Letters

Teacher Training

Having been involved as a member of the curriculum committee of the State University of New York College of Education at Cortland in a recent revision of our curriculum for the preparation of elementary school teachers, I was interested in the report by John Mayor of the proposals coming from a meeting of representatives of the AAAS and various certification groups from several states [*Science* **131**, 1779 (1960)]. May I suggest that it is an admirable aim to require four courses in mathematics for all prospective elementary teachers, but that this is unrealistic as long as students come to college so poorly prepared in even basic arithmetic, and unreasonable unless the AAAS and other groups concerned in this matter are willing to give wholehearted support to the upgrading of teachers' salaries and professional standing. If our students came to college able to handle the mother tongue and having learned their lessons in basic science, social studies, and so forth, it might be possible to eliminate what is really remedial work in the colleges and thus gain time for teaching these recommended and truly collegiate courses.

It is clear in my mind that we cannot hope to adequately prepare a person to teach in the elementary school in the usual four years of college. If scientists and engineers are born and nurtured in the elementary schools of our land, then elementary school teachers must be ready to play the vital role assigned them. If this requires four courses in mathematics, then it also requires eight courses in science, to say nothing of foreign language, now almost forgotten in the preparation of elementary teachers. Then must come English, speech, music, art, sociology, history, psychology, philosophy, health, political science, and the necessary pedagogical courses. Physical education must not be neglected, and every teacher needs apprentice teaching experience. No college program should eliminate the possibility of electives. What this all adds up to is at least five years of college work, if not more. When this is balanced against potential pay and prestige, is it any wonder our best prospects turn their backs on teaching?

In our curriculum study here each department brought its recommendations for those courses considered essential in the training of elementary school teachers. From this immense total was carved a compromise which would total the 132 semester hours required for graduation. No one is happy with the result, but compromise is the best that can be done. As a liberal-arts college graduate sympathetic to the recent cries against "too much professional education in our teachers colleges," may I say that I believe the 21 hours (equal to seven courses) in pedagogy, including 3 hours in general psychology and 6 hours in human growth and development, which are included in our curriculum are an absolute minimum. The only way that an adequate job can be done is to lengthen the course of study. The recent five-year programs started at some engineering colleges are attempts to cope with the same problem. These are things of which scientists cooperating in these studies must be aware.

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The Scientist's Image of Himself

Gerald Holton rightfully points out [*Science* **131**, 1187 (22 Apr. 1960)] the schism that exists between scientific knowledge and other currents of intellectual thought. Although he suggests that scientists themselves contribute to this schism, his major emphasis is on the image that the public has of science, and of the scientist. I think that the images scientists hold of themselves, and particularly the changes that are evident in their self-representations, also play a very significant role.

I had an opportunity to investigate the self-images of 40 research scientists, men in natural-science fields at academic installations, as one part of a larger psychological study of persons who have selected research science as their vocation. The findings brought out that in some aspects of their identification scientists are caught up in some of the sterotypes about men of science that exist in the public mind. For example, they see themselves as intellectuals, as discoverers of new worlds—worlds which they not only create but in which they then proceed to live. Their work is propelled primarily by pressing "inner" drives; thus, the majority scorn "impure" motivations, such as the desire for recognition, exhibitionism, personal aggrandizement, pragmatic reward, unless these are inescapable concomitants of devotion to the search for truth. Happiness and fulfillment rest primarily in satisfactions at work, with routine, drudgery, administrative duties played down as interferences. In fact, rigor, persistence, and discipline have become institutionalized in their morality code as values in themselves, and the "gentleman scientist" is looked down upon as a laggard who is bound to be unproductive.