Letters

Ethics, Law, and the Universities

Two lawyers, Joe H. Munster, Jr., and Justin C. Smith, get down to brass tacks in discussing the *Wohlegemuth* case, concerning valuable secret knowledge, and the rights to such, on and off the campus ("Savants, sandwiches, and space suits," 18 Sept., p. 1276). Lawyers have a neat way of analyzing man's behavior as its stands, apparently on the thesis that ethics cannot be subjected to legislation. For a business firm to hire an unethical person seems unwise, if for no other reason than that the advantages gained from learning the secrets of competitors may be offset by a rebound. Thus ethics is placed on a pragmatic basis.

Possibly it is time to reexamine that stuff barely mentioned since grandfather died, integrity. Scientists like to regard themselves as masters of integrity, with their presumably objective viewpoints, but the evidence is strongly against them; and now the humanities are trying to get into their act. The allusion in Munster and Smith's article to "at least one" university's exorbitant charges for overhead, payable from grants for research, is mild compared to those they might have made. Business, government, and now the universities become ever more ruthless in their attitudes toward that ever assailable victim, the consumer-taxpayer. We *know* that there is a vast amount of distortion and weaseling, varying from the abuse of franking privileges to unjustifiable travel on research funds, and we shrug our shoulders.

The law is entirely formal and ignores the imponderables of ethics. In our consciences we know that ethics and integrity ought to be more powerful than laws. Do we have to give up? Is it not possible to reward integrity modestly? Is it not possible to make the unethical moves on all sides a little more risky, a little less popular? Can we not, by example, inculcate integrity in graduate students, instead of heading them insidiously toward political manipulation?

Lawyers apparently have no wish to attempt definitions of integrity and ethics. But will they not join us in some semblance of reaction in favor of an intangible integrity and ineffable ethics?

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. . . The article was far more alarming and prophesied far more dangers than the case of *B. F. Goodrich Company v. Wohlgemuth* warrants. (The decisions may be found in *137 United States Patent Quarterly*, 389 and 804.) The authors imply that research workers are in grave danger of being prohibited from using knowledge gained in earlier employment. But the court on appeal specifically said, "We have no doubt that Wohlgemuth had the right to take employment in a competitive business, and to use his knowledge (other than trade secrets) and experience, for the benefit of his new employer." This principle is well established and is the universal view. In fact, a contract prohibiting entry into a competing business is generally regarded as against public policy and therefore void. In California, for example, it is provided that "every contract by which anyone is restrained from engaging in a lawful profession, trade or business of any kind is to that extent void" (*Business and Professional Code, Section 16600*).

The *Wohlgemuth* case did not establish a new rule of law, as might appear from the article. Rather, the decisions emphasize the fact that the jurisdiction was in *equity*. Law is based on an established set of rules upon which future conduct can be based. Equity, on the other hand, is intended to reach a fair and just result without being strictly bound by judicial precedents at law. The case was in equity, pure and simple, and there is no rule of the case to be expanded and viewed with alarm.

Rightly or wrongly, the courts found that Wohlgemuth, a young chemist, had made a meteoric rise in space-suit technology in 6 years with B. F. Goodrich Company. He had, they found, no moral compunctions against disclosing Goodrich secrets when he left that company's employ. The appellate court twice spoke of his "attitude" and quoted him as saying that "loyalty and ethics had their price; insofar as he was concerned, Internation Latex was paying the price." He said that "once he was a member of the Latex team, he would expect to use all of the knowledge that he had to their benefit." Apparently some of these secrets he had obtained simply by virtue of his employment with Goodrich; he would have no rights as the creator of these secrets if others had created them.

The lower court was more concerned with what it considered wrongful conduct on the part of International Latex in luring Wohlgemuth away from Goodrich. It found that "the attitude of the International Latex Corporation through one of the witnesses in this case would not lead the B. F. Goodrich Company to any other conclusion but that the company intended to induce, if possible, the defendant (Wohlgemuth) in this case to give them the benefit of every kind of information he had." (The court was unable, however, to prevent such attempts by International Latex, because that corporation was not within the state.

It was these attitudes on the part of the enticing employer and the enticed employee that caused the court to order an injunction to prevent disclosure of secrets that were the property of B. F. Goodrich Company. "Public policy," said the Court of Appeals, "demands commercial morality and courts of equity are empowered to enforce it by enjoining an improper disclosure of trade secrets." The *Wohlgemuth* case simply prevented a theft from occurring. It represents no new restriction on research scholars. It only requires that they be moral and ethical individuals.

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World Trade in Technology

Waterman's editorial, "International competition and cooperation" (18 Sept., p. 1261), brings out the importance of increasing international cooperation in science and technology.

Let us add some very practical dollars-and-cents considerations to the valid and urgent idealistic and philosophical thoughts Waterman expresses.

