mathematical talents, fundamental physics for Schwinger was more than mathematical exercises; rather it was a way to understand our intervention into the physical world. Thus, quantum mechanics for him was only the mathematical symbolism of measurement in atomic physics, while source theory was the mathematical symbolism of our manipulations in high-energy physics. The quark model and QCD, with particles having no asymptotic states, were too distasteful to him, and, later, string theories, with their unbelievable desert between 1 TeV and the Planck scale, were outrageous. Conversely, Schwinger's interpretation of scaling and J/Ψ particles were too iconoclastic to be acceptable to other physicists. Reconciliation seems not to be possible.

In 1973, before his final withdrawal from fundamental physics, Schwinger expressed his sensitivity in a 1973 talk at UCLA: He felt that it was a great tragedy for a scientist that none of his marvelous insights and pioneering of new paths had the slightest influence on the actual evolution of science. His tragic feelings aside, his case was quite different. His views influenced Steven Weinberg's work on the phenomenological Lagrangian approach to chiral dynamics and, later, on the effective field theory (EFT) approach. Source theory and EFT (which is an operator field theory) share three features: the denial of being a fundamental theory, flexibility in incorporating new particles and new interactions into existing schemes, and the capacity to consider nonrenormalizable interactions. The rationalizing of EFT has produced a resurgence of interest in Schwinger's legacy, even if its long-term impact on fundamental physics is unpredictable at this stage.

Mehra and Milton provide a great deal of material from interviews and archival files and thus help give us a fuller picture of Schwinger. Perhaps their most important contribution is their account of the evolution of many of Schwinger's thoughts.

However, the weaknesses of the book are many: There are too many quotations and summaries and too few analyses and judgments, which turns hundreds of pages into a simple chronicle of events and publications in which small things, like simple-measurement algebra, can take 10 pages, while crucial points, like the "valid premise that scaling does not necessitate the existence of point-like constituents," are simply stated. Moreover, the authors are not always fully aware of the context—of "his time." For example, their claim—that the move of the idea of color from being a means for addressing the statistics of the naive quark model to becoming a ground for QCD is an "obvious" step—has trivialized the intellectual history of QCD. Another claim, that constructive field theory is just another name for axiomatic field theory, has missed the subtle but important difference between the two pursuits. Further, to mention several later comers in the investigations of asymptotic freedom without mentioning its first investigator, Gerard 't Hooft, is also not fair. More serious than any of these is the fact that the authors are frequently sloppy about historical details; such carelessness may incline the reader to question their reliability on other matters. To give just two examples: John Wheeler's S-matrix of 1937 was concerned only with nuclear physics and, contrary to what the authors claim, had nothing to do with Werner Heisenberg's ambitious project. And to say that in 1964 "the approximation symmetry group was not yet established" directly contradicts the historical facts; since at least 1959, Sheldon Glashow and Murray Gell-Mann were publishing on the subject in terms of the soft-mass problem.

Despite these criticisms, the book is certainly of value to those physicists, historians, and philosophers who are concerned with foundational problems in fundamental physics. Even for those who are not, many of the anecdotes are at least entertaining. On the whole, the book does shed light on a many-faceted genius. A definitive and scholarly scientific biography, however, is yet to be written.

Hitler's Gift: The True Story of the Scientists Expelled by the Nazi Regime

Jean Medawar and David Pyke
Arcade Publishing, New York, 2000. $25.95 (268 pp.). ISBN 1-55970-564-7

As its provocative title indicates, *Hitler's Gift* is an account of the achievements of a group selected from among the thousands who fled Nazi oppression in Europe to find refuge in England in the 1930s. The book is a solid addition to the growing body of exile literature. The authors, Jean Medawar and David Pyke, are highly qualified, having had easy access to many of the distinguished scientists, scholars, and artists who were interviewed for the book.

The rescue effort started with William Beveridge, director of the London School of Economics, who happened to read in March 1933 of the dismissal of Jewish scientists and other professionals in Germany. Outraged, he and some of his prominent colleagues founded what became known as the Society for the Protection of Science and Learning. The official British authorities kept themselves distant, but the society, with money raised from individuals, eventually registered 2541 refugees, chiefly from Central Europe. Most of the refugees had already achieved distinction in academe or the arts. Indeed, what started as individual acts of compassion and decency turned into what the book calls "a highly profitable venture" for the country. As the authors summarize it, "Of the 2600 . . . rescued, twenty became Nobel laureates, fifty-four were elected Fellows of the Royal Society, thirty-four became Fellows of the British Academy, and ten received knighthoods."

While the authors claim that the book is not "a scholarly study," it is nevertheless unique. It contains extensive accounts, mostly based on interviews with a sample of 40 scientists and physicians. Those in the sample arrived in Britain before World War II and were able to become highly successful despite the trauma of displacement, the unhelpfulness of Whitehall, and the bad economic conditions at the time. Among the physicists were Erwin Schrödinger, Francis Simon, Max Born, Fritz Haber, Otto Frisch, and Rudolf Peierls; the chemists and biologists included Hans Krebs, Max Perutz, Ernst Chain, and Edith Bülbring.

