BOOK REVIEWS

Chernobyl and Nuclear Power in the USSR *by David R. Marples* (Macmillan, London, 1987), pp. xii + 228. ISBN 0-333-44198-2.

The nuclear disaster at Chernobyl, 120 kilometres north of the Ukranian capital of Kiev, on April 26, 1986 received extensive publicity around the world. Because Soviet sources were not forthcoming in providing exact information about the catastrophe, Western media reports covering the event were at best speculative.

In the absence of hard data, few scholars in the West could offer a serious evaluation of the underlying causes of the nuclear accident and of the actual event itself. From this small group emerged David Marples, a research associate with the Canadian Institute of Ukranian Studies at the University of Alberta. Marples, a specialist on the Soviet Ukraine, and formerly a research analyst on Soviet energy affairs with the US radio station, Radio Liberty, in Munich, had already begun research on the Soviet nuclear industry long before the catastrophe occurred. He was thus well placed to provide an authoritative assessment of the background to the event and dispel any misconceptions surrounding it. Drawing on the research he had already conducted, and supplementing this with new primary material from the rich repositories of Radio Liberty and the Canadian Institute of Ukrainian Studies, Marples has collated a mass of detail, principally from Soviet sources, to produce this book within a space of three months after the Chernobyl accident.

Assessing the Chernobyl accident within the context of the Soviet nuclear energy programme, Marples raises four key questions. First, why have Soviet economic planners committed themselves so rigidly to nuclear energy, considering that the USSR is one of only two states in the world that has attained energy self-sufficiency? Second, the issue of safety: has the Soviet nuclear industry disregarded safety precautions for citizens and the environment? What is the historical record concerning problems in Soviet nuclear power plants? Third, is Chernobyl typical of the nuclear power industry in the USSR, and, if so, should the world at large feel trepidation? Finally, what are the long-term effects of the accident on the surrounding environment, for agriculture and the future of the Soviet energy programme?

In answering these questions Marples begins by presenting an overview of the Soviet energy programme. His thesis is that the production of traditional Soviet sources of energy, fossil fuels such as oil and coal, was not keeping pace with Soviet energy requirements. There was also the difficulty of obtaining alternative sources to cater to these needs. The same problem was evident in East European countries. Consequently, Soviet economic planners, from the 1970s, decided to embark upon an ambitious programme of nuclear energy expansion at the expense of fossil fuels. In the 1980s Soviet economic policy-makers stressed an acceleration of this expansion. A month prior to the Chernobyl accident, the Minister of Power and Electrification stated that whereas the total capacity of the nuclear power plants in the USSR stood at 28,000 megawatts in March 1986, capacity was to be 69,000 megawatts by the year 1990, representing an increase of 250 per cent.

Marples notes that the USSR has not been alone in pursuing ambitious programmes of nuclear development. East European countries have likewise been emphasising nuclear energy. For instance, Czechoslovakia and Bulgaria are anticipating that 50 per cent and 60 per cent, respectively, of their electricity needs will be met by nuclear energy by the turn of the century. The Ukrainian Soviet Socialist Republic, owing to its geographical position and industrial resources, had been assigned the pivotal role in the Soviet and East European nuclear energy expansion programme. The Chernobyl nuclear power station, with its four reactors, was depicted as the model for this industry. Had the accident there not occurred, by 1988 it would have become the largest nuclear power plant in the USSR. On the eve of the disaster Chernobyl accounted for 10 per cent of the USSR's total electricity-generating capacity.

Marples notes that one of the major problems of the Soviet nuclear programme was that too ambitious goals had been set without adequate preparation. In order to achieve these goals at break-neck speed, safety regulations and the competence of staff at the reactors were disregarded. Quantity, in this case, took precedence over quality, a major risk when dealing with a precarious type of technology and, as the Chernobyl explosion demonstrated, a fatal one. Soviet economic planners did not pay due attention to certain defects at the Chernobyl power plant: outmoded machinery and equipment; shortage of skilled labour; a dissatisfied workforce prone to alcoholism; problems of supply; lagging construction; design changes; and cost overruns. Nor did these planners heed warnings, such as that by Liubo v Kovalska in the Ukrainian periodical *Literaturna Ukraina*, where she predicted a month prior to the explosion that if such defects were not rectified a catastrophe would occur. While Soviet mass media reports tended to extoll the safety mechanisms of the Chernobyl plant, there was nonetheless the occasional cry in the wilderness stating the contrary. But debate on the nuclear industry was not encouraged.

