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STANDARDIZATION VERSUS MEDICAL EDUCATION[1]

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THE very agreeable task has fallen upon me to welcome you here to-day. When welcoming strangers, newcomers or initiates into one's castle or into one's clan it seems to me both cordial and fair to openly consider what manner of place it is to which you are being welcomed and to presume something as to why you seek welcome here. The simple tone of welcome does not always indicate the kind of consequences to follow—some of you may recall the very gracefully poetic invitation of the spider to the fly.

This place is one of those ancient human arrangements in which a group of somewhat mentally mature and experienced persons undertakes to encourage and lead a larger group of youthful aspirants into the knowledge and methods of a learned profession. This kind of arrangement has been jealously perpetuated throughout the generations of human history to be handed down to us. It has been accepted as necessary in the existence of tribes, kingdoms, empires and free states. And it belongs to that order of things commonly called schools.

All of you have had far beyond the average experience in schools, and in this place you are not altogether strangers. But have you stopped on the threshold to ask yourselves what differences there are between this place and the schools you have already attended—and, more important still, what are the different reasons for your having been in the different grades of schools? All schools are not alike and we attend each for a different reason to ourselves and to the state.

Attendance in the elementary school is compulsory and is demanded by almost all enlightened governments. The state requires and supplies a certain amount of education. But, as in the case of most things forced upon us, the child frequently assumes that he is attending school for the state or the law or surely for some one other than himself. In the ele-

[1] Address delivered at the opening of the session of Cornell University Medical College, New York City, on September 29, 1930.

mentary school and our high school learning is a forced performance and the idea in the mind of the pupil is that he is studying and working for the accommodation of the teacher. If he likes the teacher he studies and, if not, he avoids it. The teacher is often heartily disliked and learning is an arduous imposition.

Our American colleges are quite different in many ways from the elementary schools. Attendance in college is not required by the state. Yet most of the states have recognized that this is a degree of education which should be available for those citizens who desire it, and many states of the Union maintain colleges where such education may be had without cost for tuition. However, no state has seen fit to require or force the college attendance.

The college is thus presented as an opportunity to be freely chosen—a luxury in education. In spite of this fact a carry-over from the compulsion of the elementary system, together with the urge of the pretentious parent desiring a college attendance for his immature son, keeps alive the early attitude that education is taken for the good of the state, the pride of the parent or something other than the high advantage to the student himself.

In speaking of college education I am timidly referring only to that precious but inconspicuous and almost submerged effort for academic learning, and not the booming rah-rah spirit and intercollegiate athletic mania so out of proportion and out of harmony with any intellectual pursuit.

Finally, after finishing college as the highest of the preliminary educational experiences the person is faced with the problem of employing himself in the community. He feels the need of a knowledge of how to do something! He learns that there are professional schools for the higher activities of engineering, art and music, and schools for theology, law and medicine—the so-called learned professions. No state forces on its citizenry an education in such schools. Very few, if any, states provide such education free of some tuitional cost to the student. Few ever so haughty parents attempt to force this class of education on their resistant sons.

These professional schools along with the departments of pure science and scholarly research constitute the universities or institutions of higher learning. In such places as these the atmosphere, by which one may mean the attitudes of teacher and pupil, should become entirely changed from that of the elementary grades.

The pupil is no longer impounded by the state or forced by the parent to do this task, and the teacher is no longer the officer of the state or the agent of the parent to see that the task is done. Now at last the student is an independent individual forced by no one to seek an education preparatory for his life profession. The teacher now becomes a dependable and encouraging worker associated with the student. Such a teacher should be an established scholar and investigator in his own field with an impulse to lead and direct the activities of less experienced students who have an aim to function in ways related to the teacher's intellectual interests. These teachers must lend themselves to be a source of inspiration to their students. They are often men of eminent distinction in science and learning and of international reputation in their sphere but at the same time without possessing even local notoriety. The man on the sidewalk has never heard of them. It is this contrast between the attainment of actual distinction and the craving for ordinary notoriety that sets the scholar apart from the "movie-star."

