

## MEASURE FLUORIDE ION ACTIVITY

Third in Orion's new series of specific ion electrodes, the Fluoride Activity Electrode for the first time permits direct, rapid measurement of fluoride ion activities in aqueous solutions.

### WIDE RANGE, VERSATILE

Measurement of fluoride can be made from above  $10^0$  down to  $10^{-6}$  moles/liter (20 parts per billion) even in the presence of a ten-thousand fold excess of chloride, iodide, bromide, nitrate, sulfate, or bicarbonate. The electrode can also be used as an end point detector for titrations where fluoride is either the titrant or the unknown.

### NEW SENSING PRINCIPLE

A laser-type, rare-earth doped single crystal is used as the ion-exchange sensing element. The electrode body is an acid-base resistant, unbreakable plastic.

### INSTRUMENTATION

Measurements are made with any expanded scale pH meter and a conventional pH reference electrode. Technique is similar to single pH measurement. The electrode available thru major laboratory dealers, is priced at \$160.

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and more sensible to use in wartime because it requires less manpower." As a consequence of the suppression of the bulletin, the head of Brownlee's department, Professor Theodore William Schultz, resigned and joined the faculty of the University of Chicago, and, by March, 19 other faculty members had left Iowa College in protest. One of them, W. W. Wilcox, actually found refuge at the University of Wisconsin, where much of the work establishing the nutritious qualities of oleomargarine had been carried out by C. A. Elvehjem and his co-workers. In an article entitled "Vegetable fats equal butterfat in mixed rations," R. K. Boutwell, R. P. Geyer, C. A. Elvehjem, and E. B. Hart concluded, on the basis of their own research, that "butterfat is superior to vegetable fats when young animals are restricted to a diet made up almost entirely of milk, but not when the diet includes a mixture of such carbohydrates as starch, sucrose, and dextrose. These are supplied by such common foods as cereals, potatoes, sugar, and molasses" ("What's new in farm science," *Bull 461, Ann. Rept. Agr. Exp. Sta., Univ. Wis.* (December 1943, p. 45). I sincerely regret the mistake, which might seem to impugn the distinguished work of the Wisconsin group. I further deplore that the same error was printed in my book *Science and Ethical Values* (Univ. of North Carolina Press, Chapel Hill, 1965, p. 92), in a more extended form of the essay printed in *Science*. To confuse the rescuer with the drowning man or the bystander with the thug may not be uncommon, but it is truly regrettable.

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### "Bootlegging" in Research

Although Greenberg is perhaps strictly correct in stating in his article on "bootlegging" in research (News and Comment, 19 Aug., p. 848) that this problem has not been the subject of any published study or conference, it has, nevertheless, been aired and the discussion recorded. At the 12th National Conference on the Administration of Research, University of Denver, 1958, a participant asked how the willingness of research directors to tolerate

"bootleg research" accorded with managerial efforts to program and direct research activities toward major objectives of the laboratory and parent organizations. The ensuing discussion revealed two opposing camps, one for "legalizing" and encouraging such efforts by specific allocation of discretionary budgeted funds for extracurricula exploratory studies, the other for excluding any effort not clearly a part of the approved program, on the basis that any "undercover" work is objectionable. The issue was not then and has not been settled but one should take note that there are two kinds of "bootlegging." One involves undercover or diversionary effort and the other, as Greenberg points out, involves clouding the real purposes of approved programs. Perhaps the latter is less harmful, particularly if the effort is not really a departure from the commitments of management and the researcher.

A summary of the above NCAR discussion will appear in a forthcoming text, *The Administration of Research—An Interpretive Summary of the Proceedings of the National Conference on the Administration of Research, 1947–1964*, now being edited by the undersigned.

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### Calcium and Fluoride

D. M. Hajimarkos discussed the high content of fluoride in fish flour (Letters, 17 June) and called for studies to be undertaken regarding the effect of ingesting fish flour on dental caries and the degree of mottled enamel that might develop in children's teeth. In this letter he has omitted one important paragraph which is found in his reference report [*J. Pediat.* **65**, 782 (1964)] as follows:

However, since the calcium content of fish flour is appreciable, it should be pointed out that experimental evidence has shown that absorption of fluoride from the intestinal tract is considerably depressed by the presence of high amounts of calcium.

My interest is merely to bring out this information, so that any judgment rendered by readers will also be based on this statement.

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