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Should There Be a Commission on Medical Education?

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Summary. In its premedical and preclinical phases our present scheme of education for medicine is intellectually deficient, wasteful of money and time, and in urgent need of overhaul. The author defines conditions under which a national commission might possibly set the educational process on the road to reform.

I have been asked to address the question: Is there a need for a national commission to review medical education in the United States? In response, I propose to deal with the process of education for medicine that usually takes up the first 6 years: the premedical and preclinical phases. I do this for three reasons. The first is to reduce the topic to manageable size and, at the same time, to recognize that the premedical and preclinical sciences overlap and can be integrated to a far greater degree than is ordinarily permitted. The second is that for more than half a century the premedical and preclinical phases have been thought to be responsible for certain undesirable features and manifest defects in the final product of the sytem, which is, of course, the licensable physician (*1*). The third reason is that I believe the clerkship method for teaching clinical medicine is, in principle, entirely correct and not in any way to be confused with the pre-Flexnerian apprenticeship system under which a medical student depended completely on the whims and expertise of a single practising physician for his clinical training. Very probably the curriculum of the future will emphasize clerkships in the basics, that is, medicine, surgery, psychiatry, pediatrics, and possibly obstetrics and gynecology. Clerkships in the various subspecialties ought to be elective, or they ought to be firmly postponed to the post-M.D. period. But in essence, the clerkship method of clinical training, under ideal conditions, ought to bring to bear a sensible mix of the academic and the practical, as it already does in many institutions, and is per se a very heady intellectual and social experience. What the clerkship needs is not revision but polishing and perfecting.

It is quite otherwise with the first two phases of the process. One might add, in passing, that ideally the whole process ought to be a continuum; many medical educators maintain that it is precisely that. Yet the several faculties that are directly concerned routinely do everything they can to keep the process rigidly segmented. And thanks to that effort, among other things, education for medicine in its premedical and preclinical phases is intellectually deficient, horrendously wasteful in money and in time, and in urgent need of overhaul.

Another Flexner Campaign?

We often hear it said that what we need is another Flexner report, as if one could turn the clock back from the late 1970's to the first decade of the century. Actually Flexner's effort, gifted man though he undoubtedly was, was something of a fluke. He came on the scene

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when the pump was already primed, ready and waiting for the vigorous stroke he so resolutely applied. The priming of the pump had begun some 30 years earlier when John Rauch, of the Illinois State Board of Health, who was the real father of reform of medical education in the United States, began to publish the standing of graduates of individual medical schools on state board examinations. Then in 1903, Frank Billings, president-elect of the American Medical Association (AMA), called for a holy war against the proprietary schools of medicine; and the next year the AMA set up its Council on Medical Education as its instrument for carrying the battle to the enemy's gates. By the time the Carnegie Foundation for the Advancement of Teaching, and Flexner, came on the scene, the tide of battle had already turned against substandard schools of medicine. Flexner converted their retreat into a rout and, for better or for worse, established the Hopkins model as the ideal for the United States. Thus it was that the standard sequence as we know it emerged: premedical stage, to preclinical stage, to clerkship, to internship (*2*).

The results that accrued over the next 20 years were far from what Flexner intended: there set in the well-nigh total ossification of the educational process that leads to medicine, and the fact brought anguished outcries from the great man himself (*3*). But it was too late. He had set in motion processes that have, to date, proved to be mostly irreversible. At the present time, medical schools do not fall easily into three groups (good, bad, and worst) as they did in Flexner's time. They are all more or less of a piece, all defective if not equally bad. There is no question whatever that many very well-educated physicians emerge each year from our system of education; but at what cost in dollars, time, and anguish? It is infinitely discouraging to look back over comments made about American premedical and preclinical education early in the 20th century, including those made by Flexner himself, to find that fundamental defects which were present then are still very much with us.

