to devote your lives to their unraveling, but I realize that most of you are correctly destined to the more immediate task of protection and life-saving of the human individual or group. Your rewards in this case are more certain and immediate. I do not refer here to the financial rewards, which beyond a certain irreducible minimum are the least important elements of life, but to the rewards of grateful human response, of satisfaction from a life of unselfish and useful service.

In view of the manifest and worthy destiny of most of you there are many who in the next year and a half will question the wisdom of the course that is prepared for you. You will at times grow impatient at being held back from access to patients, which contact is certainly the lure that has brought you this far. You will wonder at the insistence on matters that, although in themselves of scientific interest to the specialist, have no obvious connection with the understanding and care of the sick human being. Why should you not immediately be ushered into the operating room and absorb gradually the modicum of science that is recognized as of purely practical value in your ultimate activity? You need have no hesitancy in asking yourselves or us this question, for it is one of the perennial ones in medical education and has recently been raised again with vehemence by certain clinical teachers. The answer, however, seems clear to most of us.

There are no doubts in the mind of any serious educator that, in preparation for the study of medicine, you should be required to know certain of the general principles of physics, chemistry and biology. You will recall that you learned chemistry, for example, as a self-sufficient science and not simply those parts of it that have to do with the compounding of drugs. In the same way the medical sciences should, and will be presented to you, as sciences complete and compelling enough so that those of us who present them to you are contented to devote ourselves wholeheartedly to their furtherance. There are none of us blind to the applicability of many of the phenomena which we demonstrate to you in the laboratory, in the elucidation, prevention and cure of disease, and we are proud so to designate them. But you will be struck to learn how many of these phenomena seemed at their discovery of purely theoretical interest. It is true that some of our most striking experimental results have so far remained merely curious scientific facts, but any one of you by examining one of these curious facts from a new angle of vision may turn it into a direct contribution to human welfare. In such a state of affairs who of us would venture to tell you what part of our science is purely useful and all that you need know to outfit you as useful practitioners of medicine?

Again it is not the facts and theories, with which you will be inundated from this day forth, that are primarily useful. The one thing we should like most to inculcate is a point of view: to teach the method of reasoning, first from cause to effect so that later, when you are called to deal with a sorry result, you can apply the reverse process and find and remove the cause.

We should like to teach you something of the processes of reasoning by which the great scientific discoveries have been made, to surround you with an atmosphere in which at least some, it may be faltering, progress of a similar sort is going on.

The word "research" is such an overworked one, used, as some one has recently expressed it, "by many professors for the purpose of reducing university authorities to submission," that one hesitates to use it. But research is simply experience, experiment and fact in the process of formulation. All that text-books hold and all that teachers talk about is somebody's researches in the past. But the research we shall talk to you about as you go on is the past experience lived over or amplified in work of the individual who brings it to you in a fresh and vital form. It is now an accepted truism that no one can teach inspiringly without himself having participated first hand in the evidence which he transmits. And I believe it is almost equally true that no one can investigate to the best advantage without reporting his results to others at intervals; in other words, without teaching.

We hope you will leave us with a better standard of measuring the value of the medical discoveries that are destined to come in your lifetime, with an understanding of how to apply them, and best of all with an ambition to have in some way your part in them.

FREDERICK P. GAY

COLLEGE OF PHYSICIANS
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COLUMBIA UNIVERSITY

THE VIRTUE OF MEDICINE AS A PROFESSION[1]

IF I could have my wish, the welcome which I this day accord to you as you enter the study of your life work in medicine would remain in your memories as the morning star of your lives. I should fill your hearts with an enthusiasm that time itself could not efface, and to the end of your days you would remember with a thrill of delight the moment when you first fully realized the glory that awaits you, the joys that

[1] The opening address before the entering class of Cornell University Medical College, September, 1926.

should be yours in penetrating the mystery of health and disease, the glow of pride which will be honestly won by your service in behalf of suffering humanity. If my performance live not up to my aspiration, if my tongue fail to echo the thrill which I receive as I face your innocent pride of ambition, your young idealism to spend your lives as the "servants of the servants of God," grant me at least this, that I sense in you what is best in your human nature and that I foresee for you as the result of your choice of medicine as a career all that is most beautiful in human happiness. I can wish you no greater blessing than that which your profession will bestow upon you in the measure of your capacity, your industry and your ideals.

