

RADCLIFFE OBSERVATORY  
PRETORIA  
1.9 m Reflector

Operational  
1948 (1951) – 1974

Private British Observatory  
Belonging to Radcliffe Trust

Through out this time largest in Southern  
Hemisphere (after 1957 equal largest)



JOHN RADCLIFFE

c1650-1714

Court Physician

To William III and Princess (later Queen Anne)

Also any other important people of the time

Including **Newton**

Prescription included,

Ass's milk, crushed herbs and

Crab's eyes (from head of the crawfish)

# RADCLIFFE TRUST

£140,000

Radcliffe Camera (library) (£40,000)  
(plus librarian £150 p.a.)

completed 1747

other bequests Oxford etc

Rest for Trustees to decide

Radcliffe Infirmary

completed 1779





## RADCLIFFE OBSEVATORY, OXFORD

T.Hornsby (Savilian Professor 1763)

but no observatory

Trustees

New instruments 1771

Observatory foundation stone 1772

in use 1774+





1839

Radcliffe Observer (Rigaud) died

Bessel 61 Cyg (1838)

Henderson  $\alpha$  Cen (1839)

Large parallax suspected by

Manuel Johnson (1833)

(RAS Gold medal 1835)

Sir Robert Peel (Trustee)

Johnson + Heliometer

Not University choice for Professor.





1924

Harold Knox-Shaw (1885-1970)

Helwan Observatory (Egypt) 1907-1924)

1924 appointed Radcliffe Observer

Suggesting move to better climate (1924+)

Possible sale of site for Infirmary

1929 Dyson, Knox-Shaw provisional choice of  
Pretoria

1931 site testing (Steavenson)



1931-1934  
Court Case  
Oxford University v. Radcliffe Trustees  
“Cambridge men” (Eddington)  
IAU for move  
Einstein opposed

36 inch to 74 inch  
(Nuffield - Radcliffe Infirmary)

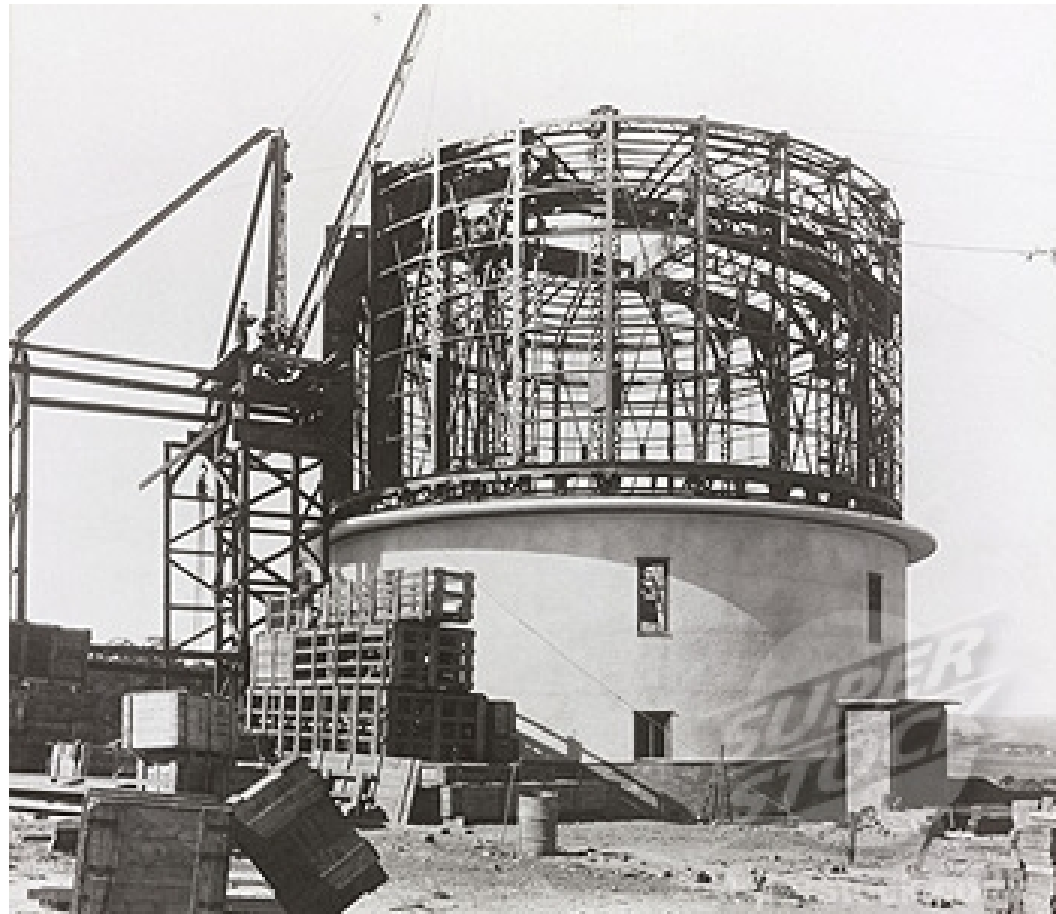
£65,000 authorized for  
Telescope, instruments, building,  
Office, three houses etc.

