

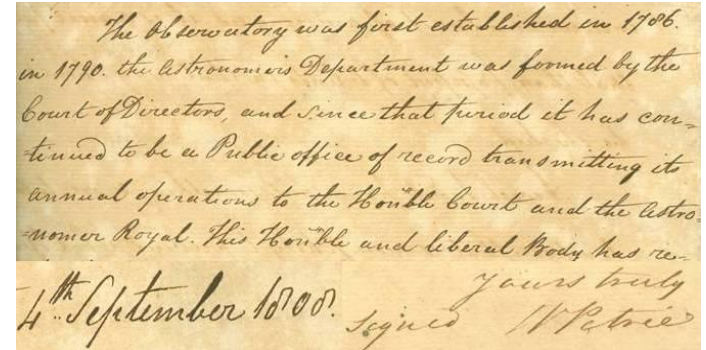
'Scientists' need for Libraries ^{& Librarians} in the Age of Internet

Christina Birdie
Indian Institute of Astrophysics
Bangalore, India



A glance of history

Indian Institute of Astrophysics traces its origin to Madras Observatory (1786) which was shifted to Kodaikanal (1899) and subsequently established in Bangalore (1975).



The Observatory was first established in 1786. in 1790. the Astronomer's Department was formed by the Court of Directors, and since that period it has continued to be a Public office of record transmitting its annual operations to the Honble Court and the Astronomer Royal. This Honble and liberal Body has re-
4th September 1800. signed W. Petrie

An early manuscript confirming the establishment in 1786



IIA celebrated Bi-centennial in 1986

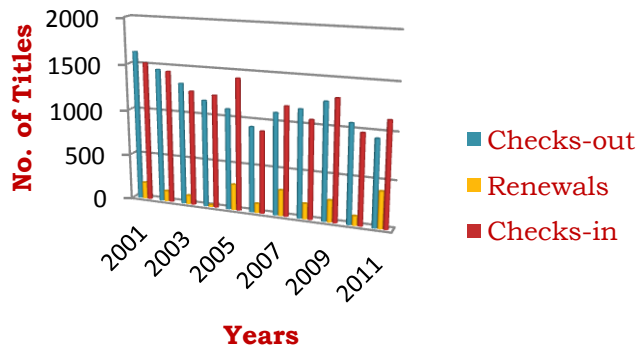
To mark its bicentennial, a symposium on *Two hundred years of Astronomy* was held at Bangalore on 5 December 1986. The date was chosen to coincide with the date of the oldest observation recorded in a manuscript at the Institute. Taken on 5 December 1786, presumably by Michael Topping, the observation pertains to the longitude and latitude of Masulipatam fort.



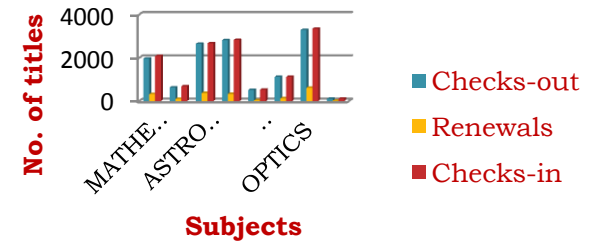
In-house survey @ IIA library

Library use by way of transactions remain constant in the last 10 years....

Transactions 2001-2011



Transactions 2001-2011



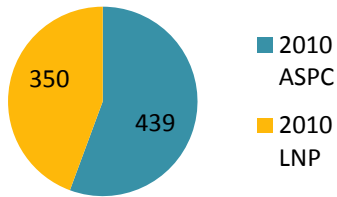
Survey conducted on IIA library's contents & services reveals.....

