Astronomical Society of Southern Africa
SYMPOSIUM 2002

Website for the Historical Section of ASSA

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This is a presentation for the 2002 Astronomy Symposium concerning the Website for the Historical Section of A.S.S.A. The author experiences a problem, in that the talk to be given at the symposium will consist of a demonstration of the website. It is impossible to present demonstration on CD. Therefore the presentation in front of you consists of extracts from the proposed website. At the time of this writing the author is not even sure whether the website will be online in time for the symposium. The site will be hosted by SAAO, (www.saao.ac.za/) but the exact web address is still unknown.

The front page of the proposed website, and other extracts are presented here. The documents are in Microsoft Word format, i.e. just the writing, no pretty pictures as yet. The Historical website concerns mainly the **Astronomers**, the **Observatories** they worked at, and the **Instruments** they used, and the example selected is **Knox-Shaw**, **Radcliffe Observatory** and the **74 inch** telescope. The layout of this presentation is as follows:

PAGE	***DOCUMENT***
1-2	About this site
3	Knox-Shaw
4-6	Radcliffe Observatory
7-8	74-inch Telescope

More about this site

Note: This site is under construction, and because of the nature of the material it will never be completed!

Introduction

Welcome to the History of Astronomy web page, which is the official website for the Historical Section of the **A**stronomy **S**ociety of **S**outhern **A**frica (**A.S.S.A.**). (Current Director: Chris de Coning / siriusa@freemail.absa.co.za)

There are many telescopes, which are of importance and interest to the astronomical community in Southern Africa, but are uncared for because they are damaged or simply outdated. This website is dedicated to the identification and recording of such cases.

Missing objects could be identified and searched for; damaged or neglected objects could be restored.

Aside from instruments there are many things of value to those interested in Astronomy, for example observatories plagued by light pollution, objects such as old photographic plates and other documentation, etc. This database tries to address the whole spectrum; from the people and their instruments, to the observatories where they worked, projects that were lifetime accomplishments, and where to find the documents that tell the stories.

Although this website is dedicated to History, **the content and goals are not history in itself**. To explain: facts, objects and dead astronomers are not in themselves History. It is a popular myth that History is all about facts. History is much more than that, because facts in and by themselves are dead and useless. Meaning must be attached to the facts to make them alive; interpretation is needed to nudge facts into the realm of reality and usefulness. This site does not attempt to interpret facts, but is intended as a database: in other words, the gathering together of facts with the main goal to identify, preserve and / or rescue threatened objects. It is intended as a tool and aid for the researcher as well as interested persons. It is ultimately up to you to make the facts come alive by interpreting and adding meaning to them.

The reasons why a website was chosen as a medium for the database are numerous:

- It is easily accessible by all who have access to the internet.
- The information is always current. What I mean by this is that books / journals are published, and they stay the same forever. You will only find the updated information in the next publication / edition. With a website, new information is made available / mistakes are corrected as quickly as it takes to process the data. If a mistake is observed on the website one can contact the e-mail address given at the beginning of the page.
- A website is a great public forum. Different viewpoints, new interpretations can be made public quite easily. Initially this website, as mentioned above, concerns itself with facts, not really the different interpretations. However, facts can never stand in **total isolation** from interpretation. The site may grow inevitably in the direction of a public forum.

Goals:

The goals are:

- To establish a database for anything that is of historical value to Astronomy in Southern Africa.
  This would include:

- Instruments: Any instrument made / used / or possessed by astronomer / observatory
- Written Sources Primary (oral sources to be documented)
  Secondary
  Tertiary
- Remaining Artefacts Places
  Plaques and Statues
  Pictorial Sources (Portraits / Paintings / Photographs)
  Physical Objects (e.g. medallions)

- To: Identify
  Locate
  Keep track of the above,
  and in extreme cases to rescue
  Acquire
  Restore the above.
- To initiate a program to digitise (scan in):
  - All previous copies of MNASSA
  - Minutes of the different Astronomical societies meetings
  - Old astronomical photographs (before the emulsions fade or damage)

  In order to preserve them and to make future research easier. The scans must be easily available to the public.