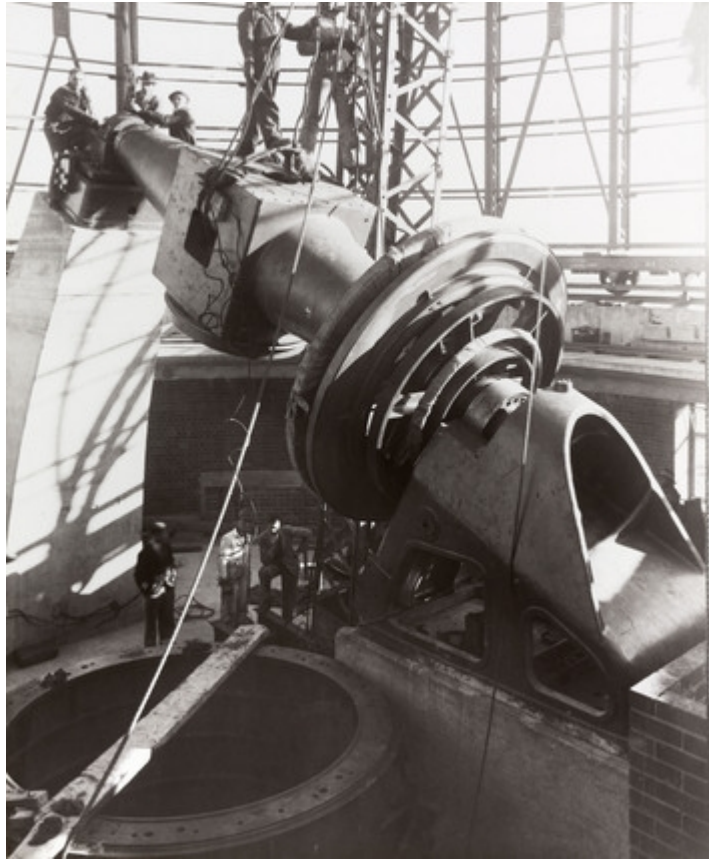


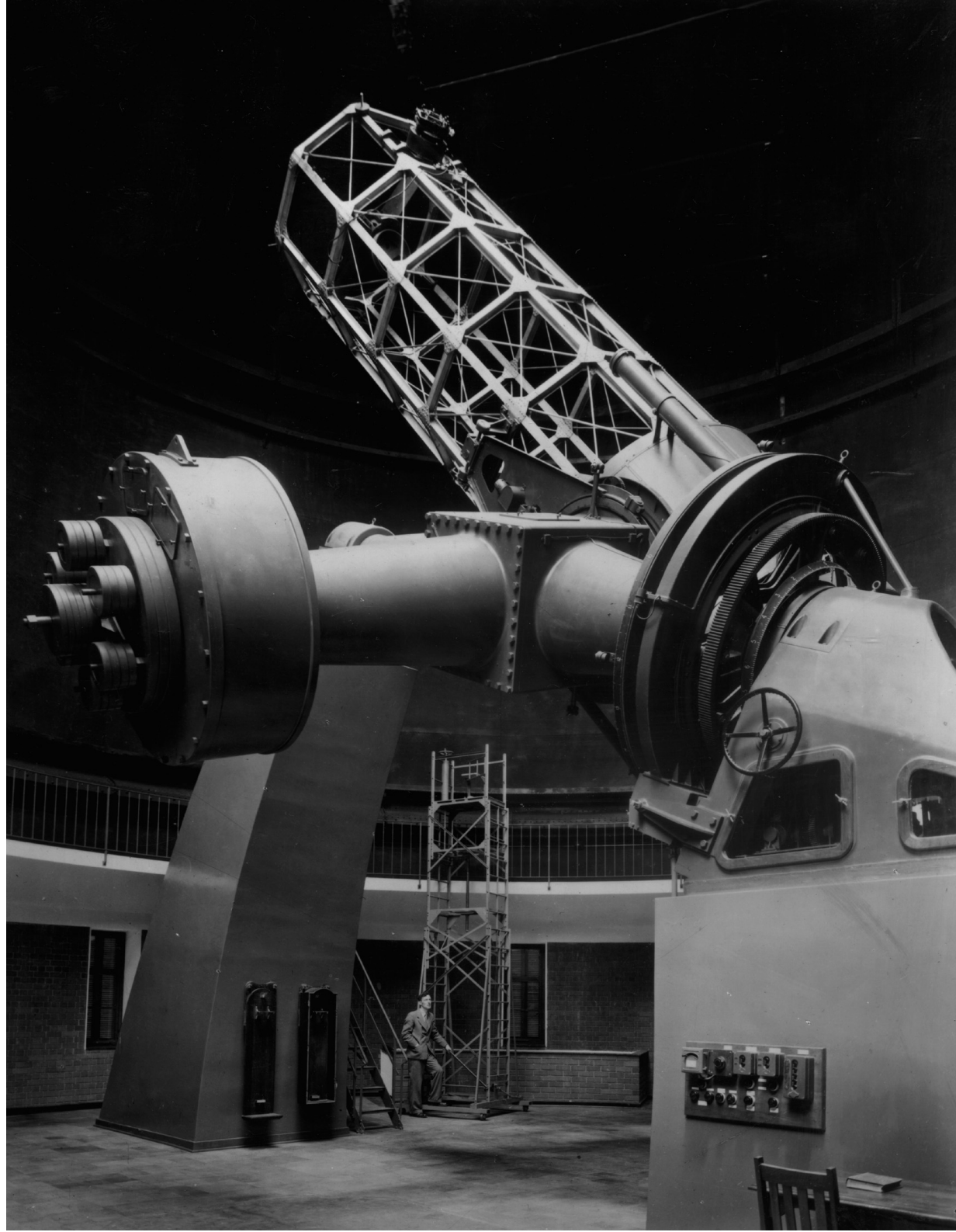
Knox-Shaw and Gwyn Williams  
to Pretoria 1937  
Redman 1939

