

surroundings; now they are known to be spread from man himself and controlled by attention to the individual. The primary object of health work should be to teach the facts regarding disease prevention in such a way as to have the people apply sanitation and personal hygiene in their homes and lives. Such education must be education of the individual, and individual responsibility must be established. It is impossible for the state to give this definite instruction. It is the duty of the smaller unit of government (county) which is nearer the people.

Most health problems are state-wide in scope, yet can be best applied by the county. This makes it necessary for close co-operation to exist between the state and county, and both should play a part in conserving the health of the people. The state should standardize and co-ordinate the county work and make it possible and feasible for the work of the various counties to be unified and compared, and should direct the county work upon the problems of most importance. This, however, must be done in such a way as will increase county initiative and make the county work more effective.

Such co-operation has been employed between the North Carolina State Board of Health and the county departments. And in North Carolina we have county health departments with a state outlook.

A STATE LAW REGULATING THE CONSTRUCTION AND MAINTENANCE OF PRIVIES*

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"So use your own as not to injure your neighbor' is a universal rule of justice which controls all community life, and no court has ever failed to administer it for the benefit of the community when the so-called private right conflicts with the public welfare or the public health."—James S. Manning, Attorney-General, *Ratchford vs. Gastonia*, 177 N. C. 375.

The foregoing statement from the Attorney-General furnishes ample legal basis

*Read in Section on Public Health, Southern Medical Association, Thirteenth Annual Meeting, Asheville, N. C., Nov. 10-13, 1919.

for such a law. As for its justification on public health grounds, it is hardly necessary to defend this position before such men as are here present. However, the State Board of Health in the operation of this law is forced to deal with persons less informed than the gentlemen of the Southern Medical Association. It is, therefore, necessary for the Board to be able to show beyond a doubt that the open surface privy does conflict with the public welfare and the public health. The reasonable fly range of 300 yards is made use of as a basis for this contention. Flies do travel this distance with ease; flies do breed and feed on human filth; flies do carry human filth to articles of human food, and thereby contaminate it; ingestion of food contaminated with human feces does at times give rise to human sickness. The open surface privy is, therefore, dangerous to public health and as such it is a proper object of state legislation.

To the individual, however, the law is cited as a means of self-protection rather than protection of the other fellow. Assuming that the individual has cast the mote out of his own eye by providing himself with all the necessary sanitary arrangements, the law is obviously his only weapon of defense against the ignorant and careless practices of his neighbor.

Some of the fundamental features of the law are set forth in the following summary:

1. It is unlawful to maintain or use a residence within 300 yards of another residence unless provided with an approved method of sanitary waste disposal.
2. Privies used to meet the foregoing requirement must correspond in details of construction and maintenance with the plans and specifications, rules and regulations promulgated by the State Board of Health.
3. The State Board of Health is charged with the duty of drafting such specifications and rules.
4. All privies within the requirements of the law are to be inspected at least once each year by one of the State's sanitary inspectors.
5. Such privies as are found to comply with the law will be licensed by the inspector, and a fee of forty cents collected

from the owner of same. The licensing, however, is not dependent alone upon the sanitary condition of the privy. It must also correspond with the specifications set forth for one of the approved types of privies. The inspector posts on each privy licensed a serially numbered tin license tag.

6. Privies found insanitary are so either on account of defective construction or defective maintenance. In the former instance the owner is held liable; in the latter the occupant of the residence.

7. Insanitary privies may be placarded:

(a) "Insanitary. Unlawful to use after _____," or

(Date)

(b) "License pending."

The former placard is used where there is no inclination or intention of having the privy made sanitary within a reasonable length of time. In such cases prosecution will follow at once if the law is not complied with in the specified time, usually ten days. The latter placard is the one commonly used, as the inspectors find the people willing and anxious to meet the requirements in practically all cases. When the "License Pending" tag is used, the privy tax is collected as for licensed privies.

In accordance with the requirements of the law, the Bureau of Engineering and Inspection drew up the plans and specifications for privies that would be approved and licensed, and likewise the rules and regulations for the sanitary maintenance of them. Upon adoption of these plans, rules, etc., by the Board on July 7, 1919, they became a part of the law. The privies thus approved comprise five types: (1) the earth pit; (2) the box and can, with a scavenger system; (3) the L. R. S., or septic privy; (4) the vault type chemical privy; and (5) the double compartment concrete vault.