The scholar is self-sufficient. He need never be lonely and is never idle. The notoriety seeker is dependent upon the crowd—alone he is completely insufficient and out of the sight of others he is generally idle.

The true university in all its branches is the haven of scholars. They alone are at home here, and no one else is altogether comfortable. The place is inspiring and every one strives to take advantage of its privileges which so few of the human inhabitants of this globe are capable of enjoying. Let us hope and be bold to trust that this school is a part of such a university.

So much then for the nature of the place in which we gather to-day.

We may now become more specific in a brief consideration of the recent conditions in the American medical school. During the first decade of this century, only between twenty and thirty years ago, there was no crowding excess of students in our colleges or medical schools. On the contrary, members of the faculty frequently spent parts of their summers in traveling around drumming for students. The graduate schools of the universities at times offered more scholarships and fellowships than could be filled even after seeking for applicants.

The medical schools were fully developed in only a few places. Most of them were far behind in facilities and inadequately organized. The poorer ones drew students more easily than the better ones and all spent time and effort in trying to persuade students to come. There were very few requirements for entrance and almost any one could be admitted. This medical college accepted high-school graduates and took all comers, as did almost all others, and had classes of something less than a hundred students.

The medical schools and colleges before 1914 were

open and almost unregulated and so was travel and general behavior. It was an unstandardized and unregulated period.

Some medical colleges required one thing and some another and many had no connection with a university or a general educational institution at all. These stood alone as a weed in a desert and wrote diplomas in their own name as acceptable documents in the community. Any one could attend, and almost any group of doctors could conduct a medical school.

During this same time any one who had it could fill his purse with the coinage of almost any country, board a ship and sail away to almost any port without a passport, without a letter of credit and without any questions as to where he was going.

Any one during this time could walk into a grocery store or a wine store and order whiskey, wine or beer by the bottle, case or carload and it would be simply delivered at his home with no more question or surprise than is the delivery of a pound of coffee nowadays.

And all these ways in education, travel and barter were the general fashions less than twenty years ago!

But do not imagine for a moment that this was a time of pandemonium—quite the contrary. It was merely the time before organizations assumed an extensive responsibility for personal behavior. Drunkenness was little if any worse than now, particularly among the respectable classes; crime was modest and shy, and there was no occasion for a government commission to study the violations of law. There was also no exalted commission on medical education.

Under such conditions what was the state of mind of the medical students? Naturally it was rather free. They had come to the medical school because they wanted to and were interested in being a physician or a surgeon or a medical scientist. Certainly they did not come because it was the fashion or the thing to do, for it wasn't. Whether they attended all classes or how much work they did was no one's worry. When the time came students were given an examination and often as high as 30 to 40 per cent. of the class would fail. Those who failed simply repeated the course for the next year or so until they passed or else they left for some other school that asked few if any questions and was glad to have them.

This state of affairs was not altogether so bad as it sounds, for there were good medical schools as well as bad ones and many good students were in all of them. These men to-day are a credit to the very top of their profession in various lines.

What the situation very evidently needed was a little brushing upward and many influences began to work toward tearing the bottom off in some cases and pushing it up in others. This started well and within the short space of a few years between 1909 and 1915 almost all the actually harmful and unfit medical schools of the country were closed and out of business.

This surprising result was largely due to a masterly survey and discussion of American medical education by one able man. However, the fine start, as is often the case, obtained a bit too much momentum and swept out into the national organizations and committees. These became very busy but only succeeded in bringing about the present-day fashionable craze of standardization and regulation of all thought and fancy in medical education.

The Association of American Medical Colleges assumed new importance. The council on medical education of the American Medical Association began to flourish as never before. An epidemic of curricula prescription writing swept the country's map. A certain dose of so many hours was prescribed for all growing medical students in anatomy, chemistry, physiology, pathology and even in medicine and surgery. There was generally a minimum and maximum dose allowed, depending perhaps upon the constitution of the school and the maturity of the student.

It was not realized that getting rid of disgracefully bad and inadequate schools was one thing which need not inflict any regulation whatever on the composition and performance of the best schools.

Finally, the medical schools have reached back into the college to require a definite premedical training of so many units in biology and physics, chemistry, etc. The number of college units of credit is naturally easily calculated, and the units are what count rather than the more difficultly ascertained quality of experience and inspiration which the college education has imparted.

Having secured the premedical requirements a vast number of students now apply for admission into the sanctum of the medical school which to them seems quite formidably guarded. Nearly a thousand persons apply for the privilege of being the seventy to constitute the first-year medical class. The selection is rigid and all must pass muster on their school records, their premedical units, their personality and other qualities. Finally, the door is open to the selected few and they enter in with fear and trembling lest they once fail to pass a few courses and are dropped out, never to have a second trial, and with slender prospect of being taken into another fold. Under these conditions every one does not work merely for the joy of learning but oftimes only for the necessity of passing. The course becomes a

crowded grind and the inspiration and glory of simply doing becomes a faraway phantom.

The course is often regulated and standardized to such an extent that every one is trying to do exactly the same thing in the same time and to beat the other at doing it. This is irrespective of individual tastes, talents and personalities. These various personalities are swamped in the uniformity of things, and intellectual tolerance and truth are difficult to hold in the spotlight of advance. This is contrary to nature and so peculiar situations have arisen. One of these I may relate as having occurred in a far distant part of the country.

A medical school conducted along the usually regulated plan found that cheating on examinations had become a rather general and accepted practice among the students in spite of the existence in the school of the so-called honor system. The faculty became disturbed on realizing that things were not exactly as they were ruled to be. The dean of the faculty conferred with a group of the senior students to discuss the situation. He learned that the students agreed that if all those who cared to should cheat it would be as fair for one as for another, and the sad predicament of being dropped from the school might be avoided by some and reduced to a helpless minimum.

The dean was somewhat surprised at this rather broad and philosophic attitude, but he felt that the students were chiefly at fault. He propounded a further question as to their plan of behavior and asked whether they, who had decided cheating was proper, would steal another's instruments or clothing. The students replied that none of them would steal, and they held stealing to be a crime. The dean and students acquiesced in the idea that stealing was a greater vice than cheating or lying.

This of course was surprising to members of a scientific group, who had come to realize that truth was the supreme virtue towards which all students of natural science must aspire. Questions of ownership and property rights are social and artificial, and changes in the system cause no mental confusion. We know exactly what has occurred and what we have. One person had in his possession a material thing which another person has temporarily taken for his own. But when one relates an occurrence or records an observation as having been other than it truly was we are misled and mentally confused. If this was a general practice we could scarcely become acquainted with the world about us. In medical science as in all science there must be a never-failing search for fact or truth. One must depend upon the truthfulness of others in order to advance knowledge in the conquest against disease.

If an experimental investigator reports a given drug to bring forth a definite physiological response which might be of high clinical importance, the clinician must depend upon the truth of the report and if it be false it may mean the death of his patient. Persons who must in practice apply truths and facts as they are given to them are not the people to tamper with deception and falsehood during their years of education and training.

We must now ask ourselves whether a system of standardized regulation does promote a search for truth and does really enthrone truth among its gods.

When a number of persons, all differing in their past experiences, tastes, knowledge and desires, are forced into a system demanding a uniform performance they intuitively feel the contrariness to natural truth in the plan. Individuality is embarrassed and originality is discouraged and the routine of the machine is glorified. This promotes cheating and finally, as we have seen, may carry the vice through the stages of endurance, pity and embrace.

When cheating becomes general it is the fault of the situation and not alone of the persons concerned. If this be a situation in scientific education it must be promptly changed and made over or the aim for which the system was intended will be forever lost.

The student comes to the medical school as an adult individual to work for himself and to learn his own job. His behavior should be regulated by the system as little as possible and he should be given every proper opportunity to use his own initiative, his own discretion and his own way in securing for himself the knowledge and skill he needs in his profession. If the opportunity for free action and choice be completely denied him by a system of standardized uniformity how can it ever be expected that this person will later be original, resourceful and ingenious in the handling of human patients or the solving of medical problems? It is as much a part of education, and especially of higher education, to learn how to direct one's self independently as to accumulate knowledge from laboratories and books.

