detritus commonly found in surface water supplies may be grouped as follows:

1. **Plants.**—Alge, fungi, bacteria.
2. **Animals.**—Infusoria, crustaceans, worms.
3. **Detritus.**—Hairs, fibers, scales and fecal matter.

The algae of sanitary importance most frequently found in Southern waters, are as follows:

(a) **Diatoms.**—Asterionella, melosira and synedra. All these secrete an oily matter which gives a disagreeable, fishy taste to water.

(b) **Blue-green Algae.**—Anabæna, clathrocystis and oscillaria. These also give water a bad taste and their presence indicates serious organic pollution.

(c) **Grass-green Algae.**—Palmella, eudorina, volvox, protococcus, and spirogyra. The first three give a bad taste to water. The last two are not usually present in water fit for human consumption.

Of crustaceans our surface-waters contain cyclops, daphnia and bosmina, all of which are characteristic of impure water.

Of infusoria, among many other genera, we find the following of special sanitary interest: Cryptomonas, dinobryon, peridinium, synura, uroglena, spongilla and pectinatella. All of the above infusorians give various strange tastes and smells to waters, generally of an “ancient and fish-like” kind. Spongilla and pectinatella often clog the service pipes of city water systems. Of protozoans in our waters, we may suspect the hematozoans which cause malarial fevers, and amoebae which cause dysentery in humans and cattle. Severe losses of cattle occur in some of the swampy sections of North Carolina, the chief symptoms being those common to dysentery.

Of parasitic, intestinal worms, waters often harbor the eggs and spores of the various tape and thread-worms common to men and animals. The worm parasites of sheep are especially abundant where these animals come to drink, and such spots serve to inoculate the young lambs.

Of detritus commonly found in waters, we may mention the hairs of rats and mice and scales of fishes, indicating decaying bodies in the supply. Epithelial scales and particles of amorphous fecal matter indicate gross and direct contamination by dejecta.

The fungi usually found in water are molds, a few species of Phycomycetes parasitic on fishes, and yeasts. Yeasts are certain indication of sewage pollution.

Bacteria are by far the most important organisms, from a sanitary standpoint, found in water supplies. The bacterial flora of water is very large and is from a systematic standpoint badly confused. The greater number of species are, however, harmless and even useful species. But waters rich in harmless bacteria are liable at any time to receive and encourage the development of pathogenic species. Of pathogenic bacteria the one species of overshadowing importance in America is the typhoid germ—**bacillus typhosus**. The cholera bacillus is of great importance in other regions, but does not occur in American waters. The bacilli of anthrax, hog cholera, cerebro-spinal meningitis and other diseases are often disseminated with drinking water.

Besides the bacteria above mentioned there are various genera of so-called thread, sulphur and iron bacteria which cause water companies serious trouble by filling service-pipes and mains and thus hindering proper circulation.

In a sanitary analysis of water the bacteria especially sought for are those of the fecal group of which the type is bacillus coli-communis. The typhoid bacillus, hog cholera bacillus and swine plague bacillus are the most important members of this
group. Bacillus enteritidis sporogenes, B. cloe and B. amethyskins are other bacteria characteristic of sewage.

The difficulty and expense of making a bacteriological examination of water is such that many scientists have sought for a simple chemical method for determining the presence of bacteria in potable waters. Most of these chemical tests are based upon the assumption that the presence of nitrites in water is an index of the presence of bacteria, since the oxidation of ammonia to nitric acid in soil and water and the reverse process of reduction are due chiefly to bacterial activity. There are various chemicals which unite with dissolved nitrites to color the solution red or yellow. The standard test for nitrites in bacteriological analysis is sulphamic acid and naphthylamine. These reacting with dissolved nitrites color the solution red. An enterprising German chemist has recently placed upon the market, under the trade name of "Healthin," a compound of this class for which he makes the following claims:

1. That the presence of nitrites in potable water is an index of bacterial pollution.
2. That nitrites—nitrous acid—is the chief product of the life activity of bacillus typhosus and B. cholera-asiatice.
3. That the dose of "Healthin" recommended will, when added to a tumblerful of water, infallibly determine whether such water has been polluted by sewage bacteria, including the two capital species above named.

In regard to these claims the writer is prepared to assert and prove, (1) That while the presence of nitrites is always a bad sign, the absence of nitrites from a water sample does not always indicate a safe or pure water. (2) That the formation of nitrites, or what is usually the real case, the reduction of nitrates to nitrites, is not the result of the activity or growth of B. typhosus. Bacillus typhosus does not reduce nitrates. A sample of water may be swarming with typhoid germs and yet fail to give the nitrite reaction! (3) That the dependence upon "Healthin," or any other single test for indicating the potable quality of water, is inadequate, unwise, and liable to lead to disastrous results.

There is but one short and ready test that can be safely recommended for domestic use. This is the odor of the water after it has been heated to near the boiling point in a closely stoppered bottle. Take a clean four-ounce wide mouth bottle, fill with suspected water and cork tightly. Place bottle in a pan or kettle of water and heat until the water in outer vessel begins to boil. Then remove bottle, uncork and quickly apply nose to mouth of bottle. If polluted by sewage a distinct but evanescent odor of urine or feces can be detected. This test can be made more delicate by adding to the heated water one half its volume of sulphuric ether. Shake the mixture vigorously for a few minutes. Replace cork and invert the bottle for five or ten minutes. The ether will rise to the surface. Now carefully loosen the cork and allow the water to drip away. Let the bottle stand uncorked until the ether evaporates. Smell the residue.

Water samples for biological analysis need not necessarily exceed four fluid ounces. But larger samples are sometimes desirable. The utmost care is needed to prevent accidental contamination while collecting the sample. The writer has devised a method whereby satisfactory samples for biological analysis can be sent by mail in ordinary mailing tubes. Express service is, however, always to be preferred.

As it seems desirable in the interest of public health that more attention should be paid to quality of drinking water, more especially that used in country neighborhoods, the State Department of Agriculture will
make such examinations for citizens free of charge. But the samples must be taken in vessels furnished by the Department, and according to instructions, which will be sent to those who apply for analyses. Applications should be made to the Commissioner of Agriculture at Raleigh. Applicants will be required to pay postage or expressage both ways on bottles and samples.

The attention of health officers, country physicians and veterinarians is especially called to this offer, which, if utilized, cannot fail to elucidate the dissemination of many infectious diseases and prevent epidemics among men and animals.

DIRECTIONS FOR COLLECTING SAMPLES OF WATER.

If samples are to be mailed two four-ounce phials are sufficient. If to go by express two pint jars should be sent. To one of the pair of samples must be added 0.1 per cent. of Parietti's fluid. This fluid will prevent growth of all but fecal bacteria while the sample is in transit. The second sample is intended to show the normal bacteria, algae and other organisms present in the water. Both samples must be taken from same place and at same time.

Just before taking the samples wash the hands and arms thoroughly with hot water and soap. Dry on a clean fresh towel. Clean the finger nails.

If sample is from a pump, hydrant or tap let the water run to waste for a few minutes before filling bottles. If from a stream, pond or reservoir select a place as free as possible from mud or sediment. If from a spring or open well draw a bucketful in the usual way and take the samples from this.

To take the sample grasp the bottle near the bottom and lower it until top is below surface—go as deep as possible without striking bottom. With other hand open the bottle under water and allow it to fill to within one inch of top. Cover again under water. Now withdraw bottle, seal or stopper tightly and wipe dry. Return to carrying case and forward as soon as possible. In bottles and jars sent from the Department the Parietti fluid, or a little sugar holding it, will be enclosed in one of the bottles.

Death of Dr. O'Hagan.

It is with genuine sorrow that we chronicle the passing away of Dr. Charles J. O'Hagan, an honored member of our Board and our personal friend from boyhood. He died at his home in Greenville on the night of December 18th of apoplexy, having been ill only a few days. He was about 80 years of age, and died full of years and of honors, having been the recipient of every honor in the gift of the medical profession in the State. For a great many years, certainly since we joined the State Medical Society in 1877, he had been its most admired, beloved and influential member, being almost idolized by the younger members of the profession, especially.

Dr. O'Hagan was an unusually gifted man, having been endowed with a handsome and striking face, a brilliant intellect highly cultivated and enriched with an unsailing fund of the delightful wit and humor for which the men of his native Ireland are so famous, a very retentive memory, a silvery voice and a warm and generous heart. He was a forceful and attractive public speaker, and in private conversation simply charming. Of his marked ability and skill as physician and surgeon, his devotion to his patients, his numberless deeds of kindness we have not space to speak at length. An unpretentious country doctor in North Carolina, he would have honored and adorned the profession of the metropolis. "We ne'er shall look upon his like again."
Small-pox.

As was anticipated and predicted the recrudescence of small-pox has set in with the cold weather. The disease was present in nine counties in November, and it has appeared in three more counties, Granville 6, Vance 1, and Alexander 1, since the monthly reports were sent in. And it also looks as if our prediction that as the epidemic progressed the disease would become more severe in character, is finally going to be fulfilled. Dr. Boothe, of Granville, says "all cases severe except one," and Dr. Malloy, of Caswell, "I notice the form of the disease is much worse now than last spring. Nearly half are of the confluent variety." We fear we do not regret this as much as we perhaps should, because we hope it may be the means of impressing upon the people the importance of vaccination, for it becomes more and more manifest that the only thing which stops the disease finally is the vaccination of all the people.

Review of Diseases for November, 1900.

Eighty-seven counties reporting.

Ninety-three counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of November the following diseases have been reported from the counties named:

**Measles**—Beaufort, 4; Buncombe, 2; Cleveland, several; Columbus, in some parts; Granville, 4; Haywood, several; Mecklenburg, 100, mild; Moore, 2; Robeson, many; Stanly, in all parts; Swain, 2; Union, epidemic—12 counties.

**Whooping-cough**—Beaufort, 3; Bertie, several; Bladen, several; Cabarrus, a few; Carteret; Chowan, several; Craven, 8; Currituck, few cases; Graham, several; Granville, 8; Lincoln, in all parts; McDowell, 1; Macon, epidemic; Mecklenburg, 40, mild; Moore, several; New Hanover, 10; Rowan, 10; Rutherford, many; Stanly, in all parts; Wake, 1; Wayne, a few—20 counties.

**Scarlatina**—Columbus, many; Craven, 3; Davidson, 3; Granville, 1; Henderson, 2; Iredell, many; Macon, 2; Martin, 1; Mecklenburg, 10; Nash, 1; New Hanover, 2; Orange, 1; Rockingham; Union 6—14 counties.

**Diphtheria**—Alamance, 1; Alexander, 1; Ashe, 2; Cabarrus, 1; Columbus, 2; Davie, 1; Henderson, 1; Iredell, 1; McDowell, 2; Macon, 1; Mecklenburg, 10; New Hanover, 1; Perquimans, 1; Rockingham; Rowan, 2; Stanly; Surry, 4; Transylvania, 1; Wake, 3; Wilkes, several—20 counties.

**Typhoid Fever**—Alamance, 1; Ashe, 4; Beaufort, 3; Buncombe, 5; Cabarrus, 12; Caldwell, 10; Caswell, 1; Catawba, 2; Chatham, a few; Chowan, 2; Cleveland, a few; Columbus, 1; Dare, 5; Durham, a few; Edgecombe, 4; Gates, 1; Granville, 4; Greene, 2; Halifax, a few; Harnett, a great many; Henderson, 6; Hertford, 4; Iredell, in all parts; Jackson, 2; Jones, 3; Lenoir, in many parts; Lincoln, 4; Macon, 2; Madison, 7; Martin, 7; Mitchell, 8; Moore, 5; Nash, 3; New Hanover, 9; Northampton, many; Onslow, 3; Orange, 3; Pender, 1; Perquimans, 1; Person; Polk, 3; Richmond, a few; Sampson, a few; Stanly, in all parts; Stokes, 2; Surry, 3; Union, 8; Vance
several; Wake, 22; Warren, 4; Washington, 2; Wilkes, several; Yancey, 3—52 counties.

Malarial Fever—Alamance, general; Bladen, general; Brunswick, general; Cabarrus, in many parts; Chatham, a few cases; Chowan, general; Gates, a few; Granville, general; Greene, general; Halifax, a few; Harnett, in many parts; Hertford; Hyde; Iredell, general; Jones, general; Martin; New Hanover, general; Northampton; Onslow; Orange; Pender; Perquimans; Person; Randolph; Robeson; Rowan; Sampson, in many parts; Wake, in all parts; Warren, Washington, general—30 counties.

Malarial Fever, Pernicious—Cabarrus, 1; Hyde, 1; Rowan, 1.

Malarial Fever, Hemorrhagic—Chowan, 2; Hertford, 2; Hyde, 3; Jones, 1; Martin, 2; New Hanover, 7; Northampton, 3; Perquimans, 2; Washington, 6—9 counties.

Influenza—Caswell; Iredell, general; Macon, general; Richmond; Sampson; Stokes.

Jaundice—Johnston, epidemic; Perquimans, in all parts; Wake, in many parts.

Mumps—Caswell; Chatham; Lincoln, in all parts; Surry.

Pneumonia—Gaston; Lenoir; Onslow.

Simple Continued Fever—Graham.

Varicella—Henderson.

Small-pox—Alexander, 1; Caswell, 9; Henderson, a few; Person, 1; Richmond, 1; Transylvania, 1; Wake, 8; Wilkes, 3—7 counties.

Cholera in Hogs—Bertie; Gates; Hyde; Martin.

Influenza in Horses—New Hanover.

Rabies in Dogs—Northampton.

Staggers in Horses—Hyde.

No diseases reported from Burke, Chero-kee, Forsyth, Franklin, Pasquotank, Pitt, Watauga and Wilson.

No report received from Anson, Clay, Cumberland, Duplin, Montgomery, Pamlico and Yadkin.

Summary of Mortuary Reports for November, 1900.

(sixteen towns).

Aggregates population: White, Col'd. Total.

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>Col'd</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>66,926</td>
<td>46,724</td>
<td>113,650</td>
<td></td>
</tr>
</tbody>
</table>

Aggregates deaths...

|                    | 79    | 70    | 149   |

Representing temporary annual death rate per 1,000...

|                    | 14.2  | 18.9  | 15.7  |

Causes of Death.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Typhoid fever</td>
<td>7</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Malarial fever</td>
<td>5</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>Whooping-cough</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Measles</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Consumption</td>
<td>10</td>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td>Brain diseases</td>
<td>2</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Heart diseases</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Neurotic diseases</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Diarrhoal diseases</td>
<td>5</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>All other diseases</td>
<td>32</td>
<td>34</td>
<td>66</td>
</tr>
<tr>
<td>Accident</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Suicide</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>79</td>
<td>70</td>
<td>149</td>
</tr>
</tbody>
</table>

Deaths under five years...

|                   | 26    | 22    | 48    |

Still-born...

|                   | 7     | 3     | 10    |
### Mortuary Report for November, 1900.

<table>
<thead>
<tr>
<th>TOWNS AND REPORTERS</th>
<th>Races</th>
<th>Population</th>
<th>Temporay Annual Death Rate per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>By Race</td>
<td>Total</td>
<td>By Race</td>
</tr>
<tr>
<td>Charlotte</td>
<td>W 19,176</td>
<td>C 5,824</td>
<td>24,997</td>
</tr>
<tr>
<td>Dr. F. C. Hawley</td>
<td>W 4,000</td>
<td>C 2,000</td>
<td>6,000</td>
</tr>
<tr>
<td>Durham</td>
<td>W 2,250</td>
<td>C 2,000</td>
<td>4,250</td>
</tr>
<tr>
<td>Dr. F. D. Harris</td>
<td>W 400</td>
<td>C 300</td>
<td>700</td>
</tr>
<tr>
<td>Hillsboro</td>
<td>W 900</td>
<td>C 300</td>
<td>1,200</td>
</tr>
<tr>
<td>Dr. A. A. Kent</td>
<td>W 800</td>
<td>C 400</td>
<td>1,200</td>
</tr>
<tr>
<td>Marion</td>
<td>W 1,800</td>
<td>C 600</td>
<td>2,400</td>
</tr>
<tr>
<td>W 1,200</td>
<td>C 1,000</td>
<td>2,200</td>
<td>0.0</td>
</tr>
<tr>
<td>Oxford</td>
<td>W 11,000</td>
<td>C 9,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Dr. S. D. Booth</td>
<td>W 1,500</td>
<td>C 500</td>
<td>2,000</td>
</tr>
<tr>
<td>Raleigh</td>
<td>W 1,600</td>
<td>C 1,000</td>
<td>2,600</td>
</tr>
<tr>
<td>T. P. Sale, Clerk B. H.</td>
<td>W 4,100</td>
<td>C 450</td>
<td>4,550</td>
</tr>
<tr>
<td>Dr. G. L. Wheelersey, Jr.</td>
<td>W 1,200</td>
<td>C 1,000</td>
<td>2,200</td>
</tr>
<tr>
<td>Salem</td>
<td>W 3,500</td>
<td>C 2,000</td>
<td>5,500</td>
</tr>
<tr>
<td>S. E. Butner, Mayor.</td>
<td>W 3,000</td>
<td>C 1,000</td>
<td>4,000</td>
</tr>
<tr>
<td>Tarboro</td>
<td>W 2,000</td>
<td>C 1,000</td>
<td>3,000</td>
</tr>
<tr>
<td>W 1,000</td>
<td>C 1,000</td>
<td>2,000</td>
<td>0.0</td>
</tr>
<tr>
<td>Washington</td>
<td>W 7,000</td>
<td>C 7,900</td>
<td>14,900</td>
</tr>
<tr>
<td>Dr. Jno. G. Blount.</td>
<td>W 7,000</td>
<td>C 7,900</td>
<td>14,900</td>
</tr>
<tr>
<td>W 7,000</td>
<td>C 7,900</td>
<td>14,900</td>
<td>17.1</td>
</tr>
<tr>
<td>W 12,000</td>
<td>C 15,000</td>
<td>27,000</td>
<td>24.8</td>
</tr>
</tbody>
</table>

N.B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.
County Superintendents of Health.