Undoubtedly the most interesting feature of the law is its administration. From an administrative standpoint the law is based upon an estimate of about 80,000 privies coming under its requirements. As now seems certain, this number may run over 100,000. The State's area of (???) square miles is enormous when it has to be covered at least once

each year in this way. The maximum funds available to run the Bureau and its inspectors can not be much more than \$40,000 at the most. Every cent of this money has to be collected by the inspectors themselves in sums of forty cents for each privy. Allowing \$10,000 per year for the running of the Bureau and \$3,000 each for the inspectors to cover salary and travel, the force in the field can hardly be more than ten men. This means ten counties for each man to cover; 10,000 privies for each man to inspect each year, approximately 200 per week, or 34 per day for every day except Sunday, making no allowance for holidays, rainy days, sick days, and such like.

How is this tremendous task to be accomplished? It soon became evident that as a matter solely between the State Board of Health and the individual it was impossible. Some form of collective management must be devised. The cotton mills of the State furnish the key to the situation, and fortunately there are a good many mills. In them one man only has to be interviewed and the work required is done promptly and uniformly. A plan has been developed for duplicating as nearly as possible these conditions in towns and villages generally. Indeed, if the law is to succeed it is absolutely necessary that the local government of towns and villages be enlisted in the control of construction details, so that the State may deal to a large extent with the town officials rather than the individual citizen. This is by no means a small task, as the natural attitude of a town is to wash its hands of the whole matter and let the State do the worrying. Were it not for the fact that it is possible to convince the towns of the great advantage to their citizens from the operation of a local ordinance, assuring system, uniformity and great economy, it would be difficult to interest in an active participation in the business. An ordinance in blank form which involves three principal points is supplied to the towns for their adoption. These points are: (1) forcible connection with sewer where sewer is available; (2) adoption of one of the approved types of privies as the type required for the unsewered portions of the town; and (3) provi-

sion for the town's assistance in the purchase and installation of the required privy equipment. When a town gets some money tied up in this project, the State has gained an interested and active ally. I may say that this object is being accomplished with a high degree of satisfaction.

It is usually the attitude of state and Federal officials to spurn any association with commercial concerns. This is thought to be a painfully short-sighted policy. That of the North Carolina State Board of Health with reference to privy manufacturers is quite different. The latent power of commercial concerns is recognized to be enormous, and the State has made provisions for utilization of this power to its own ends. Thirteen different companies are actively at work in the State with about fifty representatives in the field, each one spreading privy propaganda perhaps even more effectively than if they were the State's own agents. This policy is managed through regulation of the activities of the commercial concerns, specifying the rules of the game both as regards standards for their products and their practices in marketing them. Such concerns as gain the Board's approval are not only allowed to operate, but are given every possible assistance as regards prospective customers, use of the State's literature, or any other service that may be dealt out impartially. The strictest impartiality is, however, absolutely imperative. We have thus been able to use these forces and to get on with them in a most satisfactory way.

In the administration of this law the plan of attack also is of primary importance. Five months of intensive propaganda had focused every eye upon the first day of October as the day when the inspector was due, and he was in all parts of the State expected on that date. It is, however, obvious that some homes will not be reached for nearly a year. How is it possible thus to maintain the issue in a vigorous and lively form with so few inspectors? Once an issue of this kind is allowed to languish it is almost beyond redemption to its former state. In order to meet these demands and conditions the plan of hitting the high places was found

most suitable. The inspectors do not make a clean sweep as they go, but skip from town to town, skimming the cream at each visit. Their visits are unheralded, so that the people are kept in constant anticipation of their approach. In this way each inspector keeps the matter actively agitated in a great number of communities at the same time, and at each successive visit he finds that the privy building habit has spread its contagion to an ever-increasing proportion of the community, so that few cases of compulsion are necessary.

The law has been in operation only since the first of October, but already some definite results are visible. There has sprung up a veritable epidemic of sewer building. More than fifty towns of 1,000 or more population have definitely decided to meet the law's requirements in this way. Every possible assistance and encouragement is being extended to these towns, even to a special agreement with them whereby the privy requirements may be temporarily suspended in the districts where sewers are being laid.