The problems at Chernobyl were not atypical in the Soviet nuclear industry. Marples notes that accidents at nuclear installations date back to 1958-59; but the one at Chernobyl was by far the most serious. The forced pace of production targets has led to serious problems in the quality and reliability of Soviet industrial sectors in the past, and Chernobyl is a tragic example of just how grave could be the implications of such practices. Ultimately, the squeezing out of some additional power before closing down the number four reactor at Chernobyl for maintenance on 25-26 April, precipitated the explosion.

When the nuclear disaster occurred, little information about it was made available either internally or abroad. A Swedish protest had forced a statement, explains Marples, but it was a statement that revealed little (p. 21). Why was there this reluctance to release hard data on the disaster? Marples argues that the main reason lay behind the fact that the Soviet authorities did not wish to prejudice the future of the nuclear power programme in the USSR. Because they took so long to admit to the catastrophe, evacuation measures were delayed. In fact, full emergency measures were not implemented till 8-9 May, thus placing in jeopardy the population in the immediate surrounding area and the city of Kiev in particular, with its two million-plus inhabitants. Finally, on 22 August, 1986 the Soviet authorities issued a commission report on the causes and consequences of the explosions, placing the blame on inefficient management and negligent attitudes. Written as it was so soon after the catastrophe, Marples alludes to this report only marginally in the 'epilogue' section of his book. The reader would need to consult articles and books[1] written since Marples's study

for a more thorough analysis of this report and the trends following it. (Marples himself is currently engaged in a second book on the post-Chernobyl developments).

Finally, has the Chernobyl accident acted as a stumbling block in the path of the Soviet nuclear energy expansion porgramme? Marples maintains that in spite of the growth of the anti-nuclear lobby in the USSR and Eastern Europe, the nuclear energy programmes there are scheduled to go ahead at full steam. Marples hastens to add that the Chernobyl catastrophe does not prove that the nuclear industry in the world is inherently unsafe, but rather, in the Soviet case, safeguards had not been adhered to sufficiently; in disregarding safety regulations when 'playing with fire' you can expect to get burnt.

Although our knowledge of the particulars of the Chernobyl accident has been enhanced since the appearance of Marples' book, *Chernobyl and Nuclear Power in the USSR* contains a wealth of information on the nuclear industry in the USSR and Eastern Europe unparalleled in any other study to date. It is likely to endure as a major treatment of this subject for some time yet.

REFERENCE

1. See, for instance, the articles on Chernobyl (including one by David Marples) in the *Journal of Ukrainian Studies* II, 1, Summer, 1986, pp. 3-35, and the recent book by Viktor Haynes and Marko Bojcun, *The Chernobyl Disaster: The True Story of a Catastrophe — an Unanswerable Indictment of Nuclear Power*, The Hogarth Press, London, 1988.

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Challenger: A Major Malfunction *by Malcolm McConnell*
(Simon and Schuster, London, 1987) pp. xv + 269, ISBN 0-671-65439-X.

This book is written in journalistic style, i.e. it is devoid of academic references or footnotes, thus reading is pleasurable and the book will reach a wide audience. The author has done a marvellous job of reconstructing the event of the Space Shuttle Challenger flight which ended in disaster on 28 January, 1986. The author takes the reader on a day-by-day description of what took place. Indeed, it is fascinating reading for anyone who has not been as intimately involved in the mishap as the author. Prior to this assignment, Malcolm McConnell brings credentials as an author of three novels and eight books of non-fiction. He not only was at Cape Canaveral on the day that the Space Shuttle exploded after blastoff, but he has investigated the sequence of events at NASA, has obtained documents through the *Freedom of Information Act* and has questioned a great number of witnesses and important officials, in his quest to make his reporting credible and alive. He succeeds admirably.

McConnell shows how NASA operates. He shows that the agency and its officials were always pressed to ensure that schedules were met, in order to persuade Congress that NASA was efficient so as to obtain funding. This pressure justified cutting corners, changing specifications in spite of technical reasons