

The need for increased endowments for medical instruction : an address / delivered by W.W. Keen.

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Keen, William W. 1837-1932.
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Publication/Creation

[Philadelphia?] : [publisher not identified], [1904]

Persistent URL

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THE NEED FOR INCREASED
ENDOWMENTS FOR
MEDICAL INSTRUCTION.

AN ADDRESS DELIVERED BY

DR. W. W. KEEN,

PROFESSOR OF THE PRINCIPLES OF SURGERY AND OF CLINICAL
SURGERY,

JEFFERSON MEDICAL COLLEGE, PHILADELPHIA,

AT THE COMPLIMENTARY DINNER

TENDERED TO

DR. D. B. ST. JOHN ROOSA.

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Address by Dr. W. W. Keen, on *The Need for Increased Endowments for Medical Instruction*, at the Complimentary Dinner tendered to Dr. D. B. St. John Roosa, on March 1st, 1904, to celebrate the completion of twenty-one years of Post-Graduate Instruction in the City of New York.

To urge "The Need for Increased Endowment for Medical Instruction" is entirely superfluous before this audience. It consists of a large number of doctors who know only too well the need for endowment for their own and for every other medical school in this country. I can only repeat, therefore, in part what I have said elsewhere*, adding somewhat to it, perhaps, in the hope that you will repeat it to others, your patients and friends, whom you may persuade to give liberally. It is for the purpose, therefore, of concentrating your thoughts for a few moments upon the question of the urgent need of such endowments that I ask you to listen to me.

I shall base the need of endowment of medical schools by the general public upon three grounds.

FIRST.—*The costliness of modern medical instruction.*—If you look at any large medical school of the present day you will find a very different state of affairs from what we had when I began the study of medicine. Then we had two lecture-rooms between which we swung like a pendulum, seven men who talked to us in one great mass for an hour at a time for two years on precisely same subjects, and that was all. To-day you need a large medical building, you need a large hospital, you need a dozen laboratories each with a costly equipment and with a large number of assistants. You need, as President Eliot has so well pointed out, *individual instruction*; not simply lectures to a large class without illustrations and without laboratory work; but small classes of ten, fifteen, or at the most, of twenty, and individual instruction in the laboratory for every man. When I began the study of medicine in 1860 at the Jefferson Medical College there was no hospital, and from the faculty down to the janitor the number of those who took part in instruction numbered less than a score. To-day in the Jefferson College and Hospital, and its dozen laboratories, we have over *eleven score* of instructors, an increase of over 1100 per cent, observe! And these men must be paid, and the men in the theoretical branches, who have not the means of making a large income by practice, must be paid large salaries so that they will be able to give their whole time to the medical school. Yet the fees paid by the students have been less than doubled, that is, *increased less than 100 per cent. against an increase of 1100 per cent. in the teaching force!*

* Presidential address before the American Medical Association. Journal of the American Medical Association, June 19, 1900.

The medical fees are practically as large as we can make them. The expense, therefore, of modern medical education must be borne largely by endowment. Just exactly as in the academic department of our universities we need great endowments to eke out the insufficient incomes derived from the fees of students, so in our medical schools we need large endowments for the same purpose. Compare, for instance, the theological schools of this country with about 8,000 students, in which the average endowment for each student is \$2,250, with the medical schools attended by 24,000 medical students, with costly laboratories, hospitals and appliances that theology does not require, and a paltry endowment of \$83 per student.

The SECOND reason for generous medical endowments from the public is *the commercial value of the medical profession to the public*. I am not speaking now of the value of health to everybody, or of our cherished desire for the health of those who are dear to us at home. I am not speaking of the kind father that may be lost to a young dependent family, of the loving mother that cares for them, of the dear child whose place can never be filled in our hearts or homes—I am speaking, mind you, of the mere sordid commercial value of the profession to the community, that is, its value to the community in hard cash—dollars and cents. Let me refer to this somewhat in detail.

It is only a few years since quarantine was one of the most horrible things we could imagine. To-day, practically, quarantine has been almost abolished by reason of the researches and work of the medical profession. We no longer fear cholera, the plague, or yellow fever, or even typhoid fever, as we once did, because we have exterminated the rat, we can quarantine or kill the mosquito, we have corralled the fly, and we are filtering and boiling our drinking water. All these things have been shown to be needful and efficient as the chief means for the prevention of disease by the most patient, scientific, laboratory work.