Alamance......Dr. T. S. Faucette.
Alexander.......Dr. T. F. Stevenson.
Alleghany......Dr. B. C. Waddell.
Anson........Dr. E. S. Ashe.
Ashe........Dr. Manley Blevins.
Beaufort.......Dr. P. A. Nicholson.
Bertie.........Dr. H. V. Dunstan.
Bladen.........Dr. Newton Robinson.
Brunswick.....Dr. J. A. McNeill.
Buncombe......Dr. James Sawyer.
Burke..........Dr. J. L. Laxton.
Cabarrus......Dr. D. G. Caldwell.
Caldwell......Dr. A. A. Kent.
Cumberland...Dr. F. M. Clark.
Catawba.......Dr. S. A. Malloy.
Chatham........Dr. Geo. H. West.
Cherokee......Dr. H. T. Chaplin.
Chowan.........Dr. J. F. Abernathy.
Clay..........Dr. J. M. Sullivan.
Clayton........Dr. B. H. Palmer.
Cleveland.....Dr. I. Jackson.
Columbus......Dr. R. DuVal Jones.
Craven.........Dr. J. Vance McGougan.
Currituck.....Dr. H. M. Shaw.
Dare..........Dr. W. B. Fearing.
Davidson.....Dr. Joel Hill.
Davie..........Dr. James McGuire.
Duplin.........Dr. James W. Blount.
Durham........Dr. Z. T. Brooks.
Edgecombe.....Dr. L. L. Staton.
Forsyth.......Dr. John Bynum.
Franklin.......Dr. E. S. Foster.
Gaston.........Dr. J. H. Jenkins.
Gates..........Dr. W. O. P. Lee.
Graham.......Dr. R. J. Orr.
Grande......Dr. S. D. Booth.
Greene..........Dr. Joseph E. Grimsley.
Guilford.......Dr. Edmund Harrison.
Hastings.......Dr. I. E. Green.
Harnett........Dr. O. L. Denning.
Haywood.......Dr. F. M. Davis.
Henderson.....Dr. J. G. Waldrop.
Hertford......Dr. John W. Taylor.
Hyde........Dr. E. H. Jones.
Iredell.......Dr. Henry F. Long.
Jackson.......Dr. Wm. Self.
Johnston......Dr. L. D. Wharton.
Jones.........Dr. S. E. Koonce.
Lenoir........Dr. W. T. Parrott.
Lincoln........Dr. J. W. Saine.
Mcdowell......Dr. B. A. Cheek.
Macon.........Dr. F. L. Siler.
Madison.......Dr. Jas. K. Hardwicke.
Martin........Dr. W. H. Harrell.
Mecklenburg....Dr. F. M. Winchester.
Mitchell.......Dr. C. E. Smith.
Montgomery....Dr. M. P. Blair.
Moore..........Dr. Gilbert McLeod.
Nash..........Dr. J. P. Battle.
New Hanover...Dr. W. D. McMillan.
Northampton..Dr. H. W. Lewis.
Onslow........Dr. E. L. Cox.
Orange.........Dr. C. D. Jones.
Pamlico.......Dr. G. A. Caton.
Pasquotank....Dr. H. T. Aydlett.
Pender.........Dr. L. L. Ardrey.
Perquimans.....Dr. C. C. Winslow.
Person.........Dr. J. A. Wise.
Pitt........Dr. C. O'H. Laughinghouse.
Polk..........Dr. Earle Grady.
Randolph.....Dr. T. T. Ferrree.
Richmond......Dr. J. M. Ledbetter.
Robeson.......Dr. H. T. Pope.
Rockingham....Dr. Sam Ellington.
Rowan.........Dr. W. L. Crump.
Rutherford....Dr. W. A. Thompson.
Sampson.......Dr. R. E. Lee.
Scotland......
Wake..........Dr. V. A. Whitley.
Stokes........Dr. W. L. McCleanless.
Surry..........Dr. John R. Waltz.
Swain.........Dr. R. L. Davis.
Transylvania..Dr. M. M. King.
Tyrrell.......
Union..........Dr. J. E. Ashcraft.
Wake..........Dr. J. J. McCullers.
Warren........Dr. T. B. Williams.
Washington....Dr. W. H. Ward.
Watauga......Dr. E. F. Bingham.
Wayne.........Dr. Williams Spicer.
Wilkes........Dr. J. M. Turner.
Wilson........Dr. W. S. Anderson.
Yadkin.......Dr. S. L. Russell.
Yancey.......Dr. W. M. Austin.
Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough .................................. Typhoid Fever ..................................
Measles ............................................ Typhus Fever ...................................
Diphtheria ......................................... Yellow Fever ....................................
Scarlet Fever ...................................... Cholera ........................................
Pernicious Malarial Fever ......................... Smallpox ......................................
Hemorrhagic Malarial Fever ...................... Cerebro-spinal Meningitis ....................

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks: ..................................

.................................................. M. D.
.................................................. 190 N. C.
Consumption.

AN INTERESTING LETTER THAT POINTS A MORAL.

In a postscript to a letter on another subject from Dr. F. J. Garrett, of Richmond county, received about November 1, 1900, he says:

"There was a death in our neighborhood a few days ago that calls to my mind a very interesting fact, viz.: A few years ago a stout healthy negro man and wife, with seven or eight healthy children, moved into an old house which had, about fifteen or twenty years ago, been occupied by a family, all of whom sooner or later died of consumption, which seemed to have been hereditary from the father's side. There were ten or eleven of this white family, all of whom died of this disease, though not all in this old house, as they moved after three or four deaths occurred.

"As I started out to say, all these nine or ten negroes took consumption and the last one died a few days ago. There is not one of either family left. But there seems to have been no hereditary tendency in the negro family. Four of them took it at one time only a few months after moving in the house.

"Very truly yours,

F. J. Garrett."

This greatly interested us, as showing in a tragic and striking manner the infectiousness of consumption—but particularly because of the long period of time, "fifteen or twenty years," between the departure from the old house of the consumptive white family and the entry of the healthy negro family.

As the tubercle bacilli, according to our information, were not positively known to live more than "several months," we hoped that we had come into possession of a most valuable fact bearing on this
unsettled question. But as in all scientific investigations, there must be absolutely no doubt about the facts, and as the Doctor had written casually, we requested him to make a careful inquiry into all the circumstances and write us again. He kindly did so and the following is his report:

"Ellerbe, N. C., Dec. 28, 1900.

Dr. R. H. Lewis, Raleigh, N. C.

'My Dear Doctor:—I have been making some investigations in regard to our cases of tuberculosis and find that we haven't quite as interesting a case as I first wrote you. Of course I was sincere and honest in the matter, but depended on data I thought were reliable, which proved to be otherwise. The main thing in which I was mistaken was the house. The facts in the case are as follows:

'There was a family named Alsbrooks that lived in the upper part of Richmond county, thirteen in all, including parents. Father had weak lungs when he went to the late war, and they said he received a wound that penetrated the lung thought to be diseased. After getting over effects of wound, lung seemed to be better, and for many years he was able to work. His children began to die off one by one and he soon followed. However, some of his children and his wife (who by the way had no hereditary taint) survived him several years. One of his sons married a healthy girl (no history of tuberculosis from either parent), and in a few years she died of same trouble, her husband soon following her, making in all thirteen deaths from this disease, counting wife of said young man. One of these eleven children was burnt to death when an infant.

"After most or nearly all this family died at this place the few remaining ones scattered about and soon died also, but not at old home.

'A few years after this white family all died this negro family of ten (counting both parents) moved in a house a few hundred yards from the one occupied by the white family. The year before a negro man brought his sick wife, having consumption, into this house and she died in it a few months before the last family moved in. Three months after this family moved into this house (infected by the negro’s wife who had just died) the father began to show signs of consumption, and when I was called up to see them in April five or six were down and others followed. They finally all died, the last one having died just before I wrote the first time.

'I never saw negroes in more perfect health than were these negroes before moving up to that infected house—no hereditary taint at all. This makes twenty-four deaths in all from this disease.

'Our negro population is being rapidly thinned out by this dreadful disease, and the sooner the people are taught that consumption is contagious the better it will be for all of us.

'Very truly and fraternally,

"F. J. Garrett""

While the above negatived the inference from Dr. Garrett’s first communication that the tubercle bacilli lived for years we thank him for it and for the time and trouble taken in collecting the facts. We have always found that it was difficult to make an impression upon people by abstract statements. The subject must be put to them in the concrete, and this is what the Doctor’s letter does in a forcible way, showing conclusively that
an entire family of ten healthy persons, with no inherited predisposition, lost their lives from consumption by living in a house which had been infected by a previous case of the disease.

The particular sanitary moral we desire to point from the above is this:

*No one should ever occupy a house in which there has been a case of consumption until it has been thoroughly disinfected.*

The infectiousness or contagiousness of consumption or tuberculosis is now thoroughly established. It is a germ disease, and the germ or tubercle bacillus, first demonstrated by the great German bacteriologist, Koch, abounds in myriads in the sputum or expectoration of the consumptive—about four millions it is estimated in the average daily expectoration of a well developed case. As long as the sputum remains moist there is no danger, for the reason that the germs cannot be detached and floated in the air. For the same reason they are not expelled from the moist surface of the lungs in ordinary breathing, though they are to be found in the fine spray or droplets of saliva resulting from the forced expiration of coughing, sneezing, loud talking or laughing. The great danger, however, is in the dried sputa, which in the form of dust rises in the air and is inspired. While the bowels may be infected by eating insufficiently cooked tuberculous meat or milk, consumption or tuberculosis of the lungs is almost invariably contracted in the manner indicated. The practical question therefore is: How can we keep the bacilli out of the air we breathe? By instructing those afflicted with the disease how to care for their sputa, and in cities and towns by forbidding spitting on the sidewalks or the floors of public places where people gather.

These rules for the prevention, immediate and remote, of consumption, have been so well set forth by our friend Dr. Probst, Secretary of the Ohio Board of Health, that we give them *verbatim:*

**RULES FOR PREVENTION OF CONSUMPTION.**

1. In the house the expectorations of a consumptive patient should be received on bits of old cloth or Japanese paper and be burned at once, or received in cuspidors or spit-cups containing a solution of

| Corrosive sublimate | 1 drachm |
| Hydrochloric acid | 2 ounces |
| Water | 1 gallon |

2. The clothing and bedding of the patient should be laundried separately, and thoroughly boiled.

3. Sweeping should be done with a dampened broom, or with wet tea leaves or sawdust on the floor, and the dust removed from the furniture, etc., with a cloth wet with the disinfectant solution.

4. Dishes, glasses, cutlery, etc., used by the patient should be scalded before being used again.

5. It is better for the patient and safer for others that he sleep in a room alone, and especially in a bed to himself.

6. The disease may be transmitted by kissing, especially kissing upon the mouth.

7. Admit an abundance of pure air and sunlight to the patient’s room.
8. If the house is damp use proper means to secure dry foundation walls and basement.

9. On the street the patient should either use an expectoration flask (many such are made) or cloths or papers, to be burned as soon as possible. If a hand-kerchief must be used, place it in boiling water or in a disinfectant solution before the expectoration can dry.

TO AVOID CONSUMPTION.

1. Eat meat cooked well done, as this will destroy the germ. Boiling will destroy the germs in milk, and young children who are especially prone to tuberculosis of the bowels, should be given only boiled milk.

2. A mother with consumption should not suckle her child, as she may infect it through her milk.

3. Do not move into a house, or sleep in a room in which a person has died of or been sick with consumption, until it has been properly disinfected.

4. Avoid as far as possible occupying any length of time with a consumptive person, a badly ventilated room, car or vessel.

5. If a tendency to the disease has been inherited, be specially guarded against all sources of infection. In addition select an outdoor occupation as free as possible from dust; use every means to secure a good physical development, particularly of the chest and lungs; select a dry soil for a habitation, and have living and sleeping rooms freely ventilated and well exposed to direct sunlight.

6. In selecting a mate in marriage choose one free from any inherited scrofulous or tubercular taint.

We trust all persons reading this circular will aid in disseminating the information it contains. It is only by arousing the public to a realizing sense of the fact that Consumption is Communicable and Preventable that we may hope to stay the ravages of this disease, which alone slays more than all the other contagious diseases combined.

---

Review of Diseases for December, 1900.

NINETY COUNTIES REPORTING.

Ninety-three counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of December the following diseases have been reported from the counties named:

Measles—Bladen; Buncombe, 11; Burke, 14; Columbus, many; Craven, 8; Duplin; Gates, general; Granville, 3; Haywood, epidemic; Hyde, 20; Iredell, several; Jackson, 4; Lenoir, in many parts; Madison, 40; Mecklenburg, 150; Moore, 1; New Hanover, 7; Polk, 4; Rowan, 20; Rutherford, several; Sampson, many; Stanly, in all parts; Swain; Union, epidemic; Vance, several—26 counties.

Whooping-cough—Beaufort, 3; Buncombe, 1; Burke, many; Cabarrus, many in western part; Carteret; Clay, several; Cleveland, many; Craven, 12; Durham, many; Graham, several; Granville, 2; Halifax, a few; Harnett, a few; Hyde, 2; Jackson, 2; Lincoln, many; McDowell; Martin, 4; Mecklenburg, 25; Moore, many; New Hanover, 1; Rowan, 30;
Rutherford, several; Stanly; Swain; Union, 2; Wake, 3; Wilson, 1—28 counties.

**SCARLET FEVER**—Caswell, 3; Catawba, 1; Cleveland, a few; Henderson, 5, mild; Iredell, many; Macon, 3; Mecklenburg, 25; New Hanover, 2; Surry, 3; Union, 2; Vance, 3; Watauga, a few; Wayne, a few—13 counties.

**DIPHTHERIA**—Ashe, 22, in southern part; Cabarrus, 2; Forsyth, 3; Guilford, 1; Henderson, 1; Lenoir, 1; Mecklenburg, 5; Pamlico, 1; Rockingham; Rowan, 3; Surry, 2; Transylvania, 10; Union, 1; Wake, 6—14 counties.

**TYPHOID FEVER**—Alamance, 1; Ashe, 3; Beaufort, 4; Buncombe, 4; Cabarrus, 12; Caldwell, 6; Catawba, 8; Chatham, many; Chowan, 4; Cleveland, a few; Columbus, 3; Craven, 4; Duplin, several; Durham, a few; Edgecombe, 2; Greene, 1; Harnett, many; Haywood, 3; Henderson, 1; Hertford, 2; Iredell, several; Jones, 3; Lenoir, in many parts; Lincoln, a few; McDowell; Madison, 4; Martin, 4; Mitchell, 4; Moore, 3; Nash, 4; New Hanover, 3; Onslow, 1; Orange, 1; Pasquotank, 2; Pitt, 4; Polk, 2; Richmond, 2; Robeson, several; Rockingham, many; Sampson, several; Stanly, in all parts; Stokes, 2; Swain; Union, 1; Vance, a few; Wake, 14; Warren, 8; Washington, 2; Watauga, a few; Wilkes; Yancey, 5—51 counties.

**MALARIAL FEVER**—Alamance, in all parts; Brunswick; Chatham, many; Craven; Halifax; Hertford; Jones; Lenoir, in many parts; Martin; Onslow; Pamlico; Pasquotank; Pitt; Randolph; Sampson; Vance, in all parts—16 counties.

**MALARIAL FEVER, PERNICIOUS**—Hertford; Randolph.

**MALARIAL FEVER, HEMORRHAGIC**—Craven, 4; Hertford, 2; Jones, 1; Martin, 1; Pamlico, 1; Pasquotank; Pitt.

**INFLUENZA**—Ashe, in all parts; Cabarrus; Craven; Greene, in all parts; Iredell, in all parts; Macon; Moore; New Hanover, in all parts; Onslow, in all parts; Person, a few cases; Richmond; Union, in many parts; Warren, in all parts; Wayne—14 counties.

**MUMPS**—Caswell; Surry.

**PNEUMONIA**—Ashe, in all parts; Cabarrus; Caldwell, a few cases; Duplin; Gaston; Onslow, in all parts; Pasquotank; Pender, in all parts; Richmond; Sampson, in many parts; Union, in many parts; Warren, in all parts; Watauga; Wilson; Yadkin, in nearly all parts—15 counties.

**TONSILLITIS**—Columbus; Currituck.

**SMALL-POX**—Alexander, 2; Buncombe, 1, doubtful; Caswell, 77, two deaths; Forsyth, 2; Franklin, 1; Granville, 21; Pamlico, 3; Person, 11; Rockingham, 10; Transylvania, 4; Vance, 1—11 counties.

**CHOLERA IN HOOS**—Bertie; Chowan; Columbus; Duplin; Hyde; Robeson—6 counties.

No diseases of importance reported from Bertie, Dare, Davidson, Davie, Johnston, Northampton and Perquimans.

No reports received from Alleghany, Anson, Cumberland and Montgomery.
Sanatorium for Consumptives in England.