Another fact that has been demonstrated beyond question by the law is its immense popularity. From one end of the State to the other, with rare exceptions, the experience is the same. Communications do not relate to avoiding the law, but to the best methods for meeting its requirements. And it is even more remarkable that this attitude is found among all classes alike.

The law as it stands, however, is not without defects, some of which are so important as to be strongly urged for correction by the next session of the Legislature. They are here enumerated without comment:

1. There should be some means of holding the towns responsible for local regulation and supervision of privy construction and maintenance under the direction of the State law.
2. Cities entitled to exemption should be required to furnish guarantees of privy sanitation within their limits equivalent to that required by the State law.
3. The State Board of Health should be relieved of the water-shed inspection of towns and cities.

4. An appropriation should be made for the running expenses of the Bureau of Engineering and Inspection (exclusive of the sanitary inspectors). This Bureau has much broader duties than privy inspection, and it is therefore unjust that the privy fees should be used to pay for services other than privy inspection.

In conclusion, it must be said that the actual working of the law is progressing with surprising smoothness. One thing only appears upon the horizon with threatening mien. Thus far the work in the field has paid its own expenses from the very first day, and has even built up some reserve. But the working conditions have been at their best, and it is feared that before October 1, 1920, arrives, there may be times when it will be impossible to make both ends meet. If this difficulty arises it will furnish another urgent appeal for amendment to the law, whereby the inspection fee of forty cents may be increased to an adequate amount.

DISCUSSION

Dr. C. W. Garrison, Little Rock, Ark.—If I understood correctly, there is to be a license fee of forty cents for each privy installed. This sum would enable the State to inspect the privies the first year, but will they be required to renew that license annually? I presume the State would be called upon to make an appropriation to carry out this vast system of inspection.

Dr. L. L. Lumsden, Washington, D. C.—I was unfortunate in not hearing Dr. Miller's paper, but I know something of the law in North Carolina, and I regard the enactment of that law by the Legislature as one of the very encouraging signs of the times. I think it is one of the most advanced steps in state health legislation that has been enacted. The prospects, I understand, are that the operation of the law will be successful. That means necessarily that there is behind the law, and was behind the law before it was enacted by the Legislature, a strong public sentiment in North Carolina. Without such a public sentiment the law would not be enforced and it would be rescinded. The successful enforcement of this legislation in North Carolina will accomplish a demonstration of the advantages of this phase, this vitally important phase, of health work which will be applicable to all of the other states, and which will be of especial advantage to the Southern states, where soil pollution is much more of a menace than it is in the colder sections of the country. It is high time for a state-wide application of this principle of decent, elementary human cleanliness. I think that we health officials have been too lax about soil pollution. I think we have been inclined too much

toward compromise and dilatoriness in this matter which is so urgently important. Our attitude may be in large part responsible for the attitude of the frequently met with individual citizen who procrastinates about making sanitary improvements at the home and thereby hazards the health and lives of members of the family and the health of the community. This is the best time we have ever had for carrying forward vigorously this phase of public health work which is of such tremendous importance to all sections of the country, whatever the climatic factors, and particularly important in the South.

Dr. John A. Ferrell, New York, N. Y.—Dr. Miller's presentation of the developments in North Carolina leaves little to be said. The improvement in the reporting of illness is most gratifying. As a result of the enforcement of this legislation it will be interesting to observe from year to year the record of cases of sickness and the improvement of the reporting of cases of sickness.

The educational work which has been conducted intensively by the North Carolina State Board of Health since 1909 has yielded admirable results. Those of us who engaged in the early measures for the control of hookworm disease recall it was extremely difficult at first to convince editors and other leading citizens as to the truthfulness of our statements regarding the prevalence and distribution of hookworm disease. At least one governor gave expression to his skepticism. When, however, we succeeded in collecting overwhelming evidence the editors and officials gave most generous co-operation. By 1911 and 1912 the county authorities could be persuaded to appropriate from \$150 to \$250 to aid in conducting dispensaries for the free examination and free treatment for hookworm disease. Sentiment generally favoring public health work has improved rapidly so that now with comparative ease county appropriations ranging from \$5,000 to \$7,000 annually can be secured for use in the maintenance of well-rounded county departments of health.

