The following essay deals with men of universal genius, polymaths they are called; Archimedes, Leonardo, Euler, the three Bernoullis, John Wallis, Sir Christopher Wren, Newton, Thomas Young, Lagrange, Hamilton, D'Alembert, Huygens are briefly mentioned as examples. The careers of two polymaths, Kelvin and Heaviside, are discussed in more detail and an interesting comparison is drawn between the fame of Kelvin during his lifetime and the comparative obscurity of Heaviside. Kelvin is described as an extrovert, Heaviside as an introvert with greater depth both scientific and spiritual. In another essay, on Newton, credit is given him for industrialism: "If recent industrialism is a blessing, give initial credit to the *Principia*." This oversimplification reflects the general tendency of the book to discuss only English scientists and contributions to science.

In an essay entitled "Industrialism" Dean Slichter defends the scientific method as capable of resolving the conflicts of modern civilization. "Science brings its own remedies and removes the evils that it has itself created. If it were otherwise science would not be science." He evidently does not take the point of view that science assists men to get what they want, but must leave the determination of those wants to factors outside the domain of science. He assumes: "There is a best way and experts are selected to find and direct it." He believes, apparently, in "government for the people." The essay entitled "The New Philosophy" discusses controlling the power provided by science. Dean Slichter says: "in England spiritual control may grow and spread from the Universities. In America I expect the hope of the new philosophy to lie not with the university faculties, but with men of the world; with leaders in the industries; with engineers and business men and lawyers and men close to affairs. We must look for a new Christopher Wren who can look upon life as a whole. . . ."

W. FLEXNER

Essai sur l'Unité des Sciences Mathématiques dans leur Développement Actuel. By Albert Lautman. (Actualités Scientifiques et Industrielles, no. 589.) Paris, Hermann, 1938. 62 pp.

In the introduction to the first edition of his *Gruppentheorie und Quantenmechanik,* Hermann Weyl remarks that whereas it was fashionable in the past century to arithmetize all branches of mathematics (for example, the study of geometry was reduced to the study of a metric), it has now become fashionable to axiomatize all branches of mathematics (the study of analysis is now based on a study of abstract spaces). Lautman attaches undue significance to these remarks, and interprets them as meaning that there is a schism in mathematics. Lautman's personal belief is that the distinction between the two kinds of mathematics corresponds only to historical conditions in the development of mathematics, and he undertakes to prove in this book that the schism implied by Weyl's remarks does not exist.

As a matter of fact, no such schism exists, and it is to be doubted if any mathematician really thinks that one does exist. A careful reading of Weyl's remark in its context would seem to indicate only that he was drawing an analogy between the earlier change in the point of view of the mathematicians and the change then occurring in the point of view of the physicists because of the new quantum mechanics. So Lautman is tilting against windmills.

In spite of its inconsequential result, the book is interesting to read. Lautman takes algebra (of the van der Waerden type) and topology as representative of the one sort of mathematics, and analysis as representative of the other sort of mathematics. He then gives many examples of cases where the methods or results of one are used in the other. In the first chapter he discusses uses of the ideas of linear dependence and dimensionality in analysis, as in Hilbert space for instance. Also he brings out some less direct analogies, such as exist between the Weierstrass factorization theorem and the factorization of polynomials.

The second chapter discusses the uses of non-euclidean metrics in analysis. This seems a bit irrelevant.

The third chapter calls attention to the extensive use of noncommutative algebras in connection with Lie groups, differential operators, and so on.

The last chapter concerns the analytic theory of numbers. This subject is particularly relevant because of the constant interplay of results from number theory and analysis.

BARKLEY ROSSER

Mécanique des Fluides. By Joseph Pérès. Paris, Gauthier-Villars, 1936. 8+322 pp.

It is not surprising that hydromechanics has for many years attracted the serious efforts of eminent mathematicians, such, for example, as Newton, Euler, Lagrange, Cauchy, Poincaré, Levi-Civita, to name only a few. For, both in the formulation of its fundamental concepts and in its methods, hydromechanics is essentially a part of mathematics. It postulates a "mathematical fluid" with certain properties, and in order to deduce further properties it calls on a wide range of mathematical doctrines, potential and function theory, differential equations, calculus of variations, and so on.

During the present century the researches of Oseen and Prandtl have done much to narrow the gap between theory and experiment. More recently the urgent needs of the science of flight have furnished a fertile soil which already supports a luxuriant theoretical growth.

The purpose and general character of the book under review may be seen from the following quotation from the preface by Henri Villat, who is generally regarded as the leading spirit in the study of hydromechanics in France. "The principal object of these lessons (at the Sorbonne) is the mathematical explanation of the resistance of fluids, and in particular the theory of the lifting wing." As indicated by this quotation the emphasis is on the force experienced by a body placed in a uniform stream. The following outline will describe the contents (the numbers refer to chapters).

A. Theoretical hydromechanics.
   - 1– 3 Mechanics of perfect fluids.
   - 4– 7 Two-dimensional motion (complex variables), flow past obstacles, profiles of Joukowski and others, formulas of Kutta and Blasius.
   - 9–10 Three-dimensional motion with vorticity.

B. The problem of resistance.
   - 8 Discontinuous motion, work of Villat and others.
   - 11 The Prandtl wing theory.
   - 12 The method of Oseen.

The reader unacquainted with the subject will find in Chapters 1–3 a clear introduction. Chapters 4–7 treat the topics covered in considerable detail. These three chapters, along with Chapter 9, will appeal to those interested in aerodynamics. The latter chapter is especially recommended for its neat presentation. Only in the last chapter is viscosity directly taken into account. But the reader who expects to find in the twenty-nine pages of this chapter an easy introduction to the Oseen theory is likely to be disappointed. The treatment is quite novel and at places difficult to follow for one not already acquainted with the theory.

The author's presentation is clear and direct and at times ingenious. He has achieved a number of refinements and simplifications which make the book worth