The Cavendish Laboratory. Nursery of Genius. By Egon Larsen. 95 pp. Franklin Watts Inc., New York, 1962. $3.95. *Reviewed by Robert L. Weber, The Pennsylvania State University.*

"NO institution in Britain, nor perhaps in the whole world, has influenced modern Science more than that splendidly successful research laboratory at Cambridge, the Cavendish. Here, for the first time, is its whole story, telling of the fundamental scientific ideas and discoveries which originated there, and of the great men who worked in it, such as Sir J. J. Thomson, who discovered the electron, Lord Rutherford, the New Zealand farmer's son, who first split the atom, the Russian Peter Kapitza . . . Sir James Chadwick . . . Sir John Cockcroft . . . E. T. S. Walton . . . C. T. R. Wilson . . . P. M. S. Blackett. . . ."

This may seem an extravagant claim for the publisher to make for a little book which covers some 95 eventful years in as many pages. Actually, the claim is surprisingly well supported in Larsen's brisk history. In discussing the men, their discoveries, and their attitudes, he frequently makes use of a significant detail, an anecdote, or illustration. He is alert to the significance of experiments and to changing outlook. He seems to have an optimistic view in projecting the events. These characteristics marked his earlier biography of Count Rumford, *An American in Europe*, and his science fiction, *You'll See*. But despite the anecdotes, the author seems strangely absent in his *Cavendish Laboratory*. There is no preface. Larsen is not mentioned in the foreword written by Sir John Cockcroft. The reader may well wonder whether this history, written under a pseudonym, was a purely journalistic venture, or whether the author has personal acquaintance and attachment at the Cavendish.

Larsen explains the vitality and the tremendous influence of the Cavendish in terms of the way its talent anticipated and served the scientific needs of successive periods. The foundation of the Cavendish Laboratory in 1871 started a new era in British physics and marked a break with the view expressed at Cambridge in the 1860's: "Experimenting is unnecessary for the student. The student should be prepared to accept whatever the master told him."

The Cavendish Laboratory has been directed by a sequence of great scientists—Clerk Maxwell, Rayleigh, J. J. Thomson, Rutherford, W. L. Bragg. The postwar generation of scientists led by Cavendish Professor Sir Nevill Mott is continuing the great tradition of discovery in new fields: molecular biology, radio astronomy, solid-state physics, low-temperature physics, x-ray crystal analysis, and geophysics. Yet, as Blackett is quoted as saying, "One cannot plan the work of a research laboratory on the assumption that Rutherfords and Faradays will be conveniently born to inhabit and work in it. Laboratories must be planned for the normally gifted student, and a good laboratory might be held to be one where normal men achieve great things." This, perhaps, is the secret of the Cavendish—its traditional atmosphere of sincerity and comradeship among

