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BY

JOHN H. MUSSER, M.D.



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MOTIVES IN MEDICINE.¹

BY JOHN H. MUSSER, M.D.,
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Pennsylvania.*

MR. PROVOST AND GENTLEMEN OF THE MEDICAL
CLASS :

On behalf of the faculty of this University and at their request it is the privilege of the speaker to bid you welcome, thrice welcome, to these halls. To those of you who have been with us the past two, three, or four years, we trust your experience has proven that this is no hollow welcome. We trust you are pervaded mutually and reciprocally with us, with that eagerness for action which follows a healthful respite from toil ; with that pleasure of anticipation anent the opening of new vistas ; with that fraternity of feeling which, unbidden, starts when intelligent, sincere, and earnest fellow-laborers in the field of knowledge sally forth to a common goal. You know, or ought to know, that what we have here in the way of opportunity is yours ; the laboratories, the museums, the libraries, the hospital wards are to enable you to exer-

¹ Lecture introductory to the one hundred and thirty-ninth course of instruction in the Medical Department of the University of Pennsylvania, delivered Friday, September 30, 1904.

cise the fullest plenitude of your power. The services of the great corps of teachers are at your command. We trust you will receive their efforts in that spirit of fellowship that envelopes all seekers of truth. You must realize we are not here to load you up with a mass of indigestible facts to be belched forth at the examination table. We are to aid you to acquire and assimilate knowledge which is to be one of your assets in the battle of life.

To those of you who join with us for the first time we not only extend cordial welcome, but also heartfelt congratulations. Your matriculation card is an indication that you have found yourself. You have fixed upon a career. An essential of success is that a person should know what he wants. Your decision to prepare for the practice of medicine has doubtless been determined by one or more of three impelling factors: 1. You are practical and want to, perhaps must, make a living, which the pursuit of medicine as a vocation will enable you to do. 2. You are an idealist and altruistic and realize that medicine is an ideal profession. 3. You are of scientific bent and know that medicine affords one of the greatest opportunities for intellectual achievement; in short, it is one of the best ways to pursue science for its own sake. I shall name these factors MOTIVES.

Motive One. The pursuit of medicine enables you to make a living. It is not ignoble that such motive should impel you to take up the profession of medicine. It is most noble that you should be willing to work. But it must not be the only motive. If so, at once you will be hedged about by shoals and quicksands. A career that exhausts

all the physical strength one possesses, that saps the centres of moral and emotional force, cannot fail but become one of dire drudgery, unless higher motives obtain. The thought that dollars and cents alone are to be your reward soon paralyzes enthusiasm, and quenches ideals and aspirations. Supported, however, by the second and third motive for action, it is not unreasonable that you should expect the pursuit of medicine to yield a financial return commensurate with skill, knowledge, and degree of application.

It is not too wide a departure from the academic to indicate some of the pathways by which you may expect to obtain a livelihood. The survey may enable us to point a moral as well as adorn a tale.

I might say, as a vocation, medicine, in whatsoever channels you may venture, offers a more reasonable hope of a good living to an industrious, temperate, moderately able man than any other pursuit. At fifty, I have heard it said, men in the medical profession are more comfortable than those engaged in other professions, trades, or mercantile occupations.

It happens, having acquired your degree, the avenues that open up are fortunately quite sufficient to satisfy any reasonable temperament and training. Thus you have before you the three corps of the government service. The service of insurance companies ; the service of corporations, either to care for the health of their employés or advise as to sanitary matters ; the merchant marine ; and the service of organized communities, as of cities, require a large retinue of vigorous, healthful men, the compensation for whose services is increasing each

