of this condition on certain different parts of the nervous system in different cases. In 500 cases, which we had in Washington two years ago, we did not find the biologic factor of nervous heredity which has been so conspicuously presented just now by Dr. Neustaedter, although his cases are most striking in that regard. It may be that they are coincidental, because in the New York epidemic I do not think that the same remarkable association was ascertained. It would seem *a priori* that a general susceptibility of the nervous system to such very different disorders as were described in the paper should not predispose to attack by this infection, which is of mesoblastic type. It is not a nervous disease at all; it is a vascular lymphatic disease, and the nervous structures are affected coincidentally on account of their situation relative to the vessels which are more particularly conveyers of the contagion. Besides which the contagion has been found in very different organs to those of the central nervous system.

With regard to the mode of prevention, we are hopelessly at sea when we consider that one case in a district will not convey the disease to children in intimate contact, when we consider the extreme rarity of hospital infection and when we consider the extraordinary leaping of the infection from case to case in the large epidemics. The measures advocated by the various health boards seem to be more or less in the air. Recently I have seen allusions made to the bedbug as a source of the conveyance of the disease, and that is worth keeping in mind in our research; but we failed to obtain data from patients or physicians in Washington in that respect during our research in 1910 (*Washington Med. Ann.*, May, 1911).

Dr. ALBERT E. STERNE, Indianapolis: The peculiar regularity that we see in the manifestations in different individuals within the epidemic or endemic zone is interesting; it is notably the fact that there are many cases, relatively speaking, which do not show the full-fledged typical picture of what we have been commonly calling acute anterior poliomyelitis. There are many cases now on record, and we have all of us seen them probably, in which the polio-encephalitic inferior type is shown without the myelitic type prevailing. Again, the peripheral type shows occasionally in a very mild form. Last year we saw a number of these cases in Indiana, in which there was unquestionably in play the epidemic-endemic type of poliomyelitis, but in which the manifestations were extremely mild; and I discovered these milder cases, on the one hand, and the severer cases, with extremely rapid course, on the other, as also the upper medullary type in the same epidemic. These cases are a possible danger to the community, because they may not be recognized and hence not reported as epidemic-endemic poliomyelitis.

Dr. A. L. SKOOG, Kansas City, Mo.: The nasopharynx is undoubtedly a source of infection; but I do not believe that it is the only source. Dr. Neustaedter mentioned the fly and other insects as possible carriers; some work has been done along that line, and it is possible that the fly may be a carrier. I agree with him about these epidemics following railroads. I have observed that point during my work of the last three years; and I think that holds true also in epidemic cerebrospinal meningitis. I do not agree with the idea that the disease attacks those of hereditary neuropathic tendency more than others. I have seen over a hundred cases during the past three years, and many of them I have had opportunity of studying rather closely in the families, having been sent out by the Kansas State Board of Health through the state, and mingling with the relatives as well as the patients, and I do not believe that there is any more heredity among these families than among the average of people that you see. If we take the statistics of New York state, I believe the number of mental defectives is about 1 in 100. If we accept that percentage and look up the families we will probably find very few families in the state of New York that are not tainted a little. Possibly in the far West or in the West that does not hold as it does in the effete East.

A number of boards of health as well as the Public Health Service have given out instructions as to how to prevent poliomyelitis; they do not agree entirely, although they do

agree in the main, and the point which Dr. Dana made about difficulty in carrying out all these fine points in prophylaxis is well worthy of consideration.

Dr. M. NEUSTAEDTER, New York: If we can afford to oil streets for automobilists we can afford it for little children. The oiling and washing of the streets has been practically demonstrated to be of great value in the late epidemic in Massachusetts, where they have proved that in neighborhoods where the streets are thoroughly washed and oiled the epidemic stops. In Cornwall, England, last September, as stated in the *British Medical Journal*, an epidemic was stopped in one week after the roads were thoroughly washed. It is not a question of washing away or killing the germs, but of keeping down the dust and thus keeping down the germs.

Of course, statistics do not always tell the truth, and I have not attempted to draw any conclusions from so few cases. I have merely pointed out that it might not be simply a coincidence, and it is worth while to inquire along these lines. I have simply indicated what I found. Dr. Skoog's remarks on tainted families in New York I would not criticize, but I would insist that we have just as few tainted families here as in the West.

