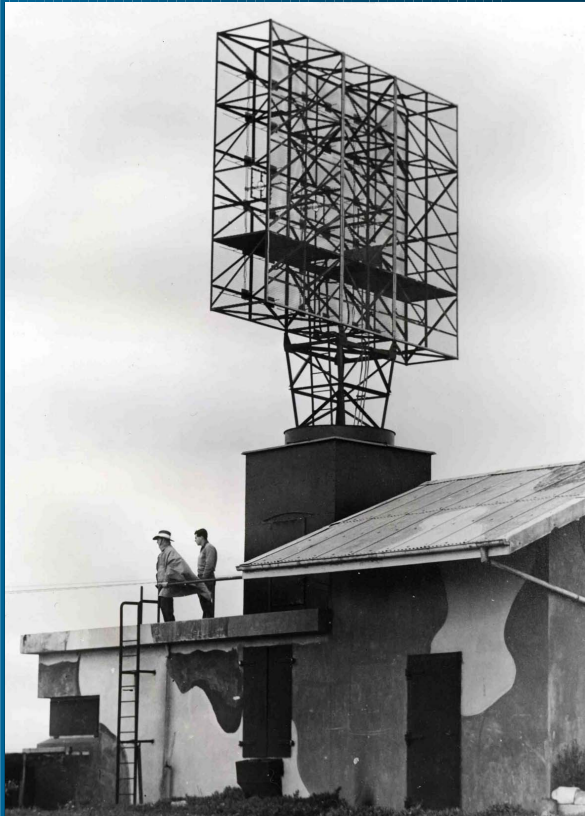
A large parabolic radio telescope dish is shown in silhouette against a dark sky filled with concentric white star trails, indicating a long-exposure photograph. The dish is supported by a complex metal lattice structure. A small receiver or antenna is mounted at the focal point of the dish. The background shows the curved paths of stars, creating a sense of motion and time.

The Amazing Radiophysics Field Station at Potts Hill, Sydney 1948- 1962

Harry Wendt
Millerfest, Durango
May 2011

THE BIRTH OF RADIO ASTRONOMY IN AUSTRALIA

- 1945: CSIR Radiophysics Division
- Wartime Radar Development to Solar Noise Investigation
- Solar Noise group leader – Joseph Lade Pawsey



Potts Hill



Sydney
CBD

16-km

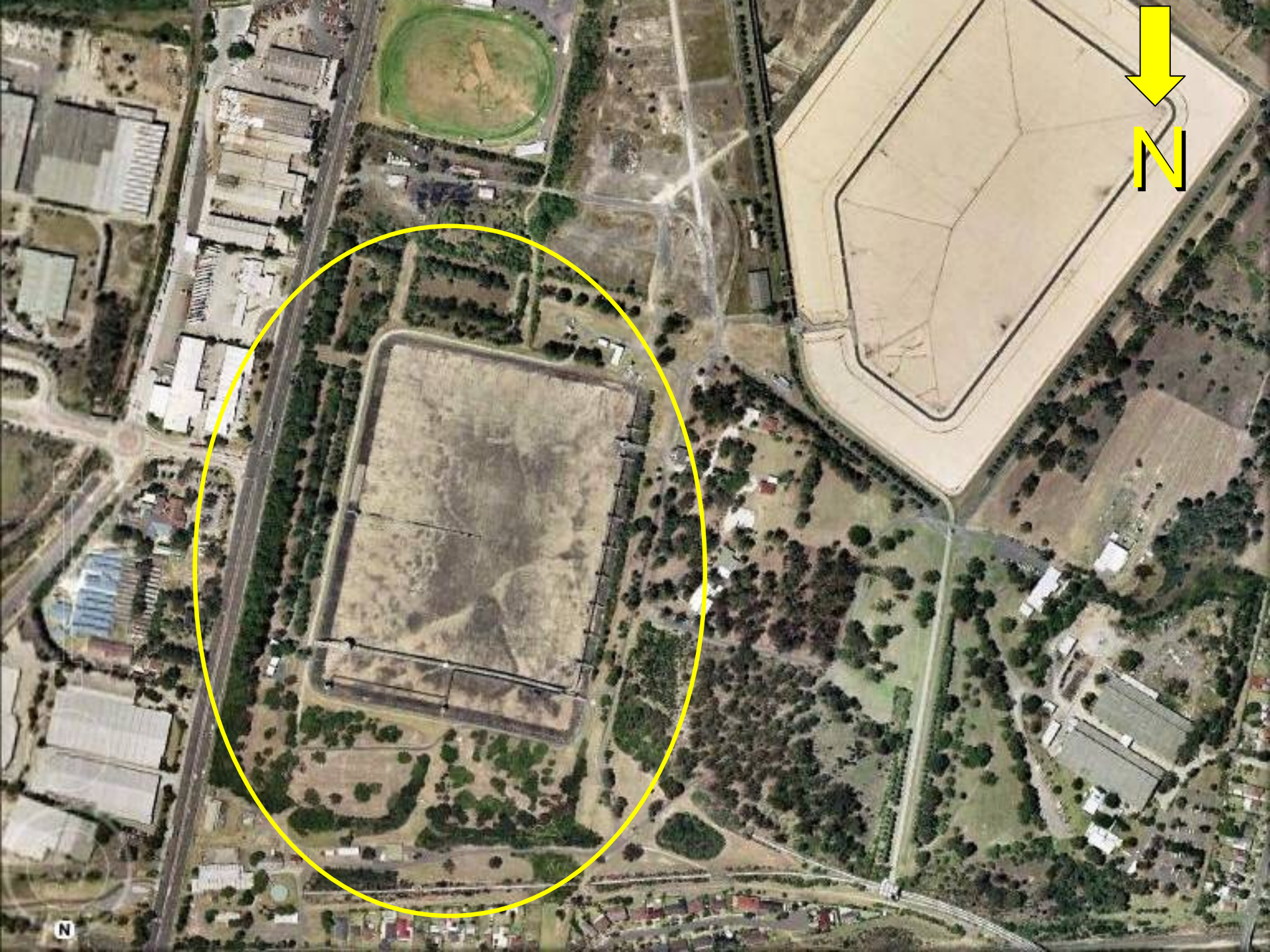
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

©2010 Google™

Image ©2011 Sinclair Knight Merz & Fugro
33°52'54.90" S 151°10'47.86" E elev 29 m

