fested in the heterogeneity of isozyme patterns among leopard frog species (4).

We wish to emphasize that the various leopard frog species possess different biological characteristics that must be considered when they are used for experimentation.

> JOSEPH T. BAGNARA JOHN S. FROST

Department of Cellular and Developmental Biology, University of Arizona, Tucson 85721

References

- 1. A symposium, "The Laboratory Frog: Aquisition, Nurture, and Health," was held at the annual meeting of the American Society of Zoologists in Minneapolis, Minn., in August 1972. The papers presented were published in Am. Zool. 13, 79 (1973).
- 2. J. S. Frost and J. T. Bagnara, Copeia (No. 2),
- M. E. Hadley and J. E. Goldman, Am. J. Physiol. 219, 72 (1970.
 J. E. Platz, Copeia (No. 4), 660 (1976).

Engineering Ph.D.'s

A statement is made in John Walsh's article "The state of academic science: Concern about the vital signs" (News and Comment, 10 June, p. 1184) which I feel requires correction. Walsh says, "Engineering is in the midst of one of its cyclical booms in undergraduate enrollment but finds the opposite effect in its doctoral programs, apparently as a result of industry's current coolness to engineering Ph.D.'s.'

It is true that engineering doctoral enrollment has been declining in recent years, but the evidence does not support the reason suggested by Walsh. Certainly there are some employers who are critical of Ph.D.'s, but surveys conducted by the Engineering Manpower Commission since 1970 show that 92 to 97 percent of engineering Ph.D.'s have been employed (or had other personal plans) by the time of graduation. This employment record is even better than that for B.S. holders in engineering, who in recent years have been 86 to 96 percent employed (or had other personal plans) by commencement time. Since only a third of engineering Ph.D.'s go to educational institutions and only 3 percent into postdoctoral positions, it is difficult to find in this fine employment record any evidence of industrial cool-

A more likely explanation for the numerical decrease in engineering Ph.D.'s is to be found in the federal government's restrictive attitude toward training grants and a very negative report of the National Science Foundation (NSF)

in 1971 (1). In that report NSF predicted that there would be a 40 percent surplus of engineering Ph.D.'s by 1980. However, the prediction was partially based on the assumption that the production of engineering Ph.D.'s would continue to increase during the 1970's. Overlooked was the fact that engineering doctoral enrollment had already begun to decline 3 years earlier, in 1968. Doctoral enrollment declined even further after publication of the NSF report. No surplus has yet developed, but it could not realistically be argued that there is a shortage, either. Perhaps the adverse prediction of the report, even though erroneous, prevented the occurrence of the very event it warned against.

JOHN D. KEMPER

College of Engineering, University of California, Davis 95616

References

1. 1969 and 1980 Science and Engineering Doctorate Supply and Utilization (NSF 71-20, National Science Foundation, Washington, D.C.,

"Kerfuffle" Identified

The word "kerfuffle" questioned by Frank M. McMillan (Letters, 3 June, p. 1041) is recognized as a noun in volume 2 of the supplement to the Oxford English Dictionary.

'Kerfuffle" is also "curfuffle" (1813) and "gerfuffle" (1943). Kerfuffle was first spotted in 1959.

PHILIP B. JORDAIN 9 Brinkerhoff Avenue, Teaneck, New Jersey 07666

McMillan appears to suffer from a deficiency of dictionaries. If he looked, he would find "kerfuffle" in the supplement portion of Eric Partridge's A Dictionary of Slang and Unconventional English (Macmillan, New York, ed. 7, 1970).

McMillan's brilliant analysis is merely another example of an unnecessary hypothesis based on a faulty premise.

MURRAY L. LESSER 2474 Hunter Brook Road, Yorktown Heights, New York 10598

McMillan discusses the word "kerfuffle" as if it had been invented by Nicholas Wade. While I cannot give any definitive origin of the word, its meaning, to me at least, is perfectly clear and very expressive. I first heard it while visiting a friend in Uganda over a quarter of a century ago. The friend was British, an official in the Uganda Survey. He was de-

scanning electrophoresis columns

Put an end to blind electrophoresis - you can record UV absorbance of an ISCO isoelectric focusing or conventional density gradient whenever you The curves tell you what's happening now, and provide a separation history useful for identifying components and distinguishing them from ampholyte and precipitate peaks. Separation time and diffusion are reduced because the optimum termination point may be easily established. In addition, the low column volume conserves expensive ampholytes; internal streamlining

gives superior scanning and recovery resolution; and single tube design simplifies loading and cleaning. The column may be adapted for use with 1cm diameter preparative polyacrylamide gels: zones migrate into the underlying gradient which is then scanned and fractionated.

ISCO analytical and preparative electrophoresis equipment can give you results you can't get any other way. Send for our catalog and technical bulletins to learn more.



Phone (402) 464-0231 Circle No. 38 on Readers' Service Card