

RANDALL BROOKS

Review of

Ifland, Peter. 1998. *Taking the Stars: Celestial Navigation from Argonauts to Astronauts*. Newport News: The Mariner's Museum; Malabar: Kreiger Publishing Company.

Pp. xvi +222, colour illus. Cloth US \$62.50, ISBN 1-57524-095-5.

During the last half-century there have been a number of books dealing with the instruments of navigation including Eva Taylor's *The Haven Finding Art* (1956), M.V. Brewington's *The Peabody Museum Collection of Navigating Instruments* (1962), Jean Randier's *Mariner Navigational Instruments* (1980) and Jim Bennett's *The Divided Circle* (1987). Each of these volumes has resulted in new understandings by focusing on instruments for specific periods—though generally mostly European technologies and pre-20th century technologies. For depth of understanding of the detailed procedures of navigation, Bennett's book stands out and remains so compared to the book under review.

In *Taking the Stars* Peter Ifland has included new illustrations of instruments—some from the 18th and 19th centuries. The variations of design and the pure beauty of these instruments are well demonstrated. While the 198 illustrations are well produced, some of the diagrams are not as effective as they might be. In some cases the captions for the illustrations are lengthy, providing information that, in most books, would have been reserved for footnotes. What I found particularly useful, however, were the photographs that illustrate how minor innovations to navigational instruments changed the way they worked, how they were used, their efficiency and, ultimately, their accuracy. For example, an early (ca.1900) spring-loaded quick-release device for a sextant index arm is illustrated (Fig. 69) followed by an illustration (Fig. 70) of the helical gear on a Heath sextant (pat.1909); together these two innovations improved the efficiency of setting the sextant index arm and the time to take a sighting. Other illustrated devices made less of an impact, but if one is interested in knowing when innovations were introduced and by whom, or knowing about their use, Ifland's book is invaluable.

Many devices discussed are supplementary to the forms of navigational instruments familiar to most people, such as box sextants, "through the glass" sextants, weather sextants, solar attachments, various mounts, spirit-level devices and artificial horizons, to name a few. These were designed to

overcome any number of problems encountered by navigators or surveyors—both land and marine. The sheer volume and the ingenuity of the innovations help to illustrate the importance of navigational devices before the advent of radio and Global Positioning Systems (GPS) technologies.

The lengthy section on developments and innovations in air navigational instruments (Chapter 9) is a particularly useful addition to our knowledge of modern navigation. Little has been written on the historical development of such instruments—those by the late Saul Moskovitz come to mind. Having said that, the original papers describing later advances are still relatively easy to find while related patents can now often be viewed on the Internet. Chapter nine focuses primarily on American navigational devices although their European origins are acknowledged and well illustrated. Innovations subsequent to World War II were mostly American and well-illustrated examples are included in this publication.

I would like to have seen more details on navigational procedures and feel the book is deficient in that area. This is unfortunate because Ifland's background makes him well qualified to explain the intricacies of navigational procedures. This is particularly so as the skills of observation and mathematical computations are fast disappearing with the proliferation of GPS devices.

This beautifully produced, well edited volume is intended for non-specialists. All the same, there is much that will be of interest to those with extensive knowledge of navigational history. Although not referenced, *Taking the Stars*, has useful appendices on patents (with a short description of some of the more significant patents included), a glossary of terms and a suggested reading list. The appendices will be helpful for those with modest knowledge in navigational technology and methods. Specialists may be frustrated at not being informed about the location of private collections due to privacy and security issues. However, for the person wanting a well illustrated, well written reference on the technology of navigational instruments spanning several centuries, I highly recommend Peter Ifland's book.