Successful demonstrations in such counties have a most wholesome influence on state legislatures and render it practicable to secure such sanitary legislation as has been described by Dr. Miller. This, in turn, means, I believe, the dawning of the era which will mark the practical disappearance of a number of important diseases.

Dr. J. N. McCormack, Louisville, Ky.—A good many years ago I began a careful study of the question of soil pollution and to note the extent to which a knowledge of this subject prevailed in the world, or rather, a neglect of this subject. I spent a good deal of time in Washington in the Army Medical Library looking up the literature on the subject, and I saw what Dr. Stiles was doing in the hygienic laboratory with a couple of barrels and with a septic tank that was intended as a beginning and was very suggestive. I returned to my home at Bowling Green and secured the services of a plumber and with three Standard Oil tanks constructed a more extended attempt at a privy. In a little while

the contents eroded the barrel and it began to leak, so I erected what I believe was the first concrete septic tank under ground with the privy above it. That is still in existence in my yard after ten years of service. I then constructed one in my residence, under the floor of the summer kitchen, and that is still there and there has never been any odor. After a little while the State Board of Health issued a bulletin on this subject and many of the other states have done the same thing.

In Kentucky the State Board of Health, with which I have been connected for forty years, has authority to pass regulations which have the force and effect of law. From the time the first law was passed, the courts have gradually broadened the authority of the Board. Every time health matters have been before them they have extended our authority, and three years ago we passed a regulation requiring that these septic tank privies be installed at every court house, hotel, school house, railway station and other place of public resort not on a line of sewers. Then when Camp Taylor was located near Louisville we constructed one of these privies at every residence within the five-mile zone. If the war had not ended so quickly we would have had one at every residence in Jefferson County. In Mason County, with the help of the U. S. Public Health Service, these privies have been constructed at about two-thirds of the residences in the County. They are so simple. The only trouble we have had is where some cheap contractor thought he could make an improvement by leaving out something. But sometimes even fairly intelligent people do things which discourage you. I had an inquiry from a superintendent of a high school saying that we had not made it clear to him what kind of antiseptic to put in the tank. Sometimes we get discouraged by things like this, but we are enforcing this rule, which has the force and effect of law, and while it is slow, those of us who have been connected with public health work for a long time and have read its history, who know how long it took Lord Ashley to get anything done in London, need not be discouraged. It takes time to overcome these things involving the life-habits of a people.

We have issued about 250,000 of these privy bulletins over the United States. We had a representative of the Rockefeller Commission with us last year for two months or more investigating the effluents from the tanks all over the State. He spent some days at my residence before leaving and put into the old tank first constructed 50,000,000 typhoid bacilli and then tested it, and so with other disease-producing organisms, and he said "this is the first real step in advance in the disposal of human wastes since Moses made it a religious duty that every Israelite as he went out to ease himself should have a paddle on his weapon and bury his excretions." In this bulletin which I am now revising I shall urge that when there is not an open fire in which immediately to burn the sputum from tuberculous patients and all other discharges, they shall collect them in a vessel and deposit them in the tank. And when there is such a tank at every

home I will assure the people of Kentucky that they need not fear any spread of infectious diseases. Burn the sputum if you can; that is the best way, but if there is not an open fire, drop them on cotton or tissue paper or into a cuspedor and drop them into the tank. We have one of these large tanks in our office building. It burned, and we thought we would have the tank cleaned, but the accumulation at the bottom of the tank after six years was less than one inch of solid material. It may be that in the course of half a century you would have to clean it out, but I believe with fire and this bacteriological tank, there need be no more spread of the germ diseases. They are simple of construction and so cheap that they can be installed by almost any ordinary citizen and it is a step in advance which promises untold things for mankind.

