

ular focusers, and comparisons with related instruments in other collections. As necessary, Wolf cleaned, repaired and restored his telescopes. This is described and photo-documented in the final hundred pages of the catalogue, along with a page of restoration 'Do's and Don'ts'. ("In general, don't restore!" is Wolf's wise advice.) Since information on any given instrument is often spread throughout the catalogue, it is to be regretted that there is no comprehensive index to hasten finding. It should be noted that for the next year or two, much of the material in *Wolf Telescopes* will remain available via the website www.wolftelescopes.com.

To summarize: The Wolf Collection is important and extensive. Because of its numerous excellent photographs *Wolf Telescopes* sets a new and exacting standard. It is a comprehensive record of the Collection and an unparalleled tool for the study of both the Collection itself and historic telescopes elsewhere. Dealers, all museums with telescope collections, and everyone passionate about telescope heritage should acquire a copy.

A final comment. The investigation of the optics of the Wolf Collection and other Secretan reflectors that Ed Wolf and I undertook in Tobin (2016) was very simple. China has an extensive optics industry and in metropolitan Beijing (population 22 million) numerous students will be studying practical optics. I hope that their professors ally with the Beijing Planetarium to devise student projects that study the Wolf telescopes. Accurate evaluation of the form of the optical surfaces and the performance of the instruments can but yield valuable insights into the development of the optician's art across the centuries.

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Dr William Tobin
Vannes, France.
Email: william@tobin.fr
orcid.org/0000-0002-0533-411X

***Chintamani Ragoonatha Charry and Contemporary Indian Astronomy*, by B.S. Shylaja. (Bangalore, Bangalore Association for Science Education and Navakarnataka Publications Private Limited, 2012). Pp. 96. ISBN 978-81-8467-283-1, 142 x 215 mm, Rs 75.**

The transits of Venus in 2004 and 2012 evoked great public interest all over the world, spurring educators, historians, scientists and numerous others to write papers and books and produce other material for the occasion. The book under review is one such. Published in 2012, it is about transits, the life of Ragoonatha Charry (1828–1880), the First Assistant to Norman Pogson, Astronomer at Madras Observatory, and a 38-page pamphlet that he brought out about the 8 December 1874 transit while preparations were under way for its observation by astronomers spread across India (and elsewhere).

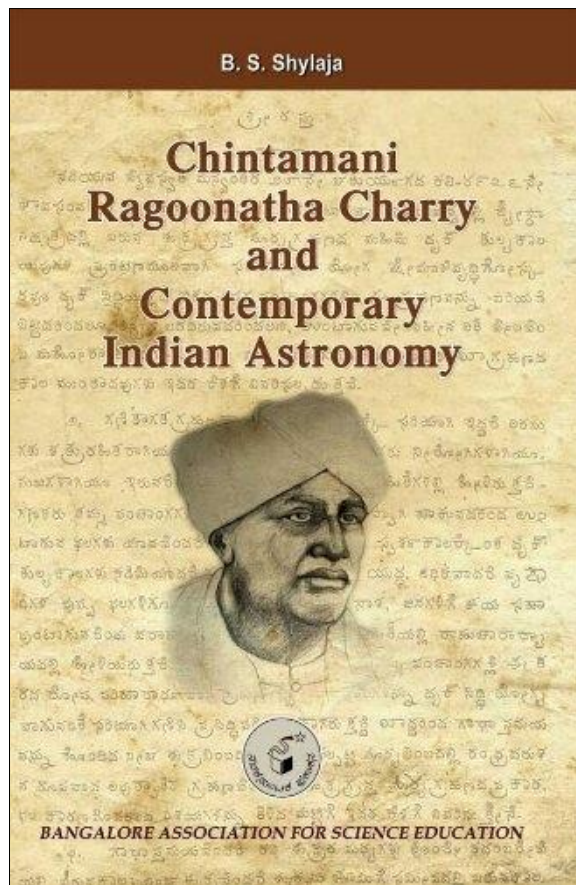
Ragoonatha Charry came from a family of almanac makers and when around eighteen years of age joined Madras Observatory in 1847 during T.G. Taylor's time as Director (Rao et al., 2009). Although steeped in traditional astronomy, once there he learnt about modern European astronomy. He was so devoted to astronomy that he even maintained a private observatory at his home, and he contributed many observations. A science enthusiast, he took a keen interest in communicating information on forthcoming astronomical events to the general public in their own languages. Pogson (1861) has spoken highly of him. About the life and works of Ragoonatha Charry, one should look up his obituary in the *Monthly Notices of the Royal Astronomical Society* (Obituary, 1881), and refer to the papers by Rao et al. (2009) and Shylaja (2009).

Ragoonatha Charry's pamphlet, titled 'Transit of Venus', was brought out early in 1874 in English and a few Indian languages. Charry states in the Preface:

Having been accustomed for many years to discuss astronomical facts and methods verbally with Hindu professors of the art, my present sketch has naturally, as it were, taken the form of a dialogue; but in the Sanscrit, Canavese, Malayalum, and Maharathi versions I have found it convenient to vary the arrangement. The sketch was first drafted in Tamil, and then translated into English and the other languages ...

