

SCIENCE

VOL. LIX

FEBRUARY 29, 1924

No. 1522

WILDIERS' BIOS¹

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SCIENCE: A Weekly Journal devoted to the Advancement of Science, edited by J. McKeen Cattell and published every Friday by

THE SCIENCE PRESS

Lancaster, Pa.

Garrison, N. Y.

New York City: Grand Central Terminal.

Annual Subscription, \$6.00. Single Copies, 15 Cts.

SCIENCE is the official organ of the American Association for the Advancement of Science. Information regarding membership in the association may be secured from the office of the permanent secretary, in the Smithsonian Institution Building, Washington, D. C.

Entered as second-class matter July 18, 1923, at the Post Office at Lancaster, Pa., under the Act of March 3, 1879.

WHEN it comes the turn of a professor of physical chemistry to deliver the vice-presidential address before this section, I suppose he is expected either to emphasize the value of mathematical training and urge the reading of Gibbs or to give an account of some recent experimental work in which quantitative methods played the decisive part. I have chosen the latter course as the less somniferous, although there must necessarily be a certain monotony in all such synopses: some combination of circumstances initiates the investigation; persistent hard work with an occasional happy thought carries it on; while the quantitative procedure ensures ultimate, not necessarily immediate success, for it compels "good fortune"—the discovery of essential but unexpected relations.

In the experiments on the acclimatization of yeast to ammonium fluoride carried out in Toronto by Mr. E. I. Fulmer,² unknown and probably variable constituents of the wort used as culture medium weighed far more than the ammonium fluoride added. The next step, obviously, was to replace the wort by a medium of known composition; but when we came to try them out, none of the sugar-salt solutions recommended in the literature gave anything like the growth of yeast obtainable with wort. Addition of a little wort improved these "artificial" media immensely—comparative experiments by Mr. F. I. Eldon showed that one fifth per cent. of wort could be detected by fermentation tube or agar plate—and after trying a couple of dozen organic nitrogen sulphur and phosphorus compounds in vain, our laboratory settled down to extract the unknown agent from the wort, while Dr. Fulmer, working independently at Iowa State College, studied media containing sugar and salts.

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¹ Address of the vice-president of Section C, American Association for the Advancement of Science, at Cincinnati, Ohio, December, 1923.

² *Jour. Phys. Chem.*, 26, 455 (1922).

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