

SEARCHING THE HEAVENS AND THE EARTH:  
THE HISTORY OF JESUIT OBSERVATORIES

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# SEARCHING THE HEAVENS AND THE EARTH: THE HISTORY OF JESUIT OBSERVATORIES

*by*

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Cover figure: Manuel Figueredo showing the European astronomical tables to the Maharajah  
Sawai Jai Singh at the Astronomical Observatory of Jaipur, India.

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Repetti. Ricard. Rigge. Rodés. Romañá. Saderra-Masó. Sanchez  
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## Preface

In 1957, as a young Jesuit student in Havana, I was asked if I would like to be trained for work in Belén Observatory. Though I had joined the Jesuits in Spain I had been sent to Cuba during my novitiate. The same year I was sent to Saint Louis University where I began to study philosophy and geophysics. When I finished my doctoral studies in geophysics, the Colegio de Belén had been confiscated by Castro's government and the observatory closed. I finally ended teaching geophysics in the Universidad Complutense in Madrid, but I have always kept contact with Jesuit observatories, especially Ebro, Cartuja, Saint Louis, La Paz and Bogotá. During the 1970s Jesuit observatories began to close and I felt that their history should not be forgotten. This book tries to achieve this aim.

I have been collecting information since 1985. It was not always easy. Some observatories had already been closed for some time and little information was available. William Stauder of Saint Louis University, who had been my thesis director, gave me great encouragement and help. Together we coauthored three articles on the subject in 1991, 1997 and 1998. Writing a book, as much a complete history as possible, was always in my mind. Little by little the files for each observatory were growing. Besides printed material visits to Jesuit Archives in Rome, Paris, Cologne and London and many contacts by letter gave me important non-published information concerning the observatories, such as letters and reports. Thus, the history of the Jesuit observatories, founded after the restoration of the Society of Jesus in 1814, became clear to me. The history of the observatories in the first period of the Society, from its foundation in 1540 to its suppression in 1773, was a much more difficult task. A complete history of these observatories would require a detailed search in many different archives. I did not have time for this and I decided to limit myself for this part to references in already published work. Therefore, I feel that my history is fairly complete for modern observatories but only an introduction for the earlier ones.

This book is divided into three parts. Part I gives a historical account of the observatories. In this part I have tried to present a narrative that can be easily read. Hence, there are no footnotes. The references can be easily found from the bibliography. Years of birth and death are only given for Jesuits. In some cases dates could not be found for Jesuits who died after the suppression of the Society in 1773. The same happens for Jesuits who later left the Society. In chapter 1, I deal with the scientific tradition of the Society of Jesus and the work of Jesuits in the foundation and maintenance of observatories. I try to link this work with the especial character of Jesuit spirituality. Chapters 2 and 3 present the history of observatories in the 17th and 18th centuries in Europe and mission countries, especially, China and India. With the suppression of the



Society in 1773, these observatories ceased operation. For these chapters the references used are given at the end of the book. I feel that the bibliography I have used is fairly complete. Chapters 4 to 7 give the history of the observatories founded after the restoration of the Society in 1814. Observatories are divided according to their geographical location in Europe (Chapter 4), North America (Chapter 5), South and Central America (Chapter 6) and Asia, Africa and Australia (Chapter 7). In each chapter observatories are given according to chronological order of their foundation. I have discussed first astronomical observatories and afterwards meteorological and seismological observatories. For these chapters bibliography and references used are given with the description of each observatory in Part II and in the short biographic notes of some of their directors in Part III.

Part II, gives a short description of 74 observatories of the modern Society (1814-2000). The order followed is first geographical, as in chapters 4 to 7, and for each region by chronological order of the observatory's year of foundation. I give the years of foundation and closing of each observatory. Finding the year when an observatory closed required, sometimes, considerable research. I consider an observatory closed when it ceased operation or was transferred to a non-Jesuit institution. Observatories that today continue link to a Jesuit institution are considered open, though there is no longer any Jesuit presence. For each observatory I give a short summary of its history, a list of directors and Jesuit collaborators. Since this information comes from Jesuit Province Catalogues, there is, sometimes, an ambiguity of one year. A director can be appointed in one year, but first appear in the Catalogue of the following year. For collaborators this information has not been always found and the lists may not be complete. Buildings are briefly described and main instruments listed with the year of installation. Bulletins and other type of publications of important observatories are listed when available. Finally, a bibliography is given for each observatory; this includes published and unpublished material; I consider each bibliography fairly complete. Each bibliography is set out in chronological order of publication, since this reflects better the chronological stage of the observatory. Some observatories lasted for over one hundred years during which many changes took place. In general there are more references close to times of the observatories' foundation than for their later stages. Naturally, important observatories are given more extensive coverage.