ASTRONOMER: **Knox-Shaw** H [Dr.]
Professional

Famous for: Director of Radcliffe Observatory 1939 - 1951

Overview:

History: -Knox-Shaw was an astronomer in Egypt. When he became director of Radcliffe Observatory in Oxford (1924), he did not like the British seeing conditions. Knox-Shaw decided to move the Observatory to a better view sight. The correct opportunity presented itself and the Observatory was moved from Oxford to Pretoria in 1939. Thus Knox-Shaw was director of the Radcliffe from1924 to 1951. (Radcliffe Oxford: 1924 – 1939 / Radcliffe Pretoria: 1939 – 1951)

-*"Knox-Shaw was a man of great charm and sense of humour as well as absolute dedication. There is a story that on one occasion he had a bet with Eddington about the value of a certain mathematical constant. As it was unlikely that the matter would be cleared up during their lifetimes, it was agreed that the loser should ultimately present the winner with a new harp. Most astronomers agree that by now the bet has been fairly and squarely won by Knox-Shaw.."*. [Copied from Moore, p.115.]

Career:
-Trinity College, Cambridge. (Sixth Wrangler 1907)
-1908?: Assistant at Khedivial Observatory, Helwan Egypt.
-1913: Superintendent at Khedivial.
-1924 - 1939: Director Radcliffe Observatory, Oxford, U.K.
-1939 - 1951: Director Radcliffe Observatory, Pretoria.
-1951: Retire.

Personal:
-1885 October 12: Born at St Leonards on Sea, Sussex.
-Educated Wellington College
-1951: Retire to Elgin Valley, Western Cape.
-1970 April 8: Died Cape Town.

Instruments:
-74 inch telescope

Sources:
Bibliography:
-Moore, P. & Collins, P., *Astronomy in Southern Africa*, pp.114 – 119. (General Source)
-Smits, P., *A Brief History of Astronomy in Southern Africa.* (Unpublished)

OBSERVATORY: **Radcliffe Observatory**
1937 - 1974

Current Information: -The Observatory has closed down. The Current Information section is not relevant to this Observatory.

Physical address:
Location: Altitude +/- 5 000 ft above sea level (1 500 m)

Noted for: -" *During its quarter-century of active life, the Radcliffe Observatory accomplished more than many other observatories have done in hundreds of years.*" [Copied from Moore, p.119.]

Overview: -Researched radial velocities
-Radcliffe Observatory is Oxford University (U.K.) astronomical observatory. As a result of bad seeing conditions in England, it was decided in the 1920's to set up an observatory in the Southern Hemisphere. The sight chosen was located just outside of Pretoria. An observatory was built and a telescope ordered just before World War 2. The war delayed everything, to the extend that the telescope was ordered in 1935, but saw first light in 1948(?). Radcliffe Observatory was a well-designed facility, manned by competent astronomers, operating the largest telescope at that time in South Africa. By the time the observatory got up to speed, light pollution from an expanding Pretoria curbed its usefulness. In 1972 the amalgamation of the Radcliffe Observatory with the Republic and Royal Cape Observatories were announced, and in 1974 its telescope was moved to Sutherland. (Look S.A.A.O.)

History:

- *"The observatory at **Oxford** was founded in 1772 by the **Radcliffe Trustees**, and was therefore always known as the Radcliffe Observatory. Telescopes were set up, and were extensively used; but nothing can be done about the British climate, and so far as optical viewing is concerned there are serious limitations. Moreover, even in the early 1900s Oxford was spreading; from being a university with a small town tacked on, it was turning rapidly into an industrial city, with all the benefits of urban civilization — such as smoke, grime, fumes and smog. Clearly it was desirable to move elsewhere, and the man who seems to have provided the first impetus was the then Radcliffe Observer, Harold KnoxShaw, who had taken up his Oxford duties on 18 August 1924".* [Copied from Moore, p.114.]
- *"Knox-Shaw, used to the clear Egyptian skies, was not in the least impressed by observational conditions at Oxford, and he soon began laying plans for a move. He had the support of Sir Frank Dyson, the Astronomer Royal, and the change soon came. In 1929 the Radcliffe Infirmary felt the need for expansion, and offered to buy the nine-acre site on which the Observatory had operated for the previous hundred and fifty years. By then Knox-Shaw and Dyson had already made a preliminary*

reconnaissance to South Africa, and on their return it was tacitly agreed that the shift should be made. In November 1929 an agreement of sale to the Medical School was announced." [Copied from Moore, p.114.]