Lectures, demonstrations, laboratories and clinics should be available, but only the most formal part of these should be scheduled by time. A student should be free to work as short or as long a time as he finds necessary for an understanding of the particular problem or subject. Certainly no two intelligent individuals can quite do the same thing equally well in exactly the same time. A student should, therefore, have some right in deciding when he is ready to be examined for qualification in a subject. All this latitude is perfectly possible and is being practiced in parts of the university and to some extent in medical schools in several parts of the world.

Some one may say that many students are not adapted to such open arrangements as this—I agree that they are not, but I would also add that they have no business here and the community would be indebted to us if such persons were unable to crawl into the medical profession. No one should be carefully checked for attendance, quizzed and drilled on lectures and texts and watchfully guided through laboratories and clinics for four years, and then be suddenly let go to stand on his own feet and independently treat the sick and dying.

The champions of fairness to the weak and deficient student have had far too much influence in the moulding of methods and arrangements in the medical faculties. This vision of fairness should be a little more far-sighted and look away to the lame doctor attempting to treat the crippled patient at the other end of the line. There might be a picture hung beside the rear exit door of a medical school showing a bungling, inefficient person pretending to cure a sick patient, and for those admiring symmetrical hangings an appropriate sister painting could portray the proverbial blind leading the blind.

No, there can be no welcome here for bungling, sloppy-minded or incapable persons—the medical college is not the place for them. And a consideration of such persons should not enter into the design of our educational policy. The policy must consistently avoid penalizing the able student in order to salvage the unable; it must be built only for him who stands.

We do not propose a simple turn-back to the old open system of ante-bellum days which so many of us experienced. This would get us no further along. But we do urge as the essential elements in human education open-mindedness and intellectual tolerance. Education in all fields of science should break down prejudices, promote tolerance and force with unerring determination the quest for natural truth. This has never been approached on any system of standardization. Uniformity and standardization immediately establish a prejudice against deviation and false ideas of perfection arise. Tolerance and truth have little sanctity in such a communion.

We here have aimed to have an institution in which an understanding of life may grow. The consideration of facts as we know them and the search for new facts is to be our daily privilege. To differentiate fact from fancy and to become adamantine in our determination to make no mistake between them is to be our discipline. Human minds frequently accept wide categories of things as facts. But the free admission of half-established findings to the realm of facts is the most befogging reaction of the brain. The more cautious one becomes in accepting an apparent fact the more reliable he becomes as a scientific scholar.

The struggle for truth must be consistent and universal. And self-deception must be as fully and as carefully avoided as the deception of others. No one can deceive himself without sacrificing his only method for obtaining the truth.

To these aims and to your part in their accomplishment the faculty of Cornell Medical College heartily welcomes you!

HOW THE COLLEGE CAN AID THE OYSTER INDUSTRIES[1]

By Dr. DONALD W. DAVIS

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THE story is told of Alexander the Great that as a young man he watched the efforts of his father's subjects to tame an exceptionally fine horse, and noticing that the horse shied at its shadow and obtaining permission to attempt to ride him he faced Bucephalus toward the sun and forthwith had him under full control. The obvious moral to this tale for the two organizations meeting here to-day is "know your oyster." It is possible that some of the many unexplained difficulties encountered by the oysterman are due to the oyster shying at its shadow, and only an observant Alexander is required to orient him properly. But, unfortunately perhaps, the oyster in the earlier stages of its life cycle is very small and elusive, difficult to find and to see without special aids. Furthermore, the source of the shadows interfering with our control of the behavior of the oyster are obscure. Its food is exceedingly minute, and the physical and chemical balance in its surroundings necessary for its complete and rapid development is most delicate. So that knowing your oyster adequately for satisfactory control requires use of the microscope, the test-tube, the salinometer, the balance, the kymograph and most of the rest of the physical, chemical and biological equipment of our biological laboratories. It requires also the mind trained in interpreting the revelations of these aids

[1] Read before the annual convention of the National Shellfisheries Association, Sayville, Long Island, August 19, 1930.