Imagery Date: Jan 1, 2009

Eye alt 38.49 km



N

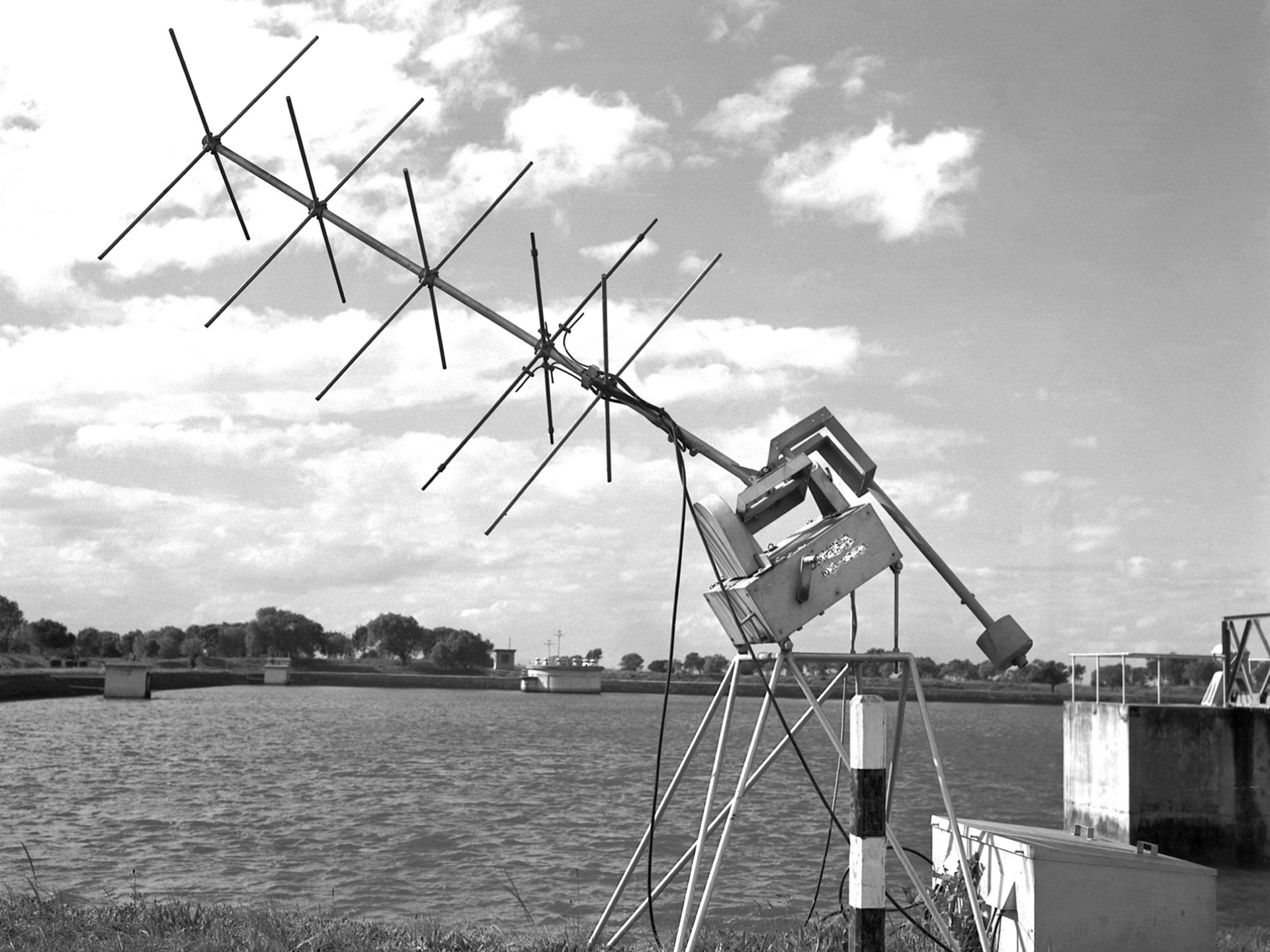


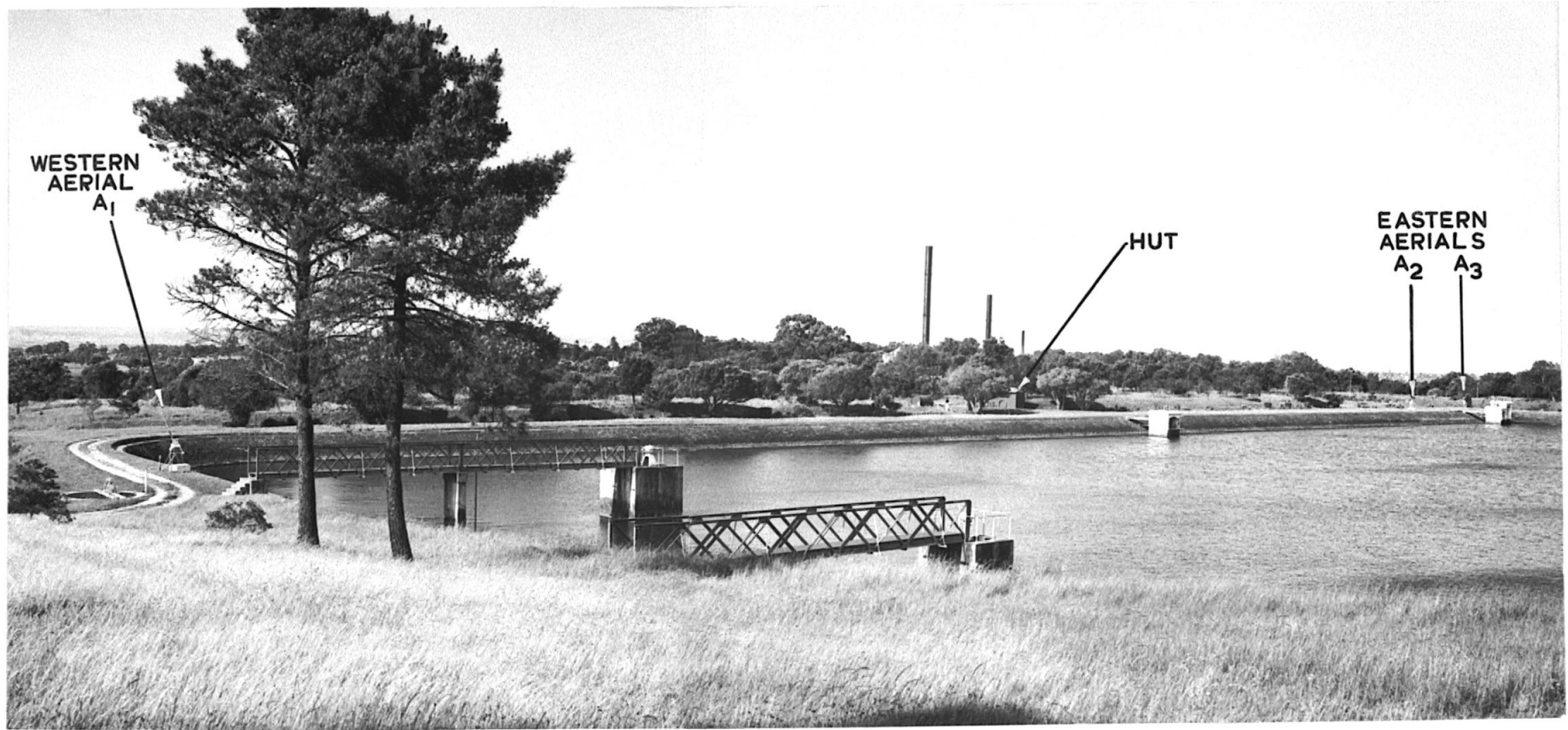
N

A black and white photograph of two people. On the left, a woman with light-colored hair is wearing a dark, short-sleeved top and light-colored, vertically striped shorts. She is looking towards the camera with a slight smile. On the right, a man with dark hair is wearing a light-colored, short-sleeved polo shirt and dark shorts. He is sitting on a wooden bench or ledge, looking directly at the camera. The background is dark and appears to be an outdoor setting with some foliage or a structure.

