method of developing water where unproductive land areas are available can be more economical than desalinization of ocean water, particularly for small isolated water needs. The unit cost of water thus developed is not predicated on multimillion dollar facilities or low-cost energy sources, as with desalinization methods, and is relatively the same for large or small developments.

C. W. LAURITZEN

Soil and Water Conservation Research Division, U.S. Agricultural Research Service, Logan, Utah

References

1. C. W. Lauritzen, *Crops and Soils* **13**, 7 (1961).
2. L. E. Myers, "Water Harvest." Proceedings of the 16th Annual Nevada Water Conference.
3. "Study and Investigations of Use of Materials and New Designs and Methods in Public Works," Committee Print No. 6, 87th Congress (Government Printing Office, Washington, D.C.), pp. 11–18.

Bench vs. Desk:
Dilemma for the Creative Scientist

There is a growing dilemma facing the scientific investigator who creates with his own head and produces with his own hands. The measure of a research scientist should be, as for any creative individual, based on creative output. But science is becoming big business and, in the process, is acquiring some business standards. One of these is an inclination to base the measure of a man's success more on leadership or executive ability than on creativity.

The recent Flemming awards are a good example of equating success with administrative responsibility and distorting the definition of a scientist. These awards are given to federal government employees under 40 years of age for outstanding achievements. The sponsors stipulate that five awards will go to administrators and the other five to scientists. This year, all the scientists receiving the award were directors or administrators and even included a contracting officer whose award was based on the scientific achievements of one of his contractees.

Has the time come when it is more rewarding to direct research than to do it? Can a scientist achieve recognition only as he acquires status in an administrative hierarchy and handles large sums of money? Does success depend on leaving the laboratory before the age of 40? The Flemming award is no isolated symptom. The administra-

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.

H. T. MERYMAN

Biophysics Division,
Naval Medical Research Institute,
Bethesda 14, Maryland

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.*