The Natural History of Experiments

What, then, have we been doing all this time? Have there not been many studies of specific aspects of education for medicine and quite a few large and expensive experiments in the field, especially since World War II? Indeed there have been; and as a result students do not spend as much time dissecting cadavers as they did 50 years ago; they are brought into contact with clinical matters earlier; and they have much more elective time than used to be the case. But many of the chief defects remain. Hugh Cabot, writing in 1925, said that [(*4*), p. 9]

> although it is undeniable that the medical student is untrained, not rarely illiterate, yet our tendency is to increase the load in science to the exclusion of . . . other subjects.

The premedical years, said Cabot, are "indifferent as part of a broad education and . . . ineffective as part of a scientific one"; and of the premedical and the preclinical phases, he said that they bring our students to their clinical studies "ill trained as scientists and ill equipped in the humanities" [(*4*), p. 13]. Most unhappily, Cabot needs no updating. His comments are as valid now as they were when he wrote them.

Experiments in medical education seem to be characterized by a strong tendency to lose their impetus and swing to dead center, bringing the experimenting institution more or less back where it was at the start. There are certain exceptions. In 1952 Western Reserve, now Case Western Reserve, mounted an ambitious program in which the curriculum was reoriented around "the whole human organism—its response to stimuli under normal and abnormal conditions." The focus was, and still is, on "ascending levels of complexity" from cell to organ to system, and required a degree of cooperation between departments that was to that time unheard of. The experience at Case Western Reserve sooner or later influenced the teaching of the preclinical sciences at most American medical schools. But it did not address itself to the problem of premedical education; nor did it examine the standard lament of arts and sciences faculties that premedical requirements make it impossible for students to obtain a liberal education or to become well-versed in the humanities. To that contention we shall return in due course.

Two other experiments in medical education—one at Northwestern, the other at Boston University—got under way about the same time Case Western Reserve launched its project. Both made it possible to obtain the M.D. degree in 6 years after leaving high school, and both admitted students to the 6-year program on the basis of high school records, all this long before the federal government dangled incentives to shorten curriculums leading to the M.D. degree. Both institutions bravely sought, at the start, to integrate fully the premedical and preclinical segments. In the latter effort, both experiments failed, although the 6-year programs still exist. Recently graduates of both 6-year programs for the years 1961 to 1976 have been meticulously compared with their fellows who went the 8-year route, with respect to class standing, performance on examinations of the National Board of Medical Examiners, internships obtained, specialties chosen, type of career (academic or in practice), and membership in professional societies; no significant difference between the two groups of physicians could be discovered (*5*). Curiously, these results seem to have been unacceptable to some faculty members, who still mutter darkly about unassessed, and probably unassessable, differences such as emotional and intellectual immaturity (*6*). Some of them seem, in fact, eager to ignore their own quite remarkable results or, that effort failing, at least to discredit them. The 6-year programs at Northwestern and Boston Universities have, in effect, been stabilized (or sealed off) so that their tendency to spread is kept in abeyance. Even so, just less than a third of the entering class at both universities is currently composed of 6-year candidates.

Two 6-year programs of more recent vintage are currently in process of being scrapped, largely on evidence that is entirely subjective and despite the fact that, as in the Northwestern and Boston experiences, graduates of the 6-year programs differ in no objective way from those pursuing the 8-year route (*7*). Beran (*8*) notes that "subjective data formed the basis of return to the four-year program" and calls for longitudinal studies "to distinguish whether . . . program duration relates to anything other than tradition."

It is in any case very clear that faculties, and possibly some students, dislike shortened programs. The number of schools offering 6-year programs fell from 29 (out of 116) in 1974–75 to 13 (out of 124) in 1978–79 (*9*). During this same period the number offering combined M.D.-Ph.D. programs, requiring 9 years or more (beyond high school) for completion, rose from 79 to 91. Although it is unquestionably misleading to place primary emphasis, in judging the validity of a curricular plan, on elapsed time beginning to end, this clearly established trend must be saying something to us. Very obviously, the retreat to the 8-year track, and to even longer M.D.-Ph.D. programs, in the face of convincing evidence that for many students 6 years is quite adequate, suggests hidden agenda of some sort. There is nothing magic

about the figure eight, and to equate the acquisition of competence and of bioscientific literacy solely with the passage of a specified number of years is plainly fatuous. It seems logical, on the face of it, to conclude that students should have the option of acquiring the M.D. degree in 6, 7, or 8 years (as they still do at Boston University and a few other schools). But if present trends continue, all American medical students will be forced into the 8-year, 9-year, or even 10-year mold. All this despite the fact that some medical faculties seem incapable of utilizing the fourth year of conventional curriculums for credible intellectual or educational purposes.