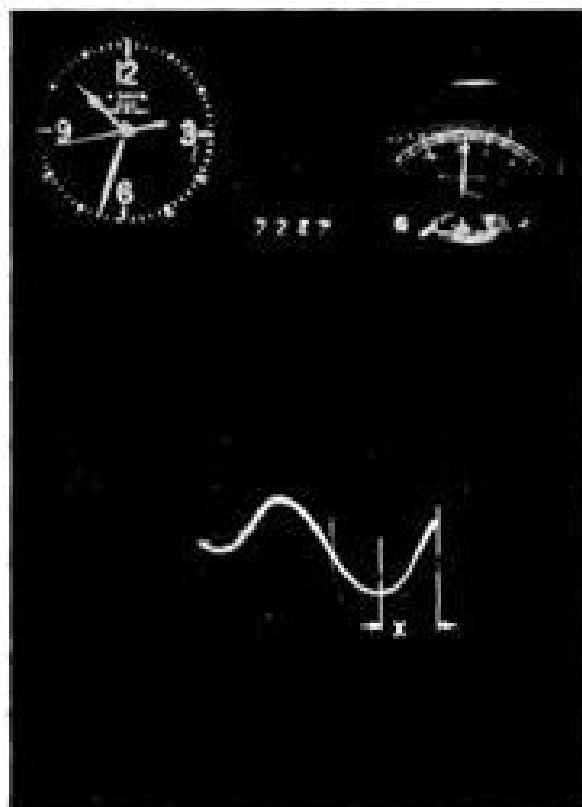
Ruby Payne-Scott

Alec Little

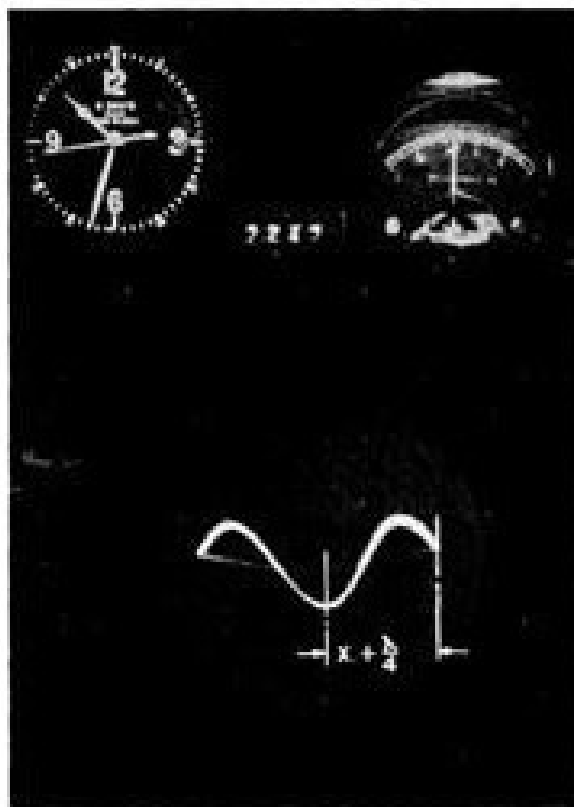




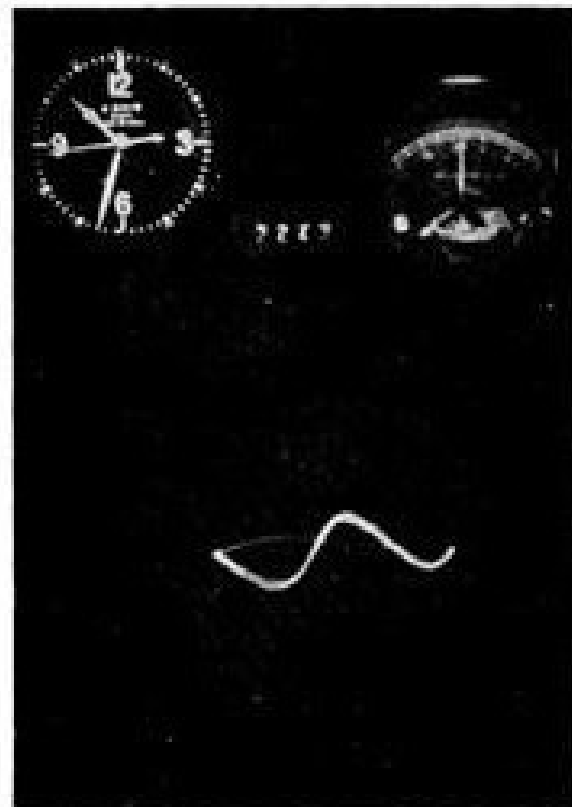
POTT'S HILL INTERFEROMETER SITE LOOKING NORTH-EAST
PLATE I



(a) AERIAL A_1 -HORIZONTAL
AERIAL A_2 -HORIZONTAL

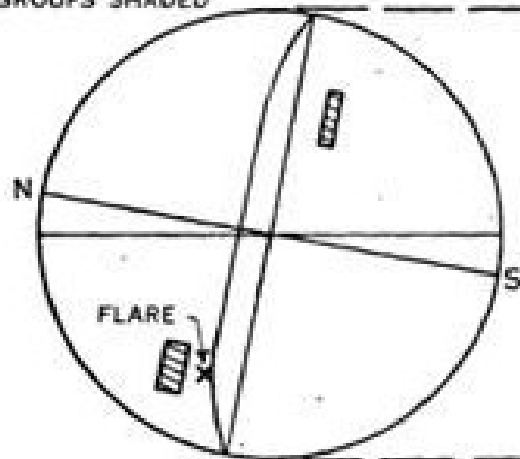


(b) AERIAL A_1 -HORIZONTAL
AERIAL A_2 -VERTICAL



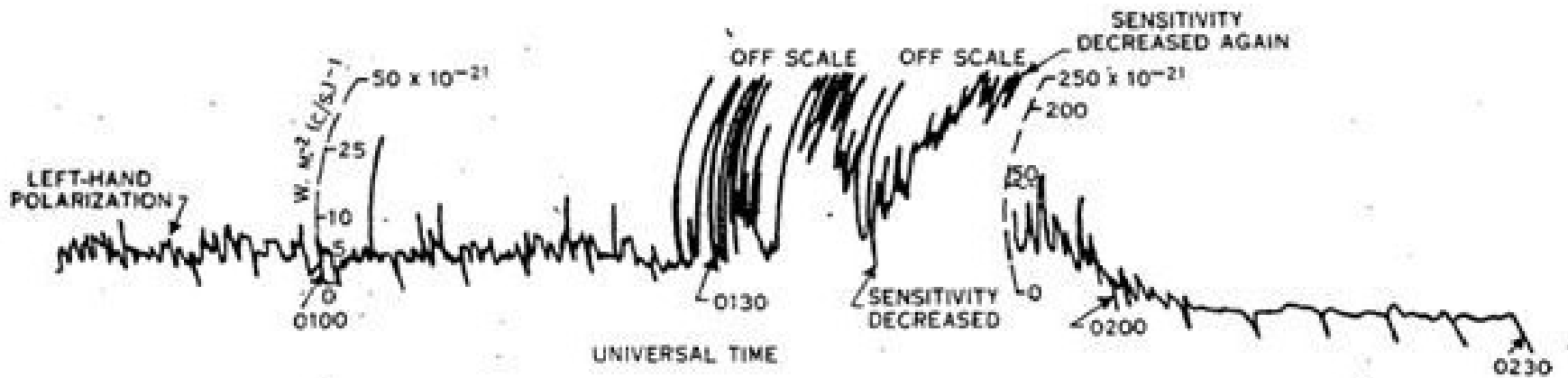
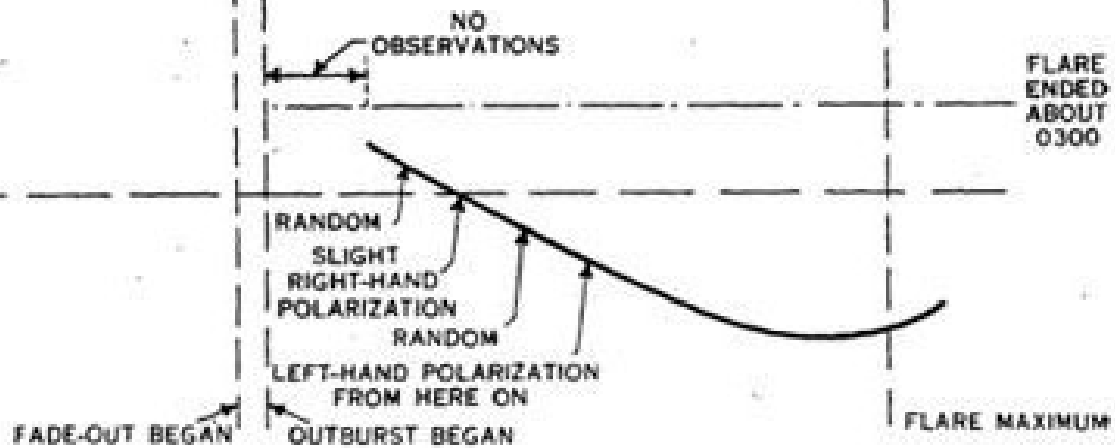
(c) AERIAL A_1 -HORIZONTAL
AERIAL A_3 -HORIZONTAL