Through several figures, the pamphlet, as Charry called it, beautifully explains the transit to the lay public. The English version was presented in the form of dialogue between a Pandit and a Sidhanti, an expert familiar with modern European astronomy wherein the former, a traditionalist requests the latter to explain the forthcoming transit of Venus, a subject not treated in

Hindu astronomy texts. In each version of the pamphlet, the style and the contents differ somewhat. The pamphlet was printed but was not published as such. It also included Charry's passionate address at the Pacheappa's Hall in Madras on 13 April 1874 (one day after Tamil New Year) to a large gathering of 'Native Gentlemen'. Here, he urges them to support a modern *Siddhānta* that he wishes to bring out; the establishment of an observatory for which he offers a few crucial instruments of his own; and the formation of a local society, along the lines of the Royal Astronomical Society. Notably, a favourable review of the pamphlet later appeared in *The Astronomical Register* (see Reviews ..., 1875).



As the transit of Venus of 2012 drew close, the Indian Institute of Astrophysics (IIA) took copies of the pamphlet out of its Archives and reprinted the English version (Ragoonatha Chary, 2012). Around the same time, B.S. Shylaja from the Jawaharlal Nehru Planetarium in Bangalore wrote the book *Chintamani Ragoonatha Charry and Contemporary Indian Astronomy*, which is the subject of this review.

What is this book about? Shylaja examined the English, Kannada and Urdu versions of the pamphlet and noted certain differences in their contents. This motivated her to present Ragoonatha Charry's contribution in a complete form by providing a translation of the Kannada

version back into English. As she says (page 33), "... the last three sections of the book are exclusive to the Kannada version" Shylaja gives a brief account of Charry's life and the necessary background to the original pamphlets and informs us in what ways the contents differed among themselves. She begins with a description of the transits in general and talks about some of the observations of the transit of 1874 that were made from India. The key parts of the original pamphlets are presented in the form of Appendices 1 and 2. Appendix 1 reproduces the Kannada text of Charry's pamphlet, and the facing pages carry the English translation. The Kannada narration is not in the form of dialogue as it was in the other pamphlets. Appendix 2 deals with the method of estimating the parallax of the Sun as devised by Charry; it uses simple geometry and is elegant. At the end, there is a list of specific technical terms in Kannada that Charry used or coined, along with the English equivalents.

Shylaja's book was brought out with good intent, and just in time for the 2012 transit, but unfortunately it was written in haste. Consequently, at times the narrative is haphazard; there are incorrect statements in places; and key references are missing (Bigg-Wither, 1883; Biswas, 2003; Hennessey, 1874–1875; 1879; Nursing Row, 1875; Pigatto and Zanini, 2001; Pringle, 1875; Strange, 1874; Tennant, 1875a, 1875b, 1877, 1882; The transit of Venus, 1875). Chapter 1 ('Introduction') begins with a grave misprint by referring to the transit of 1881 (instead of 1882), while Chapter 3 refers to the transit of 1768 (it occurred in 1769). Chapter 2 presents a sketch of the life of Ragoonatha Charry. Here, Shylaja quotes from Charry's Urdu pamphlet where reference is made to a 5' long equatorial telescope. For some reason she thinks that this may be a typographical error and the reference should be to a 5" equatorial telescope. Elsewhere in this chapter she states that Charry was the first-ever Indian science communicator, but this is simply not true. Several astronomical works and even encyclopaedias were written in Persian and Urdu in the eighteenth century and the early part of the nineteenth century that dealt with modern aspects of astronomy, including telescopes (e.g. see Ansari, 2000; Ghulām Husain Jaunpūrī, 1835; Habib and Raina, 1989), and several works of a similar kind came out in Bangla around the same time. While it is not possible to comment on the accuracy of the translation, there are obvious grammatical mistakes and 'typos' (for example, on page 73 the elongation of Venus is given as 40°, not 35°, as in Ragoonatha Chary, 2012: 27). Furthermore, the referencing leaves much to be desired, with far too great an emphasis on web sites instead of published

books and papers, and there is no Index at the end of the book. However, on the brighter side, we both found Appendix 2 useful.

A book like this that incorporates astronomical and biographical material should be treasured by those interested in the history of Indian astronomy and provide them with enjoyable and, more importantly, reliable, reading. Sadly, this is not such a book, and the fact that the author is no expert on historic transits of Venus and therefore was unfamiliar with much of the relevant literature really stands out. But the publishers also are to blame, and have done a shabby job. At very least, the Kannada text and the corresponding English translation should have been placed on facing pages so as to facilitate a one-to-one match.

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Professor Ramesh Kapoor
31, 4th 'B' Block, Koramangala,
Bengaluru, India.
Email: rckapoor@outlook.com

and

Professor Wayne Orchiston
National Astronomical Research Institute
of Thailand,
Chiang Mai, Thailand.
Email: wayne.orchiston@narit.or.th

History of the Sky – On Stones, by B.S. Shylaja and Geetha Kydala Ganesh. (Bangalore, Infosys Foundation, 2016). Pp. 152. No ISBN listed (paperback), 180 × 240 mm, Rs 200.

One of the distinct benefits enjoyed by those of us who attended the recent 9th International Conference on Oriental Astronomy in Pune was the concurrent appearance of new books about the history of Indian astronomy.

One of these was an attractive paperback about the invaluable information that inscriptions on stone provide about historic astronomical objects and events. As the authors point out in their Preface: