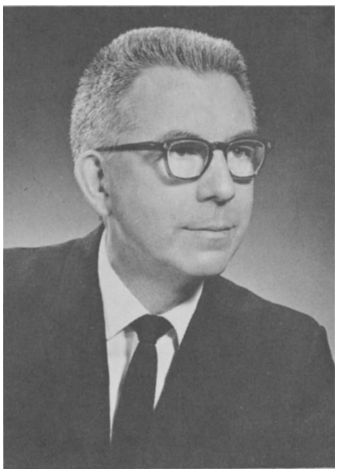
COMMENTARY

KEEPING AHEAD OF THE CLASS OF '67



Automation has been a physical reality ever since Old Dobbin could be trusted to wend his way back home while Grandpa slept in the buggy. Yet, only in the last 10 or 15 years has it become widely recognized as a social factor that threatens the American way of life with marked change at best and catastrophic unemployment at the worst. Machine displaced workers need new skills to enable them to find new jobs. The solution to the automation problem, or even a discussion of it, seems to lie outside the scope of a journal like *Nuclear Applications*.

However, we submit that a closely related problem, important to the scientist or engineer because it applies directly to him, has existed for several decades without being sufficiently recognized. The fact that science and technology are developing at an ever accelerating pace renders the education received 25 or even 15 years ago inadequate for today's competition. In fact, if you want to feel really inadequate, try helping a seventh grader with a simple math problem; we daresay that unless you were a math major you may not even speak the same language. Helping the youngster will be out of the question until you have gone back to page one and memorized 39 definitions.

The difficulty does not lie principally with a lag in incorporating new developments into college curricula, although this undoubtedly contributes to the problem. Rather, the difficulty is simply that knowledge is "exploding" much as is the population.

Ask yourself when lasers were discovered, the Mössbauer effect first noted, the notion of the conservation of parity overthrown, and compounds of the noble gases first made. There is a good chance that these dates are after the last time you were enrolled for some course in science or engineering. Ask yourself how such discoveries can be utilized in the work you are doing. If you find the answer to this question a bit difficult, and if the reason for this difficulty lies in a lack of complete familiarity with the discovery and its implications, then you have demonstrated our point.

An obvious remedy to this situation would be to read the current scientific literature and to keep abreast of new developments as they occur. This is commendable but, in our opinion, not realistic as an effective means of keeping up with scientific and technological progress outside one's own area of specialization.

In fact, considering the many demands on your time, this procedure is at best difficult to follow conscientiously, even within your own specialty. Nor is the problem only lack of time. If it were, it could be argued that colleges need professors only for proctoring and grading final exams, and that the entire learning process could consist of students reading on their own in the library. It seems to us that the interpretation and guidance provided by the instructor and the intellectual stimulation provided by "bull sessions" with other students is as much needed in the process of trying to stay educated or to become re-educated as it was in the original learning process.

What, then, is the answer? We are more interested in calling attention to the problem than in trying to propose an answer because, in our opinion, the problem requires far more study than we are able to devote to it. However, we have come across one or two ideas that could form the basis for a discussion of the problem.

One suggestion is to pay scientists and engineers for a 40-hour week but require them to work only about 32 hours. They would spend the remaining time either attending formal classes or seminars, or reading in the library or office.

Another suggestion is demonstrated by the way one Society (The Society of Nuclear Medicine) conducts its annual meetings. In addition to the usual number of invited and contributed papers describing original research, the Society holds a number of sessions which it labels "teaching sessions" or "classes," during which Society members have the opportunity to hear a lecture on some new development by a noted authority. Such sessions include whatever classroom demonstrations and student participation are appropriate.

The Geological Society of America developed a similar idea when it held its 1965 Annual Meeting at the University of Kansas immediately following a three-day period during which the university conducted two 12-session courses on two geologic subjects.

Another possibility is the granting of sabbatical leaves to allow scientists and engineers in nonacademic laboratories to attend a university for one or two semesters.

Perhaps one should not expect a single solution to so complex a problem. However, the complexity of the problem requires considerable study, and the importance of the problem demands *some* kind of solution.

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