NO OPTICAL OBSERVATIONS—
APPROXIMATE POSITION LARGE
SPOT GROUPS SHADED



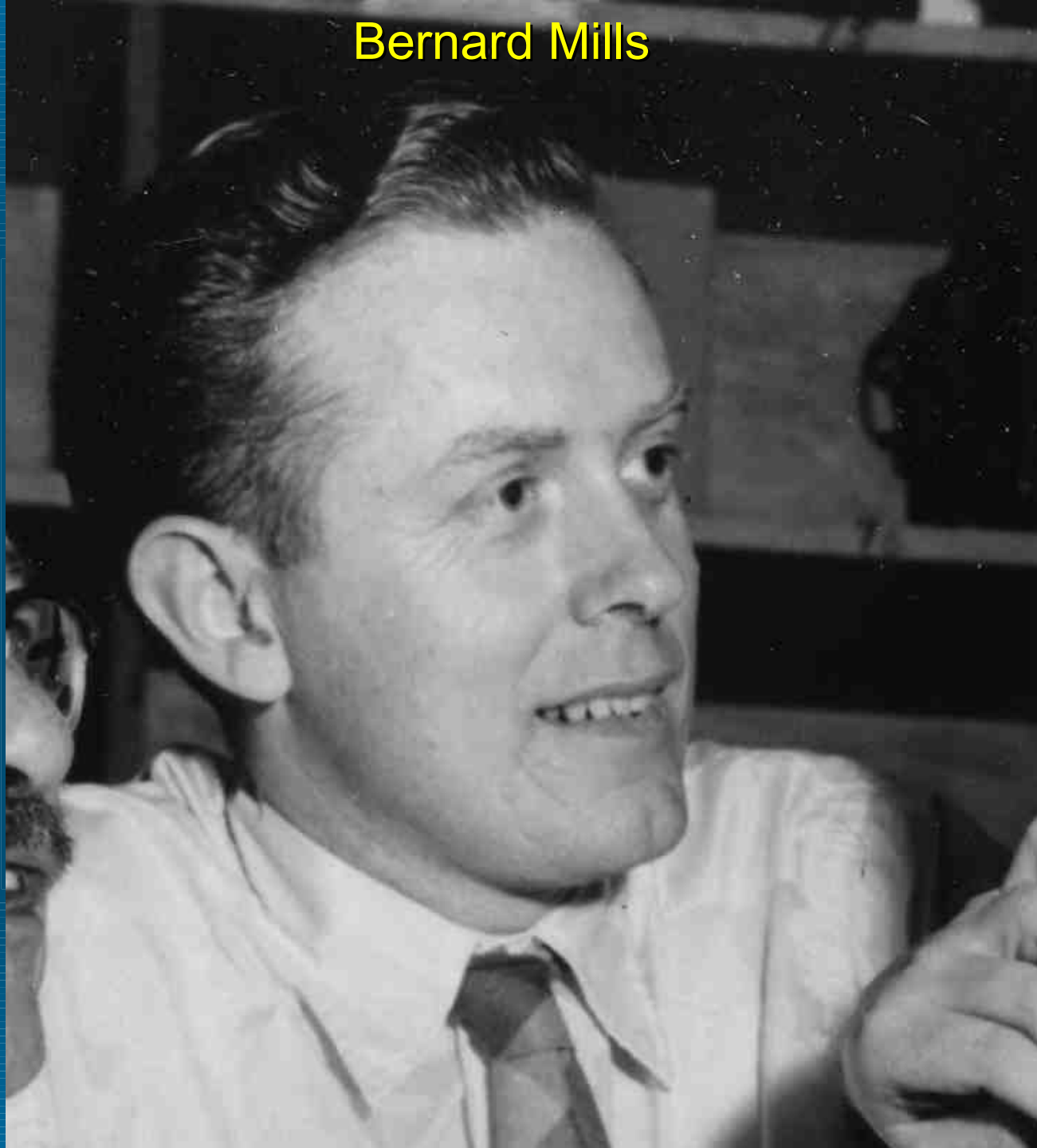
LEFT-HAND
POLARIZATION

UNIVERSAL TIME
0110 0120 0130 0140 0150 0200 0210

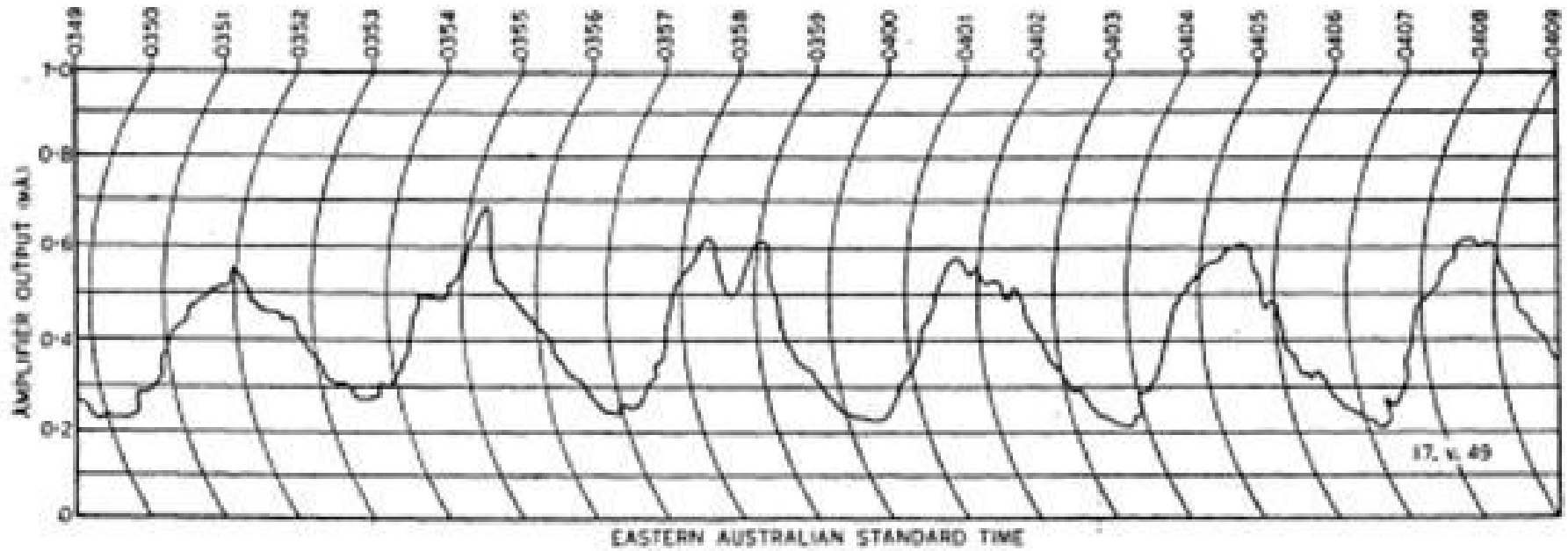


FEBRUARY 17, 1950

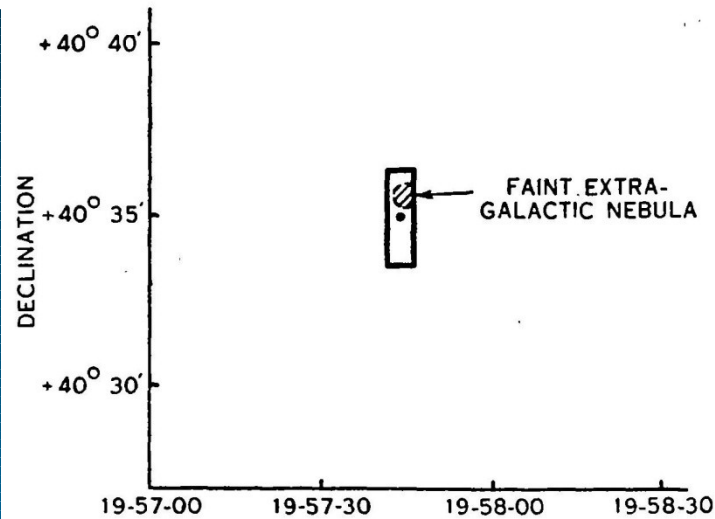
Bernard Mills



Interference Fringes from Cygnus A



CYGNUS-A (19+4)