But a few years ago a single case of cholera or yellow fever down yonder Bay would have meant the loss of millions of dollars to your merchants; but to-day, as has been shown in your hospitals, cases of cholera, or yellow fever, or even of plague, that might and do occur, scarcely create a ripple of excitement because the community knows that your able medical men have these diseases by the throat. Dr. Reed and his fellow-workers in Cuba have accomplished an epoch-making work. For the first time in *one hundred and seventy years* Cuba has been *made* free and *kept* free from yellow fever, and the merchants of New Orleans, of Mobile, of Norfolk, and of New York are reaping the benefit of this unselfish labor in hard dollars on the credit side of their accounts. (Applause.)

The horrible character of the plague we scarcely appreciate. In the fourteenth century twenty-five millions of human beings lost their lives in Europe alone, and even to-day among the ignorant people of India over two hundred thousand human beings a year are offered upon the altar of the plague. But we are beginning to see a brighter time. Haffkine's inoculations have diminished the susceptibility of the people by seventy-five per cent. and have diminished the mortality in equal proportions; and I believe that the time is coming when the plague, like yellow-fever and small-pox, will be practically wiped out.

Again, we do not appreciate what smallpox was in the past. In the eighteenth century sixty millions of people died from smallpox in Europe alone, and in addition to that almost all the living were left with the ravages of the disease marked upon their persons. It was as uncommon in the streets of London before that memorable day when Jenner inoculated young Phipps—it was as uncommon to see a person *not* pock-marked, as it is to-day to walk down Broadway and see one who *is* pock-marked. In Russia alone, in the year of Jenner's splendid accomplishment (1796), two millions of people died from smallpox.

I said a moment ago that I would consider only the sordid commercial value of the labors of the profession to the public. Consider, therefore, what all these millions of saved lives mean in revenue to the State, in revenue to the family, in the prevention of pauperism, in the comfort of human beings: then we begin to appreciate in some degree the value of the services practically of one man, the most magnificent benefactor of the human race that ever lived, Edward Jenner.

In 1890 there were 156,638 unnecessary deaths in our large cities because of defective sanitation. For the ten years from 1886 to 1895, the average death rate in New York was 25.18. The sanitary reform which followed that year saved in 1895, 3,758 lives; in 1896, 7,736; and in 1897, 9,920—a total of 21,414 in three years. As there are an average of twenty-eight cases of sickness for every death, sanitary reform in these three years prevented about 600,000 cases of sickness. And who were the chief of the reformers? You physicians. The millions, nay hundreds of millions, thus saved in the last fifty years in this city alone would enrich even the most avaricious of nations.

I need not tell an audience of doctors what has been done in diphtheria, but I may well refer to its results so that you may in turn remind others. It has been done in our day; and it has been done not as a result simply of constant and fruitless trials of various supposed means of cure; it is not simply the work of a shrewd doctor carefully observing symptoms and noting the effect of remedies: but it has been done by exact laboratory work by quiet men who have been working far away from the sick room with not a single human patient under their care, men who are not practitioners of medicine, but pathologists and bacteriologists, experimenting on rabbits, guinea-pigs and mice instead of on men and women, and especially dear little children; and thus working unobserved, unheralded, unseen, they have given to the human race a boon second almost to that of Jenner.

As was shown by the report of the Pediatric Society not long ago, the mortality of diphtheria has fallen from forty per cent. to eight and eight-tenths per cent. In the laryngeal cases, before the introduction of the serum treatment, the mortality was seventy-three per cent. and the recoveries twenty-seven per cent. Since that time, precisely the reverse has been the case; the mortality is now twenty-seven per cent. and the recovery rate seventy-three per cent!

And yet there are actually people who reject vaccination and try to prove that the serum treatment of diphtheria is of no use!

In the little town of Plymouth, Pennsylvania, a town of 8,000 people, a few years ago on its outskirts occurred one case of typhoid fever, in win-

ter, with snow on the ground. All the dejecta of that patient were thrown out upon the snow. When the warm springtime came and the rain fell, it washed the poison from this patient into the reservoir that supplied the town of Plymouth with water. As a result, 1,200 cases of typhoid developed—nearly one-sixth of the entire population—and the town was almost desolated. We have had a somewhat similar experience in another Pennsylvania town, at Butler, when the water supply was contaminated; and you have seen in this State some of the flower of your young men cut off at Ithaca for the same reason. And all of this was preventable!

