most formal method of instruction, the lecture, has been considered most effective when it serves this emotional component (*2*). The professor as counselor and adviser serves this emotional factor even more, it seems, in the many spontaneous sessions that occur as an informal part of his job.

In meeting the exhausting demands of this third personal factor, the crux of the problem of higher education becomes not the integrity of the university, but the integrity of the professor. Even in his reluctance to recognize and label this dimension to his role, he will quickly note that there is little if any official reward for his counseling activity, either by his colleagues as they rate him as a professional and scholar, or by his institution as it defines his task. However, one observation is clear—the students' conception of education recognizes this, as evidenced by its frequent use, as a useful and necessary component of that experience.

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Animal Experimentation by High School Students

The National Research Council's Institute of Laboratory Animal Resources has recently issued revised guidelines for animal experimentation by high school students (*1*) which are in no way better and in several respects worse than its 1960 version. Basically, they reaffirm past principles requiring gentle handling, proper feeding and housing of animals; the use of anesthesia where appropriate; that "a qualified adult must assume primary responsibility" for all animal experimentation; and that "a trained life scientist, physician, dentist, or veterinarian directly supervise" surgical and pathological studies.

Unfortunately, these guidelines fail to demarcate socially acceptable boundaries for student work since, like the old guidelines, they place few limits on student experimentation. Thus, in full compliance with the guidelines, a high school student (whose work was exhibited at the International Science Fair organized by Science Service at Detroit in May 1968) inserted brain electrodes into squirrel monkeys (*2*).

One of the 25 monkeys used died during the fair and postmortem examination revealed that the electrodes were so improperly embedded that they were not even penetrating the brain.

Nor do the guidelines place any restraint on, or enunciate standards or principles to govern the infliction of pain upon animals other than requiring the use of anesthesia where appropriate. Thus, survival surgery such as skin grafting and removal of organs, induction of painful pathological conditions, and abuse of pregnant animals to produce malformed offspring are commonly encountered in science fairs, where students aged 12 to 18 exhibit independent work (*2*). To my mind, there are strong grounds for restricting elementary and secondary school students to painless animal procedures and for confining surgical and pathological studies to institutes of higher education and research. One-fifth of 802 biology projects at 10 recent science fairs involved pain or death to higher animals. Considering the vast range of biological problems, the great array of plants, protozoa, and insects, and the many studies of animals which can be conducted without harming them, it is profoundly disturbing that one student in five now chooses a topic in which animals are hurt or killed. Yet these new guidelines, which Science Service has adopted posthaste, pay little heed to the undesirable moral, social, psychological, and scientific consequences of fostering poor, premature, and painful animal work.

The guidelines' clauses on supervision rely upon the student to seek supervision and upon his supervisor to determine what standards are advisable. Unqualified or uninformed supervisors direct all too many youngsters into undesirable work. The new guidelines do not even require that the supervisor be trained in the experimental procedures involved. Thus a student can merely discuss a project with his biology teacher or another person who has no special knowledge of the subject or techniques involved, and then proceed on his own at home, usually in a basement or bedroom, to harm and kill animals in juvenile emulation of meaningful scientific work. The guidelines do not require adequate experimental facilities and ignore the threat to life and health posed by student custody of dangerous drugs and toxic materials.

As the present guidelines condone such work, those scientists, educators, and citizens who are concerned with the humanity and good sense of biology and of American society should seek to have better ones formulated.

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1. This guide for high school students of biology was prepared at the request of the Science Clubs of America and approved by the National Society for Medical Research, the Institute of Laboratory Animal Resources (National Research Council), and the American Association for Laboratory Animal Science (1968).
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Czech Science in Iron Glove

Nelson's report on the 23rd International Geological Congress in Prague (13 Sept., p. 1116) once again illustrates the interdependence between the scientific and political areas of life. In recent years the work in the physiological laboratories of Czechoslovakia has constituted a highly significant contribution to the basic and applied sectors of this discipline.

My contact with Czechoslovak investigators at international congresses and symposia, study of their publications in Western journals, and the opportunity to work with their fellows in American, English, and Swedish laboratories have taught me to respect their contributions and to anticipate their future work. Now, a sudden shift in political climate has abruptly dampened and threatens to extinguish this active physiological center. Many of the most productive workers have already fled their native country and now seek their livelihood in other places. Contact with those who remain is becoming tenuous because we fear that direct communications from Western colleagues might jeopardize their future. Probably parallel situations can be cited for most other scientific disciplines.

We must protest this destructive interference with free scholarly endeavor. I urge that the AAAS inform the Academy of Sciences in Moscow that we share what we assume to be their concern with interference with the scientific work and the scientists of Czechoslovakia. We who still enjoy freedom must be the jealous guardians of these privileges for our less fortunate colleagues.

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