tection of the health and moral standard of our troops. Co-operating with this body is the American Social Hygiene Association, the Council for National Defense, the Y. M. C. A., the Y. W. C. A., the Travelers' Aid Society and other agencies. State and municipal societies likewise are enlisting their aid, since civil control is essential to make the military control more effective. Public education on matters sexual has received a great impetus, for only through this means can the co-operation of the public along sanitary and hygienic lines be expected. Social hygienic societies throughout the country have been the outgrowth of this movement, and acting in conjunction with the American Social Hygiene Association have been prolific in their endeavor to enlighten the public on sexual matters and venereal diseases through the medium of public meetings, lectures, pamphlets, exhibits, etc.

It is the duty of the medical profession to take full cognizance of the impending danger of the spread of venereal infections and be well informed of the agencies at work in their campaign to counter-attack it, as with this knowledge we can better give our co-operation as physicians. We must also bear in mind that not only does much of the responsibility fall upon our shoulder, but that we are perhaps the most potent factor to prevent venereal epidemics.

It is not within the purview of this article to outline any method of control of the venereal peril, as various extensive programs have already appeared in medical literature.* Suffice it to say that we are confronted with a most formidable problem and that we can no longer depend upon the Utopian views of the well-meaning moralist which are based on "how conditions ought to be," but we must now face conditions as they are and be free to discuss the subject fearlessly and openly and direct our concentrated efforts toward education, the encouragement of direct medical prophylaxis, and the giving of all patients the full benefit of all the newer scientific methods of therapy with

the same degree of interest in the patient and the same sympathetic feeling for the patient as if the case were one of tuberculosis, typhoid fever, carcinoma or other disease.

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THE NORMAL COLLEGE AS A FACTOR IN THE DISSEMINATION OF PUBLIC HEALTH KNOWLEDGE IN THE SOUTH*

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It may seem to you gentlemen more than a Sabbath day's journey from the State Normal School of the South to the Public Health Section of the Southern Medical Association.

In the position which I have occupied for a number of years, that of health officer in a state normal school which draws a large number of its attendant students, 1200 or 1300 each year, from the rural population chiefly, I am realizing as never before the great need of a closer co-operation between the people and the health officials or rather a more concentrated preparation of the people for the reception of the knowledge of how to keep well. Eighty-five per cent. of the children in our State, and conditions true in our State

*Public Health Reports, January 4, 1918, p. 11. Journal of the A. M. A., October 20, 1917, p. 1347.

*Read in Section on Public Health, Southern Medical Association, Eleventh Annual Meeting, Nov. 12-15, 1917.

are largely true of other Southern states, never get beyond the secondary schools. It is in these secondary schools that the normal school should do its intensive training in health work.

Preventive medicine has been newly-born in the last quarter of a century. The possibility in the way of lessening mortality, diminishing the amount of sickness with its attendant suffering, grief and misery, are dimly appreciated even in the medical profession, and not at all by the public at large. If we are to hope for large returns in the way of practical benefits from recent advances, it must be through a universally enlightened public, and this must come through the school.

The school is the logical, the universal, the strategic agency through which the best intelligence and standards of human culture may and must be applied for the rearing of the young of the race. Every vital value in life and education is integrally bound up with and dependent upon health, biologic fitness, and general human welfare.

The school is the only institution which reaches into every home in the community. It is really the pulse of the community; whatever affects the community must affect the school, and vice versa. It holds the centre of the stage in effort and responsibility.

Through the school the most expert aid with regard to health, education and recreation should be offered the country man and country woman.

The sanitarians and public health officials are doing a tremendous work; they have accomplished much; and yet those of us who are doing community work are aware of the fact that much seed is falling on stony ground and brings forth no fruit, while much that would bring fruit withers because of insufficient soil preparation.

Boards of health are storming the ramparts of ignorance and superstition, but indifference and ignorance are difficult to overcome.