Dr. Soper, in a very interesting article in the last number of the *Journal of the American Medical Association*, says that out of six hundred million people in the world only 1 per cent are really enjoying the benefit of systematic health work. It must be that that is a mistake. I have been in almost every county in the United States making inspections and I have not found sanitary conditions in Minnesota and North Dakota very different from those in the South, except what is purely climatic. Their slaughter houses were as bad as Mississippi and Kentucky, and these are the limit. The rural privy or lack of privy system in rural districts of this country are a menace everywhere, except where there are actual sewer connections. There is so much more sickness on the farms, where the people should be the healthiest in the world, than in the cities that we ought to go into the schools and throw pictures of these conditions on the screen. We are taking our school officers out and showing them how every step is taken. We are not going to do it in a year or two, but it will be done, and having been so long in this work I hope I may live, like Simeon, to see some of these things before I "depart in peace," that I may see the actual fruition of what you younger men will take in your hands and do so much better than we older fellows have been able to do under the adverse circumstances in which we started. Sometimes when I feel like congratulating myself that things have turned out as well as they have, I think of what is yet to be done. We have just touched the surface. The work before the coming generation, is much greater and there must be a union of all the forces, educational, medical, social and economic. You must get the moneyed interests back of these things and make them understand that it is a good investment. Then the real fruition will come.

Dr. William Brumfield, Richmond, Va.—If I do not misunderstand the conditions of this law, it happens to leave out the people who most need just such a law. I want to ask if I am correct that the family who lives more than 300 yards from another home is not affected by this law? If that is so, it is still, of course, a great step in advance, and it is a good law to apply in villages. But so far as soil pollution is concerned,

every one who has made any investigation knows that when you come to a little village where there are even half a dozen families close enough together to compel them to have any sort of privy, you will immediately find less hookworm than out in the country districts where each family lives possibly a half mile from the other. Certainly that is our experience in Virginia in the country districts—that when we came to the villages (even the cross roads village of a half dozen houses) where the proximity compelled them to have some sort of a privy, we had a decrease of intestinal parasites. This is a very good law for the towns, and I hope the North Carolina people will be able to make it apply in the country districts as well. But as Dr. Lumsden has said, of course, they must have public opinion back of it.

Dr. Miller (closing).—With reference to Dr. Garrison's question, the license fee is paid yearly. We have been very much encouraged to find that a good many people had the idea that this was a monthly fee. They were willing to pay it, but when they found it was a yearly fee they were much relieved. It is a yearly fee to be collected by the inspector himself. The law says that when the privy is inspected and approved this license of forty cents shall be collected. You will bear in mind that at the present time there are not more than 5 per cent of the privies in the State coming under this law which are subject to approval, that is, they do not meet the requirements of the law. If we were to collect from only those which were subject to approval we would not get very much money and the inspection could not be run. There are only two classes under the law: one is the sanitary privy and the other is the insanitary privy. Of course, every privy will go in one of these two classes, and the law requires a fee from those found subject to license. But we have manufactured another rating which does not appear in the law at all, namely, "License Pending." If an inspector goes to a man who owns a residence and inspects the privy and finds it is not subject to approval he will have the option of placarding it either "License Pending" or "Insanitary," and not to be used after a certain date. In the event the man has the right attitude toward the proposition and intends to do what the law requires but has been prevented for some reason, lack of material or what not, then the inspector may label it "License Pending" and collect the forty cents. I do not believe, however, that there has been a single instance where the placard "Insanitary" has been posted thus far. We hope to use it very sparingly, but when we do use it means immediate prosecution under the law. Owners of privies so placarded will ordinarily be given ten days to have this work done, and after that time they will be prosecuted by the inspector if the requirements are not met. But the people are not objecting to it, and that is encouraging. I think you men in other states should be encouraged by the fact that the law is popular. People are ready for it. Everywhere I go—and I am in the field nine-tenths of the time—they are saying, "This is the thing the State should have

done ten years ago." I was surprised. I thought there would be a good deal of difficulty, but there has been none so far.

I am very much interested in what Dr. McCormack had to say with reference to the L. R. S. septic privy. This is one of the five kinds approved by our State Board of Health. I have noticed some indications here and there of a little dissatisfaction with this type of privy, and there are certain very definite reasons for this. In North Carolina there are perhaps more L. R. S. privies than in any other state. The reason is that the majority of cotton mills have supplied their towns with them. We have found some difficulty in their operation in the cotton mills, but we have found on inspection certain obvious defects which can be easily removed. The main difficulty is size. Most of the cotton mills are equipped with the small size septic tank, from 54 to 60 gallons, and they are undoubtedly too small. These were installed before any standard was set up by the State. For this reason the minimum capacity in the vault chamber is placed by present specifications at 100 gallons, and more than that is better.