- 66% students & faculty utilized electronic database/articles indexed within the last one year
- 69% reported using library print materials within the last year
- 46% reported using computer access @ the library
- 78% indicated using e-journals available through library
- 22% utilized interlibrary loan services @ library
- 36% used print reserves @library

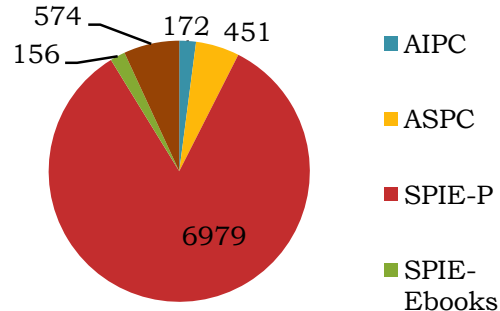


A hybrid collection

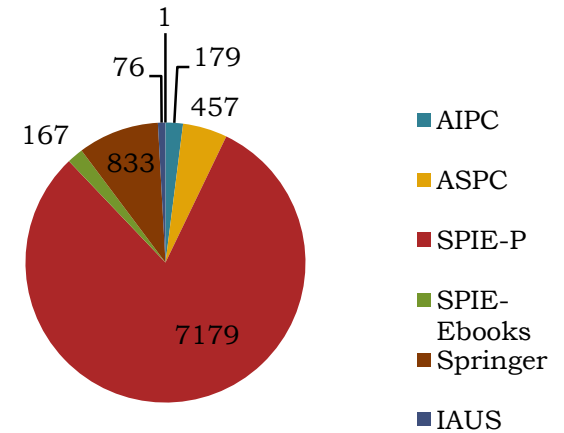
E-Books @ IIA in 2010



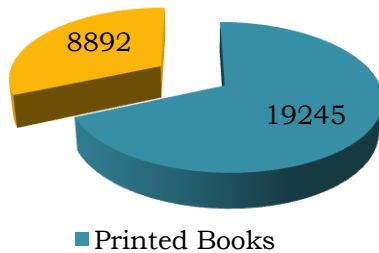
E-Books collection in 2011



E-Books collection in 2012



Total Book Collection @ IIA Library



Extension of 5 Laws



S.R. Ranganathan
Father of library science in India

Scientists need an ideal library where.....

Books are for use
Every book has a reader
Every reader has a book
the library saves the time of the reader
the collection keeps growing

Scientists also need a.....

library for missing links & extended services
library aligned with organizations' goal
library promoting value added services
library connecting with past
library reaching out beyond building
librarian- in a new avatar.....



Technological & Economic shifts have only made libraries more valuable

Evolution of Libraries

- Print library to Online library

- Bound volumes to Articles Online
- Pre-prints to IR repositories
- ISBN/ISSN to IP numbers

everything is not on the web, something is still missing...
If it is not in ADS, it could be in IR.....

- Data centric library

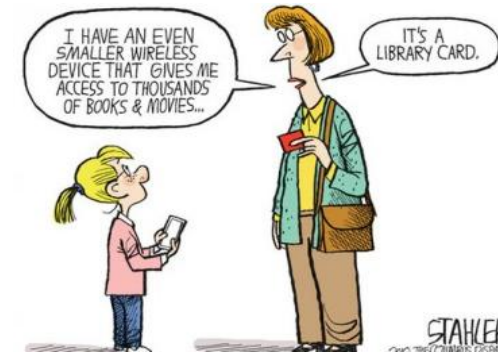
- bibliographic data to VO data
- tables of data in microforms to online digital files
- overlay charts and plates to digital sky survey

resolution is low, some tables are missing.....