The whole matter resolves itself into the question, what can be done to bring about a closer co-operation between the health department to make the knowledge and practice of public health a part of the

every-day life of a community,—to conserve the loss in a community due to preventable disease.

As I have stated, the school is the agency endowed by every circumstance for the accomplishment of the task.

There are, as we know, no colleges of preventive hygiene. It is not an essential part of the training of American physicians and nurses today, and it is a significant fact that most of the sanitary movements that have revolutionized hygienic conditions in America owe their inception and their success to laymen,—for instance, tenement house reform, anti-child labor and anti-tuberculosis crusades, welfare work in factories, campaigns for safety appliances, movement for a National board of health, prison, almshouse and insane asylum reform, schools for mothers, and milk committees. Many other hygienic reforms that owe their being to the work of the layman might be named, but these will suffice.

One factor that may figure large in forging the missing link between the board of health and the people is the normal school.

The normal schools are among the few largest factors in the educational scheme of this country. There are 200 normal schools in America and approximately one hundred thousand students attending these schools annually. Each Southern state has one or more schools and therefore has its quota of this one hundred thousand. Both quantitatively and qualitatively the normal schools are doing the teacher-training in America.

The normal school teaches that education not only means training the child's mind, but training his body also, in order that he may fill his niche as a world citizen.

It, as no other institution, realizes that the need of this work is for men and women whose hearts and imaginations have been kindled with the possibilities of the problems which confront them.

Public health work is chiefly educational work, and since the forces in public health work have been somewhat disrupted by the calling of large numbers of the men to the colors, it becomes more than ever the duty of the normal school to prepare its students to shoulder the burden and to

carry on the work, the fight against disease and its partners—ignorance and superstition.

The rural nurse is yet an impossibility or rather an unrealized probability, and while she is devoutly to be desired as a co-laborer in rural health work, we can not afford to wait for her coming. The time to begin the education of the citizen in prevention is not after he has reached his maturity, but during the impressionable age. The majority of the states have school laws requiring that hygiene be taught in the schools, but this text-book hygiene as taught by the average teacher who finds little interest in the subject is as far from the vital every-day right-living as night is from day. Had either laymen, physicians or school teachers made proper use of the knowledge that has been in text-books for a generation, this country would be saving thousands of lives and millions of dollars every year. Our doing and getting done have lagged behind our knowing.

Three generations ago Charles Dickens, a layman, you will note in his "Uncommercial Traveler" pointed out a relation between open mouths, and backwardness and delinquency, that would have saved millions of dollars, and millions of life failures, had the civilized world listened.

State schools with their state sanction and support have for their function the preparation of the young through right living for right living.

There is hardly a problem of life of any serious importance to which the normal school can not and should not, as a Government agency dedicated to the public welfare, contribute through properly directed education, and one of the principal problems of life is the problem of health and normal physical development.

"The status of educational hygiene in the normal school is not as yet uniformly defined. It is relatively a new subject, and new subjects have to run the gauntlet of many officials and much officialdom, to say nothing of much public opinion, before they can be admitted to our already overstocked holy of holies. However, educational hygiene is beginning to loom large on the horizon. We know, for instance, that 25 % of all the pupils in our schools have defective vision; that 10 % are suffering from malnutrition of a grave nature; that 10 % have adenoids and enlarged tonsils; that 10 % have enlarged cervical glands, many of them tuberculous; that 10 % have tuberculous infections, that they will

ultimately succumb to the ravages of tuberculosis; that 75 % have defective teeth, and that 5 % have curvature of spine and another 5 % marked nervous disorders."

With all these facts we deem it not extravagant to say that school and child hygiene is one of the three or four chief subjects of study in the normal school curriculum.

The normal school believes it the duty of the school to take the child as the raw material of citizenship and plan its work so that the child will at once begin the formation of habits of bodily care that will render him secure from school diseases, and it is training its student-teachers in this belief. The normal school in its broad vision has had the courage to put into its curriculum subjects that are vital; it has broken away from the old traditional subjects, the fetish at which other colleges have bowed. It has not been ashamed to confess that things may be useful and at the same time cultural.