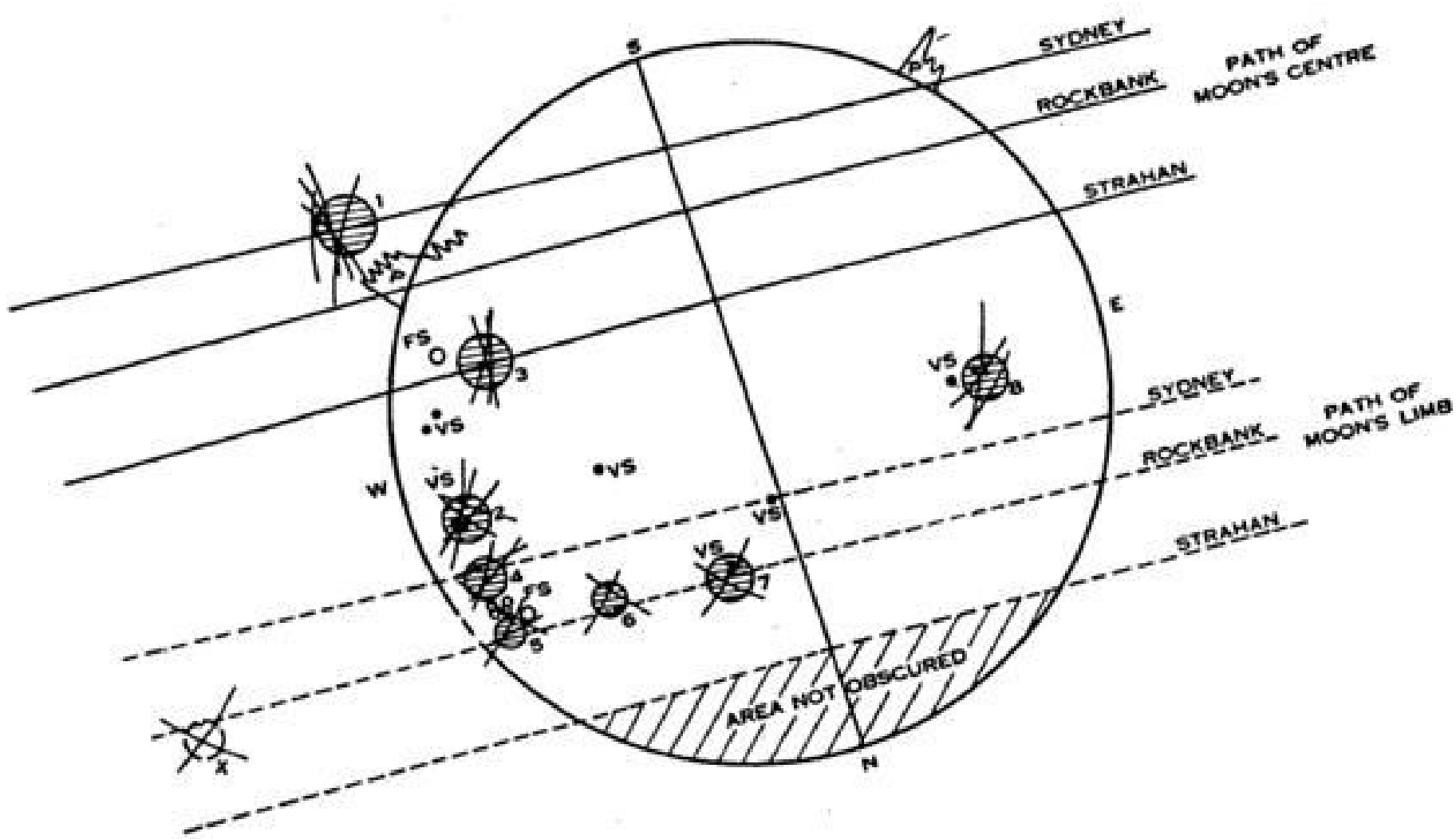


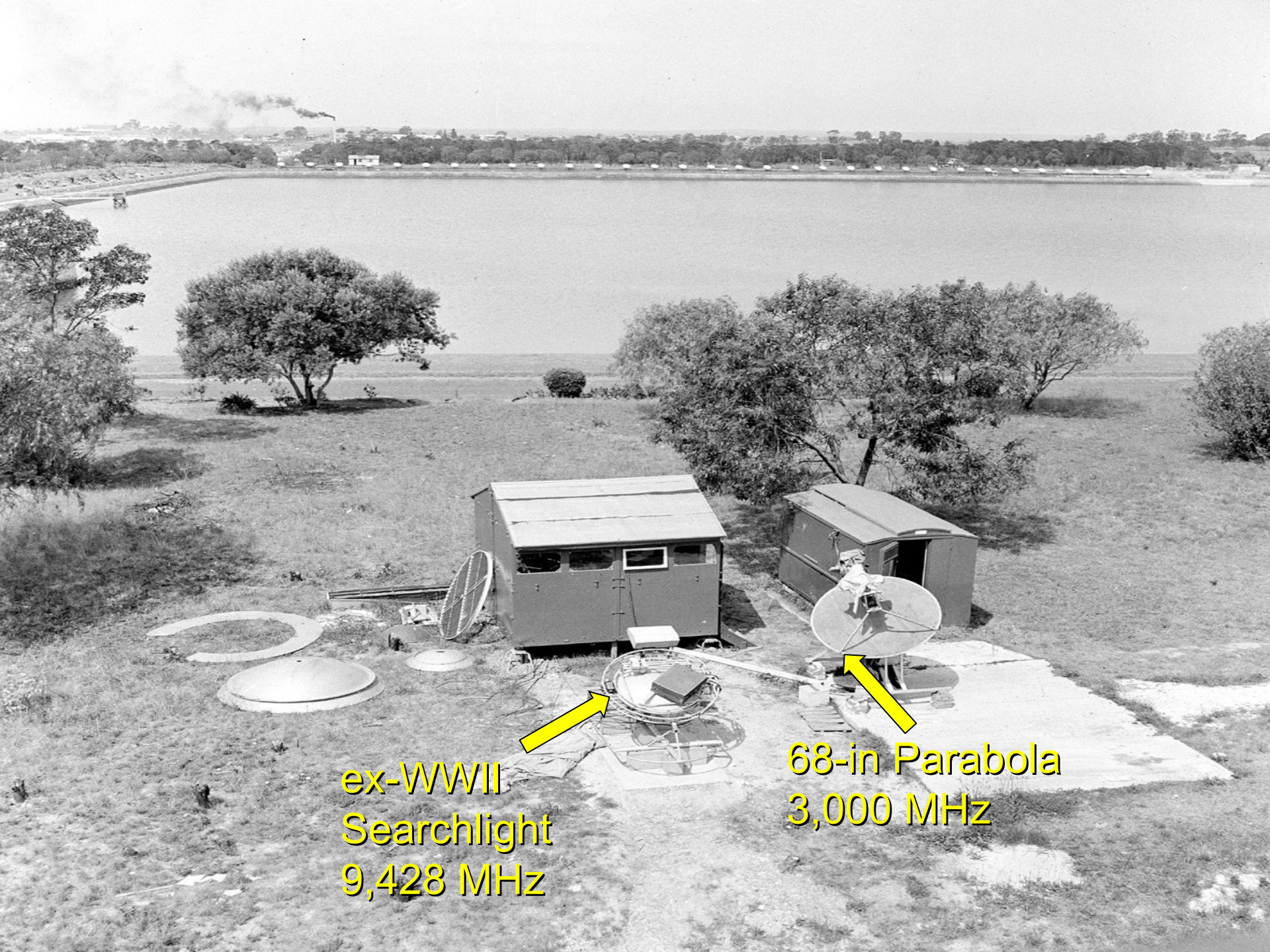
W.N. "Chris" CHRISTIANSEN











ex-WWII
Searchlight
9,428 MHz

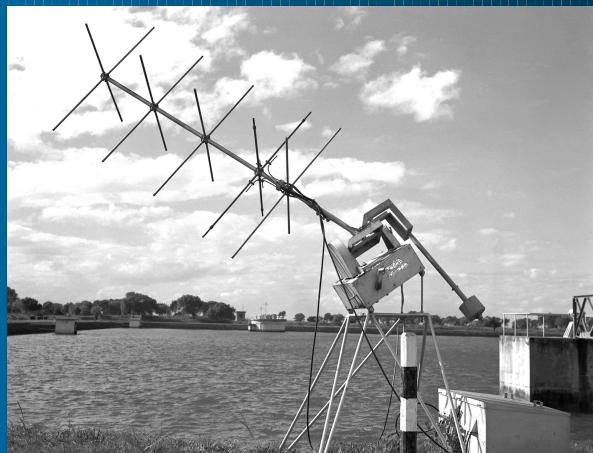
68-in Parabola
3,000 MHz

Long term Multi-frequency Monitoring