A couple of useful and perceptive chapters recount the high points of politics and science in Germany before 1933. In a novel and thoroughly researched chapter on the rescuers, the authors discuss in detail the roles of prominent Britons, including Ernest Rutherford, A. V. Hill, and Beveridge. They and members of the Jewish community in England and, later, the Rockefeller Foundation mobilized the funds to take advantage of the enlightened decision by the British cabinet in April 1933 to "try and secure for this country prominent Jews who were being expelled from Germany and had achieved distinction . . ." A similar action in the US helped to bring 1700 academic refugees there.

There follows a chilling chapter—"Those Who Stayed," (Max Planck, Werner Heisenberg, Max von Laue, Carl Friedrich von Weizsäcker, Otto Warburg)—and then the first good account I have seen on the internment

in England, starting in May 1940, of most of the male refugees.

At that point, the French and British armies were collapsing, and British officials feared that parachutists and spies might arrive and pose as refugees. Winston Churchill, having just become prime minister, had the simple solution in three famous words: "Collar the lot." Twenty-seven thousand men and boys, mostly refugees from Nazi Germany, were put, as the authors say, in "indiscriminate internment" as enemy aliens. Most were incarcerated on the Isle of Man. Others were sent to Canada and Australia in overcrowded ships, some of which were lost to U-boats. Thus, "most of those interned spent months or years behind bars," some camps mixing them together with German POWs and treating them accordingly.

The absurdity reached its high point in the image of young Max Perutz, Herman Bondi, and Thomas Gold, as well as some Hasidic Jews in their conventional garb, being sent to detention camps with the warning by the British authorities to the camp commanders that "these were dangerous Nazis." (For a comprehensive account of the British response to the plight of Europe's victims of Nazism, one can turn to Louise London's book, *Whitehall and the Jews, 1933–1948* (Cambridge U. Press, 2000). To be sure, some of the US authorities behaved abominably in their own way during those years, with Assistant Secretary of State Breckinridge Long making sure that the US consulates and embassies would make visas to the US as difficult to get as possible.

The book ends with a survey of the crucial contribution some of those who found initial refuge in England—Leo Szilard, Peierls, Frisch, Simon, Joseph Rotblat—made to the conception and construction of the atomic bombs during World War II. Like all the others among the Allies who were involved in this ominous venture, these scientist-refugees were animated by the strong likelihood that the scientists remaining in Germany, who in fact had started such research earlier, would produce a nuclear weapon, as indeed they tried to do—see page 365 of von Weizsäcker's autobiography, *Bewusstseinswandel*, (Hanser, 1988).

If *Hitler's Gift* has a significant flaw, it is, curiously, its brief and superficial account of one of the heartening evidences of the generosity and altruism of some of Britain's politicians and other individuals in those dark days. Upon reading of the atrocities during the pogrom undertaken by Germans and Austrians on 9 and 10 November 1938, Philip Noel-Baker rose in the House of Commons to give one of the most moving speeches of that era. He persuaded his colleagues to allow at least children among the persecuted to enter the UK, resulting in an unprecedented "Kindertransport," which brought 9354 unaccompanied children to England in the few months before war broke out. (A similar plan in the US was hooted down in Congress.)

Most of the children, having been chosen by lot, were placed in various foster homes, with the understanding that they would eventually be trained to be self-sufficient or would re-emigrate. Their support came from a variety of private groups and individuals, but above all from Britain's remarkable Quaker community. The fate of a few dozen of these children has recently been the subject of the book (and film), *Into the Arms of Strangers,* Mark J. Harris and Sylvia Oppenheimer, eds., (St. Martin's Press, 2000). Ninety percent of the children never saw their parents again. Two thousand eventually came to America, joining nearly 30 000 other central European refugee children, ranging from babies to about age 17. Roughly 1 500 000 other such children perished in the Holocaust.

Medawar and Pyke might have looked into what happened not only to those who arrived educated and well known, but also to the lucky children who came to England or America. To be sure, most of these children arrived rather traumatized, typically with one suitcase, often without knowing much English. Yet, this as-yet only partly educated "second wave" of refugees—to distinguish it from the "first wave," the well established immigrants such as Albert Einstein and Hannah Arendt—by and large soon found, with the help of patrons and their inner resources, ways of making a reasonably good life and career. More than that, current research (as in one of my own present projects, on the careers of a large sample of this second wave entering the US) has begun to show that a remarkably high fraction of this group brought some distinction to itself and its country of refuge.

Apart from missing much of that bright side of the story, Medawar's and Pyke's book is a unique contribution to history, and especially to the history of the scientists featured in their volume.

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