

Nuclear science in war and peace

Philip Davenport

The Making of the Atomic Age.

By Alwyn McKay.

Oxford University Press: 1984. Pp.153.

Hbk £12.50; pbk £3.95.

FORTY years is an expedient interval after which to commemorate an important international event. The main figures, heroes and villains alike, tend to have expired, while there are enough younger participants still around to ensure authenticity and fair play. This year we have remembered the invasion of Europe on D-day 1944; next year will see the fortieth anniversary of not only the end of the war in Europe but also the surrender of Japan. To the vast majority this last event came as a complete surprise and with devastating suddenness. We may expect next year a resurgence of public interest in the discoveries and developments which led to the production of the first nuclear weapons and a corresponding demand for non-specialist books on the subject.

Dr McKay's book is well suited to meet this need, especially in its reasonably priced paperback form. He tells the story of early nuclear science from the discovery of radioactivity to the concept of nuclear fission with little technicality and much human interest. As befits a chemist, he stresses the importance of chemical expertise in these pioneering researches,

when minute quantities of nuclides had to be isolated and identified. As the reality of nuclear fission became substantiated the behaviour of scientists diverged, some rushing to establish priority of publication, others covertly seeking to corner supplies of uranium ore. Then followed caution and voluntary censorship as the possibility of chain reactions and hence nuclear explosives became apparent.

The middle chapters provide a readable and fast-moving description of the Allied wartime activities and the Manhattan Project which produced the bombs dropped on Japan in 1945. For those who have read the official histories and the biographical accounts of this enterprise there will be few surprises. The history of the German efforts, hampered by Nazi politics and anti-semitism, is also quite familiar. But the general public must be largely unaware of the wartime existence of a Japanese atom-bomb project which they managed to conceal so successfully that it did not come to light until the mid 1970s.

In his final chapter Dr McKay surveys world energy resources, including the so-called "alternatives" of solar, geothermal and tidal energy. He suggests that Divine providence has enabled man to extract energy from uranium, so that we can survive when fossil fuels become exhausted. I find it a pity that he expresses no such confidence in the future role of nuclear fusion. □

Until his retirement Philip Davenport was engaged in research at Culham Laboratory and is now its honorary consultant on historical matters.

Physics and faith

Ziauddin Sardar

Ideals and Realities: Selected Essays of Abdus Salam.

Edited by Z. Hassan and C.H. Lai.

World Scientific/Wiley: 1984. Pp.369.

Hbk £32.20, \$37; pbk £16.10, \$18.50.

A PHOTOGRAPH in *Ideals and Realities* shows Abdus Salam, wearing a "fez" cap and academic gown, looking rather reflective at receiving his honorary degree of Doctor of Science at the Aligarh Muslim University, Aligarh, India. The Aligarh Muslim University was founded, exactly a hundred years ago, by Sir Sayyid Ahmad Khan, a man who not only looked a bit like Salam but also shared his passion for learning. Sir Sayyid, a deeply religious man, was an advocate of "modernism" in the Muslim world. Abdus Salam, also highly religious, has pioneered science in Muslim countries. Both men have built institutions and have been honoured internationally for their endeavours. Both have become controversial figures within their own communities — Sir Sayyid for his faith in

Westernization and Salam for his heterodox religious beliefs.

But there is a radical difference between the two men. Sir Sayyid was a born optimist: although he was upset about conditions in Muslim societies, he believed in the future. Salam is a pessimist: he plods along despite his increasing conviction that science will never take root, given present trends, in Muslim societies.

It is his pessimism that comes out most strongly in this collection of essays. Written over the past 25 years, they cover wide ground, ranging from international cooperation in science, science in the Muslim world and at the International Centre for Theoretical Physics (his own institution), to "perspectives" on physics. The first section of the book contains four introductions to "Salam the Man".

Although there is a great deal of repetition of material, one is quite happy to bear with this because of the conviction and insight that each essay carries. It is fascinating to read the book from cover to cover and see the shaping of Salam's outlook. The scene is set by the brief opening essay entitled, "The Less-developed Countries: How Can We Be Optimists?". Written some 20 years ago for Nigel

Calder's anthology *The World in 1984*, the article gives the reasons why Salam is so "utterly pessimistic": "the agricultural production of all but the richest countries is static"; "there are none among the rich nations willing enough to sponsor a fair price structure for the commodity market"; "the battle to keep the trickle of foreign aid programmes flowing becomes



Abdus Salam — how can we be optimists?

fiercer and fiercer"; men of "passionate fury" are not coming forward from the Third World to fight poverty; and where there is a realization of the struggles ahead, "it has not been purposeful enough yet to bring down the internal, social and the organisational barriers to be able to defy external pressures". From here on, in essay after essay, powerful but gloomy, he pleads the case for the poor — arguing for more spending on science and help for scientists in developing countries, making suggestions that this or that institute should be set up to promote science in the Third World, that new technological universities should be established and that the policy makers of developing countries should pay more attention to pure sciences and the development of indigenous talents and resources.

Yet, in his own life Salam has nothing to be pessimistic about. The young lad from a small Pakistani village, Jahlam — not