200 MHz



3000 MHz



62 & 97 MHz



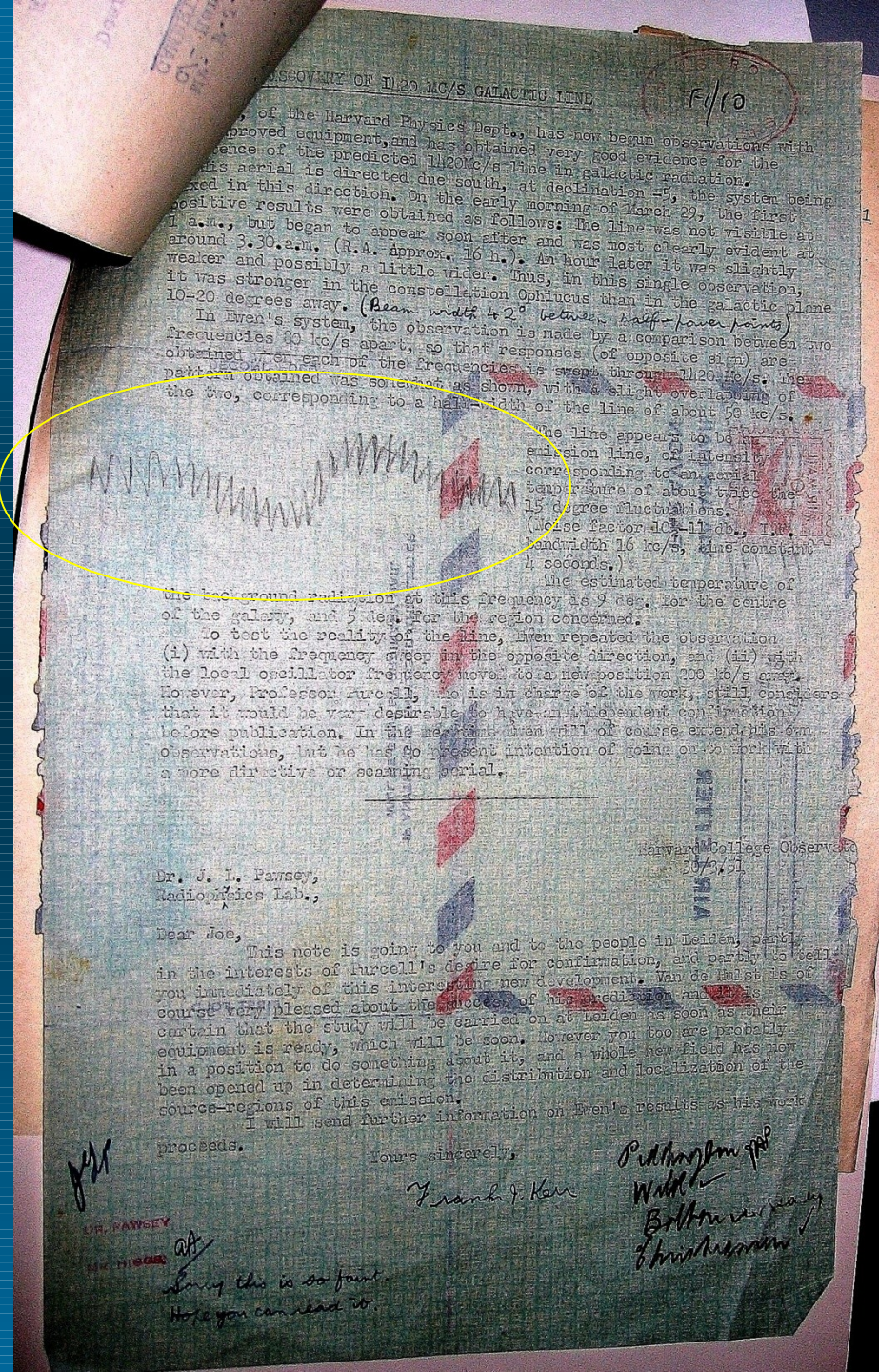
600 & 1200 MHz



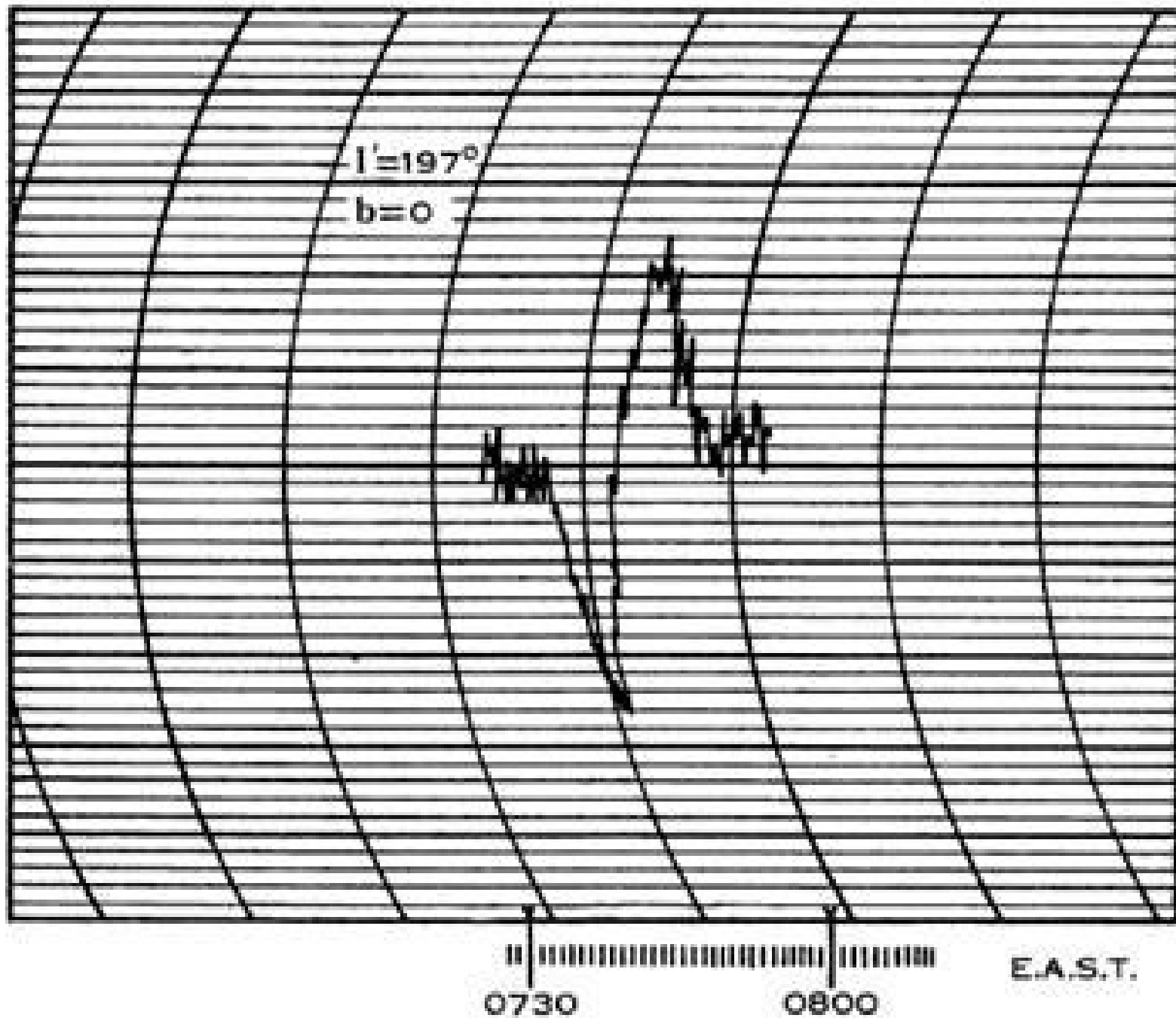
9400 MHz

Frank Kerr's letter to Pawsey announcing the discovery by Ewen and Purcell - 30 March 1951

