Lick Observatory

Eye on the Sky. Lick Observatory's First Century. DONALD E. OSTERBROCK, JOHN R. GUSTAFSON, and W. J. SHILOH UNRUH. University of California Press, Berkeley, CA, 1988. xii, 295 pp. + plates. $25.

Lick Observatory was the first of the large privately endowed observatories responsible for the rise of American astronomy to worldwide preeminence. Followed by Lowell (1894), Yerkes (1897), Mt. Wilson's 60-inch (1908) and 100-inch (1917) telescopes, and eventually Palomar's great 200-inch in 1948, the completion of Lick in 1888 may be seen in hindsight as a landmark in the history of astronomy in America.

This centennial history is therefore an important and welcome volume. The authors, one of them (Osterbrock) a former director of the observatory, state that this is a popular history, and as such it must be judged.

Fifteen years elapsed from James Lick's decision in 1873 that his monument would be an observatory housing the world's largest telescope to its transfer to the Regents of the University of California upon completion in 1888. The first four chapters of the book deal with this "prehistory," from the courting of the eccentric millionaire to the consultations with Naval Observatory astronomers Simon Newcomb and Edward S. Holden and the difficulties of constructing an observatory on the 4200-foot elevation of Mt. Hamilton in California. The latter subject has recently been discussed in detail in Helen Wright's *James Lick's Monument: The Saga of Captain Richard Floyd and the Building of the Lick Observatory* (1987), to which the authors had access in manuscript. Most of the remaining chapters center on the tenures of the directors, who included Holden, James E. Keeler, William W. Campbell, Robert G. Aitken, C. Donald Shane, and Albert E. Whitford. Two thematic chapters deal with the observatory's solar eclipse expeditions and its important role as a center for graduate education in astronomy.

The authors describe personalities, politics, and science beginning with Holden, the controversial first director, and concluding with the 10-meter Keck telescope now planned in collaboration with Caltech. In between is sandwiched the story of the 36-inch Crossley reflector that became operational in 1898, the successful post-war effort to acquire a large new telescope (the 120-inch reflector was placed in operation in 1959), the controversial association with the Santa Cruz campus of the University of California begun in 1964, and an enormous amount of scientific research. Little attention is given to Lick's early work in positional astronomy, but the observatory quickly delved into the new astronomy: the pioneering work of Keeler with spiral nebulae and Campbell with spectroscopic radial velocities established Lick's reputation as an innovative institution. Subsequent work on solar eclipses, double stars, and proper motions is also described, if not in great detail, as well as the work in astrophysics.

Numerous archives have been used in this study, but most especially the Mary Lea Shane archives of the Lick Observatory. Historians of science and technology will wish for the use of more secondary historical sources, for footnotes, for a more analytic approach, and for placement of Lick's work in the broader context of American science. Among the tasks left for historians of science are an examination of the relation between positional astronomy and astrophysics at Lick, an externalist study of funding policies and institutional interactions, and an internalist history of much of the astronomy at Lick touched on only briefly in this volume.

But as a popular history this volume succeeds very well. It is eminently readable, it lays out the chief personalities involved and lines of research undertaken, and it whets the appetite for more. Reading it, one realizes the need for histories of more of our scientific institutions. A knowledge of where we have have been cannot help but point the way to where we should go.

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An Area of Deformation

Tectonic Evolution of the Himalayas and Tibet. R. M. SHACKLETON, J. F. DEWEY, and B. F. WINDLEY, Eds. The Royal Society, London, 1988. vi, 325 pp., illus., + plates. £69. From a meeting, London, Nov. 1987.

Stretching for more than 1300 kilometers north–south and 2000 kilometers east–west, the Himalaya and the Tibetan plateau form the greatest region of high elevation on earth today and part of the broadest region of intracontinental deformation. Their topographic expression and deformational history are the result of continent-continent collision and continued convergence between India and Eurasia during the past 45 million years. The Himalayan-Tibetan region is one of the most tectonically active areas in the world and serves as a natural laboratory for studying the poorly understood processes of intracontinental deformation. With the exception of a few