simply through the *ingestion of nutritive material*, the character of the diet having no important bearing.

4. It was necessary to place the subjects upon a higher nutritive plane after the fast than before the fast in order to maintain body weight and nitrogen equilibrium.

5. Contrary to the custom usually followed in "breaking" a fast our subjects ingested the *maximum amount of food* for any individual day upon the *second day after the fast.*

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NOTES.

Note on the Determination of Halogens in Organic Compounds.—To Stefanov's method for the determination of halogens in organic compounds[1] which is based on the reducing action of nascent hydrogen, formed by the action of sodium on ethyl alcohol, Bacon[2] proposed a considerable modification in the procedure by which he uses the action of sodium ethylate on the halogen compounds. We tried this modified method using monobromobenzene and α-bromonaphthalene, both of which were carefully purified. For monobromobenzene the calculated percentage of bromine is 50.93. A Carius determination on the sample we used yielded 50.83 per cent. Br. With Bacon's method about forty trials were made, all of the results being low, and in no case were duplicates obtained which agreed, which showed that the reduction was incomplete and irregular. The results for α-bromonaphthalene were low also, but much nearer the calculated percentage. We thought that perhaps an increase in the amount of nascent hydrogen might effect a complete reduction, so $1^1/_2$, 2, $2^1/_2$ times the amounts of sodium and alcohol recommended by Bacon were used. The results obtained with monobromobenzene were 35.36, 50.96, 48.65, 49.19, 49.40, 47.43, 47.18 per cent. Br. It will be noticed that the second result is very near the theoretical, but we were unable to get a similar result again.

The sodium used was Merck's, and the alcohol 99.5 per cent.

In acidifying with nitric acid we noticed that if an excess were used a vigorous reaction occurred with the production of nitrous fumes, and the liquid was changed to a greenish yellow color, which persisted even if boiled. The compounds produced affected the end point in two ways, (1) the ferric thiocyanate seemed to become reduced, with the result that more potassium thiocyanate had to be added, thus lowering the result for bromine, (2) the end point was harder to judge. This difficulty, however, is easily eliminated by acidifying only slightly.

We are forced to conclude, therefore, that this method is not of general

[1] *Ber.*, 39, 4056 (1906).

[2] THIS JOURNAL, 31, 49 (1909).

applicability, and especially cannot be used with difficultly reducible substances.

Since the above work was done, C. H. Maryott[1] published the results of his work on Stefanov's original method. His results appear similar to ours on Bacon's modified method. He found, however, that potassium gave good results. He did not try Bacon's modified method.

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NEW BOOKS.

Physical Chemistry; its Bearing on Biology and Medicine. By JAMES C. PHILIP, M.A., Ph.D., D.Sc., Assistant Professor in the Department of Chemistry, Imperial College of Science and Technology. London: Longmans, Green & Co. 306 pp. Price, $2.10.

Since the appearance of Cohen's "Physical Chemistry for Physicians and Biologists" many advances have been made in the application of physical chemistry to biological problems, and a distinct need exists for a work which explains these applications, and the principles which underlie them, in terms intelligible to the ordinary medical student and student in biology. This need is very satisfactorily filled by the present work; the language is clear, and the experimental illustrations are well chosen.

No description is given, however, of the application of concentration cell measurements in the elucidation of biological problems, nor are the principles underlying the development of potential in concentration cells discussed. In view of the extensive applications which have been made of these principles in the past ten years in the investigation of such problems as the neutrality of the blood and the combining capacity of proteins for acids and bases, this omission is serious and robs the book of much of its usefulness.

On page 306 the discovery that the temperature coefficient of the conduction of a nervous impulse is of the same order as that found for chemical reaction velocities is attributed to Lucas[2] instead of to S. S. Maxwell.[3]

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Essentials of Chemistry. By RUFUS PHILIPS WILLIAMS, Instructor in Chemistry in the English High School, Boston, Mass. 8vo. Cloth, 421 pages. Price, $1.25. Ginn & Co., Publishers.

In the preface the author points out 22 "innovations and departures * * * from current texts" which "are believed to be especially desirable features of the present book." Many teachers will feel inclined

[1] *Chem. News*, Jan. 6, 1911; *Am. J. Sci.*, 30, 378 (1910).
[2] *J. Physiol.*, 37, 112 (1908).
[3] *J. Biol. Chem.*, 3, 359 (1907).