tive magnitude of large programs, particularly in engineering, is obscuring the nature and importance of the working scientist.

Project directors, laboratory chiefs, and research directors are obviously important and they deserve their recognition. But the inference is strong that their functions are more important, rather than just different, and that such positions should be the ultimate ambition of every scientist. This social pressure to "advance" can become overwhelming.

True creativity in research demands an intuitive insight of uncommon quality, perhaps more characteristic of the artist than the executive. Where this has been highly developed, it should be nurtured and honored as a worthy achievement in itself, not merely as a rung on the administrative ladder.

Perhaps the givers of awards and the setters of salaries should take a second look at the criteria they are encouraging. If the laboratory becomes merely a way station to executive rewards, quality will suffer and the cause of science and society will not be served.

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Effects of Penicillin

. . . In his discourse on the older history of observations concerning effects of penicillin on bacteria [*Science* **139**, 682 (1963)] Robertson Pratt appears concerned that one of our recent articles on the antimicrobal action of penicillin [*Science* **137**, 982 (1962)] does not refer to certain papers that were published nearly 20 years ago.

In our paper, "Concurrent morphological and chemical events in *Staphylococcus aureus* exposed to penicillin," we emphasized not the individual effects of the antibiotic, each of which has been observed individually and previously by others, but the contemporaneous nature of all these effects when recorded on a common time scale. Our statement, "lysis of *S. aureus* under the influence of penicillin has rarely been mentioned," represents a correct assessment of the state of the field even if one takes into account the early publications of Bonét-Maury and Pérault [*Nature* **155**, 701 (1945)] and of Nitti *et al.* [*Ann. Inst.*

Pasteur **70**, 80 (1944)] in addition to the two references we cited.

We are familiar with the papers by Dufrenoy and Pratt on cytochemical mechanisms of penicillin action [*J. Bacteriol.* **53**, 657 (1947); **54**, 127 (1947)], but their relationship to our own work seems to be peripheral mention of bacteriolysis. We wish to observe that neither Pratt nor ourselves have claimed to be original discoverers of the lysis phenomenon. . . .

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How Can Science Teaching Be Improved

High-level planning for improvement in science teaching has progressed to the point where scientists and educators are concerned about the programs in the elementary and high schools. More school administrators are becoming aware of the role science must play in the lives of our students and are ready to look in and work with the science teacher to up-date the local program. Industrial leaders, long the kidnappers of our best science teachers, are now loaning capable scientists to the classroom for brief periods to present new concepts with excellent equipment.

Each of these efforts is worthy of much discussion and exploration, but we can improve science teaching best by improving the teacher of science. Teachers are part-time employees. A position for 36 weeks with 16 weeks of unemployment each year is not a profession. A salary based on part-time employment is not the economic status of a professional.

A program providing 48 weeks of employment for our teachers each year—36 weeks in the classroom to educate the students, and 12 weeks of advanced training in a program for educating the teacher—would permit each teacher to keep up with the rapid expansion of knowledge and the best ways for transmitting it.

The salary for teaching 36 weeks would continue to be provided by the school district under the present financial structure. Then the national community could assume the financial responsibility of employing the teacher for the twelve weeks of advanced study. The dividends to the nation would far