The Premedical Compartment

We are thus led inevitably to the conclusion that a commission, if it is to do anything worthwhile at all, must be able from the start to identify the many myths that bedevil education for medicine. So far my emphasis has mostly been on the myth that exposure to the natural and basic medical sciences in the premedical and preclinical compartments, occupying a total of 6 years, constitutes ideal preparation for the study of clinical medicine (*10*). The dictum that medicine has a scientific basis, and that the physician must be a scientist, is usually offered in support. But usually ignored is the fact that the scientific basis is largely a body of applicable bioscientific concepts, not a mass of pettifogging details. Yet most medical schools seem content if the student masters the latter and have little concern for the former. As a consequence, students seldom have occasion to realize that, while there's nothing wrong with practicing medicine empirically most of the time, it is important to know when you court disaster by doing so.

Requirements in the natural sciences in the premedical compartment have not been revised for more than half a century, although the content and concepts of the natural, biologic, and behavioral sciences have altered enormously. The time-honored descriptive, and often excruciatingly dull, approach to the teaching of science to beginners is only slowly giving way to a conceptually oriented and more efficient approach. Even so, standard departmental designations—chemistry, physics, and biology—remain rigidly in place and still determine the patterns of the courses required of premedical (and other) students. The frequent assertion that "general chemistry" now contains references to physical and biologic matters, or that "general physics" now touches on applications to biologic topics, is tacit recognition of the growing overlap between the areas and, to an extent, of the redundancy of the courses offered. Yet it is virtually impossible to induce general consideration of the fact that what is being imposed in most institutions, even in some prestigious ones, is intellectually inferior and still a far cry from the rigorous and challenging intellectual experience the defenders of the status quo claim it to be. Quite simply, the premedical sciences now required, taken together, are more punitive than enlightening; they are redundant and stultifying; and the miracle is that a few students—and they are few—still manage to find them interesting.

There are thus compelling reasons for critical examination of the intellectual effectiveness of the standard biology-chemistry-physics combination required for entry to medical school. But how suitable are they for students who intend to major in one of the natural sciences or, for that matter, for students seeking only to satisfy a distributive requirement in the natural sciences? Might it not be possible to design a conceptually oriented exposure to the main features of natural science that would require little more than one academic year, that would indeed be intellectually stimulating and challenging, and that would be suitable for all students whatever their ultimate goals?

Integration, Premedical-Preclinical

But our hypothetical commission would be charged mainly with examination of the premedical-preclinical sequences in the natural and basic medical sciences, and not with revision of content and sequence in the natural sciences per se. I contend, however, that our commission, when it turns to the pressing matter of integrating the natural and the basic medical sciences, will be unable to do the job piecemeal. The great hope and expectation is that the commission will be designed so that it can look at the entire premedical-preclinical sweep in the sciences solely in terms of what can be justified in intellectual and conceptual terms.

It should be encouraged to do this in the first instance without reference to the cost in money and time of installing a new curriculum and without being bound by our time-honored departmental boundaries and definitions of disciplines. And after it has done its job, letting the chips fall where they will, it can then turn to practical constraints and recede from the ideal to the extent that circumstances require. But through it all, the commission will have to keep before it the probability that the chief barriers to effective curriculum reform at both the premedical and preclinical levels have until now had little to do with intellectual development and effective pedagogy; they are, on the contrary, mainly conditioned by outmoded departmental boundaries, disputes over territory, and intractable commitment to the maintenance of personal and departmental prerogative.