- *"It only remained to find a suitable location in South Africa. Pretoria had a good climate, and was convenient in many other ways as well, but it was essential to be quite sure. The Trustees decided that the man to find out was Dr W. H. Steavenson, ... Steavenson came to Pretoria, and carried out an extensive series of tests from a hilltop to the south-east of the city. Steavenson's report was favourable. The Municipal authorities then stepped in, and offered to make the Radcliffe Trust a gift of the 57-acre site; they even promised to lay on water and electricity. It was a generous offer; the Pretoria authorities kept their word, and continued to give all possible help throughout the Observatory's career."* [Copied from Moore, pp.114 - 115.]
- *"Unfortunately, an Oxford faction led (typically!) by Professor F. A. Lindemann, afterwards Lord Cherwell, caused prolonged delays by opposing the transfer of Trust capital to an area outside the jurisdiction of the English courts. Among those who were called in to support the move were Knox-Shaw, Dyson, Sir Arthur Eddington, Schlesinger, Shapley, de Sitter and Spencer Jones. Eventually, in July 1934, the battle was won."* [Copied from Moore, p.115.]
- The site chosen for the Observatory was approximately five miles (8 km) to the South East of the city, on a range of hills at an altitude of approximately 5 000 ft (1 500 m) above sea level.
- The Observatory building with the dome was built, and in 1939 the astronomers moved in. The director was Knox-Shaw, with R.O. Redman as chief assistant and E. Gwyn Williams as second assistant. There was however no telescope.
- In August 1935 the order for the telescope was placed with Grubb Parsons. The telescope was 74 inch (1.8 m) in diameter, and for half a century the largest telescope in South Africa. Due to the size of the telescope a successful mirror was only cast on the third attempt in 1938. Thereafter World War Two completely interrupted the building of the telescope. The telescope was installed in 1948, 13 years after it was ordered.
- By the time the telescope was installed the Observatory staff were reduced to Knox-Shaw, an assistant (David Evans), and three African labourers.
- The Radcliffe Observatory had insufficient funds to maintain a sufficient staff. They leased about half of their observing time to the Royal Cape Observatory. David Evans, chief assistant at Royal Cape, spends a lot of time at the Radcliffe Observatory as a result of this arrangement. [Smits]
- Radcliffe became a very well known and established Astronomical Institution. The Observatory attracted many excellent visiting astronomers from all over, and became a very popular place for students to finish their doctoral studies. Many observers came to Radcliffe to do specialised research. [Moore, pp.118 – 119.]

- In the vicinity of the Observatory a suburb developed *"...and, appropriately, many of the roads were re-named according to a cosmical pattern: Orion Street, Perseus Street and so on. One of these new names gave rise to an episode which still tends to make astronomers chuckle. The second brightest star in the entire sky is Canopus, in the constellation of Carina, the Keel of the old Ship Argo. Naturally, it had to have a road named after it, but the local authorities accidentally inserted an extra S, and up went the official sign: Canopsus Street. Canopsus Street it remained, but after many years a distinguished astronomer, then resident in Pretoria, wrote to the authorities and pointed out the error. The reply was stunning. "The name Canopsus is on all our maps, and has been officially accepted," they wrote. "It cannot be altered now. Can't you change the name of the star?" It is not very likely that such an idea appealed to members of the International Astronomical Union. ...the road has now been renamed Canopus, . . ."* [Copied from Moore, pp.115 – 116.]

