of Chapter IV entitled "Forward Integration of First Order Equations." Among the topics discussed in these three chapters are: the solution of simultaneous equations and equations of second and higher order, estimation of total error over the range of integration, a comparison of the accuracy of the various methods for integration by finite differences, and the solution of equations with boundary conditions given at two end points. The sixth and final chapter deals with some special methods applicable to the solution of linear differential equations.

In general the text is clearly written and illustrated with a great variety of typical problems, which are carried out in detail and which can be easily followed by a student at the college level. It fulfills a great need in this field which exists at the present time. For this reason its republication in this country should be welcomed as a timely venture which will prove extremely useful to many students in applied mathematics.

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History of Physics. Max von Laue, Ralph Oesper, Trans. New York: Academic Press, 1950. 150 pp. $2.30.

Joseph Henry: His Life and Work. Thomas Coulson. Princeton, N. J.: Princeton Univ. Press, 1950. 352 pp. $5.00.

Max von Laue's life has spanned the great revolutionary period of modern physics. An authority on relativity and a pioneer in the theory of crystal diffraction of x-rays, whose classic contributions in both fields were published before World War I, von Laue continued his work during the years of Nazi tyranny, when he successfully, and at times courageously, refused to compromise with the dictates of racialized science. Few men did more to uphold the honor of German science in its darkest hour. It was with impatience that this reviewer waited for the appearance of a short history of physics which he learned von Laue was publishing in a series edited by Erich Rothacker. The German original appeared in 1947; the disappointment felt on seeing it has been confirmed, and if anything enhanced, by the appearance of the English translation, which is carelessly made from what seems to have been an earlier and less polished version than that finally issued in Germany! The ineptitudes of translation are numerous. Just why *Schwingungen* should be rendered "vascillations" is unclear, unless, like "statistics" for *Statik*, it involves a clerical error.

Von Laue's little book is arranged topically, and although he clearly is not very sympathetic to the earliest periods of the history of science, each section deals with the background history of its particular branch of physics. For those earlier branches which have a history running back of the 19th century, his treatment is not always satisfactory. His statement that "Nothing in either Antiquity nor the Medieval period points to any systematic scientific investigation" should apprise us that he is not aware of the important research historians of science have been doing in the past half-century. Yet this does not explain why he could not have consulted generally sound works in the history of physics like the books of Gerland, Rosenberger, and others, to avoid errors about the 17th and 18th centuries. Had von Laue not devoted so much space to this background, and lent the prestige of his great name to his statements, these points would hardly deserve mention. What is really enduring in this little book is von Laue himself and what von Laue tells us of the period he lived through. Here there is much useful material—especially in such chapters as the one on the physics of crystals—though the account is everywhere coldly factual and condensed. Since the first draft was completed before the news of Hiroshima, the question of atomic energy is scarcely mentioned, and, for once among recent publications, *Kernphysik* does not dominate the picture to the exclusion of other branches of modern physics. After the publicity about the successful large-scale release of atomic energy, von Laue added a perfunctory paragraph and cut out a sentence that has been translated: "Nuclear transformation can provide mankind with energy direct, though at present in not more than extremely modest quantities." Rather absurdly, this sentence, and the paragraph on thermonuclear reactions which includes it, have been retained in the translation, though they are not to be found in the German version.

Thomas Coulson's *Joseph Henry* is a conscientious work, written in rather undistinguished fashion, about one of the most interesting personalities in the history of science in America. Evidently the loss of the Henry papers by fire was a disaster of real magnitude to the biographer, for, although some use has been made of manuscripts in the Smithsonian Institution, it has been necessary to rely mainly on familiar sources—secondary biographical accounts and the published scientific papers —and no unsuspected reservoir of information has been turned up. Some relevant recent studies, like Carleton Mabee's life of Morse, were apparently not consulted. Coulson takes us in some detail through the researches of Henry's Albany and Princeton days and gives a good account of his important connection with the Smithsonian Institution, whose first secretary he was, and the National Academy of Sciences, of which he was one of the founders. The author's avowed aim of rescuing Henry from the neglect into which he has fallen has been achieved to the extent of presenting a most convincing picture of Henry's claim to a scientific reputation far beyond that which the 19th century, or our own, has accorded him. Coulson presents fairly Henry's claim to the prior discovery of electromagnetic induction and his share in the invention of the telegraph, but he seems to this reviewer to make perhaps a bit too much of Henry's interesting speculations of 1844—two years after the publication of J. R. von Mayer's paper—on the conservation and convertibility of energy.

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