A few years ago these schools dared to teach sewing and cooking to its women students and manual training to the men; equally as enthusiastically and I may say equally as courageously will the normal school teach the truths of hygienic living and the vital necessity for prevention.

The normal school imbued with the spirit of the times is anxious to get away from the old methods of training its teachers in public health knowledge. For there is no reason why it should require more brains to learn that all Gaul is divided into three parts than it does to learn how to destroy the breeding places of mosquitoes and flies—or how to detect malnutrition and adenoids in the class room—and the latter is far more useful and equally as cultural.

Much remains to be done, and we must confess that a great part of the health work done by the teachers in our rural schools has been little more than the blind leading the blind.

Equipped with the health training given today in our normal schools, with a little practice and some study, an intelligent young teacher can learn how to inspect medically and test her pupils. Dr. Hoag says a good teacher can learn to pick out 80 % of the ailments and defects of children and will miss very few serious cases.

If she has ability and tact she can learn how to get hold of the parents and, by utilizing all agencies within her reach, she can get most of the ailments and defects cared for—as an example of how easy it is to secure the co-operation of outside agencies; two years ago I was anxious to hold dental clinics for the benefit to be derived therefrom to the children of the Observation School at the Mississippi Normal College, but *per se* for the training of the young men and women preparing to go to the rural districts to teach. We had no funds available for such purpose. When I talked the matter over with the Forrest County Dental Society, the President of the Society told me he considered it an opportunity to spread the knowledge of oral health, and the members of the Society gladly gave an hour every two weeks for a clinic. They examined and treated the children, giving the student-teachers the benefit of seeing this work done, thereby impressing the lesson upon them as it could be done in no other way, and these student-teachers will carry this work into their own schools, thus helping to lessen the percentage of physical deficiency and to increase public health knowledge.

The normal school is not doing justice in training its teachers in health work unless it has a clinic for the diagnosis of such defects, as they will constantly find in their own school rooms—clinics showing defective teeth, enlarged tonsils, malnutrition, defective vision, etc.—physical defects which should be remedied during the school life.

Terman says: "In the light of the modern advances in preventive medicine, together with the widespread interest in the social aspect of hygiene and the recognition of the importance of athletics, play and the physical side generally in the scheme of education, the present comparative neglect of educational hygiene and knowledge of public health in the normal schools becomes an intolerable anachronism."

The State Superintendent of Mississippi told me a few days ago that the legislative body of that State, convening in January next, would be importuned (I believe that is the correct word to use when speaking of legislatures) to appropriate suf-

ficient funds to establish a normal school for the training of Negro teachers; and that he considered the training of these Negroes in the knowledge of public health matters would mean as much or more to our State and to the efficiency of the Negro population than any other factor.

The establishment of such a normal school is a long step forward in the advancement of public health. The next step will be to associate with the normal school and board of health a Rural School Hygiene Supervisor—a supervisor who will be to the rural school all that the High School Inspector is to the high school.

If one-tenth of the money now expended on hospitals were spent in training teachers, that they might inaugurate and push to successful termination campaigns of education on how to keep people well, how much suffering and even financial loss could be avoided? It would seem sometimes that in our effort to succor the few, the needs of the many are lost sight of.

The knowledge of prevention of diseases common to school life is not the only work possible to the enthusiastic and well-trained teacher-student from the normal school. The normal school can not stop here. If never before, surely now in the present crisis which confronts us, teacher-training should include the value of recording births and deaths of a community.

Vital statistics are the bookkeeping of health and we can not economize any more successfully in health work than we can in money matters unless we keep books.

