Beautifully-written and well illustrated, this book is a bargain at just US$29.95, and it deserves to be on the bookshelf of every astrophysicist or historian interested in twentieth century astronomy.

Wayne Orchiston

La Carte du Ciel, Correspondance Inédite Conservée dans les Archives de Löbservatoire de Paris (*Unedited Correspondence Preserved in The Archives of Paris Observatory*), compiled by Ileana Chinnici (IAU and Observatory of Paris, 1999). Xviii + 475 pp., 80 plates,ISBN 2-901057-40-3, softcover, 245 × 172 mm.

The invention of the telescope in 1610 and two centuries later the application of photography revitalized astronomy. Warren De La Rue, a pioneer in sky photography at Kew Observatory England, devised in 1857 a concept to obtain photographic star charts and a catalogue of star positions for the whole sky. Realization of this intent was advanced by successful attempts in celestial photography by E C Pickering at Harvard and D Gill at the Royal Observatory, Cape of Good Hope. A permanent international Commission was formed and an astro-photographic Congress held at Paris Observatory in 1871 by invitation of the French Academy of Sciences. A second Congress in 1891 adopted a Working Plan and allocated regions of the sky to observatories in the northern and southern hemispheres to cover the entire sky from +90 to -90 degrees for stars down to around 13th limiting magnitude. This unique international project was from its inception organized by a permanent international Committee, presided over by the Director of Paris Astronomical Observatory, Admiral Ernest B Mouchez. However with the foundation in 1919 of the International Astronomical Union (IAU) for promotion of astronomy, this body assumed responsibility for this first truly international proposal. IAU Commission 23 for *Carte du Ciel* was much later assigned to conclude this effort and during 1964 provided financial support for publication of the entire 24 Volumes of the *Astrographic Catalogue*.

As the title indicates, this publication compiles original correspondence for *Carte du Ciel* received and archived at Paris Observatory between 1880-1923. These 732 letters between participants and Paris Observatory trace the concept and working plans for the *Carte du Ciel*. They reveal the historical development of astronomy in the second half of the nineteenth and first half of the twentieth centuries with improvements in photography and telescope technology, specifically the construction of optical lenses of large aperture and the design of telescopes to suit the particular photographic requirements of the proposed *Carte du Ciel*. An increase in sensitivity of photographic emulsion contributed to recording of fainter stars with shorter exposure times. Measuring equipment was designed and built to derive positions of celestial objects from photographic plates. To establish a Fundamental Star reference system of accurate positions, meridian transit circle telescopes were commissioned. Collaboration was developed between selected observatories to obtain more than 15,000 photographic plate exposures covering the entire sky. Essential elements and requirements were identified and discussed between participants. Each observatory was to secure the best possible observing equipment and to comply as far as possible with identical instruments and methods. They were at the same time to support other participants with advice and planning in order to achieve a library of photographic maps of the whole sky.

The author of this publication, Ileana Chinnici from Palermo University, Italy, received a scholarship to remain one year at Paris Observatory to research historical archived correspondence. She became familiar with the extensive and important *Carte du Ciel* correspondence received between 1880 and 1923. From the immense amount of letters preserved in this archive, she recognized the historical significance of this important first worldwide scientific collaboration. In preference to herself writing about the logistics and turmoil of this extremely large endeavour, the author decided to publish the text of the 732 letters as transcribed correspondence in their original languages. Her primary purpose was to compile material for other researchers. In this way, readers are presented with text of letters disclosing the struggle this venture would endure during the World War and other political and

social uprisings of this historical period. The *Carte du Ciel*, although proceeding very tardily because of its great dimension and many unexpected obstacles, demonstrates that conflict, frustration, and disappointment could not compromise its uniquely-valuable contribution.

Advances in positional astronomy now render *Carte du Ciel* charts somewhat inadequate for most purposes. The *Astrographic Catalogue* has however gained new significance when the measurements of the photographic plates were reduced to the HIPPARCOS Celestial Reference System or HCRS, J2000.0. The United State Naval Observatory in Washington DC disclosed at the General Assembly in Kyoto 1997 its compilation on CD-ROM of the AC 2000 Astrographic catalogue around the epoch of 1900 and its distribution followed shortly thereafter. About two years later the CD-ROM AC 2000.2 was distributed, as a Revised Version of the AC 2000 Catalogue. It contains positions and magnitudes of 4,621,751 stars covering the entire sky at the Mean Epoch of Observation of 1900.0. These positions are also on the Hipparcos Celestial Reference System (HCRS, J2000.0) with improved photometry from TYCHO -2. Thus, the *Astrographic Catalogues* continue to contribute profoundly to present day astronomy.

The reviewed publication, co-sponsored by the IAU, is of great historical interest and therefore recommended to readers curious about the archives of astronomy. *La Carte du Ciel*, a pioneering design, demanded from participants the greatest commitment and endurance. The admirable outcome benefits us all; the historical example of *Carte du Ciel* remains a typical model for collaboration within contemporary extensive proposals.

Ivan Nikoloff