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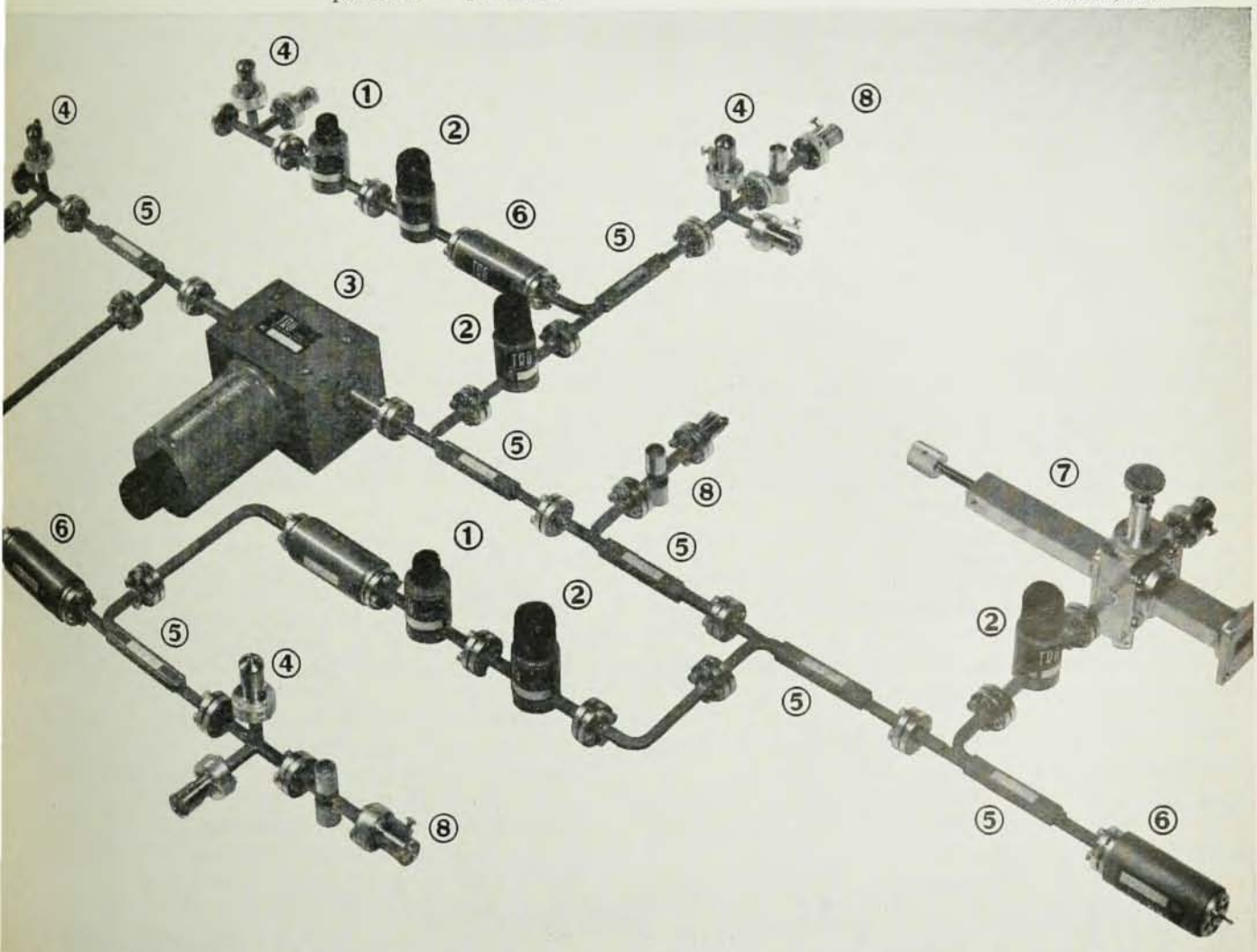

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the teachers and scholars, the already famous and the beginners.

It may be unjust to the virtues of Larsen's book to suggest that it should have included an index and a bibliography. The bibliography certainly would have included Sir J. J. Thomson's *Recollections and Reflections*, to support Larsen's necessarily brief remarks on Thomson's 34 years at the Cavendish. One of the greatest achievements of the Cavendish was the way that its young men, accepting positions at other universities throughout the world, molded physics in the Cavendish tradition. In his memoirs, Thomson mentioned the universities in which 92 of his pupils have held professorships. Larsen might have extended this survey to emphasize the influence of the Cavendish.

Of the many illuminating and amusing comments in Larsen's book, surely those relating to the economy of the Cavendish Laboratory will be arresting to today's contract research physicists. There is the picture of Aston turning the pedal of an upturned bicycle to drive a dynamo while waiting for Rutherford to raise the money and order the needed motor. The era of artificial nuclear transmutations was launched by the Cockcroft-Walton accelerator, "the most expensive piece of apparatus ever installed at the Cavendish up to that time. Its main parts cost no less than £500, a sum which appeared to everybody at the Laboratory quite astronomical."

Current Trends in Scientific Research. Survey of the Main Trends of Inquiry in the Field of Natural Sciences, the Dissemination of Scientific Knowledge, and the Application of such Knowledge for Peaceful Ends. By Pierre Auger. 245 pp. UNESCO, New York, 1961. Paperbound $6.75. *Reviewed by James W. Moyer, Servomechanisms, Inc.*

THIS book, global in scope, was prepared as a report to the UN over a two-year period. UNESCO, acting as a centralizing body to collect information, appointed Professor Auger, the eminent French scientist, to direct the survey and prepare the report. The object was to encourage dissemination and peaceful application of research results to help fill the needs of many countries. Questionnaires were sent to all UN member states; returns were received from only 24, among which, fortunately, were 13 with major scientific efforts. I would guess this represents a good 90 percent of the world's scientific sources. In addition, 27 major international scientific organizations sent in data, and another hundred or more were consulted. Finally, nearly 300 individual experts were asked for their views.

There is no question that the information set forth is authoritative and, happily, it is written so that a physicist can understand even the medical sections. Specific military-oriented research is, of course, conspicuously absent. The fundamental sciences—mathematics, physical, chemical, and biological sciences, are covered first. Separate chapters cover earth and space