E. S. Federov are especially interesting. An account of the development and growth of the main x-ray schools is included in this collection. Personal reminiscences of 34 crystallographers conclude this volume.

To sum up, this volume will not be of great value either as a textbook or reference book; nevertheless, it still makes an interesting contribution to the existing literature on x-ray diffraction, and many scientists will benefit from reading it.

The Professor and the Prime Minister. The Official Life of Professor F. A. Lindemann, Viscount Cherwell. By Frederick, second Earl of Birkenhead. 399 pp. Riverside Press, Cambridge, and Houghton Mifflin, Boston, 1962. $5.95. *Reviewed by R. P. Hudson, National Bureau of Standards, Washington, D. C.*

BECAUSE of the many contradictory facets of his character, his distinguished career, and direct influence on the course of World War II in his position as scientific adviser to Winston Churchill, Frederick Lindemann would inevitably be a fascinating biographical subject, even without the well-publicized attack by C. P. Snow in the Harvard Godkin Lectures of 1960, wherein Lindemann was held up as a dreadful example of the dangers of placing a scientist in a position of power among nonscientists.

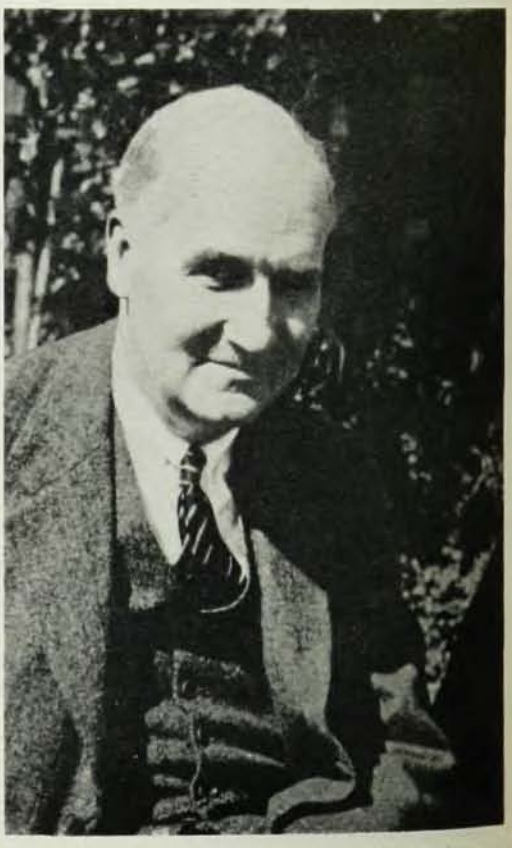
Lindemann was undoubtedly a most complex character on the surface; a man who both inevitably and evitably inspired controversy; a consultant on matters of enormous consequence whose judgment did not always match his eminence. But this book leaves as many questions unanswered as it purports to answer. Lindemann's reputation as a brilliant young physicist is a far from complete explanation of his double triumph in 1919, at the age of 35, of election to the Chair of Experimental Philosophy in Oxford and to fellowship in the Royal Society—honors seldom bestowed without powerful and energetic advocacy. Nor are we told why he should have been attracted by the "sorry legacy" of the old Clarendon Laboratory, constructed in (and moribund since) 1872 in a university where scientists were largely either derided or ignored. The gaining of entrée by this "outsider" into the aristocratic circles, whence stemmed his eventual career, is alone a biographical gem, but this story is left to our imagination.

As the "official life" and written by a close personal friend, it tends, of course, to side with the subject when the latter's reputation is at stake. But Birkenhead fails, I believe, to dispose of the criticism leveled by Lindemann's "enemies" that personally he made disappointingly small contributions to science after assuming the Chair, though the author devotes many pages to this topic. And what *did* occasion Lindemann's sudden and enduring animosity to his good friend Tizard, and was his disruptive behavior in the "Tizard Committee" conditioned solely by this hostility?

To some he presented a picture of charm, generosity, sardonic wit, and towering intellect; to others—arrogance, infantile spite, cynicism, and crankiness. The author ranges over the whole canvas but somehow the picture remains blurred. For thirty years, including the embattled war and post-war years, he was Winston Churchill's confidant and technical adviser; at different times in his career he had been a rising light in the new dawn of physics, an outstanding amateur tennis player, Oxford professor, and politician; yet he remained a shadow before the British public.