Liverpool is one of the most progressive towns in Great Britain. The good work she has done in furthering and extending the knowledge of tropical diseases among the medical profession of her country is well known. Through the efforts of Liverpool philanthropists the first public sanatorium for the open-air treatment of consumption has been commenced. This establishment will be in connection with the Liverpool Hospital for consumption, and is to be erected in a healthy locality near the sea-coast at a convenient distance from the town. The building is to be essentially for use rather than for ornament. The main structure will consist of three blocks, the largest of which will be chiefly devoted to dining-accommodation. The peculiar feature of the dining-hall will be that it has a roof only and no sides. Around this main building a number of small bungalows are to be constructed, each to contain six bed-rooms, and nothing more. No accommodation will be provided for the patients other than bed-rooms and a dining-room, so that when not eating or sleeping they will be living in the fresh air. The erection of a sanatorium on these lines is decidedly a movement in the right direction. The organized adoption of the open-air treatment of consumption has in Great Britain, and in a lesser degree in this country, lagged somewhat. In Great Britain, especially, old views die hard and prejudice is difficult to overcome. In Germany, and in some other parts of the world, the new method has had gratifying success. Probably a want of knowledge among the general public is the greatest barrier of progress. There are undoubtedly many persons who would regard with distrust the suggestion that the tuberculous patient should be out in the open even in the winter, and there are assuredly some who would esteem such a mode of treatment as emanating from the brain of a madman. The chief requirements of a person suffering from phthisis in any stage are air and light, and further than this it is undoubtedly possible in the early stages by these means to effect a cure. For the popular ignorance on the question of treatment of tuberculosis the medical profession itself is largely responsible, having up to a comparatively recent period taught and practiced a different system. If its members will assist strenuously by precept and practice in illuminating the public mind on the subject, they will be acting for the good of everybody. Dirt, dust, and darkness are the greatest propagators of tuberculosis, and until this fact receives a widespread appreciation, then, and not till then, will there be a fair likelihood of the spread of the disease being checked.—Medical Record.

Summary of Mortuary Reports for December, 1900.

(Twenty-two towns).

Aggregate population White, Col'd. Total.

<table>
<thead>
<tr>
<th></th>
<th>89,326</th>
<th>61,124</th>
<th>150,450</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate deaths</td>
<td>78</td>
<td>95</td>
<td>173</td>
</tr>
<tr>
<td>Representing temporary annual death rate per 1,000</td>
<td>10.5</td>
<td>18.6</td>
<td>13.8</td>
</tr>
</tbody>
</table>

Causes of Death.

<table>
<thead>
<tr>
<th>Disease</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Typhoid fever</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Malarial fever</td>
<td>3</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Diphtheria</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Whooping-cough</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>12</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Consumption</td>
<td>8</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>Brain diseases</td>
<td>6</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Heart diseases</td>
<td>5</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Neurotic diseases</td>
<td>4</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>Diarrheal diseases</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>All other diseases</td>
<td>27</td>
<td>38</td>
<td>65</td>
</tr>
<tr>
<td>Accident</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Violence</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>78</td>
<td>95</td>
<td>173</td>
</tr>
</tbody>
</table>

Deaths under five years | 21 | 33 | 54 |
Still-born              | 8  | 10 | 18 |
# Mortuary Report for December, 1900.

<table>
<thead>
<tr>
<th>Towns and Reporters</th>
<th>Population</th>
<th>Temporary Annual Death Rate per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total</td>
</tr>
<tr>
<td>Asheville</td>
<td>8,000</td>
<td>13,000</td>
</tr>
<tr>
<td>Dr. C. V. Reynolds.</td>
<td>5,000</td>
<td>9,000</td>
</tr>
<tr>
<td>Charlotte</td>
<td>19,176</td>
<td>29,000</td>
</tr>
<tr>
<td>Dr. F. O. Havelin.</td>
<td>9,824</td>
<td>6,000</td>
</tr>
<tr>
<td>Dallas</td>
<td>4,000</td>
<td>6,000</td>
</tr>
<tr>
<td>Dr. J. H. Jenkins.</td>
<td>2,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Durham</td>
<td>4,000</td>
<td>6,000</td>
</tr>
<tr>
<td>Dr. Z. T. Brooks.</td>
<td>2,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Goldsboro</td>
<td>4,500</td>
<td>8,000</td>
</tr>
<tr>
<td>J. E. Peterson, Mayor.</td>
<td>3,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Henderson</td>
<td>2,250</td>
<td>4,500</td>
</tr>
<tr>
<td>Dr. F. P. Harris.</td>
<td>2,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Hillsboro</td>
<td>400</td>
<td>700</td>
</tr>
<tr>
<td>Dr. C. D. Jones.</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Lenoir</td>
<td>900</td>
<td>1,500</td>
</tr>
<tr>
<td>Dr. A. A. Kent.</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Marion</td>
<td>800</td>
<td>1,200</td>
</tr>
<tr>
<td>Dr. B. A. Cheek.</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>Monroe</td>
<td>1,800</td>
<td>2,400</td>
</tr>
<tr>
<td>Dr. J. M. Blair.</td>
<td>600</td>
<td>600</td>
</tr>
<tr>
<td>Oxford</td>
<td>1,200</td>
<td>2,300</td>
</tr>
<tr>
<td>Dr. S. D. Booth.</td>
<td>1,100</td>
<td>1,100</td>
</tr>
<tr>
<td>Raleigh</td>
<td>11,000</td>
<td>20,000</td>
</tr>
<tr>
<td>T. P. Sale, Clerk B. H.</td>
<td>9,000</td>
<td>9,000</td>
</tr>
<tr>
<td>Rockingham</td>
<td>1,500</td>
<td>2,000</td>
</tr>
<tr>
<td>Dr. J. M. L. Ledbetter.</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Rocky Mount</td>
<td>1,600</td>
<td>2,600</td>
</tr>
<tr>
<td>Dr. G. L. Wimberley, Jr.</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td>Salem</td>
<td>4,100</td>
<td>4,500</td>
</tr>
<tr>
<td>S. E. Butler, Mayor.</td>
<td>450</td>
<td>450</td>
</tr>
<tr>
<td>Salisbury</td>
<td>6,000</td>
<td>9,000</td>
</tr>
<tr>
<td>Dr. W. W. McKenzie.</td>
<td>3,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Scotland Neck</td>
<td>1,000</td>
<td>1,500</td>
</tr>
<tr>
<td>Dr. J. P. Wimberley.</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Tarboro</td>
<td>2,000</td>
<td>2,500</td>
</tr>
<tr>
<td>Dr. L. L. Staton.</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Washington</td>
<td>3,500</td>
<td>6,000</td>
</tr>
<tr>
<td>Dr. Jno. G. Blount.</td>
<td>2,500</td>
<td>2,500</td>
</tr>
<tr>
<td>Weldon</td>
<td>700</td>
<td>700</td>
</tr>
<tr>
<td>Wilmington</td>
<td>12,000</td>
<td>27,000</td>
</tr>
<tr>
<td>Dr. Chas. T. Harper.</td>
<td>15,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Wilson</td>
<td>2,500</td>
<td>4,800</td>
</tr>
<tr>
<td>Dr. W. S. Anderson.</td>
<td>2,300</td>
<td>4,800</td>
</tr>
</tbody>
</table>

N. B.—The reporters for the cities and towns printed in Black Type have signed this certificate: "I hereby certify that this report gives the actual number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.
County Superintendents of Health.

Alamance Dr. T. S. Faucette.
Alexander Dr. T. F. Stevenson.
Alleghany Dr. B. C. Waddell.
Anson Dr. E. S. Ashe.
Ashe Dr. Manley Blevins.
Beaufort Dr. P. A. Nicholson.
Bertie Dr. H. V. Dunstan.
Bladen Dr. Newton Robinson.
Brunswick Dr. J. A. McNeill.
Buncombe Dr. James Sawyer.
Burke Dr. J. L. Laxton.
Cabarrus Dr. D. G. Caldwell.
Caldwell Dr. A. A. Kent.
Camden
Carteret Dr. F. M. Clark.
Caswell Dr. S. A. Malloy.
Catawba Dr. Geo. H. West.
Chatham Dr. H. T. Chapin.
Cherokee Dr. J. F. Abernathy.
Chowan Dr. T. J. Hoskins.
Clay Dr. J. M. Sullivan.
Cleveland Dr. B. H. Palmer.
Columbus Dr. I. Jackson.
Craven Dr. R. DuVal Jones.
Cumberland Dr. J. Vance McGougan.
Currituck Dr. H. M. Shaw.
Dare Dr. W. B. Fearing.
Davidson Dr. Joel Hill.
Davie Dr. James McGuire.
Duplin Dr. James W. Blount.
Durham Dr. Z. T. Brooks.
Edgecombe Dr. L. L. Staton.
Forsyth Dr. John Bynum.
Franklin Dr. E. S. Foster.
Gaston Dr. J. H. Jenkins.
Gates Dr. W. O. P. Lee.
Graham Dr. R. J. Orr.
Granville Dr. S. D. Booth.
Greene Dr. Joseph E. Grimsley.
Guilford Dr. Edmund Harrison.
Halifax Dr. L. E. Green.
Harnett Dr. O. L. Denning.
Haywood Dr. E. M. Davis.
Henderson Dr. J. G. Waldrop.
Hertford Dr. John W. Tayloe.
Hyde Dr. E. H. Jones.
Iredell Dr. Henry F. Long.
Jackson Dr. Wm. Self.
Johnston Dr. L. D. Wharton.
Jones Dr. S. E. Koonce.
Lenoir Dr. W. T. Parrott.
Lincoln Dr. J. W. Saine.
McDowell Dr. B. A. Cheek.
Macon Dr. F. L. Siler.
Madison Dr. Jas. K. Hardwicke.
Martin Dr. W. H. Harrell.
Mecklenburg Dr. F. M. Winchester.
Mitchell Dr. C. E. Smith.
Montgomery Dr. M. P. Blair.
Moore Dr. Gilbert McLeod.
Nash Dr. J. P. Battle.
New Hanover Dr. W. D. McMillan.
Northampton Dr. H. W. Lewis.
Onslow Dr. E. L. Cox.
Orange Dr. C. D. Jones.
Pamlico Dr. G. A. Caton.
Pasquotank Dr. H. T. Aydlett.
Pender Dr. L. L. Ardey.
Perquimans Dr. C. C. Winslow.
Person Dr. J. A. Wise.
Pitt Dr. C. O'H. Laughinghouse.
Polk Dr. Earle Grady.
Randolph Dr. T. T. Ferree.
Richmond Dr. J. M. Ledbetter.
Robeson Dr. H. T. Pope.
Rockingham Dr. Sam Ellington.
Rowan Dr. W. L. Crump.
Rutherford Dr. W. A. Thompson.
Sampson Dr. R. F. Lee.
Scotland Dr. A. W. Hamer.
Stanly Dr. W. A. Whitely.
Stokes Dr. W. L. McCauley.
Surry Dr. John R. Waltz.
Swain Dr. J. A. Cooper.
Transylvania Dr. M. M. King.
Tyrrell
Union Dr. J. E. Ashcraft.
Vance Dr. Goode Cheatham.
Wake Dr. J. J. L. McCullers.
Warren Dr. A. S. Pendleton.
Washington Dr. W. H. Ward.
Watauga Dr. E. F. Bingham.
Wayne Dr. Williams Spicer.
Wilkes Dr. J. M. Turner.
Wilson Dr. W. S. Anderson.
Yadkin Dr. S. L. Russell.
Yancey Dr. W. M. Austin.
[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

- Whooping-cough
- Measles
- Diphtheria
- Scarlet Fever
- Pernicious Malarial Fever
- Hemorrhagic Malarial Fever

- Typhoid Fever
- Typhus Fever
- Yellow Fever
- Cholera
- Smallpox
- Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:

M. D. N. C.

190
AN ACT RELATING TO THE BOARD OF HEALTH, CHAPTER 214, LAWS OF 1893, AS AMENDED BY THE GENERAL ASSEMBLY OF 1901.

PLEASE PRESERVE.

BULLETIN
OF THE
North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

Vol. XV. FEBRUARY, 1901. No. 11.

Another Step Forward.

It is with much pleasure that we announce the passage by the General Assembly of certain important and valuable amendments to our health law. They consist essentially:

In increasing the term of members of the State Board of Health from two years, all expiring at the same time, to six years, so arranged as to expire at different times, thereby assuring a continuing board; in the creation of a “County Sanitary Committee,” composed of the board of county commissioners and two physicians and endowed with definite responsibilities and powers; and in restoring the term of office of county superintendent of health from one to two years. Our law has always been defective in not providing proper machinery for its administration by counties. That defect is now remedied as satisfactorily, we think, as the conditions obtaining in our State will permit. It will also be noted that the medical profession is recognized as far as practicable, and this we hope will revive their interest in sanitary matters. It is true that the control remains in the hands of the board of county commissioners, as they will always be in a majority, but in all matters pertaining to the public health, including the election of a county superintendent of health, two physicians will have a voice.

The following is the act:

*Deceased.
AN ACT TO AMEND AN ACT RELATING TO THE
BOARD OF HEALTH, CHAPTER 214, LAWS OF 1893.

The General Assembly of North Carolina do enact:

SECTION 1. That section 2 of chapter 214, Laws of 1893, be amended by striking out in line two the words "two years" and inserting in lieu thereof the following: "two for four years and two for six years and their successors for six years," and by striking out in line five the words "two years" and inserting in lieu thereof the following: "one for two years, two for four years and two for six years and their successors for six years.

SEC. 2. That section 4 be amended by striking out in lines three and four respectively the word "two" and inserting in lieu thereof the word "six."

SEC. 3. That section 5, as amended by chapter 201, Laws of 1897, be stricken out and the following substituted therefor:

"Section 5. There shall be an auxiliary board of health in each county in the State, whose function shall be, upon the call of the chairman of the board of county commissioners, to advise the county authorities in all matters pertaining to the public health. These boards shall be composed of all registered physicians resident in the county. From this board two physicians shall be selected, one by the chairman of the board of county commissioners and one by the mayor of the county town, who, together with the board of county commissioners, shall constitute the county sanitary committee, of which committee the chairman of the board of county commissioners shall be ex officio chairman. Their term of office shall be conterminous with that of the commissioners with whom they serve, and when on duty they shall receive the same compensation as is received by county commissioners. The county sanitary committee shall have the immediate care and responsi-
19 bility of the health interests of their county. They shall
20 make such rules and regulations, pay such fees and salaries
21 and impose such penalties as in their judgment may be neces-
22 sary to protect and advance the public health. And any per-
23 son violating such rules and regulations shall be guilty of a
24 misdemeanor and may be fined not exceeding fifty dollars or
25 imprisoned not exceeding thirty days. They shall elect a
26 registered physician, not a member of the sanitary committee,
27 to serve two years, with the title of county superintendent of
28 health, and shall fix his compensation. The duty of the
29 county superintendent of health shall be to carry out as far as
30 possible such work as may be directed by the county sanitary
31 committee and by the State Board of Health. He shall always
32 promptly advise the Secretary of the State Board of Health of
33 the unusual prevalence of disease in his county, especially of
34 typhoid fever, scarlet fever, diphtheria, yellow fever, small-pox
35 and cholera. He shall make the medico-legal post-mortem
36 examinations for coroners' inquests, attend the inmates of the
37 home for the aged and infirm and the prisoners in the jail or
38 convict camp of his county, and make examinations of lunatic
39 tics for commitment. He shall be the sanitary inspector of
40 the home and jail, including convict camps, of his county,
41 making monthly reports to the board of county commissioners
42 and to the Secretary of the State Board of Health."
43
44 Sec. 4. That section 8 be striken out and the following sub-
45 stituted therefor: "The meeting of the State Board of Health
46 for the election of officers shall be on the second day of the
47 annual meeting of the Medical Society of the State of North
48 Carolina in the year 1901, and every six years thereafter; and
49 of the county sanitary committee for the election of a county
50 superintendent of health on the first Monday in May, 1901,
51 and every two years thereafter."
52
53 Sec. 5. That section 14 be amended by inserting after the
54 word "commissioners" in line five the words "or county san-
55 tary committee."
Sec. 6. That section 15 be amended by inserting between the words "town" and "near" at the end of line two the words "or the sanitary committee of a county"; by striking out after the word "town" in line fourteen the words "or county board of health" and inserting in lieu thereof the words "board of health or county sanitary committee"; and by striking out after the word "town" in line twenty-one the words "or county board of health" and inserting in lieu thereof the words "board of health or county sanitary com-
mittee."

Sec. 7. That section 23 be amended by striking out all of said section from the beginning of line ten and inserting in lieu thereof the following: "the sanitary committee of any county may make such regulation and provisions for the vacci-
nation of its inhabitants and impose such penalties as they may deem necessary to protect the public health; and any person violating such regulations shall be guilty of a misde-
meanor and may be fined not exceeding fifty dollars, or im-
prisoned not exceeding thirty days.''

Sec. 8. That section 25 be amended by adding thereto the following: "And any person violating such regulations shall be guilty of a misdemeanor and may be fined not exceeding fifty dollars or imprisoned not exceeding thirty days.''

Sec. 9. That section 7 having been repealed the number of section 8 be changed to 7 and of all subsequent sections in accordance therewith.

Sec. 10. That this act shall be in force from and after its ratification.

As the law will probably not be amended again for some years to come we print it below complete as it stands to-day.
An Act Relating to the Board of Health, Chapter 214, Laws of 1893, as Amended.

The General Assembly of North Carolina do enact:

SECTION 1. That the medical society of the State of North Carolina shall choose from its members by ballot four members, and the Governor of the State shall appoint five other persons (one of whom shall be a sanitary engineer) and they shall constitute "The North Carolina Board of Health."