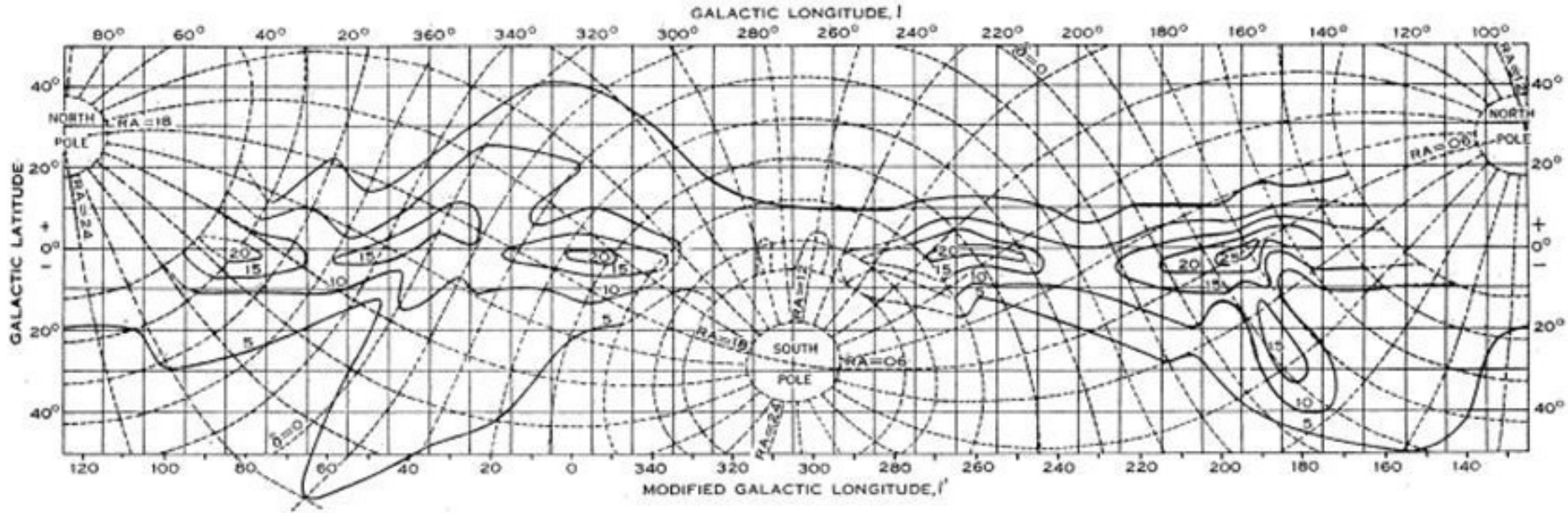
Sketch of H-Line response



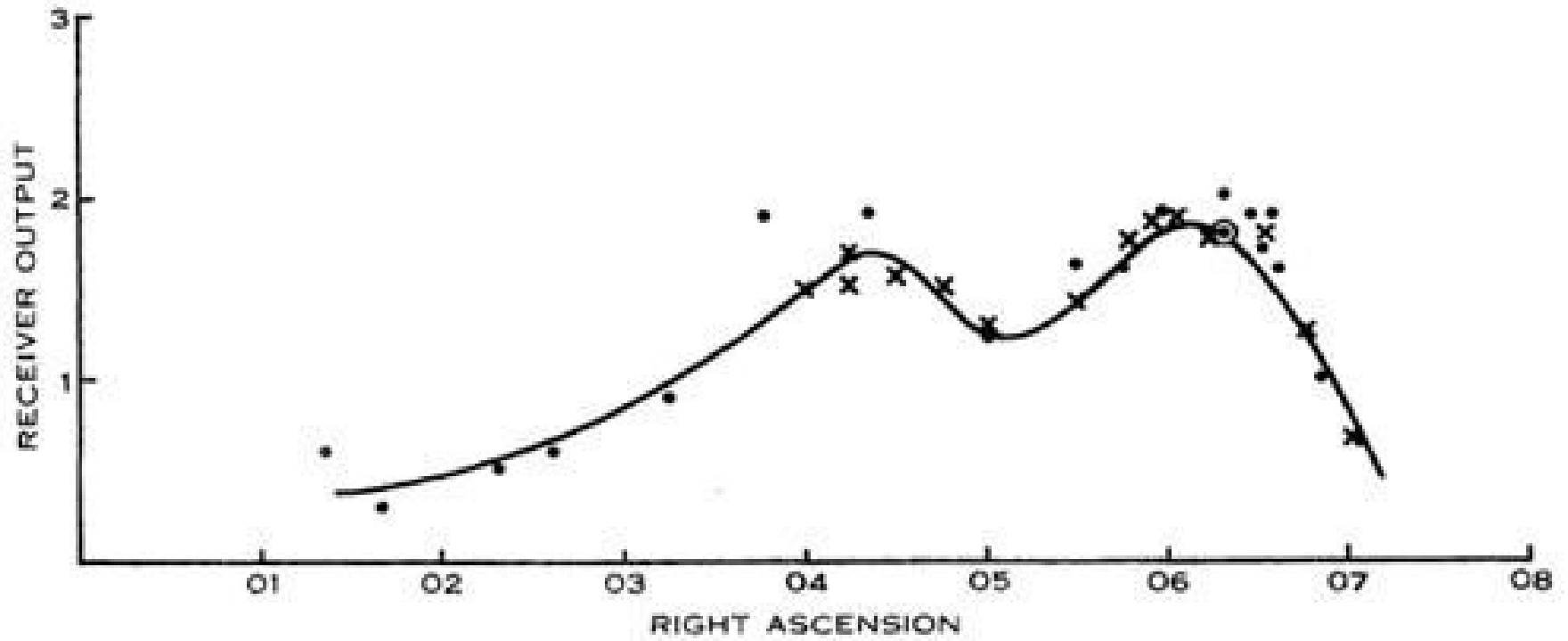




Southern Sky H-Line Survey



Evidence for Spiral Arms