I have spoken of the age in school children with respect to tonsils, merely as indicating one of the reasons which brought to my mind why poliomyelitis attacks mainly little children, and I have simply drawn an analogy that as these 5- and 6- and 7-year-old children are condemned to breathe an area of atmosphere full of dust, so these little tots are condemned to breathe the area of dust when walking below. So it seemed to me that the dust was propagating the disease.

MEDICAL SOCIOLOGY IN CIVIC BETTERMENT*

OTTO P. GEIER, M.D.
CINCINNATI

About six months ago at a meeting of the National Municipal League at Richmond, Va., I heard an interesting paper on "Economy and Efficiency in Health Administration" by S. M. Gunn, professor of sanitary biology and public health at the Massachusetts Institute of Technology. Professor Gunn rather severely and perhaps justly criticized medical health officers of the present day and then proceeded to prove that trained sanitarians should hold these positions. He said:

Apparent economy may be attained by an untrained man, but in most cases true economy, combined with efficiency, cannot be had unless the health administration is in the hands of an individual thoroughly trained in the sanitary arts. . . . It cannot be expected that any one who has not received special training, or who has had merely the few hours of hygiene allotted to the subject in a medical school curriculum, is the proper person to be put in charge of the public health activities of a community. The first essential for any city which is honestly seeking to maintain a health department of real value is to secure the services of a trained sanitarian. There is no alternative in this matter.

In concluding, Professor Gunn stated that if health departments are to be economical and efficient, we must free them from politics with its accompanying uncertainties and strife.

In the discussion which followed, M. N. Baker, editor of the *Engineering News*, further read the death warrant of the medical health officer when he said:

The question is how and where to get trained men for the work. The training of even the best medical schools is not in the direction of public health work. . . . We are not, how-

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

ever, so badly off as might be thought, because some of our best technical schools, through their courses in sanitary engineering and in sanitary biology and chemistry, are turning out men who are much better qualified to take up the work of the health officer than are those who are the graduates of medical schools . . . Already a number of cities are employing engineers as health officers . . . When doctors are employed, we find either a poor weakling of the medical profession, who has been given his office out of pity or political favor, or else an ambitious young man who is taking up the work while trying to build up a medical reputation.

I have quoted the above arguments at some length because of their authoritative source and because it so aptly illustrates a tendency of the times which is not only to belittle the past attainments of medical men as health officers, but also to discount their ability to handle the problems of to-day and the future. I challenge these statements. These biologists and engineers have apparently forgotten that the tremendous advances in sanitation and hygiene of the past decade have come with physicians generally in charge of all health work; that this progress has been made in spite of the fact that politics has more or less pervaded all health administrations. They themselves assert that even the sanitary engineer can succeed only when the department is freed of politics. Have they not also forgotten, among other things, that it is a physician who has made possible the greatest engineering feat of history, the digging of the Panama Canal, after French engineers had failed because of their lack of knowledge of sanitary laws?

That the municipality to-day needs the services of a sanitary engineer is not to be denied. It also needs food inspectors, chemists, bacteriologists and veterinarians; but to obtain the best results from all these the municipality needs a highly qualified physician in charge, to direct and coordinate their work. The question is not one of the ability of a medical health officer to handle the work, but rather the failure of communities to recognize the importance and the necessity of putting the best available physician at the head of it and giving him sufficient power to follow his ideals. Has not the fact also been overlooked in the discussion of this subject by the biologist and engineer, that it is the medical profession which has created the field of the sanitary engineer?

The sanitary engineer demands good pay, and in criticizing health officers as a class, forgets that thousands of medical health officers have been serving without pay or for some pitiful sum in the great bulk of the lesser communities. Has not this unselfish work been the very inspiration, the energizing force in communities which has finally stirred them to an appreciation of the value of preventive health measures? There is hardly a city of any size in which the physicians have not led some movement for health betterment and by such movements educated the public and eventually forced city officials to improve health administration.

