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With kind regards of  
T. Gaillard Thomas.

Yours truly  
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THE  
POSSIBILITIES OF MEDICINE.

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AN ADDRESS,

BY

T. GAILLARD THOMAS, M.D.

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POSSIBILITIES OF MEDICINE.

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AN ADDRESS

DELIVERED BEFORE THE GRADUATING CLASS OF THE

LONG ISLAND COLLEGE HOSPITAL, OF 1891.

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T. GAILLARD THOMAS, M. D.

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1891.



# THE POSSIBILITIES OF MEDICINE,

By T. GAILLARD THOMAS, M. D.,

NEW YORK.

GENTLEMEN OF THE GRADUATING CLASS :

Colleagues of a half hour's birth, who now for the first time open your infant eyes upon the future which is to be at once the arena of your efforts and the criterion of your success, in the name of the faculty of the distinguished institution, of which to-night I am the mouthpiece, welcome, a warm and cordial welcome to the ranks of medicine!

The great Alexander Hamilton, who fell before the deadly pistol of Aaron Burr, was said by an eloquent contemporary to have "bowed before the force of an imperious custom." Like him I stand before you to night, in obedience to an unwritten law which calls for an address at a medical graduation, on the part of one who, it is assumed, is able to speak to the young graduate words of advice, encouragement, and warning. May the wisdom of your teachers not be impugned by their choice of Mentor, and may I be inspired to say something which may in the distant future, as you ply your trying calling, come back to your memories with sustaining power, with pleasant recollection, and with inspiring influence!

The noble and exalted character of the ancient profession which in this hour enrolls your names among its votaries has too often been set forth by writers and speakers to need allusion on my part to-night. The devotion which it calls forth from you, the singleness of purpose, the purity

of life—all these have been over and over again recited to audiences just such as that which now graces this hall, by more ornate pens and by more eloquent lips than mine. Elsewhere, then, must I seek my theme if I hope to engage your attention or excite your interest; and in this hope I select from the large field of exhausted topics “The Possibilities of Medicine.”

Has it ever struck you as a remarkable fact that many professions fill their ranks, even in this utilitarian day, in consequence of the romance, the dangers, the chances of glory, the opportunities for heroism, the lustre, and the renown which are possibilities in them; in spite of manifold dangers, hardships, and self-sacrifices to which they expose their followers? At this very hour, while our statesmen bemoan the neglected farms of Vermont, New Hampshire, and Massachusetts, located as they are in regions remarkable for beauty and salubrity, men prefer to the quiet lives which their cultivation would cause them to lead, the hard and dangerous profession of the sailor, than which no life could entail more of suffering and of trial. Did our country need volunteers to-morrow, there would be no lack of men who would, for a mere pittance, expose themselves in the ranks of her armies; and the fisheries of all countries are richly supplied by youths whose lives are constantly sacrificed in this hazardous pursuit of a precarious living. The human mind craves just such excitement as is afforded by a journey into Darkest Africa, or by a voyage to the icy north in search of an open Polar Sea.

The magnificent rewards which await the painter; the immortal fame which lies fallow for appropriation by the successful sculptor; the glorious future which is open to the great architect, are enough to give charms to the wretched attic and solace to the impoverished board of the hard-laboring aspirant. How many a gallant youth in this hall would yield up his life willingly to live in history with the fame of Sheridan? How ardently would not another strive through a lifetime of labor and of waiting to lay his country

under the debt which it owes to Farragut? And what effort would be too great to secure to another the evergreen crown which adorns the memory of Longfellow? Arms, literature, art, law, divinity, all have bright and glorious rewards for those who have the courage to aspire to them, the patience to suffer for them, the industry to work for them, the genius to obtain them.

Think you that the science of medicine, founded four hundred years before the birth of Christ, the chosen work of our Saviour himself, the most far-reaching and benign of all modern pursuits, stands alone in its inability to reward its votaries? Far from it! Look back with me into history, and I shall not be called upon to take you into the field of ancient history even; and it will go hard but I shall make you agree with me that of all callings, all pursuits, all professions, the rewards of medicine are greater, more lofty, more desirable, and more enduring than those of any other in existence.

