

letters

this biased terminology might have unconsciously influenced my thinking, leading me to omit mention of the plight of the female physics PhD raising children. This is a reasonable supposition (and I commend Rothenberg for his enlightened attitude toward sexism), for, in fact, I myself am an unemployed female physics PhD, and a mother. A part-time position would be ideal for me while my child is young! Professional women in general agree about the advantages offered by part-time positions when there are young children involved, and, in fact, groups of women, including the American Physical Society's Committee on Women in Physics, have specifically recommended that permanent part-time senior positions be made official policy in universities and in other organizations (see July, page 62). We women realize the necessity for such a change in policy, but the trouble is (especially in physics) that it is primarily men who have the power to effect such a change. The problem then becomes that of showing men (and, in my case, of showing men physicists) how it can be to *their* advantage to work at less than full-time positions. Only when men themselves want to work part-time will more flexible policies be implemented to any great extent. Hence my letter was directed specifically to male physicists.

I am glad that someone noticed that I had left out the women in our profession. I am delighted that a male physicist has chosen to work at less than full time. May Rothenberg be the first of many! And may his organization, Syracuse University, be one of the first of many to make permanent part-time faculty positions their official policy.

JANE C. JACKSON
Brookings, South Dakota

More chemical kinetics

To supplement your Search and Discovery report (December, page 17) on our observations of fluctuations at chemical equilibrium, we would like to point out some additional interesting work on this problem.

George Feher of the University of California at San Diego recently informed us of an impressive success in determination of chemical kinetic data through observations of fluctuations of the electrical resistance of an ionic solution. This approach was originally announced by Feher in *Biophysical Society Abstracts* 10, 118 (1970), and an article by Feher and M. Weissman describing the method and results is scheduled to be published in the March, 1973 issue of *Proceedings of the National*

Academy of Sciences.

We have also recently learned of some related studies by W. Hagins, F. E. Hanson and J. B. Buch who analyzed the photon-emission statistics of the emission of light by the luminescent systems of certain bacteria and fireflies, in an interesting but unsuccessful attempt to identify the rate-limiting mechanisms of phosphorescence in these systems ("Bioluminescence in Progress," F. H. Johnson, Y. Handea, eds, Princeton, 1966, page 475). With R. D. Penn, Hagins also has analyzed the kinetics of the photocurrent of retinal rods and thereby established some limits on the kinetics of the chemical reactions involved in visual receptors (*Biophysics Journal* 12, 1073, 1972).

W. W. WEBB
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Energy need

In the December letters column (page 15), both H. B. Rosenstock and P. W. Neurath wonder, in essence, whether "we really need five times as much energy per person in the year 2000?"

Both are guilty of a kind of ethnocentrism. They may not need five times the energy they now consume, but there are lots of Americans who, in order to live as well as I presume they do, will have to increase many times their consumption of energy.

H. HELLMAN
Leonia, New Jersey

The interchange (December, page 15) between Herbert B. Rosenstock who inquired "for what conceivable reason 35% more people need 650% more electricity," and F. L. Culler Jr and W. O. Harms who answered that the "estimates are based largely on extrapolation of past experience" merely points up the vast ignorance on which we are attempting to make rational decisions. The difference between the art of "extrapolationology" and scientific prediction is well illustrated by Oxford Philosopher Ryle's anecdote of the ducks, who after going down to swim in the pond everyday for a whole summer were astonished to find that one day the pond was frozen. Every scientist dealing with exponential growth knows of inevitable saturation, and that straight-line (logarithmic) extrapolations, which work well during the exponential-growth phase, fail completely when saturation occurs. Thus the above exchange reduces itself (in part) to contrasting Rosenstock's instinctive feeling that we must be approaching saturation with Culler and Harms's faith that we are not.

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