SEC. 2. The members of the board of health elected by the State Medical Society shall be chosen to serve two for four years and two for six years, and their successors for six years. Their term of office shall begin immediately upon the expiration of the meeting at which they were elected. Those appointed by the Governor shall serve one for two years, two for four years and two for six years and their successors for six years, their term of office beginning with the first regular meeting of the board after their appointment. In case of death or resignation the board shall elect new members to fill the unexpired terms: Provided, the Governor shall fill such vacancies as may occur where he has made appointments.

SEC. 3. That the North Carolina Board of Health shall take cognizance of the health interests of the people of the State, shall make sanitary investigations and inquiries in respect to the people, employing experts when necessary; shall investigate the causes of disease dangerous to the public health, especially epidemics, the sources of mortality, the effect of locations, employments and conditions upon the public health. They shall gather such information upon all these matters for distribution among the people, with the especial purpose of informing them about preventable diseases. They shall be the medical advisers of the State and are herein specially provided for, and shall advise the government in regard to the location, sanitary construction and management of all State institutions, and shall direct the attention of the State to such sanitary matters as in their judgment affect the industries, prosperity, health and lives of the people of the State. They may make an inspection once in each year, and at such other times as they may be requested to do so by the State Board of Charities, of all public State institutions, including all convict camps under the control of the State penitentiary, and make a report as to their sanitary condition, with suggestions and recommendations to their respective boards of directors or trustees; and it shall be the duty of the officials in immediate charge of said institutions to furnish all facilities necessary for a thorough inspection. The Secretary of the Board shall make biennially to the General Assembly, through the Governor, a report of their work.

SEC. 4. The State board shall have a president and a secretary, who shall also be treasurer, to be elected from the members composing the Board of Health, North Carolina. Term of office of members elected by State Medical Society.

Proviso. Duty of officers.

Inspection of State institutions. Reports to boards of directors.

Biennial report to general assembly.
Terms of offices.  The president shall serve six years and the secretary-treasurer six years.  The secretary-treasurer shall receive such yearly compensation for his services as shall be fixed upon by the board, not to exceed one thousand dollars, but the other members of the board shall receive no pay, except that each member shall receive four dollars a day and necessary travelling and hotel expenses when on actual duty attending the meetings of the board or pursuing special investigations in the State, but when attending important sanitary meetings in other sections, the number of delegates thereto being limited to two, only actual travelling and hotel expenses shall be allowed.  These sums shall be paid by the treasurer on authenticated requisition approved and signed by the president.

Compensation of secretary and treasurer.

Compensation of members.

How paid.

County auxiliary board of health.

Sec. 5. There shall be an auxiliary board of health in each county in the State whose function shall be, upon the call of the chairman of the board of county commissioners, to advise the county authorities in all matters pertaining to the public health.  These boards shall be composed of all registered physicians resident in the county.  From this board two physicians shall be selected, one by the chairman of the board of county commissioners and one by the mayor of the county town, who, together with the board of county commissioners, shall constitute the county sanitary committee, of which committee the chairman of the board of county commissioners shall be ex officio chairman.  Their term of office shall be coterminous with that of the commissioners with whom they serve, and when on duty they shall receive the same compensation as is received by county commissioners.  The county sanitary committee shall have the immediate care and responsibility of the health interests of their county.  They shall make such rules and regulations, pay such fees and salaries, and impose such penalties as in their judgment may be necessary to protect and advance the public health.  And any person violating such rules and regulations shall be guilty of a misdemeanor and may be fined not exceeding fifty dollars, or imprisoned not exceeding thirty days.  They shall elect a registered physician, not a member of the sanitary committee, to serve two years, with the title of county superintendent of health, and shall fix his compensation.  The duty of the county superintendent of health shall be to carry out as far as possible such work as may be directed by the county sanitary committee and by the State Board of Health.  He shall always promptly advise the Secretary of the State Board of Health of the unusual prevalence of disease in his county, especially of typhoid fever, scarlet fever, diphtheria, yellow fever, small-pox and cholera.  He shall make the medico-legal post-mortem examinations for coroners' inquests, attend the inmates of the home for the aged and infirm and the prisoners in the jail or convict camp of his county, and make examinations of lunatics for commitment.  He shall be the sanitary inspector of the home and jail, including convict camps, of his county, making monthly reports to the board of county commissioners, and to the Secretary of the State Board of Health.

County sanitary committee.

Duties.

County superintendent of health.

Duties.
SEC. 6. Monthly returns of vital statistics, upon a plan to be made by the State Board of Health, or their secretary acting under their instructions, shall be made by the county superintendent to the Secretary of the State Board, and a failure to report by the tenth of the month for the preceding month shall subject the delinquent to a fine of one dollar for each day of delinquency, and this amount shall be deducted from the salary of the superintendent by the board of county commissioners on the statement of such delinquency by the Secretary of the State Board of Health; and the said secretary is hereby required to notify, on the eleventh day of each month, the chairman of the board of county commissioners of such delinquency. The county superintendent shall report to the Secretary of the State Board the presence in his county of any case of small-pox, yellow fever, typhus fever or cholera within twenty-four hours after it has come to his knowledge, and upon failure to make such report within the prescribed time the county commissioners shall deduct five dollars from his salary for each day of delay in reporting.

SEC. 7. The meeting of the State Board of Health for the election of officers shall be on the second day of the annual meeting of the Medical Society of the State of North Carolina, in the year 1901, and every six years thereafter; and of the county sanitary committee for the election of a county superintendent of health on the first Monday in May, 1901, and every two years thereafter.

SEC. 8. Inland quarantine shall be under the control of the county superintendent of health, who shall see that diseases especially dangerous to the public health, viz.: small-pox, diphtheria, scarlet fever, yellow fever, typhus fever and cholera, are properly quarantined and isolated within twenty-four hours after the case is brought to his knowledge; and that after the death or recovery or removal of a person sick of either of the diseases mentioned, the rooms occupied and the articles used by the patient are thoroughly disinfected in the manner set forth in the printed instructions, both as to quarantine and disinfection, which shall be furnished him by the Secretary of the State Board of Health. The expense of the quarantine and of the disinfection shall be borne by the householder in whose family the case occurs, if able, otherwise by the city, town or county of which he is a resident. The failure on the part of a county superintendent of health to perform the duties imposed in this section shall be punished by the deduction of five dollars for each day of delinquency from his salary by the board of county commissioners; and if it shall appear to the satisfaction of the county board of health that the death of any person from the spread of the disease can justly be attributed to such failure of duty on his part, he shall be deposed from office and a successor immediately elected to fill his unexpired term. Any person neglecting or refusing to comply with or in any way violating the rules promulgated in the manner above set forth on the subjects of quarantine and disinfection, shall be deemed guilty of a misdemeanor, and upon con-
viction shall be fined or imprisoned, at the discretion of the court, not less than five nor more than fifty dollars, or less than ten nor more than thirty days. In case the offender be stricken with the disease for which he is quarantinable, he shall be subject to the penalty on recovery, unless in the opinion of the superintendent it should be omitted: Provided, however, that in any city or incorporated town having a regularly appointed medical health officer who is a member of the county board of health, the duties assigned in this section to the county superintendent of health shall be performed by the said medical health officer for the people of his city or town, and he shall be subject to the same penalties for dereliction of duty at the hands of the board of aldermen or town commissioners as are directed to be imposed by the county commissioners and county board of health upon the superintendent: Provided further, that the quarantine of ports shall not be interfered with, but the officers of the local and State boards shall render all aid in their power to quarantine officers in the discharge of their duties upon the request of the latter: Provided, that the custody and care of any child or other person may remain in custody of parent or family.

SEC. 9. When a householder knows that a person within his family is sick with either of the diseases enumerated in section eight, he shall immediately give notice thereof to the health officer or mayor, if he resides in a city or incorporated town, otherwise to the county superintendent of health, and upon the death or recovery or removal of such person, the rooms occupied and the articles used by him shall be disinfected by such householder in the manner indicated in section eight. Any person neglecting or refusing to comply with any of the above provisions shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than one dollar nor more than fifty dollars.

SEC. 10. When a physician knows that a person whom he is called to visit is infected with small-pox, diphtheria, scarlet fever, typhus fever, yellow fever or cholera he shall immediately give notice thereof to the health officer or mayor, if the sick person be in a city or incorporated town, otherwise to the county superintendent of health, and if he refuses or neglects to give such notice of it in twenty-four hours he shall be guilty of a misdemeanor and shall be fined for each offense not less than ten nor more than twenty-five dollars. And it shall be the duty of the said county superintendent, health officer or mayor receiving such notice of the presence of a case of small-pox, yellow fever, typhus fever or cholera within his jurisdiction to communicate the same immediately by mail or telegraph to the Secretary of the State Board of Health. A failure to perform this duty for twenty-four hours after the receipt of the notice shall be deemed a misdemeanor, and shall subject the delinquent upon conviction to a fine of not less than ten nor more than twenty-five dollars.

SEC. 11. The county superintendents of health, or the board of health in the several cities and towns where organized, otherwise the authorities of
said cities or towns, shall cause a record to be kept of all reports received in pursuance of the preceding sections, and such records shall contain the names of all persons who are sick, the localities in which they live, the diseases with which they are affected, together with the date and names of all persons reporting any such cases. The boards of health of cities and towns wherever organized, and where not the mayors of the same, and in other cases the county superintendent of health, shall give the school committee of the city or town, the principals of private schools and the superintendent of public instruction of the county, when the schools are in session, notice of all such cases of contagious diseases reported to them according to the provisions of this act. A failure to perform this duty for twenty-four hours after the receipt of the notice shall be deemed a misdemeanor, and subject the delinquent upon conviction to a fine of not less than ten nor more than fifty dollars.

Sec. 12. The school committees of public schools, superintendents of graded schools and the principals of private schools shall not allow any pupil to attend the school under their control while any member of the household to which said pupil belongs is sick of either small-pox, diphtheria, measles, scarlet fever, yellow fever, typhus fever or cholera, or during a period of two weeks after the death, recovery or removal of such sick person; and any pupil coming from such household shall be required to present to the teacher of the school the pupil desires to attend a certificate from the attending physician, city health officer or county superintendent of health of the facts necessary to entitle him to admission in accordance with the above regulations. A willful failure on the part of any school committee to perform the duty required in this section shall be deemed a misdemeanor, and upon conviction shall subject each and every member of the same to a fine of not less than one nor more than twenty-five dollars: Provided, that the instructions in accordance with the provisions of this section given to the teachers of the schools within twenty-four hours after the receipt of each and every notice shall be deemed performance of duty on the part of the school committee. Any teacher of a public school and any principal of a private school failing to carry out the requirements of this section shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than one nor more than twenty-five dollars.

Sec. 13. When a person coming to a city or a town from abroad or from some other place in this State is infected or has lately been infected with either of the diseases mentioned in section eight, the local board of health where such exists, otherwise the board of aldermen or board of town commissioners or county sanitary committee, shall make effective provision in the manner which it judges best for the safety of the inhabitants by removing such person to a separate house or otherwise, and by providing nurses and other assistance and necessaries, which shall be at the charge of the person himself or his parents, where able, otherwise at the charge of the city, town or county to which he belongs.
Sec. 14. The board of health, or in case there is no board of health, the board of aldermen or town commissioners of a city or town, or the sanitary committee of a county near to or bordering upon either of the neighboring States, may appoint by writing suitable persons to attend at places by which travelers may pass from infected places in other States, who may examine such travelers as may be suspected of bringing any infection dangerous to the public health, and if it need be may restrain them from traveling until licensed thereto by the board of health or board of aldermen or town commissioners of the city or town to which they may come. A traveler coming from such infected place who without such license travels within this State (except to return by the most direct route to the State whence he came) after he has been cautioned to depart by the persons so appointed, shall be isolated or ejected, at the discretion of the local city or town board of health or county sanitary committee, and upon refusal to comply with the regulations of the said boards of health or either of them on this subject shall be guilty of a misdemeanor, and upon conviction shall be fined not less than twenty-five nor more than fifty dollars or imprisoned not more than thirty days. And all common carriers bringing into this State any such persons as named above are hereby required to return them to some point without this State, if required by a city, town board of health or county sanitary committee. Nothing in this section shall prevent the State Board of Health in time of epidemics from appointing such additional examiners as they may deem necessary to the preservation of the public health.

Sec. 15. No railroad corporation or other common carrier or person shall convey or cause to be conveyed through or from any city, town or county in this State the remains of any person who has died of small-pox, measles, scarlet fever, diphtheria, typhus fever, yellow fever or cholera until such body has been disinfected and encased in such manner as shall be directed by the State Board of Health, so as to preclude any danger of communicating the disease to others by its transportation; and no local registrar, clerk or health officer, or any other person, shall give a permit for the removal of such body until he has received from the board of health of the city, or from the board of aldermen or town commissioners, or the county superintendent of the city, town or county where the death occurred, a certificate stating the cause of death and that the said body has been prepared in the manner set forth in this section; which certificate shall be delivered in duplicate to the agent or person who receives the body, and one copy shall be pasted on the box containing the corpse; said certificate shall be furnished in blank by the transportation company when no local board of health exists. During an epidemic of cholera all common carriers shall so arrange their water-closets as to catch in water-tight receptacles the dejections of all persons using the same and shall disinfect the said dejections in a manner satisfactory to the State Board of Health before emptying them. Any person violating the pro-
visions of this section shall be punished by fine not exceeding twenty-five dollars.

Sec. 16. In times of epidemics of small-pox, yellow fever, typhoid fever, scarlet fever, diphtheria, typhus fever, cholera, the State Board of Health shall have sanitary jurisdiction in all cities and towns not having regularly organized local boards of health, and are hereby empowered to make all such regulations as they may deem necessary to protect the public health, and to enforce, in courts of justices of the peace, the same by the imposition of such penalties as come within the jurisdiction of a justice of the peace.

Sec. 17. Water and water supply.—The State Board of Health shall have the general oversight and care of all inland waters and shall from time to time, as it may deem expedient, cause examinations of said waters to be made for the purpose of ascertaining whether the same are adapted for use as sources of domestic water supplies, or are in a condition likely to impair the interests of the public or persons lawfully using the same, or imperil the public health. For the purposes aforesaid it may employ such expert assistance as may be necessary.

Sec. 18. The said board shall from time to time consult with and advise the board of directors of all State institutions, the authorities of cities and towns, corporations or firms already having or intending to introduce systems of water supply, drainage or sewerage, as to the most appropriate source of supply, the best practicable method of assuring the purity thereof, or of disposing of their drainage or sewage, having regard to the present and prospective needs and interests of other cities, towns, corporations or firms which may be affected thereby. All such boards of directors, authorities, corporations and firms are hereby required to give notice to said board of their intentions in the premises and to submit for its advice outlines of their proposed plans or schemes in relation to water supply and disposal of sewage, and no contract shall be entered into by any State institution, city or town for the introduction of a system of water supply or sewage disposal until said advice shall have been received and considered: Provided, however, that any city or town having a regularly organized board of health may seek advice therefrom or from its county board of health in lieu of that of the State board.

Sec. 19. Whoever wilfully or maliciously defiles, corrupts or makes impure any well, spring or other source of water supply or reservoir, or destroys or injures any pipe, conductor of water or other property pertaining to an aqueduct, or aids and abets in any such trespass, shall be guilty of a misdemeanor, and on conviction shall be fined not exceeding one thousand dollars or imprisoned not exceeding one year.

Sec. 20. Any householder in whose family there is to his knowledge a person sick of cholera or typhoid fever, who shall permit the bowel discharges of such sick person to be emptied without first having disinfected them according to the instructions to be obtained from the attending phy...
BULLETIN OF THE N. C. BOARD OF HEALTH.

Penalty.

Upon conviction the physician or the county superintendent of health shall be guilty of a misdemeanor, and upon conviction shall be fined not less than ten nor more than twenty-five dollars, or imprisoned not less than ten nor more than thirty days. And in cases where such undisinfected discharges are emptied on the water-shed of any stream or pond furnishing the source of water supply for any public institution, city or town the penalty shall be a fine of not less than twenty-five nor more than fifty dollars, or imprisonment for not more than thirty days. And any physician attending a case of cholera or typhoid fever who refuses or neglects to give the proper instructions for such disinfection as soon as the diagnosis is made shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than ten nor more than fifty dollars.

SEC. 21. Whenever and wherever a nuisance upon premises shall exist which in the opinion of the county superintendent of health is dangerous to the public health, it shall be his duty to notify in writing the parties occupying the premises (or the owner, if the premises are not occupied) of its existence, the character and the means of abating it. Upon this notification the parties shall proceed to abate the nuisance, but failing to do this shall be adjudged guilty of a misdemeanor and shall pay a fine of one dollar a day, dating from twenty-four hours after the notification has been served, the amounts so collected to be turned over to the county treasurer: Provided, however, that if the party notified shall make oath or affirmation before a justice of the peace of his or her inability to carry out the directions of the superintendent, it shall be done at the expense of the town, city or county in which the offender lives. In the latter case the limit of the expense chargeable to the city, town or county shall not be more than one hundred dollars in any case: Provided further, that nothing in this section shall be construed to give the superintendent the power to destroy or injure property without a due process of law as now exists for the abatement of nuisances.