- Collaborative library

- individual library to consortium partners
- individual bargaining to collective bargaining

Enhances interdisciplinary collection,
strengthens interlibrary collaboration



Library supports scholarly communication

- Libraries address the issue of supporting the scientists who wish to share their scholarly work for review & comments by providing Institutional Repositories. They also supplement their service by linking to other IRs
- Libraries work with scientists to create their publication profile using scientometrics tool
- Libraries also provide advice and expertise on copyright barriers and preservation strategies
- Libraries create tools to connect between different kinds of data (creation of meta data, telescope bibliographies, data mining.....)
- Libraries facilitate editorial assistance in publication program
- Libraries resource information on Open Access journals and facilitate Page charges procedure for scientists
- Libraries help the scientists to re-visit historical collections as half of the archival collections have no online presence



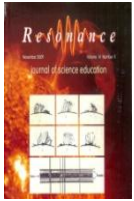
Library enhances the organizations' efficiency

- **I**ntegrating within the programs of the organization
 - building a comprehensive library collection related to the programs of the organization
 - remain as a link in the chain within the management of the organization for technology implementation
 - building field-station and branch libraries
- **I**nitiating activities to support the programs of the organization
 - align with project teams and extend library support in building collection and services
 - creating library websites and connect with users through social network
 - extend support in the process of ISO certification of the organization
 - resource information on the updates of essential manuals and guides pertaining to different laboratories of the organization



Re-living the history

Libraries bring back the memories of the history of an organization in a more systematic and orderly manner. They preserve the heritage well and make it reusable for current research.



Research from IIA Archives

Sketches of solar prominences made by John Evershed along with the solar spectrum with which he discovered the Evershed effect, Published in Resonance, Vol. 14, No. 09, 2009, (Cover Page)

C. Ragoonatha Chary and variable star astronomy, Rao, N.K., Vagiswari, A., Thakur, P. and Christina Birdie, Journal of Astronomical History and Heritage, Vol. 12, No. 3, pp. 201-210, 2009.

Chintamani Ragoonathachari and contemporary Indian astronomy, B. S. Shylaja, Current Science, Vo. 96, No. 9, 2009, pp. 1271-1273.



Solar eclipses during 1868-1980 in which Madras, Kodaikanal Observatories and IIA participated, Christina Birdie & Vagiswari, A., IIA Newsletter, Vol. 14, No. 2, pp. 14-15, 2009

Michael Topping and the origin of the Madras Observatory, Vagiswari, A., Rao, N.K., Christina Birdie and Thakur, P., IIA Newsletter, Vol. 14, No. 1, pp. 16, 2009.



From the IIA Archives: Solar Eclipses during 1868-1980 in which Madras, Kodaikanal Observatories and IIA participated

Participation in solar eclipse studies have been a notable characteristics of the institute for more than a century. For all major eclipses teams were sent and the expeditions met with a considerable degree of success. Table presented here lists the various expeditions undertaken from 1868 - 1980, along with the results obtained.

YEAR, NATURE AND PLACE OF EXPEDITION	TEAM LEADER	EXPERIMENTS/PROGRAMMES	RESULTS
August 18, 1868 Total Solar Eclipse 1. Vasaipur 2. Manipalpet	N.K. Pigeon C. Ragoonatha Chary	Spectroscopy	First time spectroscopy applied to solar eclipse Detection of Hydrogen lines in emission in chromosphere Observation of yellow line near sodium D line later attributed to Helium
December 12, 1871 Total Solar Eclipse Aravindhy	N.R. Pigeon C. Ragoonatha Chary	Spectroscopy Photography Polarization measurements	Handwritten solar spectrum of the solar eclipse 1868 shows D3 line Observation of bright lines in spectrum. This was the occasion when, what we term the F Corona, was first seen.
June 6, 1872 Annular Eclipse Madras	N.R. Pigeon	Photography Spectroscopy	First paper of the report prepared by C. Ragoonatha Chary in Tamil This is the first observation on record of viewing the flash spectrum at an annular eclipse
January 21, 1868 Total Solar Eclipse Siddhi	M. Smith	Monography	White light photographs of different scales were obtained
September 21, 1921 Total Solar Eclipse Wahid Australia	J. Evershed	Monography of the spectrum of the corona on the East & West limbs To determine the dispersive effect of the green coronal lines due to solar rotation to obtain an improved value of the wavelength of this line To determine an important aspect of Einstein's theory of relativity that could be experimentally verified	The expedition was not successful due to bad weather



Re-living the history

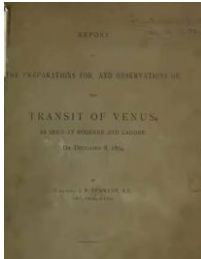
Research from IIA Archives

Vintage maps in IIA archives, Christina Birdie and Vagiswari, A., IIA Newsletter, Vol. 13, No. 2, pp. 14–15, 2008.

