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Book Reviews

The Atomic Adventure. By Bertrand Goldschmidt, Pergamon Press. 259 pages, $4.50.

In this book a leading French radiochemist has supplied a missing link in the popular account of nuclear research during and after World War II. Bertrand Goldschmidt had become an associate of Joliot-Curie by the age of 22 and was only 30 when he was sent to the United States and Canada to join the teams then working on the production of plutonium and other components of nuclear weapons. While in Canada, he distinguished himself by developing a method for the separation of plutonium from irradiated uranium, independently of U.S. research. His association with the official French governmental enterprise has been continuous and, in that respect, is somewhat unique as most of the American and British scientists who were prominent in the early days of the atomic weapon project have returned to academic life permanently or have alternated between periods of university and government service.

Unfortunately for Dr. Goldschmidt's feelings about the United States, his departure from the Anglo-Canadian laboratories in Montreal and Chalk River seems to have been insisted upon by the military in 1946 because of his official connection with the French Commissariat for Atomic Energy, then dominated by Joliot-Curie. Joliot-Curie by that time was a recognized Communist, although his leanings had been suspected as early as 1939 when he had declined to cooperate with American and British scientists in their effort to suspend publication of research papers on fission phenomena during the war. Goldschmidt himself was never under any such cloud.

Goldschmidt evidently resented the summary detachment from the project for he writes: "In the summer of 1950 the Italian physicist Pontecorvo who, unlike myself, had been permitted by the Americans to remain at Chalk River in 1946, deserted his adopted country—Britain . . . and fled to Russia . . . " It may be for this reason that when writing of the formation of the International Atomic Energy Agency and of the International Conferences on the Peaceful Uses of Atomic Energy, the initiative of the United States is scanted in the former case and not mentioned in the latter. This is regrettable since Goldschmidt regarded the conferences as "a great success" and as having promoted a thaw in international relations.

To the American reader who has had the advantage of a number of memoirs by participants in the atomic adventure, much of the book is necessarily a threshing of familiar straw, but many will find new insights into the progress that had been made in nuclear physics in the pre-war years in France by Joliot, von Halban, Kowarski, and Perin. Goldschmidt does not mention his own very considerable contributions to these accomplishments.

In Einstein's famous letter of August 1939 to President Roosevelt citing the possibility that a nuclear chain reaction might become feasible, he gave first mention to "the work of Joliot in France." In May of 1939, Joliot, Halban and Perin attempted to persuade the Union Miniere to provide them with enough uranium to make an experimental bomb to be tested in the Sahara. Sengier, then head of the Union Miniere, accepted the idea in principle, but the events of September persuaded him not to continue with it. It will be noted that this anticipated our own atomic enterprise by a number of months. There is much information about the progress of nuclear science in France and the substantial technical successes which have been achieved there since 1946 on a budget miniscule compared to ours.

There are few matters to fault in the book. In a chapter on the race for the H-bomb, Dr. Goldschmidt describes the Oppenheimer case apparently without having had access to the complete official record. He regards the publication of the testimony as unfortunate and contrary to assurances given to witnesses, being unaware that the consent of all witnesses but one was given prior to publication or that the initial leaks to the press concerning the proceeding were from Dr. Oppenheimer's counsel. He gives further currency to the erroneous report that it was "the shock caused by the Soviet explosion" (which led to the) "accusations against Oppenheimer."

One of the most interesting chapters deals with nuclear disarmament. Here Dr. Goldschmidt, referring to the negotiations to terminate the testing of nuclear weapons, states: "France for her part

had not taken part in the negotiations; she had made no secret of her intention to be in no way bound by an agreement between the three great powers on a test ban, not considering this in any way a real measure of disarmament—since the great powers were themselves continuing to build up their stocks of weapons." Further along, referring to the Test Ban Treaty of 1963, Dr. Goldschmidt observes that "the hopes which it has aroused should not . . . hide its serious shortcomings." The treaty is "more of a tranquilizer than a cure," a conclusion with which the reviewer unhappily agrees.