SEC. 22. Vaccination—On the appearance of a case of small-pox in any neighborhood all due diligence shall be used by the superintendent of health that warning shall be given, and all persons not able to pay shall be vaccinated free of charge by him, and the county superintendent shall vaccinate every person admitted into a public institution (jail, county home, public school) as soon as practicable, unless he is satisfied upon examination that the person is already successfully vaccinated; the money for vaccine to be furnished by the county commissioners. The authorities of any city or town or the sanitary committee of any county may make such regulations and provisions for the vaccination of its inhabitants and impose such penalties as they may deem necessary to protect the public health; and any person violating such instructions shall be guilty of a misdemeanor and may be fined not exceeding fifty dollars or imprisoned not exceeding thirty days.
Sec. 23. The board of county commissioners of each county is hereby authorized at any time to call a meeting of the county board of magistrates or justices of the peace to take into consideration the health interest of the people of their county, and, with the approval of the said board of magistrates, to levy a special tax to be expended under the direction of a committee composed of the chairman of the board of county commissioners, the mayor of the county town and the county superintendent of health for the preservation of the public health.

Sec. 24. The authorities of any city or town are hereby authorized, not already authorized in its charter, to make such regulations, pay such fees and salaries and impose such penalties as in their judgment may be necessary for the protection and the advancement of the public health. And any person violating such regulations shall be guilty of a misdemeanor and may be fined not exceeding fifty dollars or imprisoned not exceeding thirty days.

Sec. 25. Bulletins of the outbreak of disease dangerous to the public health shall be issued by the State board whenever necessary, and such advice freely disseminated to prevent and check the invasion of disease into any part of the State. It shall also be the duty of the board to inquire into any outbreak of disease by personal visits or by any method the board shall direct. The compensation of members on such duty shall be four dollars a day and all necessary traveling and hotel expenses.

Sec. 26. Special meetings of the State Board of Health may be called by the president through the secretary. The regular annual meetings shall be held at the same time and place as the State Medical Society, at which time the secretary shall submit his annual report.

Sec. 27. For carrying out the provisions of this act two thousand dollars, $2,000 appropriated annually to carry out provisions of this act. How paid. Printing and stationery. Annual statement of receipts and disbursements.

Sec. 28. A contingent fund of five thousand dollars is hereby appropriated, $5,000 appropriated as a contingent fund. How expended. A yearly statement shall be made to the State Treasurer of all moneys received and expended in pursuance of this act.

Sec. 29. All previous acts conflicting with this act, and also all previous acts of appropriation for the public health, are hereby repealed upon the passage of this act: Provided, that nothing herein shall operate as a repeal or abridgement of powers conferred by any special act on any local board of health.

Sec. 30. That this act shall be in force from and after its ratification.

Ratified the 1st day of March, A. D. 1893.
Review of Diseases for January, 1901.

EIGHTY-THREE COUNTIES REPORTING.

Ninety-four counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of January the following diseases have been reported from the counties named:

Measles.—Alamance, 2; Bladen, a few; Brunswick, several; Buncombe, in all parts; Burke, in all parts; Cabarrus, epidemic; Cleveland, many; Columbus, in many parts; Cumberland, in all parts; Duplin, Durham, several; Gates; Graham, several; Granville, 6; Guilford, 2; Henderson, 23; Hyde, 20; Jackson, 4; Mecklenburg, 200; New Hanover, 26; Pasquotank, several; Polk, 16; Richmond, several; Robeson, many; Rockingham, several; Sampson, in many parts; Scotland, 14; Stanly, in nearly all parts; Stokes, 8; Swain, a few; Union, epidemic; Warren, 2; Washington, 3; Yancey, 3—34 counties.

Whooping-cough.—Alamance, several; Buncombe, 1; Burke, in all parts; Carteret; Chowan, in all parts; Clay, several; Cleveland, a few; Craven, 12; Durham, several; Granville, 8; Hyde, 2; Iredell, 1; Lincoln, 10; McDowell, many; Macon, several; Mecklenburg, 50; Moore, several; New Hanover, 2; Randolph, 2; Rutherford, a few; Swain, a few; Union, several; Watauga; Yadkin, several—24 counties.

Scarlet Fever.—Caswell, several; Davison, 4; Henderson, 1; Iredell, 4; Mecklenburg, 15; Richmond, 1; Watauga, a few—7 counties.

Diphtheria.—Alamance, 2; Ashe, 2; Buncombe, 1; Guilford, 2; Henderson, 1; Jackson, 2; Macon, 1; Mecklenburg, 10; Rockingham; Swain, 1; Transylvania, 1; Wake, 2—12 counties.

Typhoid Fever.—Alamance, 1; Alleghany, 2; Ashe, 1; Brunswick, 3; Buncombe, 2; Columbus, 1; Craven, 4; Durham, a few; Granville, 1; Greene, 1; Guilford, 1; Harnett, many; Iredell, 2; Jones, 2; McDowell, a few; Moore, 1; New Hanover, 2; Northampton, 1; Onslow, 1; Perquimans, 1; Polk, 2; Robeson, several; Rockingham; Rutherford, a few; Scotland, 1; Stanly, in nearly all parts; Stokes, 2; Surry, 2; Swain, 2; Wake, 2; Warren, 3; Washington, 1; Yancey, 1—33 counties.

Malarial Fever.—Beaufort; Brunswick; Craven; Robeson; Sampson; Washington—6 counties.

Malarial Fever, Hemorrhagic.—Beaufort, 1; Craven, 1; Robeson, 1; Washington, 1—4 counties.

Influenza.—Alamance, in nearly all parts; Ashe; Bertie, general; Bladen, general; Burke, in nearly all parts; Cabarrus, general; Caldwell, general; Caswell, in nearly all parts; Catawba, in central part; Chowan, general; Columbus; Craven, general; Currituck, general; Dare, general; Davidson, general; Gaston; Gates; Granville, general; Green, general; Guilford; Halifax, in many parts; Harnett; Henderson; Iredell, general; Jackson, general; Johnston; Jones, general; Lenoir, general; Macon; Moore, general; Northampton; Perquimans, General; Person; Richmond; Robeson; Sampson, in many parts; Stanly, in nearly all parts; Surry, general; Union, in many parts; Vance, general; Wake; Warren, general; Washington, general; Wayne; Wilson, in nearly all parts—45 counties.
Pneumonia.—Alamance, in nearly all parts; Ashe; Burke, general; Cabarrus, general; Caldwell, a few; Caswell, in nearly all parts; Cherokee; Chowan, general; Gaston; Gates; Green, general; Halifax, in many parts; Harnett; Jackson, general; Jones, general; Lenoir, in many parts; Onslow, many cases; Perquimans, general; Person; Pitt, general; Richmond; Robeson; Sampson, in many parts; Scotland; Stanly, a little; Stokes, in many parts; Union, in many parts; Watauga, a few; Wayne, 1; Wilson; Yadkin, in nearly all parts—30 counties.

Mumps.—Caswell, in nearly all parts; Lincoln, in all parts; Surry, in all parts; Yadkin, in nearly all parts.

Varicella.—Cumberland, in all parts.

Small-pox.—Alamance, 3; Caswell, 20; Cumberland, 4; Currituck, 6 in one colored family; Forsyth, 1; Gaston, 5; Greene; Harnett, a few, very mild; Lincoln, 1; Mecklenburg, 3; Nash, 20; Pasquotank, 2; Rockingham, 9; Watauga, 10; Wilson, 8; Yancey, 4—16 counties.

Cholera in Hogs.—Brunswick, Columbus, Duplin, Hyde, Jackson, Northampton.

Distemper in Horses.—Scotland, Watauga.

Hydrophobia in Dogs.—Brunswick, McDowell.

No reports received from Anson, Chatham, Haywood, Hertford, Madison, Martin, Mitchell, Montgomery, Pamlico, Pender and Rowan.

Summary of Mortuary Reports for January, 1901.

(Twenty-three towns).

Only those towns from which certified reports are received are included.

Aggregate population... 75,414 46,310 121,724
Aggregated deaths... 96 96 192
Representing temporary annual death rate per 1,000 ............... 15.3 24.9 18.9

Causes of Death.

<table>
<thead>
<tr>
<th>Disease</th>
<th>White</th>
<th>Col'd.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typhoid fever</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Whooping-cough</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Measles</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>23</td>
<td>12</td>
<td>35</td>
</tr>
<tr>
<td>Consumption</td>
<td>11</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Brain diseases</td>
<td>6</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>Heart diseases</td>
<td>12</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>Neurotic diseases</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Diarrheal diseases</td>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>All other diseases</td>
<td>38</td>
<td>16</td>
<td>54</td>
</tr>
<tr>
<td>Accident</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Violence</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Deaths under five years........ 25 23 48
Still-born............... 5 8 13
# Mortuary Report for January, 1901.

## Towns and Reporters.

<table>
<thead>
<tr>
<th>Towns</th>
<th>Population</th>
<th>Temporal Annual Death Rate per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Races</td>
<td>By Races</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>Asheville</td>
<td>W. 3,694</td>
<td>14,094</td>
</tr>
<tr>
<td>Dr. C. V. Reynolds</td>
<td>C. 5,000</td>
<td>31.2</td>
</tr>
<tr>
<td>Charlotte</td>
<td>W. 11,991</td>
<td>18,093</td>
</tr>
<tr>
<td>Dr. F. O. Hawley</td>
<td>C. 6,400</td>
<td>31.5</td>
</tr>
<tr>
<td>Durham</td>
<td>W. 4,479</td>
<td>6,679</td>
</tr>
<tr>
<td>Dr. Z. T. Brooks</td>
<td>C. 2,300</td>
<td>5.4</td>
</tr>
<tr>
<td>Fayetteville</td>
<td>W. 2,779</td>
<td>4,670</td>
</tr>
<tr>
<td>Dr. J. V. McGougan</td>
<td>C. 1,500</td>
<td>23.2</td>
</tr>
<tr>
<td>Goldsboro</td>
<td>W. 3,377</td>
<td>5,877</td>
</tr>
<tr>
<td>J. B. Peterson, Mayor</td>
<td>C. 2,500</td>
<td>9.6</td>
</tr>
<tr>
<td>Greensboro</td>
<td>W. 6,003</td>
<td>10,035</td>
</tr>
<tr>
<td>J. S. Michaux, C. Clk.</td>
<td>C. 4,000</td>
<td>23.0</td>
</tr>
<tr>
<td>Henderson</td>
<td>W. 2,046</td>
<td>3,746</td>
</tr>
<tr>
<td>Dr. F. R. Harris</td>
<td>C. 1,700</td>
<td>28.2</td>
</tr>
<tr>
<td>Hillsboro</td>
<td>W. 407</td>
<td>707</td>
</tr>
<tr>
<td>Dr. C. D. Jones</td>
<td>C. 300</td>
<td>0.0</td>
</tr>
<tr>
<td>Lenoir</td>
<td>W. 1,636</td>
<td>1,226</td>
</tr>
<tr>
<td>Dr. A. A. Kent</td>
<td>C. 260</td>
<td>0.0</td>
</tr>
<tr>
<td>Marion</td>
<td>W. 730</td>
<td>1,116</td>
</tr>
<tr>
<td>Dr. B. A. Cheek</td>
<td>C. 330</td>
<td>0.0</td>
</tr>
<tr>
<td>Monroe</td>
<td>W. 1,827</td>
<td>2,427</td>
</tr>
<tr>
<td>Dr. J. M. Blair</td>
<td>C. 1,100</td>
<td>0.0</td>
</tr>
<tr>
<td>Morganton</td>
<td>W. 1,438</td>
<td>1,938</td>
</tr>
<tr>
<td>H. B. S., C. Clk.</td>
<td>C. 500</td>
<td>24.0</td>
</tr>
<tr>
<td>Oxford</td>
<td>W. 1,159</td>
<td>2,059</td>
</tr>
<tr>
<td>Dr. S. D. Booth</td>
<td>C. 900</td>
<td>13.3</td>
</tr>
<tr>
<td>Raleigh</td>
<td>W. 11,000</td>
<td>29,000</td>
</tr>
<tr>
<td>T. P. Sall, Clerk B. H.</td>
<td>C. 9,000</td>
<td></td>
</tr>
<tr>
<td>Rockingham</td>
<td>W. 1,007</td>
<td>1,597</td>
</tr>
<tr>
<td>Dr. J. M. Ledbetter</td>
<td>C. 500</td>
<td>72.0</td>
</tr>
<tr>
<td>Rocky Mount</td>
<td>W. 1,337</td>
<td>2,937</td>
</tr>
<tr>
<td>Dr. G. L. Wimberley, Jr</td>
<td>C. 1,100</td>
<td>10.9</td>
</tr>
<tr>
<td>Salem</td>
<td>W. 3,243</td>
<td>3,642</td>
</tr>
<tr>
<td>S. E. Butner, Mayor</td>
<td>C. 400</td>
<td>0.0</td>
</tr>
<tr>
<td>Salisbury</td>
<td>W. 4,277</td>
<td>6,277</td>
</tr>
<tr>
<td>Dr. W. W. McKenzie</td>
<td>C. 2,000</td>
<td>18.0</td>
</tr>
<tr>
<td>Scotland Neck</td>
<td>W. 848</td>
<td>1,348</td>
</tr>
<tr>
<td>Dr. J. P. Wimberly</td>
<td>C. 500</td>
<td></td>
</tr>
<tr>
<td>Tarboro</td>
<td>W. 1,999</td>
<td>2,499</td>
</tr>
<tr>
<td>Dr. L. L. Staton</td>
<td>C. 500</td>
<td>48.0</td>
</tr>
<tr>
<td>Tarrenton</td>
<td>W. 536</td>
<td>836</td>
</tr>
<tr>
<td>Dr. P. J. Macon</td>
<td>C. 300</td>
<td>0.0</td>
</tr>
<tr>
<td>Washington</td>
<td>W. 2,849</td>
<td>4,842</td>
</tr>
<tr>
<td>Dr. Jao. G. Blount</td>
<td>C. 2,000</td>
<td>36.0</td>
</tr>
<tr>
<td>Wilmington</td>
<td>W. 9,976</td>
<td>20,976</td>
</tr>
<tr>
<td>Dr. Chas. T. Harper</td>
<td>C. 11,000</td>
<td>28.4</td>
</tr>
<tr>
<td>Wilson</td>
<td>W. 1,825</td>
<td>3,525</td>
</tr>
<tr>
<td>Dr. W. S. Anderson</td>
<td>C. 1,700</td>
<td>35.1</td>
</tr>
</tbody>
</table>

N.B.—The reporters for the cities and towns printed in Black Type have signed this certificate: "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month." The total populations are taken from the census report for 1900, but the division into races is estimated as those figures have not been given out.
County Superintendents of Health.

Alamance Dr. T. S. Faucette.
Alexander Dr. T. F. Stevenson.
Alleghany Dr. B. C. Waddell.
Anson Dr. E. S. Ashe.
Ashe Dr. Manley Blevins.
Beaufort Dr. P. A. Nicholson.
Bertie Dr. H. V. Dunstan.
Bladen Dr. Newton Robinson.
Brunswick Dr. J. A. McNeill.
Buncombe Dr. James Sawyer.
Burke Dr. J. L. Laxton.
Cabarrus Dr. D. G. Caldwell.
Caldwell Dr. A. A. Kent.
Camden Dr. F. M. Clark.
Carteret Dr. S. A. Malloy.
Catawba Dr. Geo. H. West.
Chatham Dr. H. T. Chapin.
Cherokee Dr. J. F. Abernathy.
Chowan Dr. T. J. Hoscins.
Clay Dr. J. M. Sullivan.
Cleveland Dr. B. H. Palmer.
Columbus Dr. I. Jackson.
Craven Dr. R. DuVal Jones.
Cumberland Dr. J. Vance McGongan.
Currituck Dr. H. M. Shaw.
Dare Dr. W. B. Fearing.
Davidson Dr. Joel Hill.
Davie Dr. James McGuire.
Duplin Dr. James W. Blount.
Durham Dr. Z. T. Brooks.
Edgecombe Dr. L. L. Staton.
Forsyth Dr. John Bynum.
Franklin Dr. E. S. Foster.
Gaston Dr. J. H. Jenkins.
Gates Dr. W. O. P. Lee.
Graham Dr. R. J. Orr.
Granville Dr. S. D. Booth.
Greene Dr. Joseph E. Grimsley.
Guilford Dr. Edmund Harrison.
Halifax Dr. I. E. Green.
Harnett Dr. O. L. Denning.
Haywood Dr. F. M. Davis.
Henderson Dr. J. G. Waldrop.
Hertford Dr. John W. Taylor.
Hyde Dr. E. H. Jones.
Iredell Dr. Henry F. Long.
Jackson Dr. Wm. Self.
Johnston Dr. L. D. Wharton.
Jones Dr. S. E. Koonce.
Lenoir Dr. W. T. Parrott.
Lincoln Dr. T. F. Costner.
McDowell Dr. B. A. Cheek.
Macon Dr. F. L. Siler.
Madison Dr. Jas. K. Hardwick.
Martin Dr. W. H. Harrell.
Mecklenburg Dr. F. M. Winchester.
Mitchell Dr. V. R. Butt.
Montgomery Dr. M. P. Blair.
Moore Dr. Gilbert McClend.
Nash Dr. J. P. Battle.
New Hanover Dr. W. D. McMillan.
Northampton Dr. H. W. Lewis.
Onslow Dr. E. L. Cox.
Orange Dr. C. D. Jones.
Pamlico Dr. G. A. Caton.
Pasquotank Dr. H. T. Aydlett.
Pender Dr. L. L. Ardrey.
Perquimans Dr. C. C. Winslow.
Person Dr. J. A. Wise.
Pitt Dr. C. O'H. Laughinghouse.
Polk Dr. Earle Grady.
Randolph Dr. T. T. Ferree.
Richmond Dr. J. M. Ledbetter.
Robeson Dr. H. T. Pope.
Rockingham Dr. Sam Ellington.
Rowan Dr. W. L. Crump.
Rutherford Dr. W. A. Thompson.
Sampson Dr. R. E. Lee.
Scotland Dr. A. W. Hamer.
Stanly Dr. V. A. Whitley.
Stokes Dr. W. L. McCanless.
Surry Dr. John R. Woltz.
Swain Dr. J. A. Cooper.
Transylvania Dr. M. M. King.
Tyrrell Dr. J. E. Ashcraft.
Union Dr. Goode Cheatham.
Vance Dr. Wake.
Wake Dr. J. J. L. McCullers.
Warren Dr. A. S. Pendleton.
Washington Dr. W. H. Ward.
Watauga Dr. E. F. Bingham.
Wayne Dr. Williams Spicer.
Wilkes Dr. J. M. Turner.
Wilson Dr. W. S. Spicer.
Yadkin Dr. S. L. Russell.
Yancey Dr. W. M. Austin.
Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough .............................................. Typhoid Fever ..............................................
Measles ............................................................ Typhus Fever ................................................
Diphtheria .......................................................... Yellow Fever ................................................
Scarlet Fever ...................................................... Cholera ......................................................
Pernicious Malarial Fever ................................... Smallpox ....................................................
Hemorrhagic Malarial Fever ............................... Cerebro-spinal Meningitis .................................

