Letters

Academic "Soul Searching"

Although we concur with most of the editorial "Career choices" (24 Dec. 1971, p. 1283), certain additional points are germane to the topic.

True, many of our recent graduates experience some state of "future shock" when confronting uncertain employment markets for many of their rather restricted skills. The "overeducated" trap becomes for them as much a tragedy as the "undereducated" trap is for others. In this context, there may be those who advocate a revolution of the repressed "nouveau intelligentsia" currently facing deprivation.

But who really should bear the major share of responsibility for the alleged future shock? We argue that accountability lies with colleges and universities from which those students graduated. Why? These institutions of reportedly higher education—many claiming as one of their purposes the preparation of students for something dubbed "life"—do not condition students for the accelerated change that is now a socioeconomic reality. Are students readied to live with and adapt to rapid social and institution change? Or are they trained primarily for status quo careers—such as teaching, engineering, special fad fields, and the like? The latter is more often the case.

How many faculty quickly conform to student demands for "relevant" ("applied and immediate") education, knowing all too well it involves a paradox? Realizing that students seek valid orientation for "life" but often confuse fad with long-range realities, how many faculty play the pretender, almost skirting intellectual dishonesty in the process—without the malicious intent? (Misrepresentation is more often manifest by omission of pertinent information and qualifications than by commission of distortion.)

Not meaning to sound "corny," we dare to suggest such "old-fashioned" virtues as academic competence, high intellectual standards, and far-reaching preparation, rather than "the customer (student, public, and so forth) is always right" mentality plaguing so many private and public colleges and universities. To join cliché with "corn," the road to hell is paved with good intentions and intentions do not always equate with end products, as any "successful" politician or salesman could tell us.

Let us throw away our administrative and public-relations placebos of "relating (selling out?) to our kind of student" and "the-image-of-the-school" and return instead to the catalysts our training and competence allow us: research, teaching, and the quest for an undefined hazy intellectual horizon—a quest inherently future-oriented. Unified intellectual courage, in the face of non- and anti-intellectual demands, may be the revolution we need if our institutions of higher learning are not to become the degree factories many fear they already are.

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Medical School Finances

In the report, "HEW study on financial distress in medical schools focuses on shortcomings in data showing cost allocation" (News and Comment, 18 Feb., p. 732), a quotation is attributed to the book, *Financing Medical Education* (*1*) which Gerald Weber and I wrote for the Carnegie Commission on Higher Education. Unfortunately, the quotation, although bearing some resemblance to what we wrote, is incorrect and changes the nature of our observation.

In *Science* we are quoted as having written that there is ". . . an excessive allocation of medical school resources to the research function with a consequent adverse effect on the attention of the medical school toward the provision of services." On page 205 of *Financing Medical Education*, in a discussion of the effect of research grant programs on medical education, we noted a number of educational benefits that can be attributed to federal aid for research. Following that discussion we noted that the effects of research grant programs on medical education could be questioned on four counts: "First, it has been asserted that the grant programs have led to an excessive allocation of medical school resources to the research function and that a by-product of this misallocation has been an adverse effect on the attitude of M.D. candidates toward the provision of services."

Our statement relates to the M.D. candidate, not to the medical school. We specifically attributed the difficulty to the grant programs. To drop the words, "grant programs," is to suggest that the medical school has made a set of independent decisions. This distorts the historical record and is a matter which we discuss in considerable length in our book.

In his report, John Walsh writes in reference to the quotation: "Taken out of context this has an accusatory ring, whether intended or not." We were not making an accusation and, indeed, prefaced the discussion with the words, "It has been asserted that. . . ." Our intention was to analyze a process and to identify the key variables and some of the consequences.

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Reference

1. R. Fein and G. Weber, *Financing Medical Education* (McGraw-Hill, New York, 1971).

John Walsh's report helps to demonstrate the difficult bind in which medical education finds itself. While criticism of financial management is probably legitimate, the complexity of the endeavor is rarely recognized. Cost allocation, as practiced, is not a scientifically accurate method. It is an art form in which numbers are used.

No two university medical centers are alike, although some have common characteristics. Some medical schools own hospitals, others are owned by the same agency which owns hospitals, others have merely made agreements, formal or informal, with one or many hospitals that are in turn owned by other parties. Which party pays for what is not just a function of equity

between or among parties; it is also a function of the respective institutional goals viewed over time and within local ground rules. For example, the actions of the purchasers of medical care—government at federal, state, and local levels; Blue Cross and Blue Shield; more than 1000 commercial insurance carriers—can determine many cost allocation decisions. The many regulatory agencies also exert considerable influence, and their regulations change with great frequency.

Cost allocation must necessarily be directed at assuring the viability of the complex organization in all its parts. If a purchaser or a regulatory agency suddenly decides that it will no longer pay for a segment of the product line, one must either discontinue that segment or, alternatively, reallocate the costs to other segments. This becomes a continuous juggling process, often dictated by expediency rather than by rational approaches. If the priorities change in Washington or in the state house, the medical center must respond. This is just as true in the research and education sectors as it is in the medical care sector, but the latter is the largest component.

How much should be charged to the patient, to the student, to the house officer, to the research fellow, to the community, to the nation for each item of service? How much is each prepared to pay, and through which vehicles of payment? Costs must be allocated in part on the basis of willingness of someone to pay.

In the absence of clear, consistent policy, and in the presence of a myriad of categorically financed activities, the finances of the medical center and its criteria for cost allocation will continue to be chaotic.

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Pain Inhibition

Current Occidental interest in analgesia by acupuncture should be integrated with recent work on the inhibition of pain and temperature perception in humans.

White sound (a random mixture of frequencies ranging from 50 to 45,000 cycles per second) was found to block pain caused by dental drilling or extraction (*1*). Skin stimulation produced by immersing the opposite hand in water suppressed causalgic hand pain (*2*). Pain and hyperthermia in the right hand and arm of a man with a left parietal lobe cerebral lesion were reduced and eliminated by stepwise increases of vibration or pressure stimulation applied to the opposite hand (*3*). This inhibition of pain was later explained by the postulation of a pain gate in the substantia gelatinosa of the spinal cord, a gate which is closed by the predominance of large over small fiber activity in the input to the spinal cord (*4*). Whether this theory can also be applied to audioanalgesia is yet to be shown. A recent application has been the utilization of electrical stimulation of the posterior columns of the spinal cord for the diminution of intractable pain (*5*).

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2. M. Bender, *Arch. Neurol. Psychiat.* **54**, 5 (1945).
3. S. E. Trent, *J. Nerv. Ment. Dis.* **123**, 357 (1956).
4. R. Melzack and P. Wall, *Science* **150**, 971 (1965).
5. C. N. Shealy, J. T. Mortimer, J. B. Reswick, *Anesth. Analg. Cleveland* **46**, 89 (1967).

Solution of UpA Structure

In the interest of historical accuracy we feel obligated to comment on the letter of Rubin, Brennan, and Sundaralingam (28 Apr., p. 355). The statement by their group that their solution of the crystal structure of UpA [uridylyl (3′,5′) adenosine hemihydrate] was complete by the time of the 1971 American Crystallographic Association meeting in Ames, Iowa, is at distinct variance with the remark made by Sundaralingam at that meeting. In his role as session chairman, Sundaralingam stated, in comments following our presentation, that his group was working on the structure, but that they had not as yet managed to solve it.

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