When the medical profession has shown you what can be done in the way of preventing typhoid fever, I ask you whether it is not of enormous commercial value to the public, to say not one word of its philanthropic value, in the saving of so many valuable lives?

In 1892, an epidemic of cholera broke out in the town of Hamburg; 18,000 people were smitten down with the disease and 7,614 died. Lower down on the river Elbe, where the sewage of Hamburg was added to the other impurities of the river, in Altona, a town contiguous with Hamburg, there were but 516 cases. Why? Because Altona had a thoroughly efficient filtration plant and Hamburg had not; yet the researches of the medical profession had shown that proper filtration of the water supply filtered out all the germs of cholera. Which would have been the cheapest plan—to spend a few millions of dollars on a good filtration plant, or to smite its commerce with a blight for months, at a cost many-fold that of the filtration plant? You note that I say nothing of human lives and human woes. The grim satire is completed when I add that in addition to the immense cost to its commerce Hamburg had to build the filtration plant after all. I need not refer to any other than this one instance of a single disease to establish the value of the work done by the researches of the medical profession chiefly. The engineer, the architect, other professions, the public-spirited citizens who are in control of municipal affairs, deserve large credit, all of them; but, after all, you gentlemen and your confrères in the medical profession are the backbone of this humanitarian progress.

Malaria was formerly thought to be the result of the decomposition of vegetable matter, and that it originated in low-lying swampy land. In Italy alone to-day more than half a million acres of land are entirely waste and desolate because of this dread disabling disease. On the Adriatic Railway it cost the company one million francs per annum to take care of their sick, due to malaria; but now, thanks to the investigations of medical men, we know perfectly well that if you shut out the mosquito you shut out malaria as well as yellow fever. The warning will be heeded by this country when we dig the Panama Canal. Then you will see a splendid object lesson in sanitation, I have no doubt, which will carry conviction to us all of the money value of medical research in the saving to the country, to you and to me, of millions of dollars and of thousands of lives.

Of tuberculosis I need scarcely speak, for we all, alas, know its ravages in our homes and hearts. We are on the verge of an equally beneficent improvement in its treatment. In Germany the cure of even ten per cent. of its victims, it is estimated, on a moderate money value of the daily labor of those who recover, will add two millions of dollars annually to the resources of the State. Are not such money results a generous percentage

of income from a moderate endowment? And human lives and human happiness cannot be reckoned in dollars and cents.

In military hygiene and sanitation the money return is equally promising. In the British fleet in the West Indies in 1726—I am stealing from a recent address of one of your New York doctors, you see—out of a force of 4,750, 4,000 died as the result of bad sanitation. On the West African coast the mortality was sixty-nine per cent. During our own Civil War twenty per cent. of the armies were sick. But in spite of all the outcry that there was—partly just and partly unjust—during the Spanish-American War, the sick percentage was three and a half instead of twenty per cent. and the mortality was two and a half per cent. Even in distant—and as I suppose some would call it—barbarous Manila the mortality was but eight-tenths of one per cent. But you may say these were soldiers and sailors wasting the country's substance and not adding to it; to which I reply that for every soldier or sailor who died an artisan or a farmer had to be taken from productive labor to fill his place; every soldier or sailor saved meant that another productive unit was saved to his family and to the State, and a family which threatened to become a charge upon the community was saved from expensive pauperism.

In fact, at the present day we have changed the aspect with which we look at medicine. Doctors thus far have been, and always will be to some extent, for the care of the sick; but to-day the medical profession is for the *care of the well*—to *prevent* sickness instead of curing it (applause). I glory in it that ours is the only profession on the face of God's earth, I believe, that is trying to destroy itself.

As I am a surgeon, I have purposely preferred to take my examples from medicine, hygiene and sanitation, rather than from surgery. But I cannot refrain in passing from calling to your minds a few of its triumphs. The dreamless sleep of ether cannot be estimated in current coin of the realm, but what would you offer for its blessed relief were it just beyond your reach? But antiseptic surgery has a definite money value, when the mortality of compound fractures—one of the most frequent accidents, especially among our laboring population—which formerly swept into the grave sixty out of every one hundred of its victims and so often left their families destitute, is now shown to be less than five per cent.; when legs and arms formerly cut off to save life are now saved and their owners restored to the ranks of the breadwinners; when rupture which killed so many and disabled so many more is now cured with almost no mortality; when diseased conditions wholly beyond the skill of our fathers are now remedied and their victims returned to active life; when it is estimated that one million years are added every three years to the life of women in this country alone by a single operation—ovariotomy. Translate these facts into figures and tell me then the money value of surgery alone to the American people. One Jenner, one Koch, one Lister, is worth a fabulous sum to the world.*