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:

M. D.

N. C.
Sanitation and Progress.†

BY WALTER WYMAN, SURGEON-GENERAL, M. H. S.

Some four years ago, at the meeting of this Congress in the City of Mexico, I had the honor of addressing you upon the subject of International Responsibility with Regard to Epidemic Diseases. Quite in line with the thoughts then expressed, I have chosen for my subject tonight Sanitation and Progress, and it will be my effort to show the interdependence of municipal, national and international effort in the great undertaking of the elimination of contagious diseases, and that the twentieth century should witness this achievement.

Each morning I open on my official desk a package of newspaper clippings received from the Bureau of Press Clippings in New York, containing notices of the prevalence of the several contagious diseases throughout the whole United States; and, as I note the wearisome recurrence of small-pox, diphtheria, typhoid fever and scarlet fever, the notes upon consumption, the alarms concerning yellow fever and the bubonic plague, the thought which is impressed upon me is, how seriously are we lacking in proper effort in suppressing these suppressible diseases. Nothing seems easier to me than the prevention or suppression of small-pox. In vaccination we have an absolute preventive, and in the glycerinixed lymph we have a safe inoculating material absolutely devoid of the danger of exciting undue inflammation. Thus a mere scratch or a needle puncture insures, without discomfort, protection from one of the most loathsome and disfiguring diseases known.

Even after small-pox has become epidemic, the methods by which it may be

*Deceased. †Address at the meeting of the Pan-American Medical Congress, Havana, Cuba, February 7, 1901.
rapidly and surely suppressed have been so frequently demonstrated as to become now almost a matter of mere routine.

The antitoxin for diphtheria has long passed the experimental stage, and is now justly regarded as a specific—a trusty addition to the armamentarium of the physician and sanitaryian.

In the treatment of the other diseases mentioned, we have for bubonic plague a specific cure and preventive, and are certainly on the verge of the discovery of specific remedies for both tuberculosis and typhoid fever, but even without these specific remedies, the nature of the diseases is thoroughly understood and the methods of the prevention of their spread are accurate and well known.

Then why do these diseases persist? The answer is plain. It is, that sanitary administration has not kept pace with scientific knowledge. It is also evident that this scientific knowledge is not so widely diffused as it should be, even among those of whom we have a right to expect it. It is evident that we are not making "use of those means which the God of Nature has placed in our power."

With regard to cities, there is a marked necessity of a strong public sentiment requiring that municipal cleanliness shall rank as one of the foremost features of municipal government. This is a field, not for the National Government, but distinctively for the States and municipalities, whose degree of sanitary excellence is a fair exponent of their civilization and culture; for each State and each municipality has, and will continue to have, a degree of sanitary excellence commensurate only with the demands of its own people.

We have here a striking illustration of the fact that our governments are govern-ments of the people. It is, therefore, necessary to cultivate among the people a demand for municipal sanitary excellence, and as great an abhorrence of municipal filth, or neglect of sanitary engineering, as there is of uncleanly dwellings or of uncleanliness of person.

A good water supply, perfect sewerage and disposal of garbage, good street paving and street cleaning, should be the first boast of every municipality. Let these be pointed to with the pride which is commonly bestowed upon great public institutions and buildings. I see no reason why slums should be allowed in any city. Relatively speaking, too much attention is paid to public parks and handsome municipal buildings. The city's "improvements" should be in the alleys, around the docks, in the tenement house quarters, and great as may be the appreciation of public art as manifested by statues and public gardens—and of the parks and the boulevards—let these wait upon the less showy but more important features of municipal life.

Recently I was on a board of three, the other two members being noted architects, to decide upon plans for the great government hospital for the insane near Washington, Congress having appropriated one million dollars for doubling the capacity of the present institution. In looking over the numerous plans and sketches submitted by the half dozen competitors, I was impressed with the promptness with which these two noted architects pounced upon all faults relating to light and ventilation, particularly of the lavatories, quickly throwing out as unworthy of further consideration those plans which placed the toilet-rooms in dark or badly ventilated positions.

This illustrates the advanced modern idea, particularly when you reflect that
these were formerly located in any dark or out of the way place. So, too, in prac-
tical hospital work it has been my obser-
vation that dark closets are wont to be the
repositories for old mops, rags and dirt,
so that it was my rule, when engaged in
the management of hospitals, to paint the
darkest and worst closets a pure white,
making immediately perceptible the slight-
est trace of dirt or filth. The trouble I
experienced with these closets soon van-
ished.

These illustrations will serve with re-
gard to cities. The chief attention should
be centered upon the worst parts of the
city. The sewerage, paving, light and
ventilation of the worst section should
receive the first and most constant atten-
tion.

In support of this idea, I quote from an
article written five years ago by Dr. John
S. Billings, who says:

"As regards Asiatic cholera, typhoid
fever, various forms of diarrhœal and dys-
enteric diseases, and diphtheria, our
knowledge of their causes, means of com-
munication and prevention is much in
advance of the actual practice of most
communities, mainly because the methods
which are known to be effective to secure
constantly pure water supplies and the
satisfactory removal and disposal of refuse
and excreta, require considerable sums of
money to establish and to maintain; and
the public has not yet arrived at the con-
clusion that such expenditure is wise and
proper, and that taxation for such pur-
poses is necessary to secure the prosperity
of a community.

"A very considerable part of the excess
of death rates in a city is due to the pov-
erty of the inhabitants of certain sections
of it. In certain parts of all large cities
there are to be found a number of people
who are insufficiently fed and clothed, and
who are huddled together in such a way
that cleanliness, decency and morality are
difficult or impossible to obtain. Here
congregate the idle and intemperate, the
tramps and loafers of the country, the
hereditarily indolent and vicious classes.
Mingled with them and living under much
the same conditions are many honest and
industrious people, who are living from
hand to mouth; the daily wage-earners to
whom sickness means recourse to the pub-
lic hospitals and loss of means to earn
their own subsistence. The death rates
in these quarters are fifty to one hundred
and fifty per cent. greater than those of
the better class of population; the average
duration of life is from ten to fifteen years
less by reason of such poverty and squalor;
a large part of their sickness must be re-
lieved by public charity, and one-third of
those who die among them must be buried
at public expense.

"The problem of how to improve the
sanitary condition of these quarters, to
prevent the increase of foul, damp, dark
and overcrowded dwellings and thus lessen
the burdens of the community, without
still further pauperizing the people and
attracting to the place other vagrants and
criminals, is one of the most serious that
confronts modern civilization and munici-
pal government.

"It is easy to prove to any intelligent
business man that high death and sickness
rates in a city imply heavy demands on
the public purse in the maintenance of
hospitals and other charities, and also to
show that an abundant and pure water
supply, clean streets, good sewerage, and
good and well enforced building regula-
tions are among the best means of lower-
ing these death and sickness rates."

The foregoing quotation suggests a con-
viction which has long been forced upon
my mind, that in all our sanitary work,
both in municipal sanitation and in quarantine, we are working at the wrong end of the line. We are treating symptoms instead of the original cause of disease, and both for sociologic and economic considerations it would be far better to change the point of our attack.

Let me illustrate by the quarantine methods heretofore in vogue, and those now and in the future to be utilized in the suppression of an epidemic disease such as yellow fever. When yellow fever appeared in a given locality under the old dispensation, shot-gun quarantines were established by near and remote localities having any possible communication therewith. The press dispatches announced "Podunk," evidently priding itself on its vigilance, "has quarantined against the world," and other communities, not to be outdone by Podunk, followed suit. I do not mean to ridicule these measures, but how much wiser is the method now enforced of concentrating the restrictive efforts in the neighborhood of the epidemic, and how much wiser still will be those provisions of the near future which will enable any community, by reason of its good sanitary condition, to look with comparative equanimity upon the chance introduction or outbreak of a contagious disease!

And in our municipalities we build large public hospitals and establish other charitable institutions for the reception of the people whose unfortunate condition is attributable in large measure to the unsanitary conditions which our municipal governments allow to persist. As an economic measure, therefore, as shown by Dr. Billings, it will in the long run be profitable to spend more upon sanitation; and from a sociologic stand-point the advantages of this policy will be no less marked, for it must have occurred to most of my hearers in their hospital experiences that the greater the number of charity hospitals that are founded, the greater will be the number of people who are willing to become the recipients of charity; and that while charity is to be commended, the zeal manifested therefor may, after all, bring unfortunate results, for "zeal without judgment is a fault, even though it be zeal unto good."

Another strong appeal for sanitation lies in the promise which it would give of getting rid of quarantine. The time is at hand when we must consider the necessity of ridding ourselves of these restraints upon commerce, of holding a ship, with its valuable cargo and eager passengers, in quarantine because some person is aboard who has resided in a filthy section of a foreign port, and has brought with him an infectious disease. For these diseases can generally be traced to the overcrowded and otherwise insanitary sections of a city, the sections which, as I have before stated, should receive our first consideration. And the rich man held on board a steamer in the upper cabin because of infection aboard his ship in the steerage may reflect that his detention is due primarily to the faulty sanitation of some miserable portion of some foreign city; and he receives thereby a demonstration of his personal interest in these conditions.

It is an interesting matter for conjecture—what would be the effect upon the prevalence of contagious disease if there could be a complete wiping out of all slums and low tenement house districts in all our cities. It matters not that an epidemic once started may prevail as violently, or more violently, in the better portions of a city, and that cleanliness and sanitation may then have but little effect upon its progress. The fact remains
that for the perpetuation of these diseases among the people fifth and bad environments are essential, and when we reflect how easy and natural is the upward gradation of infection, how readily, through successive grades, it may ascend the social scale from the lowest to the highest, the direct and personal interest of the wealthy and more intelligent classes of a community in the condition of the poor and ignorant becomes manifest. The greater danger of contagious disease among the poor is recognized in the present United States Treasury quarantine regulations, providing for the inspection of vessels at foreign ports bound for the United States. These regulations require, under certain circumstances, the inspection of the steerage, but not of the cabin passengers. We have made a class distinction, notwithstanding our democratic ideas, but the regulation is based on knowledge. It is a recognition of the fact that contagious and loathsome diseases are more apt to be prevalent among the poor, not simply because they are poor, but because they have been crowded and prevented from living under as good sanitary conditions as the more favored classes.

That good sanitary environment, enhancing the general health, is the best means of eliminating contagious disease, is illustrated by a conversation which I have had within a week with the Director of the Hygienic Laboratory of the Marine Hospital Service, Dr. Rosenau, who has just returned, after a prolonged period of study and investigation in the Pasteur Institute in Paris. Upon inquiring as to the latest phases of scientific investigation and the trend of thought at this great intellectual centre, among other matters, he stated that there seems to have arrived a period of pause in bacteriology, or at least a spirit of inquiry as to the true relation of microbes to the diseases of which they have been considered the special agents. Dr. Rosenau's statement is as follows:

"We have lately been compelled to modify some of our notions of the causes of contagious and infectious diseases. After the brilliant discoveries by Pasteur and Koch, it was thought that the presence of the pathogenic microbe organism was like the bite of a venomous snake, surely poisonous. But now we know that there are other conditions beside the presence of the microbe necessary to produce disease. Many people go about infested with the microbes which cause pneumonia and yet they do not have pneumonia. Why? Because their cells are vigorous enough to prevent the diplococci invading the lungs, but put such a person under bad sanitary conditions, or depress his vitality, and the microbes are not phagocyted—they invade the lungs and pneumonia and death follow.

"The same, to a limited degree, occurs with the bacillus diphtheriae.

"In times of cholera epidemics men go about with living, virulent cholera vibrio in their intestinal canal, yet they are not sick. Why? Because the conditions for the production of the cholera toxins are not favorable—there is no abnormal flora in their intestinal canal. But let such a person eat poor and tainted food, or derange his digestion through indiscretion or evil sanitary surroundings, and the disease results.

"Many people live a long and active life with tubercle bacilli encysted in the apex of one lung. As long as they have plenty of fresh air and sunshine, and good sanitary surroundings, they remain well. But give such a person poor food or bad sanitary surroundings and see what happens. The battle going on between the
bacilli and the cells results in a victory for the bacilli. The cells die and the victorious bacilli spread havoc through the lungs. We, therefore, have a scientific proof of the sense of the old-time notions of the old-fashioned doctors, who taught the value of fresh air and sunshine, of good food and exercise, of cleanliness and dry dwellings, and we find that the conditions of health which result from such good sanitary conditions are, after all, among the very best preventives against infection."

Another good effect of sanitary excellence would be to obviate municipal deception, either in the concealment of the existence of contagious disease or by reports giving a sense of false security to other communities. This subject is one which time will not permit me to discuss, but was treated of at some length in an address which I had the honor of delivering before the Social Science Association in Washington last May. I will simply say that the greater the neglect of sanitation, the more pronounced the disease-bearing factors of a city, the more sensitive does it seem to the acknowledgment of the presence of contagion, the more determined does it become in outright denial. It is thus seen, and it is by no means a matter of imagination, that municipal morality is affected by the municipal sanitary status.

In the sanitary progress of the new century, it has occurred to me, there must be developed new classes of individuals in sanitary affairs. To-day every physician is considered, in a sense, a sanitarian; then there are the professional sanitarians, represented chiefly by those holding sanitary offices; but there are very few men to-day engaged in legislation who give any thought to sanitary legislation. We need a class of men who are versed in the law, who are skilled in framing laws, and who are familiar with the difficulties and methods of securing their enactment. The average doctor or sanitarian is as a child in these matters. Impressed with the importance and nobility of his cause, he becomes oblivious to the sentiments or even the rights of those affected unfavorably thereby. The same influences which seem to make of the doctor a poor man of business seem to make of the average sanitarian a poor man for legislation. So that it seems to me, at least in the United States, it will be necessary in the development of the ideal sanitary legislator to look for him among the lawyers rather than among the physicians. There is no reason why a good lawyer should not become adept in sanitation. I believe it to be more difficult for a good doctor to acquire legislative wisdom.

Another class of men to whom we should look for aid are the men of extreme wealth. I believe their attention should be directed to the vast amount of good to be done by the employment of their capital in backing up sanitary improvements. The number of great fortunes possessed by individuals in our several republics I have not had the opportunity of learning, but they are numerous; and, so far as I can judge, their possessors, at least a large number of them, are imbued with generosity and a desire to utilize their great wealth for the public good. Witness the large number of universities founded by wealthy men, the public libraries, and other institutions, erected or endowed by them; the contributions which they make in times of great calamity and in ordinary times to all charitable undertakings.

The methods by which they may assist in public sanitation may not be so obvious or numerous as other methods of advancing the public welfare, yet the influence
of a man of great wealth could be distinctly felt in the advancement of sanitary legislation and in the perfection of sanitary administration. Moreover, the use of large capital in the improvement of the dwellings of the poor appears to me to be as sensible and noble a method of the employment of capital as can be found. It has been a matter of surprise to me that the attention of our wealthy men of philanthropic impulse has not been more frequently thus directed. The Mills building in New York in a measure illustrate this idea, and I doubt not that a proper inquiry into the subject would develop other illustrations. But the advantage which individual capital enjoys over municipal government in the improvement of the dwellings of the poor lies in the difficulty experienced by the latter in condemning and destroying unsuitable tenements. Capital can purchase them and erect good buildings in their stead. This is illustrated by the history of the Sanitary Improvement Company of Washington, a company formed, and now being successfully operated, for the erection of suitable habitations for the poor, with less thought of profit than of public benefit. As originally outlined, the scheme included a condemnation by the Commissioners of the District of Columbia and a destruction of the condemned unsanitary buildings, and the erection in their place of buildings by the company, though, owing to legal difficulties, the necessary legislation for destruction has not yet been enacted.

In a recent press clipping I have read that statistics just compiled show that during the year just past contributions to educational, religious and charitable objects and institutions in the United States have amounted to almost sixty-one millions of dollars, donations of less than one thousand dollars not being included in this summary. The article further states that this showing seems to indicate that there is a growing disposition to make philanthropy a partner to prosperity, a tendency to give helpfully instead of pauperizing men by benefactions. But in the list of these benefactions I see no mention of purely sanitary gifts or endowments, and to my mind it seems a reasonable proposition that more practical and beneficial results would have been obtained if this sixty-one millions of dollars, instead of being expended upon educational, religious and charitable institutions, had been expended upon reclaiming the slums, and in the purchase and destruction of rookeries, with the erection in their stead of modern sanitary tenement houses, and that, too, even though the money had not been expended outright as a gift, but as a safe though moderately paying investment.