decade. The army, the navy, the marine hospital service offer opportunities for exercising an additional one of the impelling motives, at least for the idealist, and may invoke a third for the scientist. All of those who enter the government service acquire a living, while they yield to none in the performance of their duty. A few, shining more brilliantly because of their rarity and their great accomplishments, attain prestige as men of science and men of humanity. With the great opportunities afforded them the wonder is their name is not legion. We can point with great pride to Beaumont, the great scientist, who determined the processes of digestion; to Woodward, to Billings, to Sternberg, to Mitchell in army service, and to Walter Reed and his colleagues. The misfortune of these occupations is that, impelled by motive one alone, they cast a blight, and one career after another becomes that of innocuous desuetude. Again, consider for a moment the large corps of salaried physicians engaged in civic institutions, as sanitary officials, police officials, and in other capacities. Barring a very few exceptions, it is not to the credit of these great bodies of men who have taken up these pursuits that very little of scientific value has come from their labors. On the authority of Weir Mitchell we have it that the alienists in charge of insane asylums have been less productive, infinitely less, in proportion to opportunity, than the struggling, overworked practitioner.

In fine, they obtain a living, their ideal is a shadow, their scientific aspirations a dead sea. What a splendid mass of facts could be added to

our knowledge if motives other than a livelihood would have contributed to the momentum of their lives !

Such places just indicated are made attractive by the regularity of pay-day and the possibility of a pension when disabled or senile. It is evident, therefore, that if ideals are lost sight of or scientific ardor does not move, the unfortunate who must assume such a career is outside the pale of the profession. He is nothing more than an onlooker, specialized in his education, and can be a little more appreciative than the layman of the profession's great responsibilities, its unbounded possibilities in science, and its overwhelming opportunities for the exercise of the humanities. See to it that if by reason of health or temperament or other uncontrollable cause you may be compelled to take up such lines that the ideals of our profession are ever with you, and the scientific aspects of your less narrow but most interesting fields are constantly kept in view. A moment's reflection will indicate that even in the most humdrum line of work, for instance, that in which the gathering of vital statistics or of collating insurance tables is paramount, you have such opportunity for study that the leaden figures would shine with brilliancy. Were not the brilliant studies in sociology of Herbert Spencer borne out of such tables ? Is not sociology founded on such data ? What splendid opportunity for studies in social economy, in heredity, the effects of environment, occupation, etc. ; in short, in biology in its broadest sense. You may recall one of the works of the great Virchow. He considered his investigation, as sanitary official, of the causes of

typhus in one of the North German Provinces one of his masterpieces. It led to great reform in sanitary matters, but, better still, his arrangement of the responsibilities of the government led to greater advancement in human freedom. It is that you, laboring in these spheres, will never allow the third motive to lapse, I plead; it will be found, if to special education would be added broad reading and comprehensive reflection day by day, the humblest toiler would have a brighter pathway, a more quickening stimulus, a more satisfying life.

Permit me to say here, and, in a measure, anticipate, that to you, gentlemen, in whom motive two and three will dominate, given study in the right direction, you will find early means for remuneration by association with older practitioners in the conduct of their private laboratories. The demand for good young men of this type is constantly increasing. Not alone do these great halls and splendid furnishings appeal to you for development by laboratory studies, but also because that attainments derived therefrom can at once recompense you.

Upon assuming the position of assistant, take to heart the story of the assistant in *Tommy and Grizel*: "To begin with, he was quite incapable of pretending to be anything he was not. How sweet he was to Dr. McQueen, never forgetting the respect due to gray hairs, never hinting that the new school of medicine knew many things that were hidden from the old, and always having the sense to support McQueen when she (Grizel) was scolding him for his numer-

ous naughty ways. McQueen never had the humiliation, so distressing to an old doctor, of being asked by patients to send his assistant instead of coming himself. He thought they preferred him and twitted David about it, but Grizel knew that David had sometimes to order them to prefer the old man."