HEALTH PROPAGANDA IN CINCINNATI

Cincinnati can be quoted as perhaps the most notable example of such evolution as regards her health department. All the governmental functions of our city had been in the grip of an almost invincible political organization, the Cox ring, for nearly two decades. So compact was their organization, so complete their control, that it held in terror not only the public service corporations but our so-called "best citizens." This organization, of course, controlled the health department and usually selected a fairly well-known physician as health officer and thus placated the public. The organization con-

trolled all the appointments under him. The medical officer accepted the seemingly inevitable and did the best he could under the circumstances.

Cities are said to gain little from spasmodic reform, but let us see how the medical profession of Cincinnati made use of their one opportunity. In 1905 the Cox ring was defeated and the newly elected mayor selected as health officer Dr. S. E. Allen, a man of no experience in health affairs, a specialist, in fact, but a man above all things honest, fearless and with a broad social outlook. He appointed equally fearless men as his chief meat inspector and chief milk inspector. In attempting to carry on their initial inspections these men met with all sorts of obstacles, to say nothing of attempted bribery. The published annual reports of their predecessors had stated that everything was in fine condition, and yet Cincinnati was experiencing the second highest death-rate from tuberculosis in the country and its infant mortality was frightful. Now Cincinnati began to know the truth about her dairies and slaughter-houses. The findings of the inspectors were amazing and our new health officer began to visit the dairies himself. Federal officers stated that our dairies were indescribably filthy and "the worst in the country."

The practice of feeding wet distillery waste to cows had become universal and had produced a low type of city dairy. The health officer, recognizing that this style of slop feeding was responsible for the low standards of the dairymen, attempted to stop the practice by legislative action of council. The distillers with their tremendous influence and big fortunes, by injunctions and otherwise, temporarily delayed progress and so this efficient health officer sought other means of helping the situation. A medical milk commission was organized in May, 1906, by the county medical society and fortunately so, for it was this body which continued the fight for clean milk when on the following December our courageous health officer lost his position through the return to power of the Cox organization. Now we could hope for nothing locally, and so the next month a bill was introduced in the state legislature forbidding the sale of milk from cows fed on distillery waste. By this time the milk commission had introduced the production and sale of certified milk, and through publicity had gained the public's confidence. For the next three months a terrific battle was waged between the medical milk commission, fortified by the valiant ex-health officer on one side, and the distillers on the other. The distillers' efforts were strengthened by the former milk inspector, who had now regained his position. It was a battle royal, not confined to Cincinnati, but carried to the state capitol. The milk commission desired the endorsements of the several civic organizations and secured them too, but not until the controversy threatened with disruption the most powerful of these organizations, in which the whisky interests represented over one-tenth the membership and perhaps one-half the moneyed interest. Yet, although the directors of this club were threatened with wholesale resignations if they endorsed the pure milk bill, they stood their ground. When the bill finally became a state law, the Cox board of health refused to enforce it. The milk commission now began legal prosecutions under the law and waged such a forceful campaign for a new and non-partisan board of health that the Cox organization realized the futility of further antagonizing public sentiment. In August, 1909, the council organized a board of health along ideal lines, with the terms of the members so overlapping that a definitely constructive and continuous

policy has been possible ever since. We now feel that the great difficulties encountered at the outset have proved our greatest blessing in that every good citizen became acquainted with the real issue during the long-drawn-out fight. A definite public sentiment was crystallized in favor of clean health administration which will resist the attempts of any political organization ever to interfere with our health department affairs.

Our health officer and his force now, for the first time in our history, give full time to the service, and Cincinnati is rapidly reaching a place where its department of health will court comparison with the best in the country. This detailed recital is made to show that a few determined physicians can withstand the strongest political organization even when it is allied with "big business," and thereby accomplish much for the cause of good government as well. When the Cox machine was overwhelmingly beaten in the mayoralty campaign last fall, it was freely stated that the health department fight had contributed not a little to the organization's disruption, in that it had made new lines of cleavage in political ranks heretofore absolutely solid. It was probably more than coincidence that our new mayor, Henry T. Hunt, was the very representative in the state legislature who had brought to a successful issue the fight for the pure milk bill several years before.

Now let me add that it was not a "trained sanitarian" who started the revolution in Cincinnati health affairs, but just a plain medical man with a professional sense of duty, coupled with a broad social point of view. Cincinnati's experience can be duplicated in any other city if the medical men will fearlessly oppose the injection of politics into health affairs.