Before proceeding further with our argument, let us agree as to what we will mutually fix upon as the highest and most desirable of earthly rewards. Had this question been put to Buddha, that highly civilized Hindoo would probably have replied, "To be considered a god among men;" Confucius and Mahommed would probably have said, "To be the founder of a religion to which millions would bow;" Cæsar and Charlemagne, "To rule the world;" Washington and Franklin, "To have set up a form of government to be the prototype of the nations for ages to come;" Napoleon I., "To be considered the greatest soldier and statesman that the planet has ever known, even though the attainment of the end should involve wading up to the armpits through blood." You and I, representing as we do the two great moral centres of the universe—New York and Brooklyn—will agree that he who has done the greatest good for his fellow man, has, in the doing of it, won the greatest reward in Earth's possession, even though no mortal man know of the deed but him!

As you and I look upon the great picture by Vibert, entitled "The Missionary's Story," we see the crown of glory, the diadem of success, not upon the head of the honored and decorated abbot, but upon that of the ragged servant of the cross, with his body deformed by torture and his frame wrecked by toil.

The forces of civilization work hand in hand for the common good. Since the lifting of the veil which, under the name of the Dark Ages, shut out the benign light of law, of progress, of the fine arts, and of religion, how nobly has each of its servitors striven for the re-establishment of all that was good and elevating among men! It was as if all forces had combined to woo back the smile of God upon the earth! Let us see what the medical art has contributed as its quota of work for the good of society.

Where are now those dreadful epidemics of the plague described by Thucydides, Procopius, and later by Defoe, which desolated Athens, Florence, and London; and, in the reign of Justinian, are said to have lasted for thirty years, and to have destroyed, according to an estimate regarded as reasonable by Gibbon, nearly one hundred million lives? Gone from the notice of the world, and although, even as late as 1835, showing its horrent front in Alexandria, blocked out from civilized Europe, and reduced absolutely to insignificance by our agent, Hygiene!

Where now is the fiend of cholera, represented by painters and by poets as a fell hag, who, with pallid cheeks and lurid eye, marched, torch in hand, into the hearts of the great seaports of the world, sowing death and sorrow broadcast in her path? Almost a thing of the past! Limited, controlled, and almost wholly imprisoned in that fateful eastern land of Asia, where the demon of disease seems to fight his last fight for existence!

Where is now that yellow "scourge of God," which, only two decades ago, made its home in the lovely city which looks out upon the delta of the Mississippi: made occasional excursions to Mobile, Pensacola, Savannah, and

Charleston; at times tramped up the borders of the great river and laid Memphis in sorrow; and, in the beginning of this century even, reached New York and caused its authorities to fence off a portion of the town and call it the infected district? Seized by the throat by our servant, Quarantine, and told in no uncertain terms, "Thus far shalt thou go, and no further!"

Where is to-day that loathsome destroyer of life and of beauty, small-pox, which a century ago decimated nations, entering households and admitting of no escape, doomed the loveliest to death or disfigurement; and scarce more than a century ago, with unbridled insolence marching into the halls of Versailles, laid her polluted hands upon the monarch on his throne and dragged him down to ignominious and revolting death? Lashed to heel by our agent, Vaccination, and, like whimpering hound, held securely in leash.

What has become of typhus, jail, ship, or spotted fever, which doubled the horrors of the horrible sea voyage, and made room in jails and prisons for others to replace those whom it sent to Potter's Field? Swept out of existence as thoroughly and as surely as are to-day the three great moral blots upon the fair escutcheon of civilization; slavery, duelling, and polygamy.

But I must cease my enumeration, though it is difficult for one who loves his calling and glories in its conquests to do so. One more illustration, one which will come closer to the heart of every man among you who loves woman, and surely he who does not is none, and I leave this part of my subject. A few, a very few years ago, the graveyards of all lands, from the most savage to the most civilized, were filled with the bodies of women gone to their last account in the most interesting period of their existence. The very name of puerperal or childbed fever brought the shadow of fear to the face of the bravest man, and through its baleful influence scarcely a hearthside in our land but had a place which stood vacant. To-day, thanks to the

greatest of medical agencies, Antisepsis, even in the large lying-in-hospitals of London, Paris, Berlin, Vienna, St. Petersburg, and New York, the disease is almost unknown! Where, even as late as ten years ago, fifty were lost, less than one life is lost now!

So wonderful, so startling, so extraordinary are these results that I almost admit to my mind the fear that the non-medical portion of my hearers may suspect me of boasting as I read the record of the proud achievements of medicine during the last hundred years. I have but to appeal for support to the large medical contingent of my audience, and they will bear out the assertion that my claims are even less exacting than they might with justice have been.