At this rosy moment of your professional dawn, relax and yawn cosily and wisely ere you face the work of the day. Breathe a prayer of praise and hope, those of you who are wise enough still to pray; the others gird up your loins for what will be a struggle to test your metal. For as you leave this hall you will plunge into a course of training such as not the sturdiest football hero among you has yet encountered. With small experience and few guides you will have to conquer in a few months the vocabulary, the methods and the facts of anatomy, and after that—but you do not need to be told the struggles through which you will have to win in order to merit the benediction I have wished upon you. No words can enforce that lesson. Rather I conceive it my duty to enlighten you upon what it is that Cornell University Medical College expects of you, her children, and what you may expect of her, your Alma Mater.

To-day opens your truly university career. As undergraduates you have hitherto been college and not university men. Although the college of to-day is liberal almost to excess in the choice of elective courses, liberal almost to laxity in its supervision of the morals and the manners of its students, liberal almost to delirium in the time and attention directed to extra-curricular activities, yet there remains as flavor of other days a theory of tutelage which you will not find here. Your college at least pretends to guide and assist you as much as possible in your pursuit of knowledge. Your university makes no such pretense. It accepts you as freemen, avidous for an education. It pampers you with no athletics. It concerns itself as little as possible with your personality. It demands of you a concentration and industry of which you have not hitherto dreamed and of which I fancy you would not hitherto have thought yourselves capable. If you are not prepared at once—to-day—to give yourselves unreservedly to your study of medicine, the university has no place for you and begs you to make way for some more deserving fellow. Farewell the bleachers! Farewell the twenty-five-hour week! Enter the midnight oil! Welcome the fifty-hour week!

Yet look over the curriculum and you will find a sufficient number of temptingly vacant half-days and scattered hours to encourage the hope that all is not so black as my blessing paints it. Be not deceived. These hours are given that in them you may digest your knowledge and by concentration upon the matter of your current study, by discussion, by reading, advance deeper—nay—advance the deepest you can in the knowledge of your science. Each one of you is regarded as an inspired seeker: act as such or depart!

A bit quixotic that sounds, does it not? It is worse than that. It means a complete conversion of ideal for many of you; a sloughing of the ideals of childhood in favor of those of maturity. Your major interests of the past I assume have been those of youth. Your dream has been a peaceful hour on the dreadful sea or the keen battle of some sport or a lyric to your lady's eyebrow. To such as these you have given your best endeavor, and during a certain time, at least, no toil has seemed too arduous, no abnegation too great a sacrifice to these, your gods. That now must change, though not in its essential character; only in its direction. Essentially you have felt in the vast of nature or in the lust of battle or in the spirit behind the eyebrow a something beyond your capture. Whether in love, in contest or even in vice, what you have pursued, perhaps quite unconsciously, is not a given beauty, a given victory, a given height, or even a given depth of degradation. Not at all! You have been all the while seeking the beauty of beauty itself, the glory of perfect victory, the height of heights, or the abyss of a truly bottomless pit.

This searching after the infinite it is, and this chivalresque tilting after the windmills of fancy, that you must concentrate upon the problems of medicine, if you wish to solve them. If this is too much to ask of you, go away. But if it is not, if perchance you feel in heart as well as in mind a faint stirring of nascent desire, a longing to lay hands on the mystery of life and death, a curiosity as to this queer rattling frame of ours, its defects and its disasters, then indeed welcome to you, ladies and gentlemen; push at the door of the temple, push hard and it will open to you its halls of curious delights. Through it you may press on a lifetime. You will not exhaust its treasures. Nay, in material things you will, most of you and the best of you as often as not, get little further than the grub-staked placer miner whose home is scarce a shelter, whose days are in the desert, whose fortune is at best a few nuggets. But each dawn shall find your eyes gazing at the distant mountains, your hearts filled with the faith that to-day is the day!

