

each branch." Her investigative turn of mind then finds expression in working out several phytochemical problems and in delivering public lectures on such broad subjects as "plant analysis as an applied science," "the chemical basis of plant forms," etc.

Not content with what she can attain on this side of the Atlantic, she goes to Europe in search of a laboratory in which to pursue her phytochemical studies. However, she returns to America and resumes the study of medicine. After her marriage she starts on a trip around the world. A short residence at Worcester is soon interrupted and residence is taken up in the Isle of Wight where a private chemical laboratory is equipped. Here she works jointly with John Jeanprêtre as she had previously worked with Trimble in Philadelphia.

Returning once more to America she delivers her last lecture on a phytochemical subject. Again she goes abroad, but this time "her interests" are "enlisted in wider fields," *i. e.*, she writes about the Austrian peasant and kindred topics. A third time she matriculates at Tufft's and wins her medical degree in 1903. After a short medical practice she died November 29, 1904.

EDWARD KREMERS.

**Life and Scientific Activity of N. A. Menshutkin.** By N. MENSHUTKIN. Published by M. Frolovaia, 6 Galernaia Street, St. Petersburg (In Russian).

A detailed biography and review of the work of the late N. A. Menshutkin by his son. Considerable space is devoted to telling of the struggles of the Russian students for liberty of assembly, etc., and of the faculties of the University and Polytechnic Institute for autonomy.

H. M. GORDIN.

**Neue Capillar- und Capillaranalytische Untersuchungen.** By FRIEDRICH GOPPELSROEDER. Basel: Emil Birkhauser. pp. xiv + 81 pp. + 52 tables. Price, 6 Marks.

This interesting little book is a concise report of original work in a field which the author has made peculiarly his own. He gives a list of his eight earlier publications upon the same subject, the first of which appeared in 1861.

As the facts Goppelsroeder has based so much work upon are, perhaps, not widely known, it may not be amiss to state them briefly. When strips of filter paper (cotton, linen or other fabrics may be used, but filter paper is generally preferable) are hung with their ends dipping in liquids or in solutions, capillary force causes the liquids to creep upward to definite heights which are different for different substances, as in capillary tubes. The effects of adsorption are also apparent and the result, when several substances are in the solution, is the formation of bands or zones of different widths, each zone containing mainly some one of the dissolved substances. Numerous qualitative separations can be brought about in this way, and corroborative color tests can be applied to the several bands on the paper.

The eighty pages of text seem brief for the amount of fact they contain and a stupendous number of separate observations are condensed into the fifty-two tables, some of which are large, opening out like maps. The following are some of the titles of chapters:

I. The effect of different kinds of filter paper upon the height to which liquids ascend. . . . IV. The effect of the length of paper immersed on the height to which liquids ascend. . . . VII. Influence on the ascension of a mordant action on the fibers. . . . VIII. Capillary analysis of the extracts from separate zones which were obtained by a preliminary capillary analysis. . . . IX. Sensitiveness of capillary analysis. . . . X. Capillary analytical tests of water solutions of alkaloids. . . . XI. Capillary experiments with members of different homologous series of organic substances. . . . XII. Capillary experiments with water solutions of inorganic salts. . . . XIV. Capillary experiments with milk, with skimmed milk and with each diluted.

In some cases the results are gratifying, for instance potassium bichromate—sulphuric acid gave a positive test for strychnine on the filter paper strip when only one part of strychnine was present in 1,600,000 of the solution, while the same reagents did not detect one part of strychnine in 25,000 in the solution itself. Similar results were obtained with other alkaloids. In other cases the results are not so satisfactory. For instance, in one hour, pure milk rose 14.1 cm., diluted with 10 per cent. water it rose 14.7 cm., and diluted with 20 per cent. water it rose 16.4 cm. The difference in these heights is enough to make one hopeful but hardly enough to justify much reliance on the method for detecting watered milk. Capillary analysis in its present stage of development is an art rather than a science.

There is much of value to analysts in the book and it certainly should be in every reference library.

S. LAWRENCE BIGELOW.

**A Course of Practical Organic Chemistry.** By T. SLATER PRICE, D.Sc., Ph.D., F.I.C., AND DOUGLAS TWISS, M.Sc., A.I.C. London: Longmans, Green & Co. 1907. xiii + 239 pp. Price, \$1.20.

Both authors are connected with the Chemical Department of the Birmingham Municipal Technical School, Dr. Price being the head of the department and Mr. Twiss one of the lecturers.

The occasion for publishing the book, and the field it aims to fill are set forth in the preface as follows: "The recent revision of the Board of Education syllabus for Practical Organic Chemistry . . . . has naturally created the necessity for a text book which will cover the complete syllabus. . . . The present book really consists of an amplification of the notes which have been given to our own students. . . . who comprise (1) those working for the Board of Education examinations, and (2) for the B.Sc. degree," the classes being, "with few exceptions, held only in the evening."