The book concludes with a short and optimistic chapter on the peaceful future of atomic energy. There is a useful chronology, a glossary, and both a name and subject index. This is an excellently organized and important book.

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About the Reviewer: With reviewers like Lewis L. Strauss, it is difficult to keep the biographical material congruent in length with the review itself. Mr. Strauss was secretary to Herbert Hoover during and just after World War II. He was a Member of the U. S. Delegation to the Final Armistice Convention in 1919. His Navy service during World War II included Chief of Ordnance Inspection, Chairman of the Army-Navy Munitions Board, the Navy Member of the Interdepartmental Committee on Atomic Energy and Special Assistant to the Secretary of the Navy. He retired from the Naval Reserve as a Rear Admiral in 1958.

He first served on the Atomic Energy Commission in 1946 on an appointment by President Truman. He was chairman from 1953 to 1958 by appointment of President Eisenhower. He initiated the program for monitoring nuclear explosions by which we detected the first and subsequent Soviet atomic weapons tests. He was the first to propose our development of thermonuclear weapons after the Russian A-Bomb tests. He originated the proposal for the International Atomic Energy Agency and headed our delegation to the Geneva Conference on Peaceful Uses of Atomic Energy in 1955 and 1958. He now raises purebred cattle on a farm in Virginia.

Nuclear and Radiochemistry. By Gerhart Friedlander, Joseph W. Kennedy and Julian Malcolm Miller. John Wiley and Sons, 605 Third Avenue, New York, N. Y. 1964. xi + 585 pp. 16.5 × 24.5 cm. Price $10.75.

At first glance it might seem unthinkable to review a second, much improved and thicker edition of a well-known and highly esteemed textbook on nearly all of radioactivity by three (now two) truly distinguished scientists from a noted laboratory (Brookhaven) and a great private (but not too private) university (Columbia). Moreover, all three authors were, at one time or another, students at Berkeley, where much of nuclear science in this country had its beginning; and two of the authors, Dr. Friedlander and the late Dr. Kennedy, played important wartime roles at now historic Los Alamos. With all that background and present prestige the authors could scarcely fail to turn out an excellent textbook for advanced undergraduate and beginning graduate students. For me (= this reviewer) to do anything less than utter hymns of praise for the author's work might, therefore, seem definitely irreverent.

But out here west of Dodge City we have long known that the best of placer gold always contains bits of gravel, or even worse. Hence we are not astonished to find that the authors would have done well on occasion to meditate under the Bo tree.

To begin with, the book covers nearly all of what is ordinarily called nuclear physics and radiochemistry. This means that the authors—with hardly a twinge of remorse—have tucked nuclear physics cozily under the wings of chemistry, where it probably belonged in the first place anyway. A combination of the author's book and R. B. Leighton's much more rigorous and more sparkling "Principles of Modern Physics" should be ideal for a senior-graduate course in nuclear radiochemistry in the better universities and colleges. Friedlander and Miller don't even mention Leighton's book (note roguish dig here).

The preface is incredibly dull; it doesn't soar to those great heights that ordinarily characterize Berkeley men. In Lewis and Randall's "Thermodynamics," their preface speaks of ancient cathedrals and the bandied jests of the workmen, but Friedlander and Miller speak mainly of mere pedagogical details.

By happy contrast chapter one starts off with a much more refreshing tone. Here one learns about the three Becquerels—father, son, and grandson Henri—whose interest in the phosphorescence of uranium salts led Henry to the almost accidental discovery in 1896 of radioactivity. Then came Pierre Curie and his wife Marie who demonstrated that radioactivity originates in definite chemical elements. The authors do not mention the coincidence that on the day following the onset of the earthquake-fire disaster in San Francisco (April 18, 1906), Pierre Curie was run over by a horse-drawn dray in Paris and killed instantly. The chapter moves along nicely in apple-pie order to