The Indian Institute of Astrophysics has valuable antique maps in its archives. These original maps were published under the supervision of the Society for the Diffusion of Useful Knowledge (SDUK).



J.F. Tennant



Report on Transit of Venus

Historical Observations/Expeditions: Transit of Venus observed in India during 1761 - 2004

Christina Birdie, Prabahar, P & Mohan BS

John Evershed: The Instrument Builder, Bagare, S.P., Vagiswari, A., and Christina Birdie, IIA Newsletter, Vol. 13, No. 4, pp. 6–7, 2008. John Evershed (1864-1956) is well known in astrophysics, particularly in the area of solar physics, for his discovery of the radial motion in sunspots, an effect which bears his name.



The Great September Comet of 1882 II (C\1882 R1) that transited over the Sun - Pogson's observations from Madras Observatory, Kameswara Rao, N., Vagiswari, A. and Christina Birdie, IIA Newsletter, Vol. 12, No. 2, pp. 3–5, 2007



The comet was observed from several different locations throughout the world.



K. Ramesh



W. S. Jack, Director of the Madras Observatory (1871 - 1878), described the case of transit of the comet on August 1, 1882. The comet of September 1882 was observed at the Madras Observatory for the first time. The comet was observed on August 1, 1882, at the Madras Observatory. The comet was observed on August 1, 1882, at the Madras Observatory. The comet was observed on August 1, 1882, at the Madras Observatory.



From the IIA Archives



Reaching the unreachable



A constant endeavour to reach public to satisfy their curiosity and to better their knowledge



In Commemoration.....



In the memory of 100th birthday on 10 October 2009 of the late Prof. S. Chandrasekhar, the first recipient to receive the well known Padma Bhushan (Bharat Ratna), was included in the IIAA's "Evershed Effect".

From IIA Archives

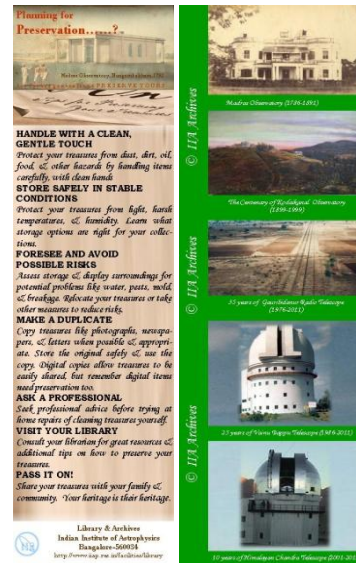
A glimpse of the photograph of Prof. S. Chandrasekhar on display at the Library, IIA, Bangalore during Chandra Centenary Conference 1-10 Dec 2009, IIA Bangalore.



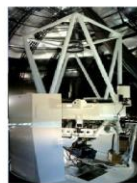
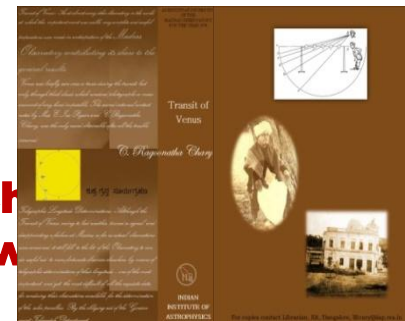
Prof. S. Chandrasekhar, IIAA, Bangalore, India.

Prof. S. Chandrasekhar, IIAA, Bangalore, India.