The rejuvenation of physics in Oxford did not hit its stride until the mid-thirties when there arrived from Germany the refugee scientists whom Lindemann had invited and personally helped to settle. By 1939, with the opening of the new Clarendon Laboratory, a notable advance had been made from the tragicomic situation obtaining in 1919. Granting the appalling difficulties and hostility encountered (more clearly detailed in Harrod's generally less substantial book), the contemporary leisurely pace of science, and with the public purse as yet withheld, one should not leap to belittle this administrative achievement for consuming Lindemann's twenty most precious years.

In his wartime post, his triumphs, failures, and even routine activities must have had enormous consequences, but the author does not analyze this in any depth. As with Snow's book, this period of Lindemann's life is presented by Birkenhead largely within the framework of his continuing conflict with Tizard. The



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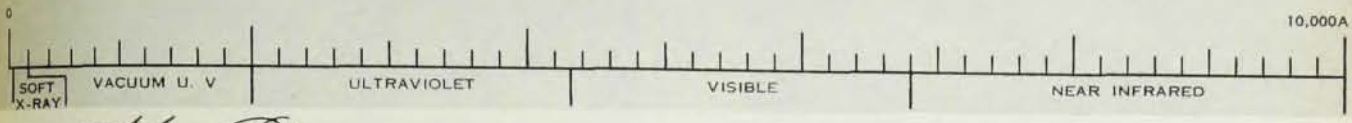

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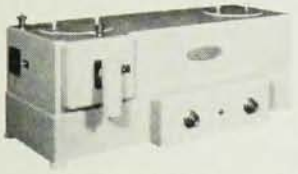

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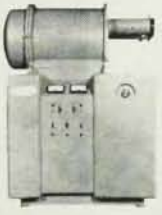

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same events are analyzed but opposite conclusions drawn; one supposes that reality lies somewhere between.

After the war, Birkenhead has his subject laboring (to the serious detriment of his health) to restore sanity to the tackling of Britain's economic ills; almost singlehandedly establishing the Atomic Energy Authority; and striving to modernize his country's outmoded technological training facilities. Here was a substantial actor on a large stage—but as to how great, one remains uncertain; the definitive "life" remains to be written.

Science and Religion. An Interpretation of Two Communities. By Harold K. Schilling. 272 pp. Scribner's, New York, 1962. $4.50. *Reviewed by Charles M. Gottschalk, Library of Congress.*

DR. SCHILLING, professor of physics and dean of the graduate school at Pennsylvania State University, juxtaposes science and religion in a most refreshing, lucid, and convincing fashion to demonstrate that "they are fundamentally not incompatible and inimical, and that they are not irrelevant either to each other or to the greatest concerns and needs of mankind." He analyzes the basic interests and activities of these two communities and arrives at the concept of a continuous spectrum of cognition and knowledge extending from the physical sciences, through the biological and social sciences, through the arts to religion. He argues that such differences as do exist between them, make them complementary and mutually helpful and beneficial, that both are needed in our culture and personal lives, and that each is enriched by the other.

Drawing upon fundamental scientific and religious facts and linking abstract and general ideas to concrete examples devoid of complex philosophical entanglements, Dr. Schilling communicates directly and explicitly. However, throughout his exposition a theistic thread is spun whose source stems from his utter devotion to the Christian Church, a fact not explicitly revealed until the very end of the book. Lacking emancipation from theistic views and neglecting to consider the psychological basis of religion, it is not surprising that Dr. Schilling cannot subscribe to the views of Julian Huxley, whose work *Religion Without Revelation* is conspicuously absent from Dr. Schilling's bibliographic references. The fundamental monotheistic faith of our western culture, to which the author clings tenaciously, is disposed of by Huxley, who affirms a humanistic faith based on man, intelligence, and the scientific method.

Humanists of the scientific persuasion reject the dualism which assigns to religion final authority in the realm of value and to science final authority in the realm of fact. Scientific humanists share in the "quest of a good life in a good world", and hold steadily to the conviction that progress toward this authoritative end is contingent upon the best kind of objective thinking whether the question is one of fact or of value,