Another interesting fact in connection with this campaign is that city administrations are now very generous to the health department. In 1911 the health department secured an increased budget of 8.2 per cent. over that of 1910, and in 1912 an increase of 13.2 per cent. over 1914. Let us see whether this struggle was worth while.

INCREASE IN EFFICIENCY OF CINCINNATI HEALTH DEPARTMENT

	1910	1911
Expenditure	\$72,401.51	\$78,902.19
Dairies under inspection	about 350	3,500
Dairies in Class A	1	58%
Average bacteria per c.c.	5,700,000	770,000

Decrease in mortality in infants under 2 years of age from diarrheal diseases in 1911 over 1910, 28.0 per cent. (100 infants).

The first inspection in 1911 of the plants of wholesale milk-dealers showed the following:

Equipment, 12.9	Methods, 18.0	Total score, 31.5
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The last inspection showed:

Equipment, 23.0	Methods, 36.6	Total score, 60.5
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The first inspection of retail milk-dealers in 1911 showed:

Equipment, 17.6	Methods, 26.4	Total score, 44
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The last inspection showed:

Equipment, 29.1	Methods, 38.3	Total score, 67.0
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SUMMARY

	1910	1911
Dairy inspections	1,036	5,863
Milk depot inspections	79	815
Store inspections	244	9,150
Total	1,959	15,838

Increased efficiency of milk inspection 707 per cent. over 1910; increased cost, 7 per cent.

MEAT INSPECTION

	1910, Part Time Force	1911, Full Time Force
Veterinarian in charge	1	1
Butchers	7	0
Veterinarians	0	7
Value condemnations	\$3,248.50	\$9,564.00
Other foods condemned	3,747.20	28,018.55

LABORATORY

	1910	1911
Medical examinations	3,785	4,227
Chemical milk examinations	3,079	8,256
Bacteriologic milk examinations	70	1,487
Cream and ice cream examinations	0	65
Water examinations	27	214
Miscellaneous foods and special analyses	0	108
Total examinations	7,651	14,357

PREPARATION FOR THE OWEN BILL

The active campaign in Cincinnati for a non-partisan board of health drew the attention of the citizens to the value of effective health administration. You may believe that our representatives in Congress will be found supporting the Owen bill. Our congressmen know the public's attitude in Cincinnati and they will show no fear or favor when the bill is at issue. Were such preliminary local effort and accomplishment more general there would not be the situation that now exists in Washington. In their efforts to pass the Owen bill the profession is being forced to overcome the protestations of a horde of moneyed lobbyists, agents of greedy "big business" whose sale of impure foods or drugs may be threatened. They must also overcome the influence of those parasites of the poor unfortunate and sick—the patent medicine fakers. These pirates are viciously but adroitly aligned and befriended with that misleading and misbranded organization, the League for Medical Freedom. When the American people come to recognize the evil of decentralization of health control, when they understand the high purposes of a federal board of health, they will demand that they be protected by such a board. Unfortunately for the movement, the public does not understand how unnecessary was the terrible loss of life and property in San Francisco in 1900 and in New Orleans in 1905. Political control of health administrations, coupled with stupid business, cost thousands of lives and millions of dollars following uncontrolled epidemics of plague and yellow fever. We need the federal board to perfect local health administration; we need it to bring about intercity and interstate cooperation and coordination. If you desire then to engage in a national health propaganda, begin your education in your own home towns.

MEDICAL WORK AND SOCIAL SERVICE

Public health and charity work are closely allied. I believe the statement will go unchallenged that an intelligent physician, by previous training and service, is best qualified to consider social service endeavor from the broadest point of view, yet comparatively few are found in the ranks of the social workers who are to-day attempting to solve the many difficult problems that have arisen in congested cities. As a partial recognition of the foregoing fact, a new committee has been appointed which will make its report at the National Conference of Charities and Corrections in Cleveland in June. This committee reports on "The Relation of Medical and Social Work," and in its seven subcommittees will consider this interrelationship under the following topics: hospital social service; visiting nursing; industrial diseases and accidents; infant mortality; blindness; insanity and epilepsy; tuberculosis, syphilis, hookworm and alcoholism; sex hygiene, including subject of sterilization.