Library & Archives
Indian Institute of Astrophysics
Bangalore-560018
http://www.iaa.ac.in



Transit of Venus by Ragoonatha Chary



The New Mission for Chandra Telescope, Indian Astronomical Observatory, Madhav Nagar, Bangalore National Institute of Astrophysics Bangalore 560018, India.

Chandra Centenary Exhibits

Book Mark on Preservation Week

Evershed Effect First Day Cover & Stamp Designed by IIA Library



25 Years of VBT

libraries are integral partners in the outreach programs of the organization and they invent new ideas in support of the programs



Beyond boundaries

Facilitate access to distant learners

- Remote access to students and scholars registered in open universities
- Facilitate library access to retired senior astronomers & scientists and walk-in users
- Extend library facility to amateurs and planetarium use



Indian Scene.....

The establishment of premier scientific research institutes and academies in India, involved in doing R&D carry out excellent work in accomplishing mega science projects and programs. They have the support of professional libraries and information centers within their organizations, which work as catalysts in delivering these projects in time.

In Astronomy.....

In India the research in astronomy is carried out in research institutes, while the universities train the students to qualify in post-graduation. In recent times there are many astronomical observational facilities ranging from IR to Optical are in place, and few are in pipeline established by these research institutes. Libraries belonging to these astronomy institutes established an informal network called (FORSA) Forum for Resource Sharing in Astronomy way back in 1985 to exchange and interact with like-minded librarians, and to serve the astronomers in the country. This initiative started with 5 major institutes grew up to become a full fledged consortium of 11 research institutes and a deemed university to support the astronomy community in the country in their quest for seeking current information.

The FORSA libraries offer range of information services to support the national and international programs and projects of the organizations to which they belong. Regular service, + + + Value added services, support in outreach, publication, creation of IRs, organization of conferences like LISA etc...



Indian Scene.....

Major Observational facilities in India:

- Radio Astronomy
 - Giant Meterwave Radio Telescope (GMRT) (NCRA)
 - Ooty Radio telescope (TIFR)
 - Gauribidanur Radio Telescope (IIA, RRI)
- Optical Astronomy
 - Kavalur Telescope (IIA)
 - 1m, 2.3 m
 - Himalayan Chandra Telescope (HCT) @ Hanle, (IIA)
 - HAGAR @ Hanle (IIA)
 - 1.3m telescope @ Nainital (ARIES, Nainital)
 - 2m Telescope @ Girawali, Maharashtra (IUCAA)
 - Solar Telescope @ Kodaikanal (IIA)
 - Solar Telescope @ Udaipur (PRL, Ahmedabad)