Building Erected 1938

Mirror soon expected and  
observing to start 1939











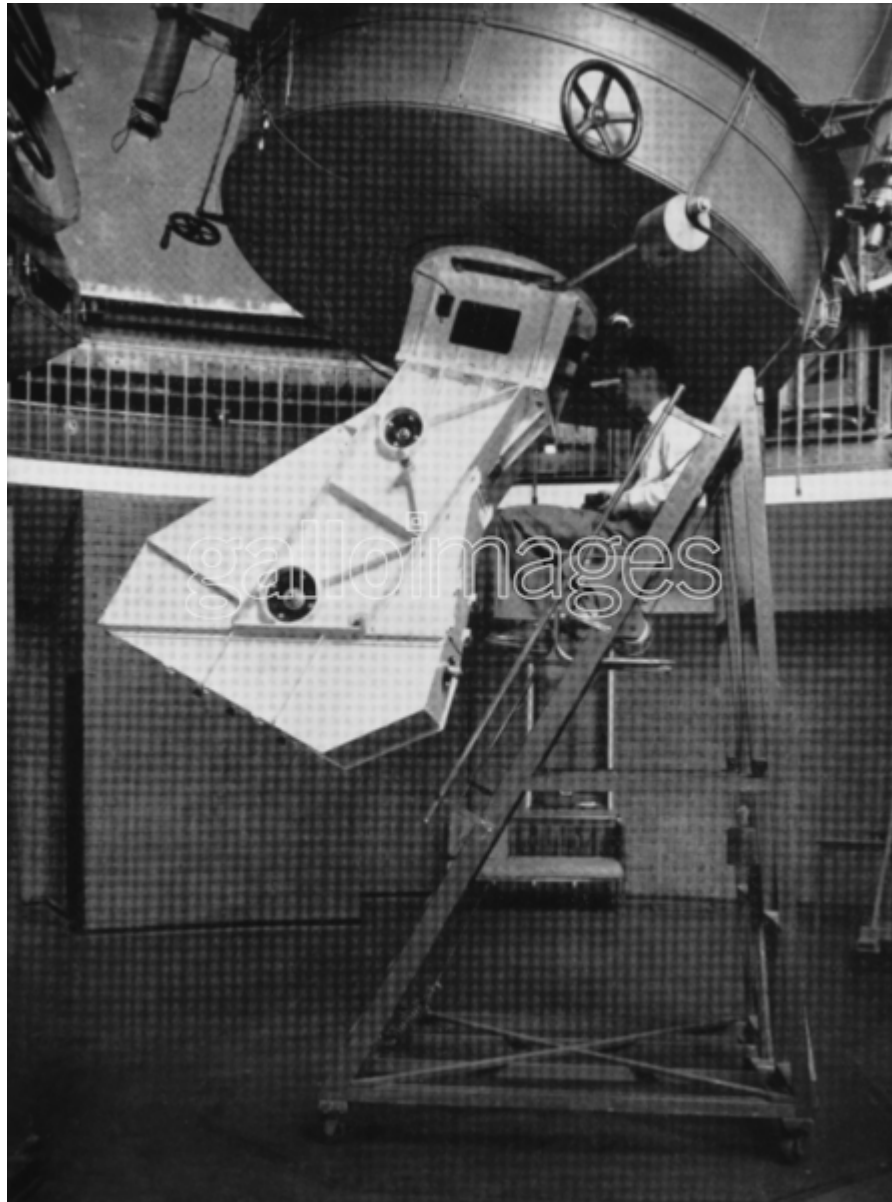


Casting pyrex blank  
(Corning, USA)

Twice failed

Mirror to Grub-Parsons (UK) for  
grinding and polishing Oct. 1938  
not finished by Sept 1939

Mirror arrived Pretoria 1948  
Final parts of Spectrograph 1951







A. D. THACKERAY (1910–1978)



# Radcliffe -Cape Agreement 1951

Third of Observing time to  
Royal Observatory, Cape

## Division of Universe

Cape – solar neighbourhood and

All universe outside local group

Radcliffe – Our Galaxy and local group  
(including Magellanic Clouds)

## Main Early Galactic Projects

1. Radial velocities of OB stars (IAU)  
(Oort A,  $R_0$ , statistical bias)
2. Radial velocities of Cepheids (Oort A)
3. Radial velocities of Globular Clusters  
(kinematics, distribution, chemistry)
4. Radial velocities of Mira variables  
(kinematics, period, age)



Magellanic Clouds  
Spectra, radial velocities  
Brightest stars (hypergiants)  
HII regions, planetary nebulae  
LMC rotation, mass,  
Formed by collapse to plane (as Our Galaxy)  
SMC complex structure

## Some other projects

1. Eta Carinae (spectra, expansion, polarization of halo)

2. Lithium stars

(a) Lithium in subgiant star

(b) Super-lithium-rich S and C stars

3. Hot Helium star

4. ZrO and TiO stars

(abundance or luminosity?)

5. ~200 RR Lyraes in Sculptor  
(dwarf spheroidal galaxy)

The Doubling of the Distance Scale  