The wide field of social betterment, with its medical, hygienic and economic background, is one that is familiar to the physician and rather difficult of comprehension by the lay social worker; and yet by a strange transposition of interest and affairs the lay mind, instead of the medical mind, is grappling with these problems. The same criticism might be applied to a large part of the social worker's program.

As further evidence of this I submit to you a few excerpts from a recently published statement by Sara E. Parsons of the Massachusetts General Hospital, an expert in the social service field, in which she attempts to outline for college women the necessary preparation for social work.

She first suggests that the college graduate, as a preliminary, become a graduate nurse, or, as an alternative, on the assumption that this graduate from a girls' college has studied anatomy, physiology, hygiene, bacteriology and chemistry, she ventures to outline a program in preparation for social work as follows:

Actual nursing	2 months
Obstetrics, Infant-feeding, etc.	2 months
Child-nursing	2 months
Dispensary work, eye, ear, nose and throat.	2 months
Dispensary work, tuberculosis, home visits.	2 months
Dispensary work, nerve clinic.	2 months
Field work	2 months

This involves a program of eighteen months of study, to which she would add one year in the theory of social service, all of which totals two years and a half of study.

Does not all this suggest that the profession is failing to cover a field of activity which is properly its own? Does it not indicate that the medical colleges should meet this demand of the new social order of things and supply the fraction which is lacking to make of their graduates social workers as well as physicians? Even if comparatively few entered the field, would it not so broaden the social outlook of the graduate as to make of him a better physician? The mere insertion of such a course, premedical or elective, would help materially in supplying the great demand of to-day for competent social service workers. There is even greater demand to-day for competent physicians, with a decent social outlook, to take administrative positions in charitable and social service work—the large offset to the ever-narrowing field of the physician resulting from preventive medicine. A few medical colleges have seen the need for a postgraduate course in preventive medicine, and in the near future we can hope to have a supply of trained men for health department work.

COOPERATIVE MEDICAL TEACHING

The Medical College of the University of Cincinnati has recognized the trend of public affairs and is better preparing its graduates to solve the problems of sanitation and hygiene in their respective communities. This university has established a cooperative course in preventive medicine by placing its students directly in the field of health department activity. In his junior year the student divides his time between active service in the board of health work and the regular work of the medical college. The groups of students are assigned to the health department to do chemical and bacteriologic work, examinations of milk, water, and testing for typhoid, tuberculosis and diphtheria. To this are added food, dairy and bakery inspections as well as school inspections and fumigation. In fact, every activity of the board of health is taken part in.

This cooperative plan of teaching hygiene and sanitation in the University of Cincinnati has proved valuable

to the students as well as to the health department. It has stimulated better work on the part of the inspectors. The student becomes more interested in his work as he realizes the relative importance of facts and conditions observed. Thus the graduates of this college will come to realize the practical importance of municipal health work. They will be more useful advisers to the smaller communities in which they enter practice and will be most helpful in creating a spirit of cooperation between the medical profession and the medical health officer. As a result, greater progress will be made in preventive medicine and public health.

PRODUCT OF PUBLIC INSTITUTIONS

The physician enjoys the most direct approach to the public and it is his duty to crystallize a public sentiment that will be appreciative of the tremendous advantages of hygienic living. It is also his duty to lead the way in insisting that public institutions be conducted in a humane and intelligent manner. In viewing the problems of the city's dependents he readily supplies the scientific background. He should know of the neglect that is usual in the care of indigent adults in almshouses. He should appreciate the menace of the feeble-minded outside the confines of an institution. He recognizes some of the causes, at least, of insanity and could be helpful therefore in its prevention. He should be the court of last resort to determine the admission or non-admission of the sick and afflicted to institutions, and lastly, he should be best qualified to judge wisely the problems involved in child welfare work.

INDUSTRIAL HYGIENE AND THE PHYSICIAN

Leaving the field of public charity and institutional work, there is the almost undiscovered one of improving the industrial life and activities of the wage-earner. It remains for the physician to prove to the capitalist that shop sanitation is a factor in industrial efficiency and that it pays fully as well to conserve the health of the human operator, as it does to reduce the number of lost motions by "scientific management."