List of Directors:

- **Harold Knox-Shaw:** 1939 – 1951. He became the director of Radcliffe Observatory in Oxford in 1924, and realised the need to move the Observatory to a different location with better viewing conditions. The Observatory moved to Pretoria with Knox-Shaw supervising the move, as well as being the director.
- **A.D. Thackeray:** 1951 – 1974. It was under him that the Observatory enjoyed its most productive years.

Chief Assistant:

- **R.O. Redman:** 1939 - ?
- **Adriaan Wesselink:** ? – 1964: Assistant Director of Radcliffe. Before that he was superintendent of Leiden station at Union Observatory. 1946 – 1950.

Astronomers:

- **E. Gwyn Williams:** 1939 - ?
- **David S Evans:** Chief assistant at the Royal Cape Observatory 1950 – 1968. He spends a lot of time at Radcliffe due to an agreement between Royal Cape and Radcliffe Observatories.
- **Michael Feast:** Later he became the director of S.A.A.O. 1974 -
- **Peter Andrews:**
- **R Catchpole:**
- **T.D. Kinman:**

Instruments: -74 inch telescope
-12 inch reflector (Belonged to amateurs of the **A**stronomy **S**ociety of **S**outhern **A**frica [A.S.S.A.])

Sources:
Pictorial Sources: -Moore, P. & Collins, P., *Astronomy in Southern Africa*, p.117; p.118.

Bibliography:
-Smits, P., *A Brief History of Astronomy in Southern Africa.* (Unpublished)
-Moore, P. & Collins, P., *Astronomy in Southern Africa*, pp114 – 119. (General Source)

TELESCOPE: **74 inch** (1.9 m)

History:
Important Contributions:

Description:
-Largest telescope in South Africa from 1951 – 2003 until the S.A.L.T. telescope came into use.
-Contract was signed with Grubb Parsons for the building of the telescope in August 1935. Due to problems in casting such a large mirror, the third attempt was successful in 1938. World War 2 delayed all attempts to complete the mirror, and work only resumed in 1945. The mirror only reached Pretoria in 1948.
-Due to light pollution problems Radcliffe the telescope

Owners:
-Radcliffe Observatory 1948 – 1972
-S.A.A.O. 1972 - present

Where Located:
- Radcliffe Observatory 1948 – 1974
-Sutherland 1974 - present

Current Information:
Present Location: Sutherland

Owner: S.A.A.O.

Status:

Condition:

Technical Details:

Type:	-Reflector with choice of Newtonian focus, or as a Cassegrain of Coude for spectroscopic work.
Aperture:	74 inch (187.9 cm)
Focal Length:	
Mirror:	-Corning Glass Company of New York [Moore, p.115] -Disk made out of Pyrex, at a weight of 3.6 ton. (Telescope structure containing mirror weighs 5 ton) [Moore, p.115; p.117.] -In 1935 the order for the mirror was placed. First two casts of mirror unsuccessful. Third cast successful, and the mirror reached Grubb Parsons in Newcastle by October 1938. The Second World War interrupted the grounding, polishing and testing of the mirror. [Moore, p.115]
Mounting:	*"the planner, had little faith in the constancy of the local electricity supply, and the drive mechanism of the telescope was actually regulated by a tuning-fork!"* [Copied from Moore, p.117.]
Attachments:	-Spectrograph (a large spectrograph) [Smits] -Coude Spectograph 1960 [Smits]
Manufacturer:	-Grubb Parsons of Newcastle Ireland
Building:	-Radcliffe. (Pretoria) Part of the agreement with Grubb Parsons telescope makers was to build both the telescope and the building to house the telescope. The building had a 61 ft (18.5 m) turret. The "unusually shaped turret" was double walled for temperature control. The outer cover was made of galvanized steel and the inner wall of wood fibreboard. The non-rotating part of the building was made of an inner brick wall surrounded be a outer sheath of metal lathing (forming a cavity), coated with rough cast plaster. [Moore, p.115; p117] Picture: Moore, P. & Collins, P., *Astronomy in Southern Africa*, p.117; p.118. -Sutherland.

Sources:
Documentation:

Pictorial Sources:

Bibliography:

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-Smits, P., *A Brief History of Astronomy in Southern Africa.* (Unpublished)