There are other difficulties, such as ventilation, improper type of vent flues, improper space between the level of the fluid in the chamber and the top of the tank. These little tanks have a space of from six to eight inches between the top of the fluid in the chamber and the top of the tank. There is formed in these tanks a considerable scum and as this scum forms it rises, and in a great many privies of that type we found this scum actually jammed up against the floor. Of course in such cases there is no chance for ventilation, no chance for the septic action to come in contact with the accumulation of solids, and you can imagine what some of the difficulties might be. But all these points have been covered in the specifications under which we are now working and I believe have been satisfactorily disposed of.

There is one distinction I wish to make which I think was not made clear by Dr. McCormack with reference to septic privies. There is a septic tank, and there is a septic privy. The distinction made is this, that the septic tank is one which liquifies human filth by bacterial action, and which receives its contents from a water-carried system. The septic privy, on the other hand, has the same purpose, but receives its contents directly, the stools dropping into the tank. The difference just stated is in favor of the septic tank. The septic tank does operate almost perfectly, and I would take it from what the Doctor said that the device he has been operating five or six years is a septic tank.

Dr. McCormack.—No, they are both open to the air. The first compartment is open to the air.

Dr. Miller.—It is connected with the stool?

Dr. McCormack.—Yes.

Dr. Miller.—Where they are connected with flush closets they operate almost perfectly and the solids do not collect on top. On the other hand, the septic privy which receives its contents

directly from the privy placed over the tank, does not operate so satisfactorily as the septic tank. The process is this: there are papers and solid sewerage deposits in the tank which gradually form a mat on the surface. This mat acts as a raft on which other deposits float and do not come in contact with the fluid for some time. That differs very materially from the septic tank because the contents reaching the septic tank are discharged underneath the surface and immersed in the fluid.

Another point of difference is the fact that the septic tank receives enormous quantities of water at every flush.

These are the three points of difference between the septic tank and the septic privy, and the obvious points which make the septic tank more perfect in its action than the septic privy. I am raising these points of difference because I am able to say to you that there are now investigations on foot which I believe are nearly completed and which will do away with these differences to such an extent that the septic privy will operate on practically the same basis as the septic tank. The objections that are raised to the septic privy are not so much their operating qualities as the fact that they give rise to a bad odor when not properly ventilated; that the material is unsightly, and especially the fact that they are breeding places for a certain kind of fly which results in a long, ugly worm. The worms are absolutely harmless and have no insanitary consequences, but they do create a horrible aspect when you look into a privy infested with them, and so they are a source of dissatisfaction. These are the things that are making people dissatisfied with them. But the improvements that are being worked out on these septic privies are such that all of these features will be eliminated. The device has these features: there is a water-seal

between the entrance of the commode into the tank and the rest of the tank so that nothing will be seen except the immediate deposit. There is also an absolute absence of odor because there is a provision whereby the stool when deposited in the commode will fall into water and can then be flushed into the tank underneath the surface. Thus all these difficulties with the septic privy as compared with the septic tank will be done away with.

Dr. Brumfield asked about those persons who live more than 300 yards from some one else. The law does not provide for any control of these homes at all at the present time, but even as the law stands there are a great many people who live in the country districts who do come under its provisions. However, we are disregarding the people who live in the rural districts at the present time, because of the fact that they are so scattered that the very small fee of forty cents would not be adequate to reach them. The truth is, we are a bit nervous as to whether we will be able to finance the work of this bureau with the forty cents tax, even working in the towns and villages. So far, as I stated, the Bureau has made its expenses and has built up some reserve. I think during the first month it cost \$2,000 to run the force and a little over \$3,000 was collected. But the working conditions are favorable so far, and I think there is no reason why we should not break even at the end of the year. As regards the rural home, some counties have extended this legislation to their rural inhabitants and have county-wide ordinances requiring the installation of sanitary privies in all homes, regardless of whether they are in towns or rural districts. For the present we are extending the privy law to rural homes only through local ordinances. Those counties having full-time health officers are the most fruitful field for this development.