The capitalist must be shown (1) that industrial hygiene induces a better personal hygiene, which in turn energizes the employee; (2) that efficiency of mind is affected by home and shop conditions; (3) that its ultimate result will be to keep busy many a machine now idle because of the preventable illness of the employees manning these machines; (4) that a better appreciation of the value of good health for itself will alone raise the standard of efficiency of any workman; (5) that improved personal cleanliness and better health make for a greater self-respect in any individual and tend to improve his family relations; (6) that betterment of civic health makes for happier homes, and healthy and happy homes are fundamental structures on which the commercial advancement of any city must largely be built.

In business life the brains and the energy of the American have astounded the world. The more intelligent captains of industry are now busily at work helping to improve industrial conditions, and are thereby solving some of the social problems. In many factories social service departments are being instituted in charge of physicians. The machine-tool industry in Cincinnati was influential in having the board of education take over the continuation schools previously conducted by them in their plants and permanently incorporate them as a part of the school system. This same group of men also saw the wisdom of cooperating with the dean of the engineering department of the University of

Cincinnati when he proposed to establish the first cooperative course of engineering, in which the student spends one week in the university and the next week in the shops. Besides increasing the efficiency of the graduate, this plan has a social phase in that it enables the student to earn his living while getting his education.

THE MEDICAL MAN IN THE NEW SOCIAL ORDER

The physician to-day does not occupy the exalted position that I would covet for him, partially because of a false sense of professional etiquette which has kept him from taking an active part in political affairs. The physician whom the public has generally seen in public positions is the "political doctor"—a man of no high standards, moral or professional—and this man has substituted in the minds of the people his standards for those more ideal ones of the profession.

The criticism that I direct at the medical profession is born of the hope that the members of the profession may be awakened to a sense of their real power, their great influence, their moral obligation and their greatest opportunity, that of serving all the people. They must align themselves with the modern idea of community life: "the whole for every man, and every man for the whole."

The appeal is likewise born of the belief that this, the noblest profession, in so widening its scope, is serving itself best; in so doing it is coming back into its own heritage, that of enjoying the respect, the admiration and the unbounded confidence of the American people, without which we must fail in accomplishing our highest mission.

This democracy of ours offers to us possibilities for growth and extension of propaganda not enjoyed by the physicians abroad, where the profession and health officials are bound about by tradition, official life and red tape unknown to us. Our opportunities for progress are greater, our responsibilities and obligations are likewise the greater.

The medical profession, scientifically, is rapidly placing itself on a par with the profession of the older countries. We have the knowledge to take up the tasks of preventive medicine and sociology in this country, and the opportunity is ours. If we but supply the necessary interest and energy, public welfare work in its broadest and truest scope will go forward by leaps and bounds. There will grow alongside of it and directly out of it a higher sense of public duty, a more ideal and unselfish citizenship—a citizenship that will more fully realize its deep obligation to the medical profession; and in this mutuality of confidence and regard, the medical profession will take a new and higher place in the community and will receive rewards not yet dreamed of.

Physician, "know thyself"—know thy strength, thy power, thy scope; physician, "heal thyself" of a contracted vision as to thy field of usefulness. From the ranks of thy profession must be developed the true "social engineer" to lead in the present world movement for social improvement. This social engineer will find his life—the extension of the humanities; his hope—the prevention of life waste; his work—service to mankind.

1609 East McMillan Street.

ABSTRACT OF DISCUSSION

DR. C. HAMPSON JONES, Baltimore: I have voiced these views for some time, in a very limited sphere. In our annual report, I have insisted that the commissioners of health must largely become sociologists. That is particularly

true in obtaining death-rates and the cause of death-rates, obtaining the birth-rates and the cause of the low birth-rates, the study of infant mortality, and so on, by taking special census of the cities into which you go; but you can inject the social workers directly connected with the health department, or members of independent organizations that can and will work in harmony with the health department.