It is true that in this Nation, which has existed for nearly a century and a half, there are only a few states which do regular bookkeeping in health. We can not wage the battle for health intelligently unless we know when and from where the preventable diseases come. This is not merely a doctor's problem; it is not merely a public health problem. It is a great social and economic problem, vitally important to every class of people, and the knowledge of this work is an important part of the equipment of every teacher. Therein is the normal school ready to bear its part in making possible the inclusion of every Southern state in the registration area.

A large per cent. of the children of school age in the South are cursed with

malaria and hookworm. The facts concerning the danger to efficiency and health from these two diseases should surely be known by every teacher who goes from the well-balanced normal school. In fact, I believe that it will only be through the well-directed and systematic co-operation (the treatment of these two diseases by the teacher) that we will ever secure the results in treatment which we so ardently desire, that is, a cure. I say systematic advisedly, for our treatment, or rather the attitude of the patient toward the treatment, is anything other than satisfactory, as a large number of our cured-for-a-few-weeks cases are walking carriers of the infection.

To show the number of cases in schools and the persistence of these cases, this data is quoted from Dr. Turner, of Memphis. Data secured in 1915:

From fifteen schools, enrollment.....	1590
Number who had malaria at some time	1008
Number infected that year.....	591
Per cent.	63.4

It is in like cases that the teacher's systematic help will be needed.

Nothing has so curtailed our financial development, our educational progress and our efficiency as the utter indifference exhibited toward these diseases. It is not infrequently heard, "Why, I grew up on chills," or "I have chills every spring," and said with a nonchalance not unmarked with a bit of pride.

There is another phase of public health work, an essential part also of the curriculum of every normal school—the prevention of infant mortality.

The fact that many of the teachers sent out from the normal school are the potential mothers would offer sufficient reason for training in this phase of health work were there no other.

The United States, notoriously wasteful of its natural resources, has not felt the need to conserve one of the most potential sources of our national wealth. Two and one-half million babies are born in the United States each year, and three hundred thousand of these die before they reach their second birthday. The Southern states bear their full quota of this loss.

For generations infant mortality has been regarded from a more or less fatalistic viewpoint, something which could not be helped, useless to struggle against. "God giveth and God taketh away" idea.

Sir Arthur Newsholme says that infant mortality is the most sensitive index we possess of social welfare and of sanitary administration.

Infant mortality has been markedly decreased in those countries and places where every means is adopted to educate mothers. Already the normal school is teaching eugenics, the better care and feeding of children, and in fact it is rapidly harnessing up the vital things of life with the usual pedagogical subjects.

There is an added reason why the normal school should teach the need for the prevention of infant mortality, that is, the possible loss of potential fathers at the front. France and England have already realized the seriousness of this phase of the matter.

These are some of the factors of public health knowledge in which the normal schools may become the co-laborers with the public health official. There are others, but these seem the most vital.

If this country is to possess the quality of citizenship which will guarantee supremacy intellectually, commercially, artistically, physically and morally, it must require not only compulsory education but compulsory health conditions under which to gain that education. If the next generation in this country is to be healthier than the present, it will be largely because of the instruction and training of the children in health matters in the rural schools, and the normal schools of the South are training the teachers for these schools. The rural school teacher is on the firing line, and it is the part of the normal school to see that she is equipped with all the ammunition necessary to fight the most important war ever waged by mankind, the prevention of disease, through the dissemination of public health knowledge.

DISCUSSION

Dr. William Krauss, Memphis, Tenn.—The paper covers so many things that it is very difficult to single out any one thing and profitably discuss it.

The fact that the normal school should take more interest in preventive medicine is self-evi-

dent. The Professor of Hygiene at the Western Tennessee Normal has had frequent conferences with me, and he seems to be very much alive to the necessity of that form of instruction. We have discussed this matter from all sides, but we have not the teachers, and few teachers can be brought to that state where they can bring before their pupils in the regular curriculum such subjects.