You may contend that the very extent of this enumeration of the conquests of medicine proves that the possibility of achievements in the future must, of necessity, be greatly curtailed. This is far from true. There is an old French adage which declares, "Plus on s'élève, plus l'horizon s'avance;" "The higher one climbs, the more extended becomes the scope of vision." One great initial discovery often elevates the students of a science to heights not dreamed of before, from the elevation of which limitless space unfolds itself to view. Think of the secondary discoveries rendered possible by the initial discovery of the microscope, of the telescope, of the Copernican system, of the circulation of the blood, of steam, and of electricity.

When the grand fact was recently established that diseases were transmitted from individual to individual by organisms, which have been styled "bacilli;" that by the growth of these organisms diseases were perpetuated upon the earth; and that by their destruction the affections to which they give rise may be prevented, one of the greatest discoveries of any age was made; one of the most sudden elevations of investigators, with resulting expansion of view, was accomplished that the world has ever known. By it you stand to-night upon a plane far more elevated

than that which even the youngest of your teachers occupied upon his graduation. Your possibilities in medicine are proportionately greater than his were; be it your function to profit by your good fortune!

It requires no prophet's power to foretell the fact that the science of medicine, which up to the beginning of the seventeenth century stumbled, footsore and weary, along its tedious way, with little enterprise or progress; which in the next hundred years began to show decided evidences of awakening power; and which during the nineteenth century has made great and signal strides along the avenue of improvement, stands at this hour upon the threshold of an era which will belittle all the past, and accomplish in one decade of the future more than a century has previously brought forth. I make no reference now to work actually performed by Pasteur and by Koch. I allude only to the principle which underlies the labors of these great men; to the initial discovery which has rendered their secondary discoveries possible. The so-called discoveries of Pasteur and Koch may in the future rank with the fascinating tales of the "Arabian Nights." It matters not if they do; the great ball of knowledge and of truth has been set in motion, and all the powers of earth, if arrayed against it, could not check it in its irresistible progress.

I have received so many kindnesses from my confrères in Brooklyn, and I have so many loyal friends and true in this good city, that I feel to-night as if I were talking to a set of people to whom I could speak confidentially, as if in my circle of intimates, and say what by the world at large might be viewed with critical eyes. Feeling so, let me venture to tell you this: Were I offered to-day by some great power the accomplishment of one wish, I think that I would select the destruction of the process by which alcohol is created. I know full well that the most cruel, the most treacherous, and the most vindictive of all the races of the earth are the most temperate; for example,

the Hindoos, the Turks, the Arabs, and the most brutal of all savages, the implacable North American Indian. But, putting advantages and disadvantages into mental scales, I should select as the wish nestling closest to my heart, the abolition of alcohol. If this were denied me I would choose the power of stamping out forever those contagious diseases which fill our graves with curly heads and dimpled cheeks, and our homes with sorrow that knows no comforting. I would destroy those terrors of the household, scarlatina, diptheria, and the host of contagious maladies which go hand in hand with them. The first of these wishes is impossible of attainment. But what of the second? Gentlemen, the way to its accomplishment is open to every man with willing hand, determined mind, and intelligent brain who stands before me now. Surely it is not too sanguine a prediction that the next century may see the extinction of contagious diseases.

I have told you how much the science of medicine has done for the prevention of disease. Listen now while I point out to you how much remains for you and your contemporaries to accomplish.

Although by no means proven, it appears probable, that in the animal system there are elements which furnish food for certain organisms, styled bacilli, which, being attacked by these, help them to flourish so luxuriantly that their multiplication excites a tremendous reaction in the economy, which often ends in death; and that these elements once being destroyed, do not often reproduce themselves, and the recurrence of a successful invasion by that particular variety of bacillus is not again possible. How else can we account for the immunity secured against second attacks from the occurrence of one invasion by small-pox, varicella, whooping-cough, scarlatina, measles, and other contagious diseases? It was probably in this way that the prevention of small-pox by vaccination was accomplished.

Jenner, finding out that a disease of the cow, called vaccinia, used up in the system of milk-maids the food upon which the germ of small-pox lived; and believing in the old doctrine, "in time of peace, prepare for war," systematically laid waste the country before any future small pox raid could start out upon its course, and rendered invasion impossible.

