

friends and family drawn upon to provide their memories of Bush. Hercocock's main interest, and the strength of the book, is institutional medical history. Apart from quick flashbacks within chapters, Bush's relationship with her children also fades away as the book progresses.

Alice is a discreet, informative book whose subject would be well pleased with the open, yet measured, telling of her life. It is a book that manages to portray how an early woman doctor navigated her way through a medical career, changing so many of the possibilities open to others wherever she went.

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DSIR: Making Science Work for New Zealand. By Ross Galbreath. Victoria University Press in association with the Historical Branch, Department of Internal Affairs, Wellington, 1998. 299 pp. NZ price: \$49.95. ISBN 0-86473-354-2.

THE DEMISE of several governmental institutions during the 'reforms' of the last 15 years has provided historians with opportunities and, equally importantly, contracts to reflect on the achievements of those institutions. As is customary with obituaries, the tone has been generally celebratory, emphasizing successes and positive contributions. However, in most cases there has been much to celebrate and Ross Galbreath's study of the late Department of Scientific and Industrial Research is no exception.

Galbreath's approach to what is, on the face of it, yet another departmental history is to select a number of 'themes' to illustrate in detail the work of various divisions of the DSIR. This makes for a book that is more significant, more pleasurable to read and more likely to be read than attempts to capture the whole development of a sprawling department, particularly when its first half-century was covered in a more conventional way by J.D. Atkinson's *DSIR's First Fifty Years* (1976). Each chapter of *DSIR: Making Science Work for New Zealand* introduces the reader to a field of investigation that the DSIR at some time explored. It surveys briefly the development of the field internationally up to the time when the department became involved, explains why it became involved, introduces the scientists who carried out the research, and traces their work, keeping an eye, as they did, on relevant developments internationally. In the process, Galbreath refers to vast numbers of scientific articles and summarizes their contents and significance in a way that this reader, who progressed in general science no further than school certificate, believes he can understand. The areas covered span agriculture and biology (wheat-breeding, animal nutrition, and biological controls), through power and physics (radar and nuclear science), industry and chemistry (steel-making), to earthquake engineering and geology. These studies are book-ended by chapters on the creation and the dismantling of the department. In general, such a structure appears sound. The importance of farming to New Zealand and the enormous role that biology has played in our science industry clearly justifies the emphasis on this area, but the devotion of two chapters to the efforts to cope with and explain our shaky reputation might be questioned.

While the focus is on positive achievements, Galbreath does not ignore relative failures, such as Bernard Aston's longstanding explanation of bush sickness as due to an iron deficiency — although it is worth pointing out that his mistake did produce a practical partial solution which was applied by farmers for many years. As so often,

faulty science did not necessarily make for unusable technology. The development of the belief amongst local scientists that the 'shower of fertility' from the rear end of sheep and cows would increase the productivity of New Zealand's pastoral farms, and the swing away from that understanding, are both described sympathetically, without any condescension towards those who developed the now scientifically unfashionable view. Galbreath takes a similar approach to the long resistance of many local geologists to theories of continental drift and plate tectonics.

A strength of this book is the way it relates science and technology to social and economic contexts. One important aspect of this relationship is the impact of war and preparations for war on scientific and technological developments. This is demonstrated particularly in the case of the fields of radar and nuclear physics. DSIR scientists played a significant role in both these areas in the 1930s and 1940s. However, the link between science and war also crops up in surprising places. For instance, we learn how the investigation of the geological structure of New Zealand (and other parts of the world) was advanced by the availability of vast quantities of war-surplus explosives for seismic surveys. The Royal New Zealand Navy obliged the geophysicists of the DSIR by engineering the equivalent of an earthquake of 2.0 on the Richter scale off Somes Island. The oceanographers and their geologist colleagues similarly benefited from the wartime development of sonar. The importance of the imperial link with Britain and the other dominions in the development of New Zealand science is brought out well, although Galbreath announces a shift to a focus on the United States rather earlier than can be justified by his own account as to where New Zealand scientists subsequently came from and went. In science, as in our export trade, immigration policy, military procurement and even the popular choice of television programmes, New Zealand's strongest focus remained on the wider British world for a long time.

This work is written in a clear and accessible style. Perhaps as befits a trained scientist, the emphasis is on accuracy and clarity rather than literary flights of fancy, although there are occasional flashes, such as 'The reformers came to bury DSIR, not to praise it' (p.254). It has been well edited and contains few of the blemishes that inevitably slip through in any major work. One exception is that header-harvesters were working in Canterbury from 1927, not 1930 (p.42). Where there is so little to complain about, the history of science in New Zealand is clearly in capable hands.

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Unofficial Channels: Letters between Alister McIntosh and Foss Shanahan, George Laking and Frank Corner 1946–1966. Edited by Ian McGibbon. Victoria University Press in association with the Ministry of Foreign Affairs and Trade and the Historical Branch, Department of Internal Affairs, Wellington, 1999. 360 pp. NZ price: \$39.95. ISBN 0-86473-365-8.

THIS IS an important addition to the literature on New Zealand's foreign policy. It is a companion volume to *Undiplomatic Dialogue* (1993), which published letters between McIntosh and Carl Berendsen 1943–1952. If Berendsen was the father of New Zealand diplomacy as Imperial Affairs Officer in the Prime Minister's Department from 1926 and head of the department 1935–1943, McIntosh was the midwife of the diplomatic service. Berendsen, as High Commissioner in Canberra 1943–1948, and Minister (later