And what will Cornell figure in all this. After four years of study in her halls you will bear her imprint, be sure of that. What will that imprint be? Your minds will be filled with a new knowledge, a knowledge of the physics and chemistry of disease, a knowledge of its signs and symptoms, a knowledge of its prevention, its control, its treatment. But this you might expect to obtain at any medical college. Your curiosity will be whetted. What is now but a vague formless curiosity as to the workings of life in the human organism will have become a precise curiosity as to those portions of your studies that have taken strongest hold on your imagination. And one of the great glories of our science of medicine is that your curiosity will never be satisfied. However deeply you delve, however much you and your contemporaries invent, you need never fear that you will solve the ultimate mysteries. Your science will ever keep a long stride ahead of your capacity. Though what will be called modern medicine at the end of your lives will be a very different, a very inspiringly different thing from what we call modern medicine to-day, this in turn will pale before the medicine of the morrow which you shall not live to see.

But such beginnings any medical college might provide you. The imprint of Cornell will consist in the inspiration which you shall derive from the individual instructors under whom you will sit. Anatomy and physiology and pathology and the rest you will not get from your text-books, however furiously you grub in them. Your anatomy will be Stockard's anatomy, your physiology will be Lusk's, your chemistry Benedict's, your pathology Ewing's. I need not urge you to criticize your professors. Your native impudence will take care of that. But I beg you to strain a bit and admire your professors. You will find in them readily enough what you would not like to be. Search among them for what you would like to be, and above all have the good sense to hit upon the ones your several capacities may permit you to hope to initiate, for after some one or more of them your professional careers will inevitably be modelled.

I believe you have been justified in selecting Cornell for your medical education, and to prove me right you will have to illustrate in your own future careers some of the industry and enthusiasm you will find here illustrated. Such is the stamp we hope to impress upon you.

But I have ventured to entitle my remarks "The Virtue of Medicine as a Profession." To wish you a future merely as "rah-rah" Cornell boys is furthest from my intention. We, your professors, have to work with certain materials and these materials are two, *viz.*, your profession and yourselves. What, then, are the types of the medical profession. They are threefold, *viz.*, the science of medicine, the business of medicine and the art of healing.

The science of medicine I personally can but bow before. I have it not. I am nothing more than a clinician. A generation ago Johns Hopkins Medical School was founded and within its walls a serious concerted effort was for the first time in the United States made to establish the teaching of medicine upon a serious scientific foundation. I had no share of this. You will have much training in scientific method of which we had none. I never studied biology or embryology. I had but a bowing acquaintance with histology and pathology. I never did a blood count or an autopsy. I remember well the day when as an interne in the New York Hospital, I welcomed the return from Boston of my visiting surgeon, Dr. Stimson (Dr. Stimson, who a few years later with Dr. Polk was to found this medical college) with the news that he had met in that city a surgeon who pretended to analyze the suppuration in acute appendicitis by counting the white corpuscles of the patient's blood.

Biochemistry was not taught us and its children, endocrinology and scientific therapeutics and the rest, are younger in the domain of medicine than I, so that I am utterly unqualified to speak of the science of medicine and its method of thought. Yet I can not fail to observe and to admire wholeheartedly the rapid envelopment of the practice of medicine in the domain of science. This your profession now hands to you. It permits you, if you have the taste and the talent, the choice between a bewildering variety of sciences founded and sciences founding in the domain of medicine. It would be indeed an arid imagination that could not find a nest to its liking among them with the assurance that a lifetime could nowhere be more profitably and more excitingly spent than in this search for the elusive essentials of scientific truth that underlie the activities of life. What greater intellectual thrill can there be than that of the scientific pioneer? Medicine offers you that.

You who have concentrated with such ferocity at home upon the problems of the bridge table and in the field upon the technic of "following through," before you we propose to set, not merely a score of problems upon the solution of which rests the future history of mankind, rather a score of special sciences to that end—sciences in the making, physical sciences whose Newton is unborn, whose Einstein is undreamed of! If there is any love of truth, any human curiosity even, in you, search, search!—and realize that to-day you begin to learn the rules of the game!

And the business of medicine: that, too, is entirely new. When I was a medical student the health officer as we now know him was being born. Herman Biggs, its pioneer in this country, has but recently died.

