

Composition of navy beans ( <i>Phaseolus vulgaris</i> )		
	Peterson and Churchill	Eichelberger
Moisture.....	12.96	10.08
Ash.....	3.88	3.43
Ether extract.....	1.83	2.36
Protein (N × 6.25).....	18.42	22.69
Alcohol soluble carbohydrate as dextrose (total sugar).....	1.59	2.61
Dextrins.....	3.71	3.23
Starch.....	35.20	35.22
Insoluble hemicelluloses, by difference....	....	8.90
Hemicelluloses.....	(.83) <sup>a</sup>	....
Pentosans.....	8.37	(8.08) <sup>a</sup>
Galactans.....	1.33	....
Crude fibre.....	3.94	3.62
Organic acids, waxes, etc., by difference...	8.77	7.86
	100.00	100.00

<sup>a</sup> Not included in summation, since it is included with the item above.

Here, as in Peterson's work, the blue coloration with iodine during enzyme digestion disappeared very slowly. However, the author found that after 17 hours' digestion with commercial pancreatin, under a layer of toluol, the coloration completely disappeared and constant results for enzyme digestion were obtained.

In conclusion, I wish to express my sincere thanks to Dr. Katherine Blunt, of the University of Chicago, for her personal interest and careful supervision of this work.

CONTRIBUTION FROM THE HOME ECONOMICS  
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## NEW BOOKS

**An Introduction to the Analytical Chemistry of the Rarer Elements.** By LOUIS J. CURTMAN, Assistant Professor of Chemistry, Chief of the Division of Qualitative Analysis, College of the City of New York. Privately printed, New York, 1921. 64 pp. 21 × 14.5 cm. Price \$1.25.

This small book, according to the preface, "is designed to lay a sound foundation for the analytical study of the rarer elements" and the author has made a careful selection of experiments to accomplish this result. It is a source of satisfaction to know that "every experiment was personally performed by the author." It is undoubtedly of advantage to have all reagents and test solutions of known strength, although in practice with natural and industrial products the problem may not be so conveniently arranged for us.

The reviewer has long been convinced of the importance of this group of elements and has for many years advocated its more careful study; therefore to his mind such books as the above are highly commendable.

No one can fail to profit by the use of the material in this brief treatise, but a previous study of the mineral sources and the extraction therefrom, together with an elementary study of the absorption spectra of the rare earth group would add much to the value of the work described.

PHILIP E. BROWNING

**Laboratory Manual of Organic Chemistry.** By HARRY L. FISHER, formerly Instructor in Organic Chemistry, Columbia University; in charge of Research Division, the B. F. Goodrich Co. John Wiley and Sons, New York, N. Y. x + 331 pp. 21 figures. 14.5 × 22 cm.

"This book is the outgrowth of almost ten years of intensive laboratory teaching. Practically all of the laboratory experiments, in mimeograph form, have been in the hands of three different classes of students, day, night, and summer, each year for over five years, and during this time have been repeatedly corrected." This introductory statement shows how this laboratory manual comes to be so remarkable in many ways. It is all that other manuals of its kind are and, in addition, it contains many new and valuable features. Besides many of the more usual experiments, it contains the following: Grignard reaction, acetals, *l*-menthone and its oxime, lecithin from egg yolk, ethyl isocyanate, glyocol from hippuric acid, mucic acid from lactose, hydrocinnamic acid, permanganate oxidation, limonene dihydrochloride, camphor from pinene, and anthraquinone. Much emphasis is put on the proper handling and setting up of apparatus. The many clear figures help to impress on the student this important phase of organic work. The questions at the ends of the chapters are varied from the "obvious" things which are missed by the poorer students to matters which will call for considerable thought from even the best students. Throughout, the book is aimed at all types of students. Its directions are minute, almost painfully so at times, and of such a nature that the poorest student can follow them and get results. At the same time the text is interspersed with many references to the original literature which cannot but be inspiring to the better students who have the time and ability to use them. It may be mentioned that many of these references are from the latest journals. Such, for instance, are those on removing "frozen" stopcocks, and on preparing ethylene for mustard gas. The second part of the book contains over 100 pages on organic combustions. Here the directions are the most minute and detailed to be found anywhere except in the larger reference books. On first reading, these directions give a wrong impression of the methods. The apparatus for the determination of nitrogen, illustrated on p. 276, really works very simply when the directions have been mastered by carrying out the process

once or twice. The chief criticism which can be made against this unusual manual is that most of the processes used are not the simplest possible. However, almost all of the complications introduced, are of considerable educational value. Their introduction would be of disadvantage only in courses where quality must be sacrificed for the sake of speed.

FRANK C. WHITMORE

**Lunge-Berl. Chemisch-technische Untersuchungsmethoden.** Edited by Ing.-Chem. DR. ERNST BERL, Professor of Technical Chemistry and Electrochemistry at the Technischen Hochschule, Darmstadt. Julius Springer, Berlin, 1921. Vol. I, Seventh Edition, xxxii + 1099 pp. 291 fig. 15.5 × 23.5 cm. Price M 294.

This is the first volume of a new edition of Lunge completely revised and enlarged. The preface states that 1915 had been set for its appearance, but that the World War interfered. The plan of the book is the same as in the earlier editions, that is, the various chapters are written by experts in the several fields.

The following headings from the table of contents show the scope of the present volume. Sampling, General Operations of the Laboratory, Volumetric Analysis, Analysis by Electrical Conductivity Measurement, Gas Analysis, Hydrometry, Manometers and Anemometers, Heat Measurement, Colorimetry, Calculation of Analysis, Technical Gas Analysis, Microchemical Analysis, and Electrolytic Analysis. The discussion of the above list of topics covers over 400 pages and constitutes an admirable presentation of the general points of technical analysis.

The list of special methods includes those used in the examination of solid and liquid fuels, water both for drinking and industrial purposes and the raw materials, by-products and finished products of the manufacture of sulfurous, sulfuric, nitric, hydrochloric and hydrofluoric acids. The chlorine and soda industries are treated in the same way. Potash salts and liquefied and compressed gases have chapters and an appendix deals with methods of analyzing bromine, saltpeter and potash products.

The text contains numerous illustrations and there is a portrait of Lunge as a frontispiece. Literature references, including even a few American ones, are copious. Numerous tables of data useful in the calculation of analytical results accompany the book in a separate packet. These tables are printed on one side only to permit mounting for easy reference in the laboratory.

The reviewer can commend the work most heartily to those who either as teachers or as commercial chemists need to have at hand a comprehensive book on technical analysis.

C. W. FOULK