BOOK REVIEWS

Nernst in Context

The World of Walther Nernst: The Rise and Fall of German Science. By K. Mendelssohn. Pp. 191+25 photographs. (Macmillan, London and Basingstoke, June 1973.) £4.95 net.

WHEN John Wilkins wrote *Mathematical Magick* in 1648 the rise of German technology was already foreseen, for in his preface Wilkins noted that "Ramus hath observed, that the reason why Germany hath been so eminent for Mechanical inventions, is because there have been publick Lectures of this kind instituted amongst them, and those not only in the learned languages, but also in the vulgar tongue, for the capacity of every unletter'd ingenious artificer". This was echoed in the middle of the nineteenth century by Lyon Playfair, warning his countrymen that the Continent, particularly Germany, was much ahead in education in science and technology, and urging that we should follow the German example of uniting teaching and research in the universities. This was an argument that Dr Phelps, the Master of Sidney Sussex, actually used against the foundation of the Cavendish Laboratory, appealing to the emotions of his countrymen by declaiming that "A Prussian is a Prussian and an Englishman an Englishman and God forbid it should be otherwise". As Phelps was speaking, Bismark was consolidating the formation of the Second Reich around the discipline of the Prussian army and the intellectual romanticism of Frankfurt. This was the world into which Walther Nernst was born of a Prussian family in 1864.

His life, most deftly sketched by his grandpupil Kurt Mendelssohn, spanned the golden age of German science. When he died in 1943 that age had been shattered by the vilest aberration ever to befall a civilized country, the national socialism of Adolf Hitler.

Mendelssohn provides exactly what one might hope for in an understanding biography of one physicist by another, and at the same time gives a vivid and illuminating picture of Germany, and especially of its academic life, before and after the First World War. The key-points of Nernst's physics are set with clarity in their historical context and the

theme of Nernst's life is interwoven with those of his near-contemporaries among the great German physicists including Boltzmann, Born, Einstein, Hahn, Heisenberg, Helmholtz, Hertz, von Laue, Paschen, Pauli, Planck, Schrödinger, Sommerfeld, Stern, and Wien. The result is a scintillating cavalcade of vital physics and human anecdote against a penetratingly sketched background of the fortunes and misfortunes of the Second and Third Reich.

Inevitably, the German attitude towards the Jews figures largely in the book, if only because this led to the break-up of German science after 1933. The Jews had been emancipated in Prussia in 1812 and, despite some prejudice, had come to occupy high places in the Second Reich; Kaiser Wilhelm the Second in fact so much disapproved of anti-Semitism that he dismissed its main protagonist, Adolf Stoecker, from his court, and it was natural for Jews like Rathenau and Haber to be called in to provide vital services in the First World War. That the Jews as a race were outstandingly gifted can hardly be denied by any present-day anti-racist for, as Mendelssohn points out, although they made up about only one per cent of the population of Germany, they won one-third of its Nobel Prizes. How then did such a gifted people come to be so terribly ill-treated? And how could two Nobel Prize winners, Stark and Lenard, reject relativity because Einstein was a Jew?

After World War II, I was the guest of a gathering of many German generals, Kesselring and Galland included, in Munich. An English friend, sensing that I might be overwhelmed with their hospitality, took me off one afternoon to see Dachau. Even ten years after the crematoria were cold it was a sombre experience. Afterwards, back in the Hofbräu when we were pledging eternal friendship, I told the generals that I had just been to Dachau, and asked them what they were going to do to stop it ever happening again. Some of them argued that they had had no knowledge of the concentration camps until after the War, and that they were deeply shocked to find how much they could all have been so misled by

one man. One general, however, did attempt to answer my question. He said that while it was true that most of them had known nothing about the concentration camps, they must admit that the camps were there, and he for one could not understand how they could possibly have come about. And, he added, because he could not understand the process by which they had happened, he could not see how the Germans could guarantee that they could never happen again. His answer, at least, was honest.

Mendelssohn expresses warm appreciation for what was done in Britain and America to offer refuge to those scientists who could get out of Germany after 1933. At the same time he recalls that there were some such as Hahn, von Laue, and Carl Bosch, all men of the highest honour, who stayed in Germany and struggled at some risk to their own lives to keep German science free from Nazi dogma through the height of the purges. Mendelssohn includes an appreciative epilogue about Nernst's best-known pupil, F. A. Lindemann (Lord Cherwell), who incidentally first met Henry Tizard when they were both research students in Nernst's laboratory.

Necessarily, in a short book, Mendelssohn has had to paint some of the background with a broad brush, and the strokes occasionally falter. There is a photograph of Nernst lecturing in his characteristic fashion (Mendelssohn records that Nernst had "toyed with the idea of becoming an actor himself and he realized this ambition to some extent by wearing throughout his life the mask of a trusting and credulous little man. His favourite expression of innocent astonishment could be underlined by a twitch of the nose which removed the pince-nez") which the caption dates as 1926; but Nernst has written on the blackboard the name "Lord Rutherford", who was not ennobled until 1931.

Such trivia, however, do not detract from the genuineness of the book, which gives an illuminating portrait of Nernst's character and of his achievement in the Third Law of Thermodynamics. It is a rare kind of book, and of its kind it is outstandingly good.

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