In the scientific realm we have been nurtured, directly or indirectly, by government money; thus, our technology has flourished. Overseas, in Europe and Japan, technology has also flourished, but largely without government money. The emphases of scientific developments are therefore quite different from those in the United States. While we have concentrated on frontiers in the macroscopic and microscopic worlds (space, microminiaturization), they have developed everyday commercial and industrial applications. Overseas science plays the traditional role of enriching life.

Because of this different emphasis, scientists can gain much from an exchange of ideas and products. With the projected decline of defense expenditures, we need to channel our efforts toward commercial-industrial applications. We can thus trade, exporting our advanced technology and obtaining in return practical applications. This diversification can be the solution to many of our future post-cold-war problems.

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College Boards for Biology

Fornoff says, "In chemistry and biology, studies made to date have not demonstrated the necessity for special [college boards] tests for the new curricula" (Letters, 25 Sept., p. 1385). He neglects to say that neither have these studies demonstrated the adequacy of a single test for students of the new curricula and students of the conventional curricula. Furthermore, he does not mention the effect that using a single College Entrance Examination Board test, combining conventional and new curricula approaches, will have on the teaching of biology. And so he misses a most crucial matter.

Through the courtesy of CEEB, two special committees of the Biological Sciences Curriculum Study had the opportunity to review two recent CEEB biology tests last spring. It was their unanimous opinion that those tests did not adequately reflect the kinds of learning BSCS students are intended to achieve and did not provide adequate opportunity for BSCS students to demonstrate what they have learned about biology and techniques of inquiry.

The study which Fornoff says is now being initiated to determine whether separate tests are needed appears to be too late to be of practical value. Such a study could have been worthwhile in 1961, but at this date the possibility of finding representative and uncontaminated samples is virtually nil. Publishers had sold 250,000 BSCS books to the schools by September 1963, and it is estimated that approximately 400,000 more were distributed by September 1964. Thus more than one-quarter of all biology students in the country will be using BSCS books. In addition, many teachers of conventional biology classes have attended BSCS-oriented institutes during the last two or three years; others have been studying BSCS materials informally. All of this suggests a potential "contamination" of conventional classes by BSCS topics and approaches to learning so serious (or so favorable, according to one's point of view) that "controls" for a dichotomous evaluation would be impossible to identify. On the other side of the coin, "contamination" of BSCS courses by topics taken from conventional courses is practically guaranteed, as teachers have realized that their students must prepare for a CEEB examination that focuses on conventional biology.

The effect of a single omnibus test on the teaching of biology constitutes a problem of major proportions. As every teacher knows, teaching is strongly influenced by testing procedures; the more critical the use of the test scores, the more influence the test has on the curriculum. As teachers and students come to realize that tests will cover both conventional and BSCS biology, most teachers will try to teach (and most students will try to master) such an amalgam. Thus, the biological ideas and themes which are fundamental to each of the versions of BSCS biology will necessarily become distorted and diluted. Officials of CEEB and the Educational Testing Service have frequently stated that they do not wish their exams to dictate curricula. Yet such a composite test would do precisely this. Such a test would penalize both BSCS and conventional courses in favor of a composite course —to match the composite test—thereby adversely influencing the major aims of conventional biology and the major aims of BSCS biology.

That BSCS and conventional biology students learn different skills and concepts was amply demonstrated in 1961–62 in a testing program designed by ETS (*Science*, 17 Jan., p. 265). Replication in 1962–63, when BSCS teachers had become more accustomed to the new curricula, demonstrated differences that were double those found earlier. It seems wasteful to delay action on the creation of two appropriate tests while conducting further statistical studies which can hardly throw new light on the subject. The position being maintained by CEEB will surely result in discouraging advancement in biological education.

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Prestige in the Two Cultures

There may be a significant connection between the separation of "the two cultures" on campuses—which Lafore (21 Aug., p. 790) describes in his witty and clever extension of C. P. Snow's thesis—and the subject of Abelson's editorial in the same issue (p. 771).

Citing a recent survey of public opinion, Abelson reports that, in the eyes of the public, "scientists" have more prestige than "professors" and much more than the creative art professions. There may be some reason to suspect that professors (including those professors who are scientists) hold opinions similar to those of the general public regarding occupational prestige; Beardslee and O'Dowd in *The American College* (N. Sanford, Ed., Wiley, New York, 1962) have shown that faculty and undergraduates are in agreement with respect to the perceived images of selected professional occupations.

At the present time, as regards prestige, scientists are the "haves" or "have-mores" and the traditionalists the "have-nots" or "have-lesses." Distance on a generalized prestige scale may be an important component in what keeps the "two cultures" apart. As in other social contexts, the "haves" and the "have-nots" tend to avoid each other's company.

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