

In a great many cases, having obtained the best products of a man's brain, there would be no further inducement for retaining him.

BROADWAY AND 116TH ST.
NEW YORK CITY
August 16, 1913

SIDNEY BORN

A RAPID METHOD FOR THE DETERMINATION OF FAT IN ICE CREAM

Editor of the Journal of Industrial and Engineering Chemistry:

From time to time there have been published in various journals many methods for the rapid determination of fat in ice cream. I have tried them all. Some required special apparatus or expensive Babcock bottles with glass stopcocks attached. Others required the removal of added sugar. These usually gave results too low. None of them seemed to be entirely satisfactory. Therefore, I decided to try some experiments to meet the following requirements: Time for the complete test must not exceed 10 minutes. The Babcock centrifuge must be used because almost every ice cream factory can boast of that much of a laboratory. Babcock *milk* bottles should be used on account of finer graduations than cream bottles.

After trying various acids and mixtures in varying quantities, I finally hit upon the following simple modification of the Babcock test which does not char the sugar and meets all the requirements aforementioned.

Weigh into a 10 per cent Babcock *milk* bottle, 9 grams of melted sample. Add 20 cc. of glacial acetic acid (gravity 1.049). Mix well and add 10 cc. of sulfuric acid (gravity 1.83). Mix again and proceed as in the regular Babcock test. With the aid of a pair of dividers, read the fat column (from one extreme to the other, in other words read the highest part of the meniscus which appears as a straight line when bottle is held on the level of the eye and away from the source of light) at a temp. of 130° F. The result $\times 2$ = per cent fat.

I have used this method for about one year and have always obtained a clear straw-colored fat column free from any char or undissolved casein.

HOEFLER ICE CREAM CO.
BUFFALO, N. Y.
July 30, 1913

H. F. LICHTENBERG

PEAT POWDER AS FUEL FOR LOCOMOTIVES

Consul Douglas Jenkins, Goteborg, Sweden, reports that the recent announcement that Von Porat, a Swedish engineer, had perfected a process for utilizing peat powder as fuel for locomotives has awakened interest in the possibility of developing the extensive peat bogs of Sweden.

The powder is manufactured by the Ekelund process. A factory

has been in operation several years at Back Moss, Sweden, under the management of Mr. Herman Ekelund, inventor of the powder process. It does not appear that the process has made much headway as yet, but it is now predicted that in connection with the discovery of Mr. Von Porat, the use of peat powder will in time become extensive.

In the Von Porat system, the peat powder is fed by an automatic process into the furnace of the locomotive, which is specially arranged to consume it. The Ekelund process is on the market in various countries, including the United States, but little has been made public concerning the Von Porat method. According to Mr. Von Porat the results obtained with peat powder may be summed up as follows:

Substantially the same results can be had from 1½ tons of peat powder that 1 ton of coal will produce. Peat powder may be burned with an admixture of about 5 per cent of coal. As to firing with peat powder, the work is almost nothing in comparison with firing with coal, because the powder is forced into the furnace by an automatic process. No change had to be made in the boiler and none in the fire-box, except installing the special apparatus. There is no difficulty in bringing the powder from the tender to the fire-box, as it passes through a conveyance pipe. Another advantage in using peat powder is that no cold air can get into the fire-box and neither smoke nor sparks escape from the smokestack.

As a result of this invention, it is reported that a number of the Swedish railways are preparing to use peat powder instead of coal.

In view of the fact that the Von Porat appliances have not yet been patented, it is impossible to obtain any detailed description of his process or appliances.

THE CHEMICAL COMPOSITION OF COOKED VEGETABLE FOODS. PART III.—CORRECTION

In the article under the above title, THIS JOURNAL, 5, 653, the following changes should be made:

Page 654, first column, 10th line from bottom should read "— 48.92 per cent of solid" and the last line should be "— 10.9 per cent of solid matter."

Page 655, Table III, the heading over the first brace should be "Proximate analysis of the water-free substance."

KATHERINE I. WILLIAMS

PAPER FROM SEAWEED

A Liverpool newspaper states that an English chemist has succeeded in making paper from seaweed. The product is said to be fireproof, waterproof and odorless and is expected to have considerable effect on the present system of wrapping perishable goods for transport.

BOOK REVIEWS

Chemical Works. Their Design, Erection and Equipment.

By S. S. DYSON AND S. S. CLARKSON. 204 pp., 80 illustrations and nine plates. London: Scott, Greenwood and Son. New York: D. Van Nostrand Co. Price, \$7.50 net.

The very attractive title of this book is rather misleading. The general make-up of the book is good, especially the illustrations, but the subject matter is presented in a decidedly elementary and popular style. The eleven chapters include: choice of site, notes on construction, first principles in laying out of works, the power house, sulfuric, hydrochloric, and nitric acid plants, high explosives, sulfate of ammonia, and artificial manure plants, and the general plant. A rather long appendix treats of the English Alkali Works Regulation Act and general welfare work.

The authors state that their aim has been to present, in each chapter, a summary of sound practice in up-to-date construction, to give practical details and to deal with the subject of designing new works as it would be dealt with by a consulting chemical engineer.

There are many general statements, such as "The weight of lead, roughly speaking, is about eleven times that of water" and ".....cast iron is a substance which, in consequence of its varied composition and uncertain properties, it is most difficult to classify," etc., etc., and furthermore there is an absolute lack of cost tables. While the general idea and aim of the authors are excellent there is not enough new material presented to make the book of very much value, particularly in this country.

The authors have omitted modern American factory practice and that, together with the high price charged for the book, will prevent its wide-spread use.