Motive Two. The pursuit of medicine enables you to foster ideals, humane and altruistic. Your imagination and enthusiasm had been fired, perhaps, by the daily observation of one whose life was dedicated to the welfare of a community; upon whom affection, respect, and adoration was showered. "He went about doing good." Heroism, kindness, charity, nobility of character were incarnate. All honor to him who has lived up to such ideal! Little wonder you should emulate his career. There are not a few in the annals of our profession; song and story have placed their names on ineffaceable scrolls. Of such no one could have said better than Stevenson in these lines: "There are men and classes of men that stand above the common herd: the soldier, the sailor, and the shepherd not infrequently; the artist rarely; rarer still, the clergyman, the physician almost as a rule. He is the flower, such as it is, of our civilization; and when that stage of man is done with, and only remembered to be marvelled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably exhibited the virtues of the race. Generosity he has, such as is possible to those who practice an art, never to those who drive a trade; discretion, tested by a hundred secrets; tact, tried

in a thousand embarrassments, and, what are more important, Herculean cheerfulness and courage. So it is that he brings air and cheer into the sick room, and often enough, though not so often as he wishes, brings healing."

Alas, for not a few the ideal is shattered, the enthusiasm smothered. Let no iconoclastic words of mine throw down your images. You should know, however, that unless the ideal is supported by that which I shall name the lodestar of your career, the third impelling motive, you are endangered. What worse can happen a man than the blasting of hopes, the destruction of faith, the veiling of charity! Charlatanism, specious theories, fantastic doctrines, now beckon; and, lo, the man becomes a quack!

Motive Three. The pursuit of medicine enables you to seek truth. The profession of medicine gives you an opportunity for intellectual achievement of the highest order. It requires upon your part the constant employment of the highest faculty of the mind—reasoning. Essential to the exercise of this faculty are observation and experiment. Hence you aspire to be a constant seeker of truth. To acquire facts, to analyze their value and relations, and draw inferences will be your daily work. This fascinating exercise enables you to acquire a scientific habit of mind. It is our privilege to drill you in physics and chemistry and biology, in order that you may learn how to observe, that you may learn the value of facts and the steps required to draw conclusions from these facts. Your present studies are time-saving. If you were to go over the whole field of biology in

order to observe and prove every fact, your lifetime would be spent before the application of your knowledge could be brought into play. Your present studies are a drill for your future work. The chief employment of your career will be in diagnosis, the recognition of disease. The mental acts you employ in your present studies are precisely those you employ in diagnosis, observation, and reasoning. Any chemical, physical, or biological problem you attempt to solve can only be carried to completion by correct observation and close induction. Any problem in diagnosis is settled in like manner. It is essential, therefore, in the conduct of the art of medicine to employ the scientific habit. While such a proposition is almost self-evident, the history of our profession, the history of any one individual of the profession supports it. Nothing is more thrilling than our own story. Modern medicine is truly modern. Think of it: our own founder and revered teacher, Rush, rarely mentions the pulse or respiration rate in his writings. Science of medicine began in the eighteenth century. Its evolution to the great vantage ground of the present has been through observation and induction. It is true, observation was carried on for centuries, but the observers saw through the glass darkly. Hippocrates (460 B.C.), the first great observer, could only tell what the eye saw, but he told it truthfully. The "crisis," the Hippocratic facies, the phthisical chest are always associated with his name, and are a tribute to his powers of observation. Galen observed closely (200 A.D.), and was the founder of the anatomical school. It is a long interval until observation again held

sway, during which period theory and speculation and deductive reasoning were rife. You have learned, or will learn in your anatomical studies, the fruits of the early observers, as well as the value of their observations. The names given by the respective anatomists to structures and tissues indicate the accuracy of their observations. Sylvius (1478), Vesalius (1514), Eustachius (1510), Fallopius (1523), Malpighi (1628), Steno (1638), Glisson (1597), Willis (1621), Vieussens (1641), Wharton (1614), Sylvius (1614), Graef (1641), Pyer (1600), Bartholinus and Brunner (1650) observed, recorded, and were placing knowledge of anatomy and physiology in proper array for the pathologist and clinician. But little was warranted as yet, notwithstanding the advent of Sydenham with his contempt for speculation and his accuracy of observation. He brought the profession to seek for truth, but what he saw and felt was open to his unaided sense alone. No instruments of precision were in vogue. "He knew only one standard—observation and experience" (Park). These great men, and others in later years, simply observed.