Part III gives short biographical notes of 58 Jesuits scientists, directors or collaborators of observatories of the modern Society of Jesus (1814-2000). The selection includes all the most important directors. One element of selection was the existence of published biographical notes, especially in scientific journals. I am aware that some important names have been omitted. For each person a list of published books and articles is given limited to five or six. Here also the selection may be questionable. Important books are always given.

References are given in chronological order; I have wanted them to be as complete as possible. For Secchi an abundant literature exists and I have listed only a selection of references.

There are many persons who have helped me during the years collecting data and writing the text, to whom I wish to express my gratitude. In first place Larry Drake, last Director of Riverview and La Paz who read, corrected, and made helpful comments on the text. William Stauder, the last Jesuit director of Saint Louis, whom I have already mentioned, also read through some of the chapters. Corrections were also made by Thomas McCoog of the Jesuit Historical Institute in Rome, by Gero McLaughlin from Edinburgh and by Chris Hannan. Elisa Buforn, Universidad Complutense of Madrid helped in many ways, especially, with the figures. Important published material was found at the library of Ebro Observatory and the help of its librarian, María Genescá, is greatly appreciated, together with that of the observatory's last two Jesuit directors, José O. Cardús and Luis Alberca. Directors of several Jesuit archives were kind to look for pertinent material and to make it available to me. Their names would make a long list. Robert Bonfils from the Jesuit Archive in Paris deserves special thanks. Finally I received great encouragement from fellow Jesuits, who were not aware of the extent of the observatory work until I mentioned it to them.

## Sources and journal titles

Annales de la Soc. Scient. de Bruxelles: Annales de la Société Scientifique de Bruxelles

APFSJ: Archive Province de France S.J.

Arch. Hist. Soc. Iesu : Archivum Historicum Societatis Iesu

ARSI: Archivum Romanum Societatis Iesu (Roman Archive of the Society of Jesus)

ASJCF-St. Jerome: Archive S.J. Canada Français, St. Jerome

Astrophysical Jour.: Astrophysical Journal

Bol. (Spanish): Boletín

Bol. Soc. Astron. de México: Boletín de la Sociedad Astronómica de México

Boll. (Italian): Bollettino

Bull. (English). Bulletin

Bull. Am. Ass. Jesuit Scientists: Bulletin American Association of Jesuit Scientists

Bull. Am. Meteor. Soc.: Bulletin of the American Meteorological Society

Bull. Am. Ass. Petrol. Geol.: Bulletin of the American Association of Petroleum Geologists.

Bull. Econom. de Madagascar: Bulletin Economique de Madagascar

Bull. Seis. Soc. Am.: Bulletin of the Seismological Society of America.

Bull. Union Geod. et Geophys. Int.: Bulletin de la Union de Geodesie et Geophysique International

Coll. Obs. Publ.: Collected Observatory Publications

EO: Ebro Observatory

Historical Studies in the Phys. and Biol. Scien.: Historical Studies in the Physical and Biological Sciences

Imp. (Spanish): Imprenta

Imp. (French): Imprimerie

J. Brit. Astron. Assoc.: Journal of the British Astronomical Association.

Jour. : Journal

Kaiserl. Akademie der Wissenschaften in Wien, Mathem. Naturw. : Kaiserliche

Akademie der Wissenschaften in Wien. Mathematik und Naturwissenschaften

Memoirs of the Roy. Astr. Soc.: Memoirs of the Royal Astronomical Society

Mitt.: Mitteilungen

MO: Manila Observatory

Monthly Notices Roy. Astr. Soc. : Monthly Notices of the Royal Astronomical Society

OSC: Observatorio San Calixto.

Phil. Trans. Royal Soc.: Philosophical Transactions of the Royal Society

Proc.: Proceedings

Proc. Roy. Soc.: Proceedings of the Royal Society

Pub. (German): Publikationen

Pub. (English): Publications

Publ. (Spanish): Publicaciones

Quart. Jour. Roy. Astr. Soc.: Quarterly Journal of the Royal Astronomical Society

Rev. (French) : Revue

Rev. (Spanish): Revista

Rev. de Geogr. Phys. et Geol. Dyn. : Revue de Géographie et Géologie Dynamique

Riv. (Italian): Rivista

Rivista di Fisica, Mat. e Scien. Natur. di Pavia: Rivista di Fisica, Matematica e Scienza Naturale di Pavia.

Roy. Soc. of New South Wales: Royal Society of New South Wales

SJBPA: Society of Jesus British Province Archive

SLU: Saint Louis University

Studies in Hist. and Phil. of Science: Studies in History and Philosophy of Science

Trans. Am. Geophys. Union: Transactions of the American Geophysical Union