DR. M. P. RAVENEL, Madison, Wis.: I would be the last man to belittle the service of trained sanitary engineers. When they take the stand, however, that they are the only people who know how to run departments of health, they are like a man looking through a microscope, seeing one small field very much enlarged and losing sight of the rest of the specimen. There have been a few sanitary engineers who have made good health officers. I believe that without exception they have been in small cities. The splendid conduct of health matters we find in the state of Indiana is all due to a physician; the cities of Chicago, Detroit and Philadelphia were brought to the highest efficiency in health matters by physicians. I cannot think of any city or state in this country which has made any great advance that has not been under a physician as health officer. When you come down to the bottom, medicine is the foundation of all biologic and social training. What Dr. Geier says is exactly right, namely, the medical schools must keep up with the times; they must branch out a little. Everybody should read the brochure of Dr. Norman E. Dittman entitled "Education and Preventive Medicine," noticing especially the outline at the end of the book which he has given for a course in preventive medicine. At the University of Wisconsin, for several years past, Professor Ross has been advising his students to take medical bacteriology, in which course they get a good training in contagious and infectious diseases. Every social worker should have training in this sort of medicine.

While it is true that not many places are open at the present time for graduates in preventive medicine, they are increasing at a tremendous rate. We expect to graduate our first student with the degree of Doctor of Public Health this month, and already a place is waiting for him. We must educate the people to the necessity and value of preventive medicine, proving to them that it is the cheapest and best life insurance in which they can invest. As soon as business men realize this fact we will find all cities employing thoroughly trained health officers.

DR. J. N. HURRY, Indianapolis: Only the other day I happened on one of the works of Descartes. You know that Descartes was probably the most original mind of this later age; and certainly, he, more than any other thinker, has influenced modern speculative and experimental thought. He said that if ever the human race (he was not a physician) is to be raised to the highest practicable level, morally, mentally and physically, medicine would point the way. This, which was said over two hundred and fifty years ago, struck me as a very forcible and wonderful utterance. It is through hygiene that the human race is to be raised; it is hygiene that will finally purge the human race, as far as is practicable, of the terrible social diseases and of all of the other diseases which drag us down and which cost us so terribly. It seems to me there is no question about it.

Instead of believing that there is an oversupply of doctors of public health, I have decidedly the opposite opinion. We want this minute ninety-two doctors of public health in Indiana, for commissioners of public health in each of our counties. There is indeed a good market for them. At the University of Michigan, not long ago, I studied the requirements for the degree of Doctor of Public Health; I think that they are too high at the present time. They are ideal. We should aim at the ideal, but we cannot reach it all at once. I do not believe the universities will turn out enough doctors of public health to supply the Indiana demand for a long time, and I hope that the standard will not be placed so high that we may get a larger supply within a reasonable time. We cannot reach the ideal at one step.

DR. OTTO P. GEIER, Cincinnati: I hardly can emphasize any more definitely than I have the points at issue. The physician is forever turning aside the opportunities that are

presenting themselves to him in the social service field. We might well consider the economic phase of this question from the medical standpoint. We are reducing incomes in the profession 30 to 40 per cent. by medical preventive work, and we should plan to take care of the physician who has cooperated in reducing his work and thereby his income.

A METHOD OF SELECTION OF DONOR FOR BLOOD TRANSFUSION *

MORRIS FISHBEN, M.D.

CHICAGO

The possibility of iso-agglutination makes the choice of a donor for blood transfusion an important matter. It has been shown that individuals fall into definite groups as regards this phenomenon, and only a person belonging to the same group as the patient who is to be transfused should be selected as donor. It is obvious that it is unsafe to transfuse with the blood of a donor whose serum will agglutinate the patient's corpuscles, or whose corpuscles are agglutinated by the patient's serum, and still more so when both these reactions occur. Cases with seemingly unfavorable results under these conditions have been reported by Schultz,¹ Ottenberg² and Hopkins.³