Vital statistics were in that state which Grover Cleveland would have classed as "relatively derisory." Hygiene was a word for bathing your body and brushing your teeth rather than the name of a science. Health examinations were known, if anywhere, only in China, which was derided for paying its doctors only while the patient remained well. The life insurance companies had not thought how profitable it might be to keep their dividend payers alive. Hospitals were often only boarding houses for the sick, infant asylums the death warrant of infancy. I remember well the laugh that Dr. Lusk evoked with his plea for unified clinical hospital services with one responsible chief the year round. The clinician was too interested in his private patients to give up more than three months a year to the hospital. There was no "follow-up" of hospital cases. State medicine was not our fear, nor a Mayo clinic our ideal.

The business of medicine, alas, gets sadly on our nerves at times here in New York. Even education is tainted with business. The late and lamented President Eliot, in founding at Harvard the modern American university, gave us as president, not the scholar, but the business man. A pity I think this. Our practical genius as a nation could have profited by the continuation of the old style president, who like *"President de la Republique"* might have been included in Clemenceau's French summary of the most ornamental but useless things in the world—along with Italy and the prostate gland.

The daily needs of back and belly to-day press the purse as never before. To the trader's instinct that stamps the civilization of the United States and has kept our minds turned away from the exquisite delights of pure science so long, add the golden bait which the newly rich so casually dangle before the eye, and one may easily foresee that many of you weaker ones will despair of reaching the heights of truth and will desert the royal road of science for the shops that cluster along its way. Let it be a jest among you if you will that I have done as much, for in a sense you might class the clinician as business man, compared with the scientist. Yet I beg you to keep a distinction clear in mind. Ours is a profession, never a business. We live not primarily for the purpose of making money. Those of us who are the greatest successes and the happiest men make no more than a bare living. Our profit and loss is not measured in dividends. Our duty is to discover the truth and to present it to suffering humanity, from whom we may seek only that honorarium which we honor the public by permitting them to pay us according to their own honor (as Hamlet has it). We face life not as beggars, but proudly bearing gifts.

Fear not to give of time and enthusiasm and life itself to your profession and to your clients. Let truth and fidelity and gentleness be the coin of your realm, and the gates of state medicine shall not prevail against you.

You may think of the profession of medicine as a way to earn a living. It is not. With equal gifts and equal industry you might expect to gain a better living at many a trade than you will get from medicine. You can not hope to attain to success in medicine if you follow it for money. For no one is wealth less a measure of success than for us. We seem indeed more and more submerged in commercialism, ensnared in organization complexities born of the ambition to do better work, and ever burdened by the necessity to make that organization pay. But fear not! The great physician of every to-morrow, like the great physician of yesterday, will be he who spends himself in giving. Need I add that your giving will return to you a hundredfold in the affection, the adoration almost, of your fellowmen?

But, I hear the cry of youth. Applause you wish, the acclaim of your fellows—success, that is what you seek! Seek away, my lads! For, as Hans Breitman has it—

> What is man's success,
> And what is several kinds of dings,
> And what is happiness?
>
> You finds a bank-note on de street,
> Next day de bank is break!
> You falls and knocks your outsides in
> When you a ten-strike make!

You can not make yourselves successful; only the jade fortune can do that. Kissing still goes by favor in the merry old world, but I call your attention to the fact that kissing and laughter are among the few physiological phenomena that it has not seemed necessary to include in our curriculum. Such kissing as you encounter here will be quite unofficial. And such real success as you attain here will tinkle with laughter, I sincerely trust. But remember ever this, my friends: Though fortune makes success she never made a man. Him she can only mar. Alert, now! No more laughter! The bell is about to ring that will summon you to learn the things no item of which you may evermore forget. You can learn them only in digesting them and the evidence of such digestion you can only show by reproducing them—in writing now, in teaching them to others, we may hope, hereafter, thus passing on the torch. But remember this whimsical thought: when you have reached my age you will realize that you have learned in but two ways, *viz.*, by erring and by teaching—need I say more?

Go forth, therefore, and God speed you!

EDWARD L. KEYES
CORNELL UNIVERSITY MEDICAL COLLEGE