the influence of Maupertuis, Clairaut and D'Alembert, Cartesian physics gave way to Newtonian. The fact that Clairaut's "La Théorie de la Lune Déduite du Seul Principe de l'Attraction" (St. Petersburg 1752) received the prize of the Imperial Academy of St. Petersburg indicates that Newton was recognized in Russia as early as in other countries of the Continent. To say that he was not recognized there for about two centuries implies that until the twentieth century Russia had no physics, no mechanics, and no astronomy, which is clearly absurd.

As to the statement (p. 440): "Further expression of appreciation of Newton's works and influence on scientific thought is indicated by a translation in 1936 into Russian of the "Principia," first edition. . . ." If "first edition" means that the 1936 edition is the first Russian translation, that is false, because the first Russian translation was published by A. N. Kryloff in 1916. If it means translation of the first edition of the "Principia," that is false, because the translation was of the third edition.

On page 438 we find the following statement: "The University of Moscow opened in 1755, and so great was the intellectual growth among the Russian people that other cities soon established universities." This again is untrue. The first universities to be founded in Russia after Moscow were the University of Kharkov in 1804, the University of Kazan in the same year, and the University of St. Petersburg in 1819. A lapse of almost fifty years from 1755 to 1804 hardly is "soon," and it reveals that intellectual growth among the Russian people at that time was not so great as the quoted statement suggests.

Mr. Brasch also quotes from Alexander Petrunkevich of Yale University: "Applied science, such as engineering, was for a long time looked upon [in the light of special knowledge, somewhat detrimental to broad education], with the additional stigma of mistrust." It is difficult to perceive what this statement means. If it means that engineering education or the engineering profession did not have sufficient support or encouragement, the facts contradict. Russian engineering schools are among the oldest of their kind. The School of Mining Engineers was founded in 1772 and became a center of studies in geology, metallurgy and metallography. Tschernoff, whose fundamental laws (1868) form a basis for the subsequent development of metallography, was a professor of this school; so was the famous crystallographer, E. Fedoroff.

The Institute of Engineers of Ways of Communication was organized in 1807 after the pattern of the best French schools of that time. Among the professors of this school we find such names as Clapeyron (1799–1864) and Lamé (1795–1870), who were among the founders of the theory of elasticity. Perhaps due to their influence mechanics of materials and theory of elasticity always occupied an important place in the curricula of Russian engineering schools. The standards of these schools were high and it is not surprising that they produced several outstanding engineers during the second half of the nineteenth century. It suffices to mention only a few Russians whose contributions were of a fundamental nature; namely, Jouravski (*Annales des Ponts et Chaussees,* 1856); H. Golovin (*Trans. Inst. Techn. St. Petersbourg,* 1881); F. S. Jasinsky (*Annales des Ponts et Chaussees,* 1894); N. Petroff (his book "Neue Theorie der Reibung" in German translation, Leipzig, 1887).

There are other inaccuracies and misstatements in the article under discussion, which in themselves are unimportant except that a consultant in the history of science is responsible for them. For instance, Nicolas and Daniel Bernoulli were brothers, both from Basel, Switzerland, and it is inconceivable why one of them is said to be from Switzerland and the other from Germany. Neither of them was a professor of mathematics, as this article says, before coming to the Academy of St. Petersburg. Nicolas occupied the chair of jurisprudence in Bern at the time he was called to St. Petersburg, while his younger brother Daniel, by profession a physician, did not hold any professorial position at all, either in Germany or in Switzerland, when he was called to the Academy. Leonhard Euler, pride of the Russian Academy, was not called to St. Petersburg until 1727 to fill the vacancy left by the untimely death of Nicolas Bernoulli. Chretien Goldbach, a quite insignificant mathematician, never was a member of the Academy of Sciences (refer to page 437).

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SCIENTIFIC BOOKS

FATTY ACIDS AND LIPIDS

The Biochemistry of the Fatty Acids, and their Compounds, the Lipids. By W. R. BLOOR. A.C.S. Monograph Series, 377 pp. New York: Reinhold Publishing Corporation. 1943.