With respect to the question of eugenics in the normal school or public school, I do not believe that the present level or intellectual height of the average school teacher is at the point where we can hope to introduce so delicate a subject. I think that the intelligence of the average school teacher is at a point where we can not yet introduce so delicate a subject. I think at the present time the parent is the best teacher for that kind of instruction. If the subject must be introduced at school, it should be by a special instructor who has no other function except to appear before them with some specific point in physiology. It is a very difficult thing to decide what is best to do, but of course we are all greatly interested in venereal prophylaxis and other things that mar proper progress and development.

All of these things are particularly live subjects at the present time, in view of the great crisis before us, and it behooves every one of us to do our best in the preparation of plans for the preserving of public health when so many doctors are going "over," and yet perhaps only one-fourth of what will be required are in the service.

Dr. A. T. McCormack, Bowling Green, Ky.—If the Section will permit me, I should like to discuss this paper, because I have an intense personal interest in the subject.

For a number of years my father was the whole health department of the State of Kentucky. From 1878 to 1910 he was the only official it had, and my Mother and I were the only clerks. We spend more now for postage than we spent for all purposes then, but yet that building-up stage was necessary. I am fortunate in having lived through it, because you younger men can not know the trials and tribulations of the health officer during that age of the world when we were generally considered as wholly unnecessary nuisances. In 1910, when we established various bureaus of the State Board of Health and an appropriation made it a really practical agency, we established our office in the Western Kentucky Normal School, which is one of the largest educational institutions south of Mason and Dixon's line, and the third largest normal school in the United States. We did that designedly, looking forward to the future when we could ask the Legislature of Kentucky to give us a sufficient force to go into every home and teach every citizen the things we would like to have him know about health, and we knew this would have to come through the common school and the high school system. Now, we must get ourselves straightened out in our attitude toward the schools. I like to say it over and over again that we must get away from the idea that because we learned the things we did at school and got along fairly well that sort of

education was a good thing. It is not a good thing. The kind of torture about which Dr. Jones spoke when she said that "all Gaul is divided into three parts" is ridiculous, and we must make it understood that it is ridiculous. The most surprised man that ever lived in all antiquity would be Cæsar if he had any idea that any poor, deluded individuals would be reading his reports of the Roman Senate and calling it literature. Can it be that the generations of the future will read the dispatches sent by Pershing in regard to our Army and think that it is literature? Is it possible that future generations will read the reports that General Haig sends back to England, telling how they were delayed and arrived too late and how they lost, and the mistakes they have made? But yet that is the literature we are putting into the child's hands instead of teaching him how not to make these mistakes. We have labor problems because we have not taught the children in school the nobility of labor. But in the South, owing to mistaken judgment on our part, we got our Negroes freed, and we have no labor except ourselves, so we have to go to work, and we always teach the children that they must go to work if they are to be any good anywhere. But the thing I believe in which we have accomplished the most good in Kentucky is that we have made demonstrations before the normal school teachers. We inoculated rabbits with tuberculosis and we tried other experiments and we put the matters before the teachers in a graphic way, usually with the stereopticon, because that is what makes the impression on them, and then they go back with that to the children. In Kentucky the chief thing that we talk about on the soap boxes and in the store is politics, and if one-tenth of 1% of the wasted consideration of the subject of politics which has been spread over the South could have been given to intelligent consideration of health matters, it would still be ruling this country as it did during the early years after the adoption of the Constitution, because we would still have the intelligence and brawn which we have not had in the present generation because we have not had health. But just such things as Dr. Jones is doing will be our salvation.