Kerr

USRI 1952

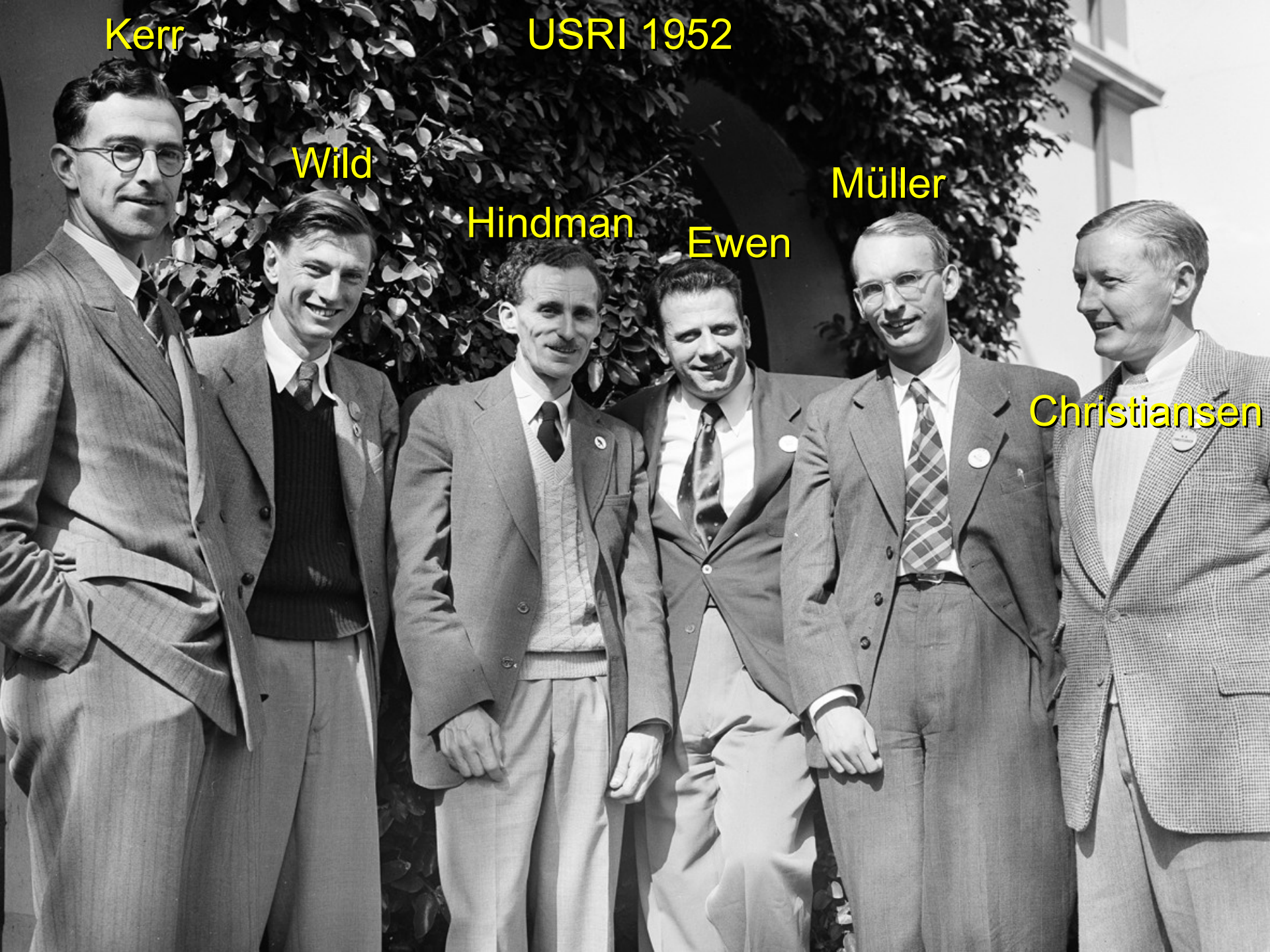
Wild

Müller

Hindman

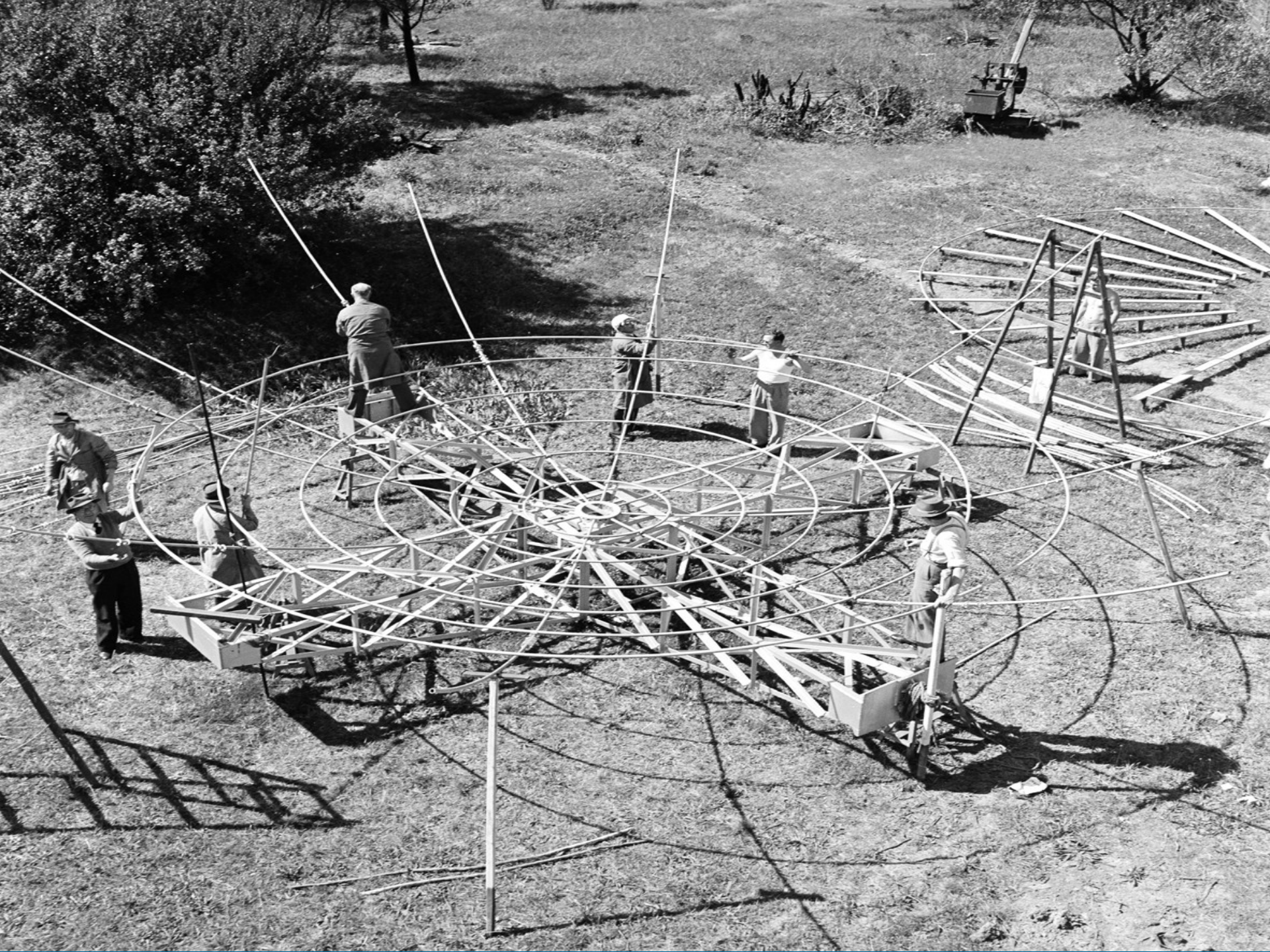
Ewen

Christiansen



Frank Kerr