The need of sanitary tenements has been brought to the front by the recent agitation and widespread movement for the suppression of tuberculosis. In a pamphlet upon the tenements and tuberculosis, by Dr. S. A. Knopf, of New York, appears the following statement: "The present condition of the tenement houses in this city is so serious that the evils arising therefrom are a distinct menace to the welfare of the community. There are at present over 44,000 tenement houses in the old city of New York, and new tenement houses are being erected at the rate of about 2,000 a year. These are, in many respects, worse than the old buildings erected thirty years ago. They are badly constructed, and so planned that many rooms depend for their light and air entirely upon long, narrow, dark air-shafts, which, instead of giving light and air, are merely stagnant wells emitting foul odors and diseases."
It is true, gentlemen, that restrictive legislation may be enacted, but in view of all the foregoing facts, can there be found a more useful method of employing great individual wealth than in the removal and the prevention of the erection of such houses by the substitution of those properly constructed?

In a recently published article by Charles R. Henderson, professor of sociology in the University of Chicago, on the spirit of modern philanthropy, the writer states that "philanthropy has taken a wider and nobler view of its mission. It has become preventive and educational." He quotes the language of Miss Carpenter as follows: "A hospital cannot cleanse a poison-infected district, nor diminish the constant supply of patients from an undrained and malarious locality." He further says: "It is well to remove the weak and tempted from a bad environment; better still to improve the environment. It is well to go down to the folk-swamp and rescue one here and there; better still to drain the cess-pools, improve the tenements, prevent adulteration of food and drink, inspect factories and compel the use of devices for averting accident and disease. The wall at the top of the dangerous precipice is worth far more than an ambulance at the bottom."

Since the above lines were written I have read a letter from a special correspondent (Marshall Lord) of the Washington Evening Star of January 19th, showing the reformatory work of this character now going on in London, which should certainly stimulate all American municipalities to efforts in the same direction. The writer states: "Every American city big enough to have one of those municipal sores called a slum will doubtless be interested in the huge experiment London is undertaking. This is nothing less than the expenditure of ten millions of dollars in the wiping out and rebuilding the homes of about forty thousand people. A further programme that means the expenditure of another ten millions is now being discussed, and, after these projects are well under way, new schemes will be planned to the same end and more millions spent until the necessity for spending money in this way in London shall have disappeared and the city have become a landlord on an unprecedented scale. Today the housing problem is the worst that London has to face, but her powerful County Council, which has done several rather remarkable things already, and which has practically unlimited wealth to draw upon, has determined that overcrowded, insanitary, and slum areas must go. The County Council has already attacked, razed and rebuilt one of the worst slums in London. Several other notorious ones are now being torn down and still others are doomed. Medical inspectors in the County Council's employ are penetrating into the city's filthiest corners and condemning them. The wretched creatures who swarm in them are paid a small sum of money and turned out, after which the slum comes down. The 'before taking' phase of the council's heroic remedy is a mass of closely packed hovels, squalid, unlighted, and unventilated, reached through grimy, winding alleys, in which the police dare to go only in force. The 'after taking' is blocks of trim cottages or apartment buildings, each separated from the other, equipped with literally every modern convenience, including a perfect system of drainage and every essential for cooking. The apartments are well lighted by day with large windows; at night either by gas or electricity on the slot system, where a penny dropped in produces gas.
for six hours. These model dwellings, moreover, are to rent at prices which even very poor people can afford to pay, and are immediately tenanted to their full extent. So far, on workingmen's homes of this pattern that occupy the place of former slum districts, the London County Council has spent a little over three million dollars. It is now building houses which will cost over one million five hundred thousand dollars, and to clear the new districts, which have been condemned and which are to be rebuilt, will cost five million five hundred thousand dollars more. The houses already built accommodate more than ten thousand people. Those now building and those arranged for will give dwellings to thirty thousand more. They will be finished and occupied in five years from now.

"The second scheme which the council is laying out takes another way of curing the same disease of overcrowding. This is by acquiring tracts of land in the country just out of London, building model dwellings there and connecting them with the working centres of the city by light railways. This will probably cost ten millions more.

"The council began to rehouse on a modest scale in 1883, but the importance of its work to-day lies in the dimensions to which it has grown and its great promise for the future."

It is a significant fact, happily recalled at the present time, that the new King of England, Edward VII., was identified with the inception of this work. His maiden speech in the House of Lords in 1884 was in support of a motion in favor of the better housing of the poor, and he was subsequently one of the commission appointed to consider the matter.

Gentlemen, representatives of the Western Republics, it is thus seen that our brethren of the East are already in the field. Why stand we here idle? Shall we in our newer territory allow ourselves to be surpassed in these matters by older governments, less democratic than our own, less dependent upon the will of the people?

In the foregoing I have endeavored to show that public sentiment, law and administration are the most important factors for the attainment of our standard of sanitation.

One word more with regard to administration. The health officers selected under State or municipal law are too frequently subject to political change. An experience of one term of service is generally necessary to sufficiently acquaint the health officer with the duties of his office, and while political changes in other offices may be made possibly without injury to the public service, the same cannot be said with regard to an officer of the public health. He should be selected, also, solely on account of his ability or special adaptability for the position, and while every American citizen may be expected to be a politician, in a certain sense, the health officer should be one who is not devoted to politics. And here is where the great body of the medical profession can exercise a salutary influence, by taking an active interest in these appointments, insisting that men of character, of education and reputation should receive them, for it is the duty of the profession to uphold the health officer in the performance of his public obligations. The health officer and the boards of health should command the respect and receive the support of the practitioners of medicine, whose influence in this direction is all-powerful.

One word at this point with regard to sanitation and politics. The City of Wash-
ingston is sometimes referred to as typifying the highest order of sanitary equipment and administration, and when it has completed its sewerage system and established its water filtration plant it will be a model city. But, it may be argued, it is a model city because, unlike other cities, it has no local politics. This is true, but if municipal politics seem to interfere, as they often do, with sanitary progress, it but serves to demonstrate a reason, in addition to many other reasons, why the best men should go into politics.

Now, in the beginning of this paper I stated that municipal cleanliness and sanitation is not a field for the National Government, but belongs distinctively to the States and municipalities. Doubtless there is suggested to you, as to myself frequently, the thought of the National Government enforcing municipal sanitation. Speaking for the United States, under our constitution it is impossible. Nor with our ideas of self-government is it desirable. A weak leaning upon the National Government in ordinary matters affecting the people of a State or city is a thing to be avoided as lessening the feeling of municipal and personal responsibility for good government. The general government does not go into cities and say what kind of reservoirs they must have, how their sewers shall be laid and their garbage disposed of. These are left to local governments, which are just as capable for these measures as they are for managing their own police and fire departments.

Yet in the exercise by the general government of its right to prevent the introduction of contagious diseases from foreign countries, or the spread of the same from one State to another, I can foresee the possibility of such national action as may, without objection, have an influence on the sanitation of cities. The sanitation of sea-port cities which habitually breed yellow fever, with a view to eliminating this disease, which interferes so seriously with commerce, is being considered by thoughtful men interested in commerce, sanitation and diplomacy.

There is no one disease which interferes so seriously with commerce in the Western Hemisphere or causes greater panic than yellow fever. The interdependence among nations in the efforts to get rid of this disease has become strikingly obvious, and illustrates the unity of interests of the nation in sanitation.

An inquiry into the sanitary conditions in the ports of the Western Republics will show with regard to many of them a woeful sanitary condition, a neglect of the first principles of sanitation, and either faulty or entire absence of quarantine protection of one city from another. The commercial relations between these places are each year becoming more intimate, and through correspondence and conversation with representatives of the Central and South American Republics, I learn that the same apprehension which is felt by the United States each summer is experienced by all. All or nearly all of our republics have suffered in their commercial and business prosperity through the visitation or threatened visitation of yellow fever, and I have been surprised by the instant approbation with which all with whom I have spoken have received the idea of an international agreement looking to the sanitation of such sea-ports as are habitually infected with yellow fever. That yellow fever can be rooted out of an old endemic focus, I believe; but to demonstrate it is not an easy matter. I have endeavored within the past two years, through special reports from the United States consuls, to collect facts showing the relation between sanitary improve-
ments and the prevalence of yellow fever in the principal fever ports of the tropics, but the results are as yet undeterminative. I believe, however, we have one notable illustration of success in Santiago, long known as a yellow fever port, but where the measures adopted by General Wood and the medical officers of the army were so radical and thorough that no yellow fever now prevails or has prevailed during the past year in that city. I feel confident, too, that in due course of time, and that before long, yellow fever will be made to disappear altogether from Havana. The general death rate has already been reduced, according to Major Howard, from 46.71 per thousand—the annual average for nine years—to 21.40 per thousand in 1900. Reasoning somewhat by analogy, we should be able to exterminate yellow fever from a given locality. A year ago last July it appeared in the National Soldiers' Home, Hampton, Va., where there were 3,500 veterans of the Civil War, but it was stopped, and that, too, quickly, with a record of 45 cases and 13 deaths. In June, 1896, it appeared at McHenry, Miss., and in 20 days was entirely suppressed, after the occurrence of 20 cases in all.

In eliminating it, however, from a city or locality where it has prevailed for many years, there are four provisions which must be complied with: First, effective sanitary administration; second, good sewerage and water supply, soil drainage and paving; third, sanitary engineering of harbors; fourth, the destruction or scientific disinfection of houses where the fever has prevailed. In Havana the first of these requisites has been and is being accomplished. The city is clean on the surface. The sanitary administration is excellent, and measures are already under way for securing the second requisite of good sewerage, drainage and paving. I do not know that it has yet been determined whether sanitary engineering is necessary with regard to Havana harbor. But any harbor in the tropic which receives sewage, and is so landlocked that it becomes a cul-de-sac, must be subjected to such engineering as will cause a flow of its waters freely to the sea. But even when all this is done, yellow fever will still prevail unless the fourth measure is enforced, namely, the destruction of old infected houses, and the thorough scientific disinfection of others too good to be destroyed. In one tropical city a few years ago much stress was laid upon the good results following sanitary improvements of the harbor, but their improvements went still further, namely, to tearing down a large number of old houses, which was immediately followed by an unusual outbreak of yellow fever. In other cities, I am informed, millions of dollars have been spent in improving the sanitary conditions, yet yellow fever prevails from time to time, and why? Because the houses are infected, and have been for a great number of years.

This brings us to the question, have we a simple and efficient means for a scientific disinfection on this broad scale? I believe that we have. To the Marine-Hospital Service, which has had so large an experience in the post-epidemic disinfection of cities and towns, the thought of a simple, clean, non-injurious, inexpensive, yet thorough disinfection of houses, after its experience with the carting around of steam chambers, the burning of sulphur, the washing down with bichloride solution and carbolic acid, and meeting the bills afterward presented for ruin of or damage to property—the thought comes as a welcome relief.

A few years ago, through the inventive
genius of one of our officers, we believed we had a formaldehyde lamp which met every requirement, but experience demonstrated certain defects which caused its temporary abandonment. The intelligent mechanic who constructed the lamp, however, has so improved it that thus far it has stood every scientific and practical test to which it has been put, and I hope and believe that in this lamp we have an efficient, simple and safe method of evolving formaldehyde gas of a strength to insure a thorough disinfection of houses and public buildings, I mention this matter as one of encouragement in the idea of eliminating yellow fever, under the terms of the fourth requisite which I have mentioned, from cities usually infected.

The plan of international agreement which was outlined in an article by myself in the *Forum* for February, 1899, contemplates a convention to be composed of public sanitarians, civil engineers and financiers, whose duty it should be to prepare a treaty providing for the examination of the chief yellow fever ports by a commission representing the republics concerned. Each country should obligate itself to put into effect the measures recommended by this commission, or measures of its own which should meet with the commission’s approval. Since obligations without penalties would be worthless, the treaty should provide that if after a sufficient time these improvements are not made, each of the other nations interested should impose such discriminative tariff or tonnage tax or quarantine restraint upon the offending nation as would cause it in its own interests to comply with the terms of the treaty.

Since the publication of the *Forum* article, I have conversed upon the subject with a number of the representatives of the Central and South American Repub-
The Sanitarian is indispensable. Progress in other matters will, in a measure, depend upon it. The movement has already begun. Witness the sanitary benefactions of George Peabody in London thirty-eight years ago, and the efforts of the London County Council, as previously narrated, and similar work in Liverpool, Glasgow, Paris and Brussels; the valuable reports of the New York Tenement House Commission of 1894, and the labors of the present commission; the reports of Surgeon-General John M. Woodworth, M. H. S., to the International Medical Congress in 1876; the resolutions of the Conference of Sanitary Officers at Montgomery, Alabama, in 1899, and of the American Public Health Association in 1896; the report of the Department of Labor of the United States upon the investigation of slums, under the authority of act of Congress; and the innumerable contributions upon these subjects to the daily and medical press. All the above relate to the subjects which have just been under discussion, and the time has come for more positive action.

The twentieth century will certainly demonstrate the brotherhood of man, the fraternity of nations, and, not excepting even the Peace Conference at the Hague, can there be found a more hopeful sign of promise than is held out by sanitation.

Here is a common field upon which the nations may meet with unselfish and common purpose. Here is a policy which may well be put in the platform of political parties, and which, by requiring intelligent legislation, will bring the best men into local politics—a policy which will put a rifle-groove in the shot-gun now loaded with spasmodic municipal reforms, good government clubs and crusades against vice, and weld these latter into one missile of definite direction and force. Here is a means by which the rich may help the poor without further pauperizing them—a cause which, if advocated, will break down unnecessary class distinction; a promise of greater public morality; an assurance of higher life and greater health and prosperity to all, embodying in it the **sumnum bonum** of human existence, "the greatest good to the greatest number."—*The Sanitarian for March.*

---

**Review of Diseases for February, 1901.**

**EIGHTY-SEVEN COUNTIES REPORTING.**

Ninety-four counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of February the following diseases have been reported from the counties named:

**Measles.**—Beaufort, 5; Bladen, a few; Buncombe, 3; Burke, in all parts; Cabarrus, many; Clay, several; Cleveland, many; Columbus, in all parts; Cumberland, 14; Currituck, a few; Duplin, general; Durham, many; Gaston, many; Gates, in all parts; Granville, 6; Guilford, 3; Harnett, a few; Haywood, epidemic; Henderson, 18; Hyde, 5; Jackson, 12; Madison, 25; Martin, 5; Mecklenburg, 100; New Hanover, 97; Onslow, 7; Pasquotank, several; Pender, epidemic; Polk, 14; Randolph; Richmond, many;
Robeson, epidemic; Rockingham; Rutherford, several; Stanly, in all parts; Stokes, 4; Union, epidemic; Wake, 8; Warren, 8; Yancey, 20—40 counties.

Whooping-cough.—Alamance, several; Beaufort, 2; Burke, in all parts; Caldwell, 20; Chowan, many; Durham, many; Gaston; Granville, 15; Halifax, 5; Hyde, 1; Iredell, many; Jackson, 6; McDowell, several; Martin, 25; Mecklenburg, 50; Mitchell; New Hanover, 4; Pasquotank, several; Randolph; Robeson, epidemic; Wake, 6; Warren, 3; Washington, 1; Watauga, several—24 counties.

Scarlet fever.—Alexander, 2; Brunswick, 1; Caldwell, 2; Henderson, 2; Macon, 2; Mecklenburg, 10; New Hanover, 2; Richmond, 1; Wake, 1; Washington, 3; Wayne, 1—11 counties.

Diphtheria.—Alamance, 6; Halifax, 1; McDowell, 1; Mecklenburg, 5; Rockingham; Wake, 1; Wilkes, 1—7 counties.

Typhoid fever.—Beaufort, 8; Brunswick, 5; Buncombe, 1; Cabarrus, 1; Chowan, 1; Cleveland, 1; Columbus, 1; Dare, 3; Franklin, a few; Harnett, a few; Jones, in all parts; Macon, several; Madison, 4; Martin, 4; Northampton, 1; Onslow, 1; Polk, 1; Robeson; Rockingham, a few; Rutherford, a few; Stanly, in all parts; Stokes, 2; Union, several; Wake, 1; Warren, 4—25 counties.

Malarial fever.—Alamance, in all parts; Chowan, some; Gates, 1; Hyde, a few; Mecklenburg, a few.

Malarial Fever, Pernicious.—Mecklenburg, 1.

Malarial Fever, Hemorrhagic.—Chowan; Hyde.

Influenza.—Alamance, general; Ashe; Beaufort; Bertie, general; Bladen; Brunswick; Burke, general; Caldwell; Carteret; Caswell, general; Catawba; Chatham; Cherokee; Chowan, general; Cleveland; Columbus; Cumberland, general; Currituck; Dare; Davidson; Davie; Duplin; Forsyth; Gates; Granville; Greene, general; Guilford; Halifax, general; Harnett; Haywood; Henderson; Iredell, general; Johnston; Jones; Lenoir; Lincoln; McDowell; Macon; Martin; Moore; Nash; New Hanover; Northampton; Onslow, general; Orange, in many parts; Pender; Perquimans, general; Person; Pitt, general; Richmond; Robeson; Rockingham; Sampson, general; Stanly; Stokes; Surry; Swain; Union; Vance; Wake; Warren; Washington, general; Watauga; Wayne; Yadkin, general—65 counties.