This appears to be a philosophical and satisfactory explanation of the method of protection accomplished by vaccination, and one would have expected that ere this a law would have been established with regard to the matter, and other similar discoveries made. Vaccination was discovered in 1799; since that time not one other contagious disease, unless the claims of Pasteur and of Koch should prove valid, has been prevented by the development of this brilliant idea! What a wonderfully rich and fascinating field of labor here opens up before the ambitious aspirant, and how promising its future appears!

But this is not the only way in which diseases have been checked. In certain maladies the pabulum of disease germs, while not destroyed beyond the power of reproduction by one attack of a disorder, appears to be to a great extent damaged in quantity and quality by certain drugs. Thus we see the salts of mercury greatly limiting the development of "lues venerea," and the bark of the cinchona tree to a certain extent controlling that curse of our country, malaria. And yet, strange as it may appear to you, of the so-called specifics in medicine these two stand entirely alone. I challenge the mention of any others.

Here again I direct your eager eyes up an avenue leading to fame and usefulness, scarcely less promising than the one previously mentioned; an avenue in which industry and genius have full scope for exercise, and one filled with rewards which must satisfy any truly noble ambition.

But you will say this very paucity of result proves the difficulty of the work; it is easy for a speaker to point out the way and to say "go thou and follow it;" how are we to solve a problem which has already proved so difficult of solution? Your elevation is greater than that of your predecessors; the scope of your vision is much more extended. Jenner's discovery was the result of empirical observation; the discoveries of Koch are guided by the pure and certain light of science. You stand not where Jenner stood, but where Koch stands.

If it be true, and there is no reason why it should not be so, that by previous destruction of pabulum in the blood, either by the action of drugs or of ptomaines, or by the discovery of phagocytes, or opposing bacilli, the invasion or successful advance of the germ-elements which create contagious and infectious diseases can be controlled, a field of labor will be opened to the physician which will make of medicine the most fascinating of callings.

The future is pregnant with promise. Young aspirant for the glory, the greatness, and the honors of that future which like a smiling landscape spreads out before you to-night, "I tell you that many prophets and kings have desired to see those things which ye see, and have not seen them; and to hear those things which ye hear, and have not heard them."

Gird up your loins, then, and enter the arena with determined purpose and honest ambition. In the words of Virgil, "Hic labor, hoc opus est;" the way to the solution of the problem must be found by your industry, your ingenuity, and your perseverance; in other words, by those qualities the combination of which is called genius. Did you ever hear of the solution by Darwin of the question as to the reason why clover grows so much more luxuriantly around human habitations than in places at a distance from them? Let me relate it to you as a good example of the method in which, by careful observation, by patient research, and by persevering labor, secrets

hidden in the arcana of nature may be laid bare ; as an illustration of the fact that truths in science are not stumbled upon hap-hazard, but are arrived at by working "line upon line, precept upon precept, here a little and there a little ;" until the moment of fruition comes, and the investigator is rewarded by success. Such successes are called efforts of genius. But what is genius ? The power of prolonged, undeviating fixation of thought ; an absorbing mental devotion to the development of an idea ; a "prolonged attention," as Sir William Hamilton tersely expresses it. Men phenomenally capable of such mental efforts live once in a century, not oftener. Socrates, Newton, Shakespeare, Napoleon, and Darwin, mark the lapse of centuries in time as mile-stones mark the lapse of space. Oh, that Darwin had been a physician, and that he had stood on the night of his graduation just where you stand to-night ! Oh, that among the gallant cohort of faithful men who face me now, more than one Darwin may be returning my glance !

But this is a digression. Let me return to the story of the clover. Clover is fructified by the transportation of pollen from male to female plants upon the legs of bees. Its petals are stiff, and thus the common bee is too light in weight to bend them apart and carry the pollen far enough down to accomplish the fructification of the plant. The heavy humble-bee only is capable of doing this. Now, the humble-bee lays its eggs just below the surface of the green sward, and here the field mouse devours them. Where cats exist field mice are kept from becoming numerous, the eggs are preserved, and thus it is that clover flourishes where man has his habitation and his companion the cat is present.

