employed. The book-plates described and depicted in *Ex libris stellarum* are divided into seven categories, with illustrations in all sections; thirty-five of the sixty-five book-plates are illustrated.

Book-plates have been used since the end of the eighteenth century, and we are usually greeted with the heraldic shield or just the coat of arms for those found in old books. Later, they were designed to show the particular interest(s) of the proud owner of the book in which they had been placed. The categories into which *Ex libris stellarum* is divided are those which you would expect, especially by an older reader, except section six, L'esplorazione spaziale, here one of the two illustrated examples shows Jurij Gagarin, the other Neil Armstrong.

The time spanned is from 1864 to 1998 with the vast majority being from the last thirty years. Two are reproduced here with the owner's name clearly visible; however, if you wish to know who designed them, then read the booklet. As can be seen, Urania also appears in one of them.

Both these items are available from: Department of Astronomy, Attention M. Zuccoli, University of Bologna, via Zamboni 33, I-40126 Bologna, ITALY.

John Perdrix

Nautical astronomy in New Zealand, the voyages of James Cook, by Wayne Orchiston (Carter Observatory Board, Wellington, 1998), 131 pp., ISBN 0-473-05303-9, NZ$29.95 + postage and packing, paperback, A4.

As stated in Patrick Moore's foreword, "... this monograph represents a very clear, informative and readable account of the New Zealand component of the Cook voyages ...", but it contains much more not indicated by the title with which I had difficulty towards the end of the volume. Although explained in the introduction, I failed to see what "... summarise international developments in research astronomy during the eighteenth and nineteenth centuries, and trace the evolution of New Zealand astronomy through to the end of the nineteenth century." has to do with the voyages of James Cook.

Cook made three voyages to the Pacific and had the services of five astronomers, including himself, to carry out the tasks set out in the orders given to Cook on sailing. There were some fourteen others who helped with observations, amongst whom were the legendary William Bligh, and Joseph Gilbert and John Elliott after whom a group of Pacific Ocean islands is named. Orchiston paints a succinct pen picture of the astronomers of whom Cook and Green died during a voyage.

Following the short biographies of the observers, the author progresses to detail and list the astronomical instruments and equipment used during the three voyages to the Pacific with a number of excellent illustrations supplied by the National Maritime Museum, London. Although the observation of the transit of Venus was the prime reason for Cook's first voyage, the constant determining of latitude and longitude, either on board ship or on land were mundane observations for which Cook and his team were renown.

One innovation used on all of the voyages was the 'tent observatory' designed by Smeaton and constructed under the direction of Maskelyne and Cook. There is an illustration of one on page 59 taken from Wales and Bayly's 1777 publication *The Original Astronomical Observations, Made in the Course of a Voyage Towards the South Pole, and Round the World* ... So it was that "New Zealand gained its first genuine astronomical observatories in 1773 when tent observatories were erected at Dusky Sound and Queen Charlotte Sound".

In logical progression, the author deals with the observational data obtained on and around the coast of both New Zealand's main islands. As a bonus, Cook and Green observed the 1769 November 9 transit of Mercury from Mercury Bay (North Island), the first of three sites used by Cook for astronomical observations. The other two were at opposite ends of the South Island, Queen Charlotte Sound in the north and Dusky Sound at the south-west corner. Queen Charlotte Sound was the only site from which observations were made in each of the three voyages, and so there was a refining in the measurements of its latitude and longitude. The easier determined latitude varied by some twenty seconds over seven years with the mean of 41° 05' 46".77 compared to the currently-accepted value of 41° 05' 43" S. The observed longitude determinations varied by over half a degree and were all in excess of the modern value by six minutes or more.

Chapter 5 is concerned with Maori astronomy and New Zealand amateur and professional astronomers of the nineteenth century. This is very interesting, but nothing to do with the title of the book.

With his usual meticulous striving for detail, Orchiston list over two hundred references in the bibliography which will be most useful to those wishing to pursue certain aspects of this fascinating part of astronomical history in the Pacific Ocean region. The addition of an index would enhance the book; however, at its very modest price for a signed copy of an edition limited to 750 it is a good buy and is recommended.

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