Pneumonia.—Beaufort, general; Burke, general; Cabarrus; Caldwell; Chatham, general; Cherokee; Chowan, general; Cleveland; Dare, 2; Davie, general; Forsyth, general; Franklin, in nearly all parts, many fatal; Granville, in most parts; Greene, general; Guilford; Halifax, general; Harnett; Iredell, general; Johnston; Lenoir; McDowell; Moore, general, many fatal cases among negroes; Onslow, general; Perquimans, 18; Person; Pitt, general; Sampson, general; Scotland, general; Swain; Union; Wake; Warren; Wayne; Yadkin, general—34 counties.

Mumps.—Caswell, in all parts; Pender, in many parts; Richmond.

Simple Continued Fever.—Graham, in all parts.

Tonsilitis.—Columbus, with several deaths among children.

Varicella.—McDowell; Wilson, in nearly all parts.
Small-pox.—Caswell, 8; Cleveland, 8; Cumberland, 2; Davidson, 8; Durham, 7; Forsyth, 4; Gaston, 21; Greene, 177 in northern part; Halifax, 13, two white in three houses; Harnett, a few in the western part; Lincoln, 1; Mecklenburg, 11; Nash, 33; Orange, 4 in the northern part; Pasquotank, 10; Person, 2; Pitt, 7; Polk, 1; Robeson, 35; Rockingham, 4; Surry, 1; Wake, 6; Wayne, 2; Wilson, 10 or 12(?); Yancey, 5, three of them varioloid—25 counties.

Cholera in Fowls.—McDowell.

Cholera in Hogs.—Bertie; Burke; Chowan; Duplin; Hyde; Lenoir; Northampton—7 counties.

Distemper in Horses.—Cleveland.

Pink-eye in Horses.—Macon.

Rabies in Dogs.—Buncombe.

No diseases reported from Edgecombe.

No reports received from Alleghany, Anson, Craven, Hertford, Montgomery, Rowan and Transylvania.

Summary of Mortuary Reports for February, 1901.

(forty-five towns).

Only those towns from which certified reports are received are included.

Aggregate population—White, Col’d. Total.

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>Col’d.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>79,881</td>
<td>49,203</td>
<td>129,084</td>
</tr>
</tbody>
</table>

Aggregate deaths...

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>119</td>
<td>109</td>
<td>228</td>
</tr>
</tbody>
</table>

Representing temporary annual death rate per 1,000...

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>17.9</td>
<td>26.4</td>
<td>21.2</td>
</tr>
</tbody>
</table>

Causes of Death.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Measles</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>27</td>
<td>23</td>
<td>50</td>
</tr>
<tr>
<td>Consumption</td>
<td>16</td>
<td>15</td>
<td>31</td>
</tr>
<tr>
<td>Brain diseases</td>
<td>8</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Heart diseases</td>
<td>16</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>Neurotic diseases</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Diarrheal diseases</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>All other diseases</td>
<td>43</td>
<td>49</td>
<td>92</td>
</tr>
<tr>
<td>Accident</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
</tbody>
</table>

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>119</td>
<td>109</td>
<td>228</td>
</tr>
</tbody>
</table>

Deaths under five years...

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18</td>
<td>22</td>
<td>40</td>
</tr>
</tbody>
</table>

Still-born...

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8</td>
<td>8</td>
<td>16</td>
</tr>
</tbody>
</table>
Mortuary Report for February, 1901.

<table>
<thead>
<tr>
<th>TOWNS AND REPORTERS</th>
<th>POPULATION</th>
<th>TEMPORARY ANNUAL DEATH RATE PER 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asheville</td>
<td>W. 9,694</td>
<td>17.2</td>
</tr>
<tr>
<td></td>
<td>C. 5,000</td>
<td>40.5</td>
</tr>
<tr>
<td>Charlotte</td>
<td>W. 11,960</td>
<td>14.0</td>
</tr>
<tr>
<td></td>
<td>C. 6,100</td>
<td>27.5</td>
</tr>
<tr>
<td>Durham</td>
<td>W. 4,479</td>
<td>28.3</td>
</tr>
<tr>
<td></td>
<td>C. 2,200</td>
<td>29.9</td>
</tr>
<tr>
<td>Fayetteville</td>
<td>W. 2,770</td>
<td>13.0</td>
</tr>
<tr>
<td></td>
<td>C. 1,900</td>
<td>25.3</td>
</tr>
<tr>
<td>Goldsboro</td>
<td>W. 3,977</td>
<td>17.2</td>
</tr>
<tr>
<td></td>
<td>C. 2,500</td>
<td>35.4</td>
</tr>
<tr>
<td>Henderson</td>
<td>W. 2,046</td>
<td>11.2</td>
</tr>
<tr>
<td></td>
<td>C. 1,700</td>
<td>14.1</td>
</tr>
<tr>
<td>Hillsboro</td>
<td>W. 407</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>C. 300</td>
<td>0.0</td>
</tr>
<tr>
<td>Laurinburg</td>
<td>W. 834</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>C. 500</td>
<td>9.0</td>
</tr>
<tr>
<td>Lenoir</td>
<td>W. 1,036</td>
<td>23.2</td>
</tr>
<tr>
<td></td>
<td>C. 200</td>
<td>0.0</td>
</tr>
<tr>
<td>Marion</td>
<td>W. 766</td>
<td>31.3</td>
</tr>
<tr>
<td></td>
<td>C. 350</td>
<td>21.5</td>
</tr>
<tr>
<td>Morganton</td>
<td>W. 1,438</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>C. 900</td>
<td>0.0</td>
</tr>
<tr>
<td>Oxford</td>
<td>W. 1,150</td>
<td>31.1</td>
</tr>
<tr>
<td></td>
<td>C. 2,459</td>
<td>13.3</td>
</tr>
<tr>
<td>Raleigh</td>
<td>W. 8,643</td>
<td>20.9</td>
</tr>
<tr>
<td></td>
<td>C. 5,000</td>
<td>50.4</td>
</tr>
<tr>
<td>Reidsville</td>
<td>W. 2,000</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>C. 3,260</td>
<td>47.6</td>
</tr>
<tr>
<td>Rockingham</td>
<td>W. 1,007</td>
<td>11.9</td>
</tr>
<tr>
<td></td>
<td>C. 1,507</td>
<td>47.6</td>
</tr>
<tr>
<td>Rocky Mount</td>
<td>W. 1,337</td>
<td>39.2</td>
</tr>
<tr>
<td></td>
<td>C. 1,100</td>
<td>24.5</td>
</tr>
<tr>
<td>Salem</td>
<td>W. 3,242</td>
<td>18.7</td>
</tr>
<tr>
<td></td>
<td>C. 2,908</td>
<td>18.7</td>
</tr>
<tr>
<td>Salisbury</td>
<td>W. 4,277</td>
<td>14.0</td>
</tr>
<tr>
<td></td>
<td>C. 2,000</td>
<td>12.0</td>
</tr>
<tr>
<td>Scotland Neck</td>
<td>W. 1,000</td>
<td>48.0</td>
</tr>
<tr>
<td></td>
<td>C. 500</td>
<td>24.0</td>
</tr>
<tr>
<td>Tarboro</td>
<td>W. 1,999</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>C. 2,499</td>
<td>4.8</td>
</tr>
<tr>
<td>Warrenton</td>
<td>W. 536</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>C. 836</td>
<td>0.0</td>
</tr>
<tr>
<td>Washington</td>
<td>W. 2,842</td>
<td>8.4</td>
</tr>
<tr>
<td></td>
<td>C. 2,800</td>
<td>12.0</td>
</tr>
<tr>
<td>Weldon</td>
<td>W. 700</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>C. 1,433</td>
<td>16.7</td>
</tr>
<tr>
<td>Wilmington</td>
<td>W. 9,976</td>
<td>22.8</td>
</tr>
<tr>
<td></td>
<td>C. 11,000</td>
<td>20.9</td>
</tr>
<tr>
<td>Wilson</td>
<td>W. 1,825</td>
<td>33.0</td>
</tr>
<tr>
<td></td>
<td>C. 1,700</td>
<td>24.4</td>
</tr>
</tbody>
</table>

N.B.—The reporters for the cities and towns printed in Black Type have signed this certificate: "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month." The total populations are taken from the census report for 1900, but the division into races is estimated, as those figures have not been given out.
## County Superintendents of Health.

<table>
<thead>
<tr>
<th>County</th>
<th>Superintendent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alamance</td>
<td>Dr. T. S. Faucette</td>
</tr>
<tr>
<td>Alexander</td>
<td>Dr. T. F. Stevenson</td>
</tr>
<tr>
<td>Alleghany</td>
<td>Dr. B. C. Waddell</td>
</tr>
<tr>
<td>Anson</td>
<td>Dr. E. S. Ashe</td>
</tr>
<tr>
<td>Ashe</td>
<td>Dr. Manley Blevins</td>
</tr>
<tr>
<td>Bladen</td>
<td>Dr. P. A. Nicholson</td>
</tr>
<tr>
<td>Beaufort</td>
<td>Dr. H. V. Dunstan</td>
</tr>
<tr>
<td>Brunswick</td>
<td>Dr. J. A. McNeil</td>
</tr>
<tr>
<td>Buncombe</td>
<td>Dr. James Sawyer</td>
</tr>
<tr>
<td>Burke</td>
<td>Dr. J. L. Laxton</td>
</tr>
<tr>
<td>Cabarrus</td>
<td>Dr. D. G. Caldwell</td>
</tr>
<tr>
<td>Caldwell</td>
<td>Dr. A. A. Kent</td>
</tr>
<tr>
<td>Camden</td>
<td>Dr. F. M. Clark</td>
</tr>
<tr>
<td>Carteret</td>
<td>Dr. S. A. Malloy</td>
</tr>
<tr>
<td>Caswell</td>
<td>Dr. Geo. H. West</td>
</tr>
<tr>
<td>Catawba</td>
<td>Dr. H. T. Chapin</td>
</tr>
<tr>
<td>Cherokee</td>
<td>Dr. J. F. Abernathy</td>
</tr>
<tr>
<td>Chowan</td>
<td>Dr. T. J. Hoekins</td>
</tr>
<tr>
<td>Clay</td>
<td>Dr. J. M. Sullivan</td>
</tr>
<tr>
<td>Cleveland</td>
<td>Dr. B. H. Palmer</td>
</tr>
<tr>
<td>Columbus</td>
<td>Dr. I. Jackson</td>
</tr>
<tr>
<td>Craven</td>
<td>Dr. R. DuVal Jones</td>
</tr>
<tr>
<td>Cumberland</td>
<td>Dr. J. Vance McGougan</td>
</tr>
<tr>
<td>Currituck</td>
<td>Dr. H. M. Shaw</td>
</tr>
<tr>
<td>Dare</td>
<td>Dr. W. B. Fearing</td>
</tr>
<tr>
<td>Davidson</td>
<td>Dr. Joel Hill</td>
</tr>
<tr>
<td>Davie</td>
<td>Dr. James McGuire</td>
</tr>
<tr>
<td>Duplin</td>
<td>Dr. James W. Blount</td>
</tr>
<tr>
<td>Durham</td>
<td>Dr. Z. T. Brooks</td>
</tr>
<tr>
<td>Edgecombe</td>
<td>Dr. L. L. Staton</td>
</tr>
<tr>
<td>Forsyth</td>
<td>Dr. John Bynum</td>
</tr>
<tr>
<td>Franklin</td>
<td>Dr. E. S. Foster</td>
</tr>
<tr>
<td>Gaston</td>
<td>Dr. J. H. Jenkins</td>
</tr>
<tr>
<td>Gates</td>
<td>Dr. W. O. P. Lee</td>
</tr>
<tr>
<td>Graham</td>
<td>Dr. R. J. Orr</td>
</tr>
<tr>
<td>Granville</td>
<td>Dr. S. D. Booth</td>
</tr>
<tr>
<td>Greene</td>
<td>Dr. Joseph E. Grimsley</td>
</tr>
<tr>
<td>Guilford</td>
<td>Dr. Edmund Harrison</td>
</tr>
<tr>
<td>Halifax</td>
<td>Dr. I. E. Green</td>
</tr>
<tr>
<td>Harnett</td>
<td>Dr. O. L. Denning</td>
</tr>
<tr>
<td>Haywood</td>
<td>Dr. F. M. Davis</td>
</tr>
<tr>
<td>Henderson</td>
<td>Dr. J. G. Waldrop</td>
</tr>
<tr>
<td>Hertford</td>
<td>Dr. John W. Taylor</td>
</tr>
<tr>
<td>Hyde</td>
<td>Dr. E. H. Jones</td>
</tr>
<tr>
<td>Iredell</td>
<td>Dr. Henry F. Long</td>
</tr>
<tr>
<td>Jackson</td>
<td>Dr. Wm. Self</td>
</tr>
<tr>
<td>Johnston</td>
<td>Dr. L. D. Wharton</td>
</tr>
<tr>
<td>Jones</td>
<td>Dr. S. E. Koonce</td>
</tr>
<tr>
<td>Lenoir</td>
<td>Dr. W. T. Parrott</td>
</tr>
<tr>
<td>Lincoln</td>
<td>Dr. T. F. Costner</td>
</tr>
<tr>
<td>McDowell</td>
<td>Dr. B. A. Cheek</td>
</tr>
<tr>
<td>Macon</td>
<td>Dr. F. L. Siler</td>
</tr>
<tr>
<td>Madison</td>
<td>Dr. Jas. K. Hardwicke</td>
</tr>
<tr>
<td>Martin</td>
<td>Dr. W. H. Harrell</td>
</tr>
<tr>
<td>Mecklenburg</td>
<td>Dr. F. M. Winchester</td>
</tr>
<tr>
<td>Mitchell</td>
<td>Dr. V. R. Butt</td>
</tr>
<tr>
<td>Montgomery</td>
<td>Dr. M. P. Blair</td>
</tr>
<tr>
<td>Moore</td>
<td>Dr. Gilbert McLeod</td>
</tr>
<tr>
<td>Nash</td>
<td>Dr. J. P. Battle</td>
</tr>
<tr>
<td>New Hanover</td>
<td>Dr. W. D. McMillan</td>
</tr>
<tr>
<td>Northampton</td>
<td>Dr. H. W. Lewis</td>
</tr>
<tr>
<td>Onslow</td>
<td>Dr. E. L. Cox</td>
</tr>
<tr>
<td>Orange</td>
<td>Dr. C. D. Jones</td>
</tr>
<tr>
<td>Pamlico</td>
<td>Dr. G. A. Caton</td>
</tr>
<tr>
<td>Pasquotank</td>
<td>Dr. H. T. Aydlett</td>
</tr>
<tr>
<td>Pender</td>
<td>Dr. L. L. Ardrey</td>
</tr>
<tr>
<td>Perquimans</td>
<td>Dr. C. C. Winslow</td>
</tr>
<tr>
<td>Person</td>
<td>Dr. J. A. Wise</td>
</tr>
<tr>
<td>Pitt</td>
<td>Dr. C. O' H. Laughinghouse</td>
</tr>
<tr>
<td>Polk</td>
<td>Dr. Earle Grady</td>
</tr>
<tr>
<td>Randolph</td>
<td>Dr. T. T. Ferree</td>
</tr>
<tr>
<td>Richmond</td>
<td>Dr. J. M. Ledbetter</td>
</tr>
<tr>
<td>Robeson</td>
<td>Dr. H. T. Pope</td>
</tr>
<tr>
<td>Rockingham</td>
<td>Dr. Sam Ellington</td>
</tr>
<tr>
<td>Rowan</td>
<td>Dr. W. L. Crump</td>
</tr>
<tr>
<td>Rutherford</td>
<td>Dr. W. A. Thompson</td>
</tr>
<tr>
<td>Sampson</td>
<td>Dr. R. E. Lee</td>
</tr>
<tr>
<td>Scotland</td>
<td>Dr. A. W. Hamer</td>
</tr>
<tr>
<td>Stanly</td>
<td>Dr. V. A. Whitley</td>
</tr>
<tr>
<td>Stokes</td>
<td>Dr. W. L. McCanless</td>
</tr>
<tr>
<td>Surry</td>
<td>Dr. John R. Waltz</td>
</tr>
<tr>
<td>Swain</td>
<td>Dr. J. A. Waltz</td>
</tr>
<tr>
<td>Transylvania</td>
<td>Dr. M. M. King</td>
</tr>
<tr>
<td>Tyrrell</td>
<td>Dr. J. E. Ashcraft</td>
</tr>
<tr>
<td>Union</td>
<td>Dr. Goode Cheatham</td>
</tr>
<tr>
<td>Vance</td>
<td>Dr. J. L. McCullers</td>
</tr>
<tr>
<td>Wake</td>
<td>Dr. A. S. Pendleton</td>
</tr>
<tr>
<td>Washington</td>
<td>Dr. W. H. Ward</td>
</tr>
<tr>
<td>Watauga</td>
<td>Dr. E. F. Bingham</td>
</tr>
<tr>
<td>Wayne</td>
<td>Dr. Williams Spencer</td>
</tr>
<tr>
<td>Wilkes</td>
<td>Dr. J. M. Turner</td>
</tr>
<tr>
<td>Wilson</td>
<td>Dr. W. S. Anderson</td>
</tr>
<tr>
<td>Yadkin</td>
<td>Dr. S. L. Russell</td>
</tr>
<tr>
<td>Yancey</td>
<td>Dr. W. M. Austin</td>
</tr>
</tbody>
</table>
You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

- Whooping-cough
- Measles
- Diphtheria
- Scarlet Fever
- Pernicious Malarial Fever
- Hemorrhagic Malarial Fever
- Typhoid Fever
- Typhus Fever
- Yellow Fever
- Cholera
- Smallpox
- Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:

M. D.

N. C.