The Liberal Arts Question

Finally, our hypothetical commission cannot go very far in looking at the premedical compartment without encountering the liberal arts concept. Arts and sciences faculties devoutly maintain that, because of premedical science requirements, students opting for medicine cannot obtain adequate exposure to the liberal arts. But when we ask these faculties to specify more precisely what it is that is lost because of the premedical science requirements, we receive an astonishing variety of generalizations and glib phrases, but nothing resembling implementable definition. Lewis Thomas recently condemned the "baleful and malign" influence of medical schools on liberal arts education and said that the cure is to abolish existing premedical requirements in favor of immersion in ancient Greek, the Homeric epics, English, history, philosophy, and at least two contemporary foreign languages (*11*). Thomas would thus solve the problem of the premedical science requirements by abolishing them altogether, a proposal that has more shock value than common sense. But there is the strong probability that redesigning the chemistry-physics-biology troika to acceptable intellectual purpose would render the acquisition of a liberal education, even by Thomas's expansive definition, considerably more feasible than is now the case.

My point, however, is merely to indicate that the problem of rationalizing the premedical-preclinical sequence in the sciences is not easily separable from the problem of evolving a definition of adequate education in the liberal arts. We cannot go on begging the question by defining the liberal arts as everything except the natural sciences. Even if we can fully and sensibly integrate the premedical and preclinical sciences, the liberal arts question will remain. Doctors

should be humanized, we are told, whatever that may mean. But can we assume that today's standard requirements for baccalaureate degrees in the liberal arts and the humanities necessarily do the trick, or confer linguistic literacy or broad understanding of late-20th-century Western society, its origins, present characteristics and defects, and future prospects?

The answer is plainly no. If our commission can, with or without outside help, see clearly how to structure liberal arts requirements in order to produce graduates who are truly liberally educated, and if it is then apparent that premedical requirements seriously interfere with liberal education by realistic definition, premedical requirements must yield. But they need not do so if those requirements are themselves imaginatively restructured according to the concepts and needs of the late 20th century. They may indeed finally become a fundamental part of liberal education.

Now to the Question

My answer to the question: Should we establish a Commission on Medical Education? finally becomes a very cautious yes, but with many conditions. First, the commission must have as a primary aim the rationalization and integration of the premedical and preclinical sciences, taking into account the changed and changing positions of the natural, social, and behavioral sciences. As it proceeds, it must constantly give consideration to the sense and nonsense of the liberal arts concept and tradition. It must also weigh seriously, for the first time since Flexner, just what ought to go into the scientific preparation for clinical medicine.

All of which is a very tall order. What should be the membership, if these ends are to be served? I shall not be so presumptuous as to spell it out in detail. But the position of the natural and behavioral sciences, actual and ideal, must be represented, and there must be members who are able to represent the arts and sciences concept as well. The preclinical sciences require representation equal to that of the natural sciences, and finally there must be several clinicians who are able and experienced enough to provide judgment as to the ideal preparation for the study of clinical medicine.

I envisage a commission of 12, or at most 15, members. Unlike most, it should be able to work in continuous session for a year or so, should be well staffed, and should be able to subcontract some of its projects to appropriate units in and out of academe. Its final report should present detailed recommendations, not limit itself to general principles.

Last, but of critical importance, who should sponsor the commission? The question was easily and happily answered in 1908, when the Carnegie Foundation, the Council on Medical Education, and the then young Association of American Medical Colleges served as joint sponsors. Today the climate within which we live and work is vastly different, the most prominent change being the great increase in the role played by the federal government. But our commission belongs solidly in the private sector. Only there can it be insulated from partisan and political pressures from federal sources and other pressures coming, directly and indirectly, from the academic sector.

Such a commission just might set us on the road to nondoctrinaire, carefully considered, and much-needed educational reform which, in turn, might actually achieve some of the more desirable purposes Flexner had in mind 60 years ago.

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9. *AAMC Curriculum Directory 1978–79* (Association of American Medical Colleges, Washington, D.C., 1978), pp. 300–301. The data are a bit confusing, but of interest is the fact that, as of 1978–79, only three schools offered a 3-year program as the only option, and one of those (Dartmouth) is reverting to the standard 4-year program next year.
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