* As though to reinforce what I have above stated, the newspapers on April 11th called attention to the fact that Dr. Daniel Lewis, the Health Commissioner of the State of New York, in his Annual Report to the Governor, said:

"If the monetary value of a human life is assumed to be \$5,000, the deaths from only five of the preventable diseases during 1903 in this State represents a loss of \$94,960,000. These figures seem appalling, and yet millions upon millions can properly be added to this sum, in loss of wages, expense of the care of the sick and many other expenses incidental to the management of these epidemic and infectious diseases."

I should also refer to the commercial value of all the medical work done in animal diseases, such as trichina, which touches man as well as animals, hog cholera, chicken cholera, rinderpest, and all the other local diseases that affect our cattle. Our failure to control and eradicate hoof and mouth disease in cattle cost a single steamship line lately, in its trade to Great Britain alone, 5,000 dollars a day profit—and they say “money talks.” The researches and improvements introduced by our profession have reduced the losses to the community by millions of dollars every year, because of the prevention of those diseases. But when a man does not lose his cattle, when the loss is only prevented, he is apt scarcely to appreciate what has been done for him negatively.

I think one of the most remarkable things we have observed in our day has been that experimental railway near Berlin, where on an electrical trolley line they have driven the cars up to a speed of 130 miles an hour. Dr. Pritchett has given a most interesting account of it in a recent article in *McClure's Magazine*. It seems that the idea began in a *Studenten-Gesellschaft*, a company of *students* who proposed to study minutely and exactly all the obstacles in the way of rapid transit and the means by which each in turn could be overcome. That they have solved the problem where all the rest of the world have failed, we know to-day, and Dr. Pritchett well says in that article: “*The research habit once considered so far removed from utilitarian ends, is to-day the greatest financial asset of Germany.*”

Go around the world and you meet in Japan, in China, in India, in Egypt, everywhere, the familiar label, “Made in Germany.” Why should it not hereafter be “Made in America?” When we have acquired the “research habit” and made it our best and most valuable “asset,” I believe that that label will surely supplant the other one. This “research habit” in medicine is of as distinct value as a financial “asset” as it is in engineering or in commerce.

The THIRD reason that I suggest for increased endowment in medical schools is the *genuine and lasting pleasure that it gives to the donors*. I alluded but a moment ago to the enormous number of human lives saved to the community by ovariectomy alone. Let me ask, can there be a greater pleasure to any of your rich patients than to know that he, or still better she, has had the comfort and the pleasure of taking a large part in such a wonderful achievement, a large part in such a superb gift to humanity, a gift far better than any warrior ever gave? Could there be a greater comfort while a man lives, or when he enters the valley of the shadow of death, than to know that his gift to a medical school has done and will always do such untold good?

Most of us work both in hospitals and in colleges. As I look over my own work in the Jefferson Hospital and the Jefferson Medical College, I see in the hospital scores of patients, even hundreds of them every year, who go out happy and in comfort, contented and restored to their families and to wage-earning power, and it is no end of pleasure to me, as it is to you, my colleagues, to remember such cases. But when I look over the faces of the hundreds of young men that I have had the pleasure of teaching, when I remember that I can instill into them high ideals, when I can bring to the birth in their lives this “research habit” and the desire to learn, and

think that they will go all over the world and cure hundreds more than I can—thousands more than I can—which work is the greater? The curing of my scores of patients, or the teaching of hundreds of young men to go out to cure their scores of thousands and to bring the blessings of many an exultant wife and many a poor widow upon their heads for the work that they have learned to do through you and through me? (Applause.)

The joy of the teacher, gentlemen, as you know so well, is a joy that is never ending. It is one of those delights that come to us new every morning and fresh every evening, and yields a sense of satisfaction beyond anything else in this world. And if the rich men of this country will only endow our medical schools and so teach through us all of these hundreds of young men that go the world over as heralds of cheer and apostles of health, surely they will enjoy the greatest satisfaction that can be given to any man.

And when we lay us down for the last time upon our pillow, we can all thank God that we have been able to contribute, some by our own work, others by their own means, to this magnificent gift to humanity. (Loud applause.)



