Letters

The Smartest People

Along with David L. Garth, the publicity man hired by Scientists and Engineers for Johnson (News and Comment, 11 Dec. 1964, p. 1444), I'm certain the "guy in Pittsburgh in a T-shirt with a can of beer in his hand" was capable of recognizing "the smartest people in this country," because the smartest people in this country say in constant repetition they are the smartest people in this country. All readers of *Science* are no doubt waiting breathlessly for more pearls of wisdom of this kind.

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As a professional scientist turned amateur I was fascinated by the glimpse into the brave new world of scientific thought afforded, on the one hand, by the letters responding to Dwight Ingle's article on race and, on the other, by D. S. Greenberg's superb exposition of the organization of the anti-Goldwater campaign.

Members of the Other Culture are no doubt marveling at the parallel construction of medieval treatises on heresy and the letters castigating Ingle for his blasphemy in suggesting that racial differentiation may possibly extend to intellectual capacity. Quite plainly there are thoughts too unthinkable to be contemplated, let alone published.

The article on Scientists and Engineers for Johnson presents the spectacle of thousands of scientists and engineers being herded into a gigantic public relations maneuver, designed to convince "any guy in Pittsburgh in a T-shirt with a can of beer in his hand . . . that the smartest people in this country considered Goldwater unfit," by a few individuals prominent in the scientific community because they have been appointed to offices of public trust.

I am uncertain whether to admire the ingenuity with which new creative tasks have been found for the Defense Director of Research and Engineering and the members of the President's Scientific Advisory Committee, or to be saddened at how quickly C. P. Snow has been confounded by this brilliant achievement in welding together the Two Cultures.

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Greenberg's careful and detailed report provokes disturbing questions concerning how scientifically and technically trained citizens can best make their special abilities available to their society. Henceforth will managers and other key participants in vital federally supported research programs let their jobs and co-workers wait while they take extended political leave at regular 4-year intervals? Will honored national scientific figures make key telephone calls that set the necessary "wheels in motion" to excuse university teachers and researchers from their professional responsibilities for several months so that they can direct political campaign activities?

One wonders if Melpar would or should have granted "equal leave" to employees on the other side of the political fence from MacArthur and Nichols, and whether Harrison Brown spent any time looking for someone on his staff of opposite persuasion to Murray to whom 7 weeks' political leave should be granted in the interest of bipartisanship.

Greenberg's article brought to mind an account of an episode in the office of the distinguished chief engineer of the Maryland Department of Health before World War I. During a conference with a newly employed junior engineer, the chief absentmindedly opened and scanned an interoffice memo, snorted, cursed under his breath, and passing the memo to the junior said, "Look at that." The junior read it, his jaw dropped, and he said, "What are you going to do with it?" The chief took it back, tore it up, and deposited the scraps in his wastebasket. The memo was a request that each supervisory employee of the state collect from each of his subordinates 1 percent of his annual salary as a contribution to the campaign fund of the political party in power in the state.

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A Matter of Syntax

Would all scientists who write research reports or review articles in English kindly consider the syntactical dilemma represented by the following sentence:

We are investigating anaerobic bacteria (A B) from contaminated dermestids (C D) requiring exogenous factors (E F),

and its variant,

We are investigating A B requiring E F from C D.

The problem in the first version is, Is it the *bacteria* or the *dermestids* that require the *factors*? Similarly in the second, is it the *bacteria* or the *factors* that come from *dermestids*? A number of ways out of the dilemma may be considered:

1) Substantival adjective:

We are investigating contaminated-dermestid A B requiring E F.

This is a variant of German word order—

from contaminated dermestid anaerobic bacteria

but is not acceptable English.

2) Compound adjective:

. . . anaerobic, E-F-requiring bacteria from C D.

The compound adjective is clumsy. Accurate placement of hyphens is essential; note that we are dealing not with *exogenous factor-requiring bacteria* or with *exogenous-factor requiring bacteria*, but with *bacteria requiring exogenous factors*.

3) Parenthetical phrase:

a) . . . A B, requiring E F, from C D.
b) . . . A B (from C D) requiring E F.

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.

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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.

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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?

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