The following method may be used for carrying out such tests: So far as the blood of the donors to be tested is concerned, sufficient blood may be obtained from the ear; but in the case of the patient it would be better to draw the blood from the median basilic vein of the arm in the usual way because more serum is required. Three drops of the blood are added to 10 c.c. of a 1 per cent. solution of sodium citrate in physiologic salt solution. In this manner approximately a 2 per cent. suspension of the blood is prepared, the citrate preventing coagulation. The remaining blood is poured into a centrifuge tube and allowed to clot. With a clean needle the clot is loosened from the side of the tube and the tube centrifuged for a few minutes to obtain an upper layer of absolutely clear serum. This completes the preparation of material, with the exception of the plate which is now to be described and which has been found to be very serviceable. On an ordinary piece of window glass, approximately 2 by 4 inches in size, which has been washed absolutely clean with water and ether, ten small circles are made with melted paraffin, assuming that a choice is to be made among five donors. If the melted paraffin is drawn up into a medicine-dropper, the circles are quickly made with the tip while gentle pressure is exerted on the bulb. Ten circles may be made with one medicine-dropper full of melted paraffin. In this manner ten paraffin cups are made, each of which will hold at least 4 drops. The circles are made in two rows of five each. In each cup in the first row is placed 1 drop of the suspension of the patient's blood, and in each cup in the second row are placed 2 drops of the patient's serum. To Cup 1 in the first row are added 2 drops of serum of Donor 1, to Cup 2, 2 drops of serum of Donor 2, etc. To Cup 1 in the second row is added 1 drop of the blood of Donor 1, and to Cup 2, 1 drop of the blood of Donor 2, etc. There are therefore required in

such a set 5 drops of patient's blood suspension, and 10 drops of patient's serum, and 1 drop of each donor's blood suspension and 2 drops of serum. With a narrow glass rod the fluids are mixed thoroughly, the rod being washed in citrate solution and wiped after each mixing. In practically all instances, iso-agglutination when present becomes visible macroscopically after half an hour at room temperature; the mixture can be inspected easily under the microscope also. It is obvious that in testing for iso-agglutination in larger groups, as in twenty, the greatest advantage is to be derived from this method. It has seemed so simple and easy of performance in comparison with other methods that it was thought best to make a brief report of it.

THE PALLIATIVE TREATMENT OF TERMINAL LARYNGEAL TUBERCULOSIS *

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The palliative treatment of terminal laryngeal tuberculosis is a thankful one. In private practice, much can be done by daily treatments to relieve the severity of the patient's sufferings, but in institutional work the problem is entirely different. In public hospitals, as a rule, it is unusual to have a trained laryngologist constantly in attendance. Therefore the questions arise what practical methods should be adopted for giving permanent relief from the laryngeal pain, and whether such methods could be put into the hands of the resident physician. Whether this problem has been solved can be determined by a study of the results obtained in the following series of cases.

The condition of these patients is such as to awaken our deepest sympathy. Doomed in a few months to die, with absolutely no hope of escape, their last moments are made miserable by continuous pains in the larynx, which are present not only during the ingestion of food, but even when the larynx is in a condition of rest. The taking of solid food is an impossibility; and even the swallowing of water or milk produces such an agony of suffering that slow starvation is generally preferable.

Local applications of cocaine, frequent insufflations of propaesin, anesthesin or orthoform, local cauterization with lactic acid, can all be used with marked benefit to the patient. As a usual thing, however, these measures give only temporary relief and in addition consume so much time as to make them impossible to be thoroughly carried out in a hospital of several hundred beds.

In the cases which are not too far advanced, the patient can be instructed in methods of auto-insufflation, but in the bed-ridden patients, in whom the suffering is the most intense, local methods have been found to be of very little benefit.

It occurred to Rudolf Hoffman, of Munich, that some form of permanent anesthesia of the interior of the larynx would prove an unbelievable blessing to this class of poor unfortunates. The brilliant results in superficial neuralgias, which followed Professor Schlösser's original communication on the use of alcohol injections in these conditions, gave him the clue, and he saw that by injecting the superior laryngeal nerve such an anesthesia might be brought about. Already Braun and Frey, by means of cocaine injections in the region of

* From the Memorial Institute for Infectious Diseases.
1. Schultz: Ueber Bluttransfusion beim Menschen unter Berücksichtigung biologischer Vorprüfung, Berl. klin. Wchnschr., 1910, xlvii, 1407.
2. Ottenberg: Transfusion and the Question of Intravascular Agglutination, Jour. Exper. Med., 1911, xlii, 425.
3. Hopkins, J. Gardner: Phagocytosis of Red Blood-Cells After Transfusion, Arch. Int. Med., September, 1910, p. 270.

* Read before the San Francisco Polyclinic Society, June 5, 1912.