Almost all scientific information about atoms has been accumulated during the past two centuries, and knowledge of the divisibility of atoms into elementary particles belongs almost entirely to this 20th century. Many educated people probably know that nature has provided some 90 species of chemical atoms, but how many know what these atoms are made of? Besides electrons, protons, and neutrons, the first elementary particles to be discovered in atoms, evidence has been found for mesons, muons, pions, several kinds of hyperons, neutrinos, and anti-particles of nearly all kinds, so that instead of three elementary particles there are now nearly thirty! Is this all there is to learn about atoms and particles?

"One may say that the present opinion that elementary particles will really bear out their name (as the atoms did not) is due to our comparatively slight familiarity with their properties, and that all of them will be found in future to be as complex as grand pianos. It may also be that this will not be the end of the road and that years later much smaller subelementary particles will be discovered. There is no way to predict the future, and the question whether Democritus' original philosophical concept of indivisibility was right or wrong will never be answered by empirical means. But, somehow, many scientists, including the author, feel happier with the thought that, in the study of matter, things will come to an end and that the physicists of the future will know all there is to know about the inner structure of matter. And it also seems quite plausible that the elementary particles of modern physics really deserve their name, because their properties and behavior appear to be much simpler than could ever be said about the atom." (P. 147.)

**Biographical Memoirs of Fellows of the Royal Society, Vol. 6 (1960).** 295 pp. The Royal Society, London, 1960. 30s. *Reviewed by R. Bruce Lindsay, Brown University.*

THE labors of the science historian are being materially lightened by the appearance of these annual volumes of biographical memoirs of fellows of the Royal Society of London, of which this is Volume 6 of a new series started in 1955. It contains brief sketches of the lives and scientific achievements of seventeen Fellows and Foreign Members who died between 1958 and 1960. Each is accompanied by a photograph and a chronological bibliography. Of the individuals described, six were biological scientists and ten physical scientists. The one remaining describes the American philanthropist John Davison Rockefeller, Jr., who was elected as a Fellow (not as a Foreign Member, as is usual in such cases) in 1939 because, in the words of Statute 12 of the Society, he "had rendered exceptional service to the cause of science".

Of the five physicists memorialized in this volume, the most celebrated were Jean Frederic Joliot, Max von Laue, and C. T. R. Wilson. In 1933 Joliot received jointly with his wife, Irene Joliot-Curie, the Nobel

Prize for Chemistry for their discovery of artificial radioactivity. Von Laue received the Nobel Prize for Physics in 1914 for his discovery of the diffraction of x rays by crystals, and C. T. R. Wilson in 1927 shared a similar prize with A. H. Compton for their contribution to the understanding of the scattering of high-energy photons. All three were among the outstanding physicists of the twentieth century, though it is of interest to note that Wilson, who was born in 1869, did some of his most notable work before 1900.

Vital statistics about celebrated intellectuals are always of interest. The average longevity of those whose biographies appear in this volume was 77. The youngest at death was 58 and the oldest 98. Eight lived to be over 80.

The biographies are of uneven length and quality. Some are extremely brief, while others, such as that of von Laue by P. P. Ewald, are extensive enough to give a vivid picture of the man's personality as well as a detailed review of the significance of his scientific work. All students of physics and science in general will find it worthwhile to dip into this collection.

**Turbulence.** Classic Papers on Statistical Theory. S. K. Friedlander and Leonard Topper, eds. 187 pp. Interscience Publishers, Inc., New York, 1961. $6.00. *Reviewed by R. E. Street, University of Washington.*

As the editors point out in their preface to this collection of reprints of twelve famous papers on the theory of turbulence, their intent was to present only those papers on isotropic turbulence which had their origins in the statistical theory of G. I. Taylor and had been published prior to 1950 by which time "our physical understanding of turbulence was already adequate for the study of many related scientific questions." In this way the size of the volume has been kept small enough so the price is reasonable and yet it seems that all of the best-known papers have been included. The number of authors is few, but include the pioneers in the field; thus, we have the first four parts of Taylor's papers on "Statistical Theory of Turbulence" as well as his 1921 paper on "Diffusion by Continuous Movements", with which his ideas started, and his 1938 paper on the spectrum. Three papers are by von Kármán and his co-workers, including the famous 1938 paper with Howarth and the 1949 paper with C. C. Lin which concludes the book. Also included is a paper by C. C. Lin on the law of decay, the excellent review article by H. L. Dryden of 1943 and Kolmogoroff's three 1941 papers.

Two of the papers are in the nature of review and this, together with Taylor's inimitable style, make most of them excellent reading. Only the three Kolmogoroff papers, although translated, can be said to lack expository style. Thus, the book can be recommended to anyone desirous of becoming acquainted with the classical statistical theory of isotropic turbulence through a study of some of the original papers. By not including papers since 1950 there are certainly gaps in the prog-