R. K. MURPHY

The Materials Used in Sizing. By W. F. A. ERMEN. Published by D. Van Nostrand Co. 126 pp., 6 illustrations. Price, \$2.00.

The author has brought together, in book form, the subject matter of a course of lectures delivered in the summer session of the Manchester School of Technology in 1911 on "The Materials used in Sizing."

The scope of the book can be perhaps best understood by naming the various chapters into which the book is divided: Introduction, Chapter I, The Starches and other Agglutinants; Chapter II, Weighting Materials; Chapter III, Softening Ingredients; Chapter IV, Antiseptics; Chapter V, Analysis of Sized Warp and Cloth; Chapter VI, The Preparation of Normal Volumetric Solutions; Chapter VII, Tables.

The various sizing agents are considered as to their use, particular physical and chemical properties, tendering effect, tendency to mildew, etc., and such methods of analysis are given as are of value for the rapid evaluation of each particular sizing agent.

The various methods of analysis are considered more from the standpoint of rapidity than great exactness and are treated in an elementary way.

The book will be of some interest to the trained chemist, but its greatest value is that the factory foreman, with limited knowledge of chemistry, will be able to use the rapid tests of identification given.

OTTO KRESS

Fatty Foods, their Practical Examination. By E. RICHARDS BOLTON AND CECIL REVIS. Philadelphia: P. Blakiston's Son & Co., 1913. Small octavo, 371 pages. \$3.50 net.

The subtitle states this to be a handbook for the use of analytical and technical chemists. The point of view from which the book is written is further indicated by the following from the preface: "To the more humble investigator in this difficult field we desire to present the results of many years' experience, with the hope that methods and ideas which have brought success to the authors may enable him also to elucidate the problems with which he may have to grapple, though we cannot lay too much stress on the fact that scientific and skilled adulteration has sounded the death-knell of rough and ready methods of examination." The reader is rarely offered more than one method for any given purpose, is not told which methods are "official" either in the food or the drug industry, is not given the range of "constants" recorded in the literature, but only what the authors consider the usual limits, and is rarely given a reference to the original publication of either the methods or the data which are included in the book.

This willingness of the authors to assume so complete a control of the reader, both as to selection and detail of methods and interpretation of results, is the distinguishing feature of the book and makes it a significant expression of the authors' experience. On the other hand, the professional chemist, or even the reasonably advanced student, should know the sources of his methods and of the data which he uses in the interpretation of his results, and should have command of a considerable range of confirmatory methods. In this country it is important that he also know which methods have received "official" sanction for use in food and drug inspection, and that he be able to interpret his data in the light of "standards of purity" of the Association of Official Agricultural Chemists and of the United States Pharmacopoeia.

Those who have to do with the examination of fatty foods

should examine this work and profit by the ripe experience of its authors, but should use it in conjunction with other books, and not rely so exclusively upon it as the authors seem to contemplate.

The book is abundantly provided with good illustrations and its scope is somewhat broader than might be expected from its title, since it includes chapters on cocoa and chocolate, feeding-stuffs and milk. It may also be noted that the chapter on vegetable oils and fats covers many substances not primarily regarded as foods. The text is not strictly confined to analytical matters, but contains considerable information as to botanical and commercial sources and yields of the fats and oils described.

H. C. SHERMAN

Gasanalytische Methoden. VON WALTHER HEMPEL. Vierte Auflage, 1913. Friedrich Vieweg & Sohn, Brunswick \$3.00.

The fourth edition of Hempel's work on gas analysis contains considerable additional material; not much has been eliminated from the older book.

The chapter on sampling is essentially the same. Hempel's well-known gas analysis apparatus and pipettes, some of which are much used in this country, are again described. A form of absorption whereby only a small quantity of liquid is brought in contact with the gas sample is an addition. Hempel's apparatus for exact gas analysis without the use of rubber tubing connections between pipettes and the burette is again described. Although capable of giving exact results, the apparatus is probably used little or not at all in this country.

The Rotameter for measuring the flow of gases is described. Its limitations are not dwelt upon. Brief mention is made of the gas interferometer. This is another instrument which as yet has been little used in this country. For small amount of carbon dioxide, methane, etc., in air, it gives very accurate results.

The chapter on the purification of mercury remains essentially the same. An additional form of pipette for gas purification has been added.

The chapter on the combustion of gases has been enlarged.

A chapter has been added on the separation of gases by means of liquid air. Ramsey's and Travers' experiments are largely drawn upon.

The determination of dust in gas mixtures has been given attention.

The chapter on the determination of different gases is enlarged. Reference is made to Paul and Hartman's method whereby hydrogen is determined by absorption in palladium solution. The convenient Orsat is again described. Two gas balances are again described. It is questionable whether they are much used in this country. Some new material has been added to the chapter on coal gas. The chapter on atmospheric air remains good as in the other book.

Two forms of bomb calorimeter for the determination of the heating value of coal are described; also the Junker calorimeter for gases, and another one for which there is required only a small quantity of gas. A scheme for the determination of sulfur in organic material by combustion is again included. Hempel's gas lantern which he describes is not used in this country.

The book constitutes the same excellent treatise on gas analysis as the former editions of the work. Some of Hempel's apparatus are probably still more used in this country than other forms, although the tendency to-day is to install more one-piece or built-up forms of apparatus, for convenience and speed. The book is very similar to that of L. M. Dennis recently issued. The latter has eliminated some parts that deal with methods in Hempel's book that are little used in this country.

GEORGE A. BURRELL