By just such reasoning has Metchnikoff, the bacteriologist, worked out his problems. Take, for example, his demonstration of the fact that the leucocytes of the green frog acted as phagocytes, or devourers, upon the bacilli of

anthrax, to which that reptilian is invulnerable in a temperature less than 68° F. Filling a small sack made of the pith of a reed with anthrax bacilli, he put this under the skin of a green frog and sewed up the cutaneous incision. In a few days the lymph of the frog passing through the walls of and into the sack without leucocytes, the bacilli grew rapidly. Under the skin of the same frog, he at the same time inserted a piece of the spleen of an animal which had just died of anthrax. This he left unprotected by a sack. The leucocytes of the frog devoured the bacilli, and not one lived to perpetuate the disease. They acted as phagocytes, and Metchnikoff, by this simple and very ingenious experiment, proved that it was in this way that the frog was rendered invulnerable to this disease. At no distant period we shall probably see Metchnikoff cultivating thousands of the leucocytes of the green frog, inoculating with them other animals suffering from anthrax, and thus opposing one bacterial army by another, as Pasteur has already done.

Gentlemen of the graduating class, I have lauded to you the possibilities and the rewards of medicine; I have defined for you my conception of earthly reward; let me now test your sympathy with my views by putting to each of you in sober earnest this question; Which would you prefer to be—not during the insignificant period of two or three decades called your lifetime, but in that posthumous time which is called history—the soldier who, even in defence of his country and her supposed rights, has won victories, filling households with sorrow, and inflicting the horrors of war upon a nation; or the man who has blotted out from the list of diseases that terror of the nursery, scarlet fever, which has in the past created, and is now creating, such havoc in our households?

Would you prefer to be the creator of that wonder of art, the Angelus, which for ages will continue to give real pleasure to thousands of people, or the man who for all time takes from his fellow travellers along the painful

pathway of life, the terrible scourge called diptheria? Would you prefer to receive the well-deserved rewards which have fallen to the greatest captain of our time, Von Moltke; or those which await Koch, if the cure of tuberculosis becomes practicable through his efforts?

The motto of the New York Academy of Medicine, coming down from mythological times, is this: *Hommines deos accedunt, hommibus dando salutem.* "Men most nearly resemble the gods, when they afford health to their fellow-men." If, as now seems highly propable, Robert Koch should succeed in curing and preventing tubercular disease in its various manifestations, what greater reward could he possibly ask for than the pleasure which he must feel when the reflection to which this motto gives rise comes to his mind? The reward of the physician whose happy discovery stamps out a disease which before his day slew its thousands, comes from the hand of no emperor; his glory from the appreciation of no applauding multitude; his renown from the pen of no fulsome historian. For him the victor's crown comes from the hand of the immortal God; his glory from the satisfaction of doing a great and glorious work; his renown from the gratitude of his fellow-men! The "great wakening light," which blessed the eyes of Abou Ben Adhem; not the imperial purple which decked the shoulders of the mighty Julius, constitutes his diadem and causes a halo to shine around his head.

In the golden days of chivalry, when a young knight was to receive the accolade and become the defender of the weak and the redressor of wrong, he was required to spend an entire night in a cathedral, or other solemn place, reflecting upon the purity, the beneficence, and the grandeur of his new office, and in forming the noble resolve to make it no trade, but to administer his duties with the love of man in his heart, and the glory of God in his soul. Let this night and these exercises bear to you the relation of that vigil night of old!

Medicine is the noblest of professions ; the meanest of trades. Unless you can live lives of purity, of virtue, of honor, and of honesty, seek a livelihood elsewhere, and insult not the gods by striving through base methods and ignoble ambitions to resemble them !

Will you not now fully agree with me when, in closing this address, I ask you whether the possibilities of medicine are not really greater than those of her sister sciences and arts? Will you not accord in my postulate that arms, arts, literature, science, all have their rewards, but that not one of them surpasses in the magnificence of its gifts those of which the god-like science, Medicine, is capable.

When, a quarter of a century hence, I meet with one of you, as we both wend our ways along the highway of life, my locks as white as the driven snow, and yours as white as mine are now ; come up to me, report yourself as a member of the graduating class of the Long Island College Hospital of 1891, and tell me which one of the beneficent discoveries, which the next twenty-five years are sure to bring forth, has been the means of causing you to resemble the gods and enrolled your name "among the few, the immortal names that were not born to die;" and I, recalling at once to mind you and this pleasant evening, which has made us acquaint, will bid you God speed, even as I do to-night.



