In these versions the commas or parentheses are indispensable.

4) Two "which" clauses:

. . . A B, which were isolated from C D and which require E F.

Note that the "and" is indispensable here.

5) Two sentences:

. . . certain A B from C D. These bacteria all require E F.

This is of course unambiguous.

RALPH A. LEWIN
Scripps Institution of Oceanography, University of California, La Jolla

After Lysenko

Greenberg's report on the recent attacks on Lysenko in the Soviet Union (News and Comment, 20 Nov. 1964, p. 1024) highlights a shift in attitudes which should come as no surprise to those who have followed the genetics controversy over the years. However, it seems unlikely that the Soviet leadership will pay sufficient "court to intellectual freedom," as Greenberg puts it, to wait for the results of the competition of ideas and "let the scientists slug it out in the professional and popular journals without imposing a solution from above." A New York *Times* dispatch (12 Nov. 1964, p. 9) reports an article in *Komsomolskaya Pravda*, the youth magazine, according to which "the Soviet Union faces a problem of retraining 80,000 biology teachers who were educated in the doctrine of Lysenko. . . . The Soviet educator will also have to rewrite biology textbooks and teaching aids. . . ."

That the review by the president of the Soviet Academy focused on the need for closer relations between basic and applied research does not indicate a shift in Soviet policy, but rather a reaffirmation of the orthodox Marxist dogma of "the unity of theory and practice." Expressions of this dogma have been a constant and routine feature of policy statements in all aspects of Soviet life. It is this very dogma which has been used by Lysenko and his followers to rationalize in ideological terms their monopoly in the field, and which will no doubt be used against them now that Lysenko has lost his support from the political elite.

WALTER HIRSCH
Department of Sociology, Purdue University, Lafayette, Indiana

Teachers as Scholars

In their public statements, universities say they are interested both in teaching and in research. And yet, when they are inquiring about a candidate for a position, they ask about his research accomplishments, but little, if any, about his teaching ability. I have even heard a statement to the effect that to get a good teacher you look for a good research man. Such statements, as well as the perennial teaching-versus-research argument, are the result, in part, of a confusion in terms and a failure to make certain distinctions. One of these is the distinction between teaching and lecturing. When a researcher talks of teaching, often he is picturing himself lecturing in his specialty to a group of advanced graduate students. This is an activity quite different from that of helping a group of undergraduate students of varying aptitudes and backgrounds to master a subject, a function that is shunned by many of the researchers hired according to the usual criteria.

Properly, the terms "teaching" and "research" have a broader significance than they have in general usage. Teaching occurs whenever the professor and his student are working together, whether in the classroom, where the professor is helping the student to master the subject, or in the research laboratory, where the student is serving his apprenticeship under the master. For the latter situation, it is reasonable to suppose that to get good teaching you look for good researchers. But in the usual context this is not the kind of teaching that is meant, and the desired result, of getting a good classroom teacher, is not assured by looking for a good research man.

"Research," also, has come to be used in a restricted sense. Properly, research consists not only in discovering new phenomena or inventing new theories to explain them, but also in improving our understanding of existing theories, finding a greater unity in them, and developing more concise ways of presenting them to students. In other words, in some of its aspects it consists of what every good teacher ought at all times to be doing. Self-improvement and the development of a clearer exposition of a subject are parts of scholarship. Unfortunately, the term "scholarship" has been appropriated by one group, and its meaning restricted so as to include only research in the narrower sense and the publication of its results. The good teacher is also a scholar, and ought to be recognized as such. But since those who determine policy have chosen to restrict the definitions of research and scholarship, they conclude that the researcher is a scholar and is therefore a good teacher, whereas the teacher is not a scholar and is therefore not a desirable fellow to have around.

There are, sad to say, teachers who are not scholars. In his spare time, one of these nonscholars is not to be found in the library reading in his field, or in his office writing new lecture notes, or in the laboratory developing new experiments, but instead at the faculty club playing bridge with his cronies, or at the snack bar being a jolly good fellow with the students. But there are also researchers who are nonscholars. These are the people who stick to their narrow specialties (it is a more efficient way to work your way up), object to teaching courses outside their specialties (and neglect those that they may have to teach), and fill the pages of our journals and the programs of our professional meetings with articles designed for self-aggrandizement or as a means of free travel.

In *The Folklore of Capitalism* (Yale University Press, 1937) Thurman Arnold pointed out that when a new society is built, there is also created a theory which describes its operation and provides a justification for it. Later, either the society changes to the extent that the theory is no longer relevant, or the original terms change in meaning; nevertheless, on all ceremonial occasions the various creeds and dogmas are intoned with great solemnity. The originally good theory that one could hardly be a good teacher if one were not also a scholar has become invalidated by a redefinition of basic terms, without any notice having been taken of it. In addition, the universities have come to place more and more emphasis on research as their primary justification. But on all public or ceremonial occasions they still recite their commitment to both teaching and research. Having thus satisfied the requirements of the Faith, they then get down to the real business.

Is it not time for our universities either to live up to their professed aims, or to acknowledge publicly that all they really want is research men, and the teaching be hanged?

FRANCIS T. WORRELL
Lowell Technological Institute, Lowell, Massachusetts