THE author of this monograph has devoted the past thirty-five years to the study of the lipids. By virtue of both seniority in the field and the importance of his original contributions, he is recognized as the dean of lipid biochemists. He has systematically followed and

catalogued the results of the researches of others. No one, therefore, could have been better qualified by thorough familiarity with the subject to write this long-needed review of existing information concerning the biochemistry of the fatty acids and their compounds, the lipids.

In preparing to write the book, Dr. Bloor evidently realized that it should fulfil two purposes: to provide the general student of biochemistry with a present-day interpretation of the chemistry of the lipids and their rôle in the functioning of living matter; and to provide the present and future researcher in the lipid field with a complete and convenient catalogue of the information that has accumulated about the lipids. The subject is dealt with in six chapters: Chemistry; Digestion and Absorption; Lipids of the Blood; the Lipids of Tissues; Lipid Metabolism; and the Lipids of Secretions and Excretions. Each chapter in turn is subdivided into numerous sections and subsections, each of which is indicated in the exceptionally detailed table of contents. Thus the reader is provided with a key to the information on any specific subject concerning the lipids. Each chapter ends with a complete and conveniently indexed bibliography which enables one to consult the original sources of the information summarized in the book. In spite of the author's admission of the incompleteness of his bibliography, the literature on the lipids up to about 1940 appears to be pretty thoroughly catalogued. Although the preface was written in April, 1943, it is evident that most of the information published since about 1940 is either missing or is very briefly mentioned. It is of course inevitable in any review of a rapidly advancing field that recent findings, many of which necessitate a radical change in viewpoint or interpretation, are omitted. Such is the case with Dr. Bloor's monograph. In general the important and far-reaching results that have been obtained by the use of the isotopes are not included. Consequently, in the reviewer's opinion at least, certain of the interpretations of earlier data are either untenable or at any rate inadvisable as definite statements of fact. For the research worker in the lipid field such faults are of little importance; they serve to accentuate the need for further work and especially for new methods of approach. The general reader, on the other hand, is likely to be left with falsely secure convictions concerning certain aspects of the biochemistry of the lipids.

"The Biochemistry of the Fatty Acids and the Lipids" is treated by Dr. Bloor primarily from a physiological standpoint. The balance between the more strictly chemical, *i.e.,* the organic and physicochemical aspects, and the functional is perhaps not as even as some would wish. Chapter I, dealing with the chemistry of the fatty acids and the lipids, takes up only the first fifty-seven pages of the total three hundred and seventy-seven; of these fifty-seven, twenty deal with quantitative methods. Furthermore, Chapter I suffers perhaps more than the other chapters from the absence of the more recent work. For example, the chemistry of the material conventionally called cephalin has been considerably modified and elucidated by the work of Folch: cephalin is a mixture of at least three components.

In the remaining chapters the author has done an admirable job of classifying the enormous amount of information, and by intercalating introductory remarks, interpretations and summaries, of weaving the various threads into a fabric. As stated in his preface, Dr. Bloor himself has recognized that this fabric is imperfect; it can not be otherwise in a growing subject. Nevertheless, the monograph will fill a long-felt need and will serve as a very useful guide to further constructive research into the biochemistry of the lipids.

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SYNTHETIC SUBSTANCES

The Chemistry of Synthetic Substances. By DR. EMIL DREHER. Translated by MARION LEE TAYLOR. 103 pp. New York: Philosophical Library. 1943. $3.00.

THE original of this volume appeared in German in 1939 at a time when the chemistry of large molecules had not received the attention which is at present devoted to it. The effects of constituents and substituents on the polymerization and the properties of the resultant condensates had not received the published discussion which is at present available.

At that time, Dr. Dreher's volume made a notable contribution to this difficult subject and all the information contained in the volume is still of basic importance. The available copies of the first German edition were very limited in number and the present translation will therefore be welcome to those who either were unable to secure the German or were unaware of its existence.

The volume discusses high molecular organic compounds and the principles of the processes of polymerization and polycondensation. Several chapters are devoted to the influence of side groups on the capacity for polymerization, and a chapter is devoted