Of all the builders, *facile princeps*, is he to whom is given not only the credit of making a great discovery which transformed physiology, but also of setting an example for all future inquirers by promulgating a method. To observation he added comparison and experimentation. "It was Harvey's (1578) great merit to have boldly used the experimental method, to have set a lesson, to the zealous following of which the progress of physiology has been largely due," says Michael Foster.

During the eighteenth century schools of speculation dominated medicine in the pursuit of the science of which the methods of Harvey and the older anatomists were not universal. In this period medicine was subject to its greatest ridicule. The French satirists had no better field for their pungent tirades. It remained for Morgagni and Haller, Bichat and Hunter, and Pinel to blaze the trail. They overthrew speculative tendencies in medicine by observation and experiment.

From this time on, with each addition to our methods of research, evolved from chemistry, from physics, from biology, medicine grew apace. But, mark you, always as the result of observation and experiment. The acme of the mental processes are exhibited in those immortal postulates of the more recent of research heroes, Koch : first, determine the causal factor of the disease (observation by modern biological methods) ; second, reproduce the disease in animals (experiment) ; third, prove the presence of the factor in the affected animal by observation (modern biological methods). The relation of the various infective organisms to disease have thus been determined. The most brilliant researches of Ross in malaria, establishing the relationship of the mosquito in the infection, and of Reed, Carroll, and Lazear in yellow fever are based on such propositions. The story of the researches of the former in malaria given in the Nobel lecture, and of the latter in the simple but most graphic report to the Association of American Physicians, would thrill any student.

Thus one could traverse the whole field of medicine and produce instance after instance where

observation, experimentation, and, consequently, inductive reasoning brought about the advances in medicine. Moreover, one would find that those men who employed these methods have come down to us with names that will remain as long as science abides.

It is apparent, therefore, the lesson of our science and of our colleagues is that the scientific method is the one essential for your success. Fortunate are you who has it for an impelling motive. It not only unfolds truth, the only rational result in any science, but, let me tell you, it develops character. To conduct such methods means that we are determining truth. We employ instruments that must be true, reactions that dare not be false. We drill ourselves to observe the truth alone and to reject the false. Such cultivation enables one to realize that "against all appearances the nature of things works for truth and right forever." He who seeks for truth has no jealousy rankling in his bosom. The true man of science is not found in medical societies backbiting, snarling, conniving for advancement to the detriment of his fellows. The true man of science has no pretensions which override his fellows. Selfishness, envy, and sordid ambition has no stronger foe than the scientific habit. No one but the true man of science can see more clearly the message of all great moralists, for is it not demonstrated to him in the laws of biology every day, "Whatever a man does to another, he does to himself, whether it be good or evil." What a stimulus for correct living and noble thinking! Need the daily cares, the

belated recognition, the scanty reward weigh heavy on one possessed of such habit ?

But, gentlemen, do not think I belittle the impelling motives when placed in combination. The first motive alone, that the profession of medicine is the portal of entry to wealth, will be, for him who is thus misled, as if he had eaten sour grapes. If to this motive he add ideals of the profession, the fruits that he shall gather will be riper and more succulent; but, unless guarded with hothouse care, too soon become too mellow. If to the two we add the scientific habit, then the fruits that are garnered will be as the corn and wheat of the pyramids after a lapse of thousands of years, capable of sustaining, stimulating, satisfying.

Finally, fellow-students, notwithstanding high resolution and noble purpose, to all of us comes the hour of discouragement; but why should we falter? Let us hearken to the clarion tones of the grand marshal, Carlyle: "Here on earth we are as soldiers, fighting in a foreign land, that understand not the plan of the campaign, and have no need to understand it. Seeing well what is at hand to be done, let us do it like soldiers, with submission, with courage, with a heroic joy. 'Whatsoever thy hand findeth to do, do it with all thy might.' Behind us, behind each one of us, lie six thousand years of human effort, human conquest; before us is the boundless time, with its as yet uncreated and unconquered continents and Eldorados, which we, even we, have to conquer, to create; and from the bosom of eternity there shine for us celestial guiding stars."