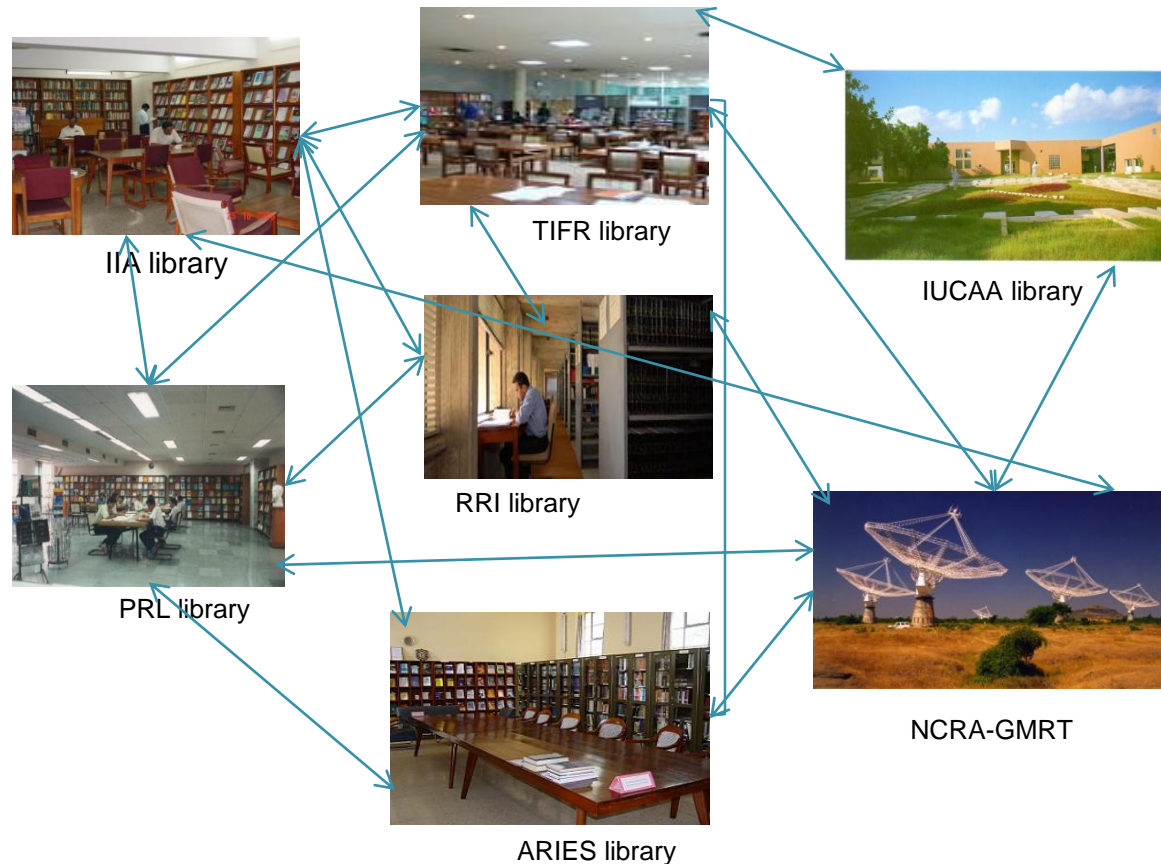
In Pipeline.....

- Optical Astronomy
 - 1m (DIMM) Telescope @ Kavalur, IIA
 - 3.6m Opt/IR Telescope @ Devasthal (ARIES, Nainital)
 - TMT (TMT-India) partners - IIA, ARIES, IUCAA
 - NLST (Solar Telescope @ Hanle) (IIA)



FORSA libraries to virtual library.....

"Let us make a comparison with the VO. The training one receives in making up the virtual observatory would surely help in making a virtual library. In both, one is tapping different and inhomogeneous databases. Both require interaction with the link, including tapping other links. The search techniques may also address similar types of questions. It is not surprising therefore that the LISA meetings have had a close connection with astronomical institutes." (Jayant V. Narlikar, LISA VI, ASP Conference Series, Vol. 433, 2010, p.6)



Linking of

OPAC
IR
ARCHIVES
BLOGS
SPECIAL COLLECTIONS
NEWSPAPER CLIPPINGS

Long range planning.. Training of astronomy librarians?????????Where are they??, Special skills required as astronomy librarians - a future requirement to be focused in this forum and seek support from IAU?

21st Century Librarian - a new avatar



LISA



Citation Analysis

Hyperlink analysis algorithms make either one or both of these simple assumptions:

- Assumption 1 - A hyperlink from page A to page B is a recommendation of page B by the author of page A.
- Assumption 2 - If page A and page B are connected by a hyperlink, then they might be on the same topic.

Web pages linked together are nodes in the web graph. Links to web page A, links to web page B, this is a directed edge.



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OPEN  ACCESS

IR
Disseminating
Promoting &
Preserving
Scholarship

*The Librarianship was first established in 1796. In 1799 the Librarians Department was formed by the Council of Directors and since that period it has continued to be a Public Office of record transmitting its annual operations to the Honble Council and the Honble Council Royal. His Honble and Liberal Body has ever yours truly
14th September 1800. Signed 17/9/2000*



photo credit: AP Kutchupidi academy