Baade- Thackeray correspondence  
1949-1954  
UCT Library archives

J. Hist Ast. XXX1, 29-36, 2000 (MWF)

## Tale of Two Telescopes

200inch, Hale, Paloma (Largest North)

74inch, Radcliffe, Pretoria (Largest South)

Both came into operation 1948

## Search for Variable Stars

Baade (200in) M31 -nearest northern galaxy

Thackeray (74in) – nearest southern galaxies  
(Magellanic Clouds)

Classical Cepheids (young variable stars)

known in both M31 and Mag. Clds.

Used to set extragalactic distance scale

BUT absolute magnitude uncertain

RR Lyraes (old variable stars)

Better calibrated but fainter

Expected in M31 not in Magellanic Clouds

Michigan Symposium 1950  
Shapley and Baade certain  
LMC (at least) did not have old stars  
pure pop I

1. Shapley (60in) no RR Lyraes  
?search to 20th mag? Expected 17.5
2. Thackeray LMC NGC1866  
young -not a true globular



## ROME IAU 1952

Baade

1. No RR Lyraes found in M31 -must be more distance
2. Assume red giants in M31 bulge same as in galactic globulars (they are not) to get distance

Thackeray

Old globulars in Magellanic Clouds

RR Lyraes in NGC 121 (SMC)

1.5 fainter than expected.



The End  
Shortage of Cash  
1951 Cape agreement  
Lack of interest of Trustees (1953+)  
1967 SRC (UK) effectively took over  
Closure 1974  
Telescope to CSIR for SAAO Sutherland  
R100,000  
Site to Province  
R835,000  
Library to AAO  
R25,400

In fact city lights getting bad