Out at Leland Standford they are doing something like the same thing, although it is a little different, perhaps, because they have a group scheme—a group of doctors just like us have gotten themselves together in that town and every doctor in the town is in the group, and the students pay the college, under the State law, a certain definite sum each year, and for that they are treated for any sickness they have, and it pays their hospital bills. When you first think of that it looks like a pretty good money-making scheme, by which these doctors drew their little salary, and it was. But they ran along in this way for two or three years, and then they realized they were making a mistake. They were treating two or three cases of smallpox, twenty-five or thirty cases of typhoid, and a lot of boys and girls and men and women with run-down nervous systems. They were having a number who meant to stay for a long time in their hospitals with various diseases of the chest, and all of a sudden it occurred to them that that was

unnecessary, and so they began systematically and carefully to examine every student when they came into the University. Every student that made below a certain grade once a week; every student who was conditioned in class, was got into the hospital for systematic examination to see what was the matter, because when a boy or a girl fails, there is nearly always something mentally or physically the matter with them. The result is that out there they have stopped treating sick people almost entirely. That particular group of men have entirely changed from the profession that they were following into the profession that we will all be following before long—that is, keeping well people well and keeping the younger generation as it grows up a sound and healthy generation.

We have adopted one scheme in Kentucky that I think will interest you. We had adopted the use of one of these little school text-books. About three-fourths of it goes to show the evils of alcohol; a wholly unnecessary part of the book is devoted to that subject. One of the blessings which will come with universal prohibition will be the fact that a lot of that twaddle will be eliminated from the book. But now we use a slide which is approved by the State Board of Health, and we devote one-third of that to tuberculosis and diseases of the chest, one-third of it to diseases of the abdomen, including intestinal parasites and typhoid fever, and one-third to the other diseases and the sociological side of the practice of medicine. And we go pretty far sometimes, because we teach the children in school that a doctor is not a good doctor unless he is clean; that if he comes in with dirty hands and dirty linen, or if his instruments and medicine bag is dirty, then he is not a good doctor. We tell the normal school-pupils that they shall ask him if he attends his county medical society regularly, and if he says he is too busy, or he does not like to go because he does not like some member, it is a pretty good sign that he is not a good doctor, and if they will ask him about other doctors in that neighborhood and he says that any one of them is a bad man or says any unkind thing about them, they can take it for granted that he is talking about himself and not the other man, and that they should get another doctor. We have been teaching that for about six years, and we have already broken the habit of some doctors there who talk about each other, because they are afraid of what the children will say and lose practice. The knocking fellows have had to reform or move out of Kentucky.

We are getting so that many of the people down there go to the county health officer before they build a cistern or a barn. If they are going to build a home, they take it up with the county health officer and ask his advice as to the best location. These things are beginning to be taught fundamentally in the school by the teachers and the teacher is given a bulletin of the State Board of Health in which each paragraph is illustrated, and there are suggested exercises and examples they can try over and report to the class.

I think the paper of Dr. Jones as presented is really one of the most valuable that has been read during the meeting, and if it will stimulate in the normal schools of the South a study of that normal school, I think it will have done as much as any other thing discussed here.

Dr. Henry Boswell, Magee, Miss.—I wish I might be able to talk for some time on the wonderful work being done by Dr. Jones in our State Normal School. While I do not care particularly to discuss her paper here, as she is very modest in putting in an actual outline of her work done there, I would like to add this: the work she has given here today is actually being carried out, and I believe I can say that in visiting many of the six thousand rural schools, in making a survey of them, I would not have to ask where the teacher was educated. I knew when I walked in the door. She carried her advertisement with her. Indeed, I became accustomed when I visited the schools to walk in and ask the teacher what year she graduated from the Normal School.

The first thing any student going into the normal college must do is to be examined for almost everything, and particularly hookworm disease. A very interesting part of her work there is the co-operation she is receiving in the faculty, and no student has graduated from Mississippi Normal College who carries away from there any infectious disease. I have in mind now a young man whose diploma is held up because of a religious belief that precludes his taking the treatment for hookworm disease. This was over two years ago, and the faculty backs her up and positively refuses to sign that diploma when the patient carries hookworm disease or any other infectious disease that might be taken back to a community. We are proud of Dr. Jones and her work down there; we are proud to claim her for Mississippi, and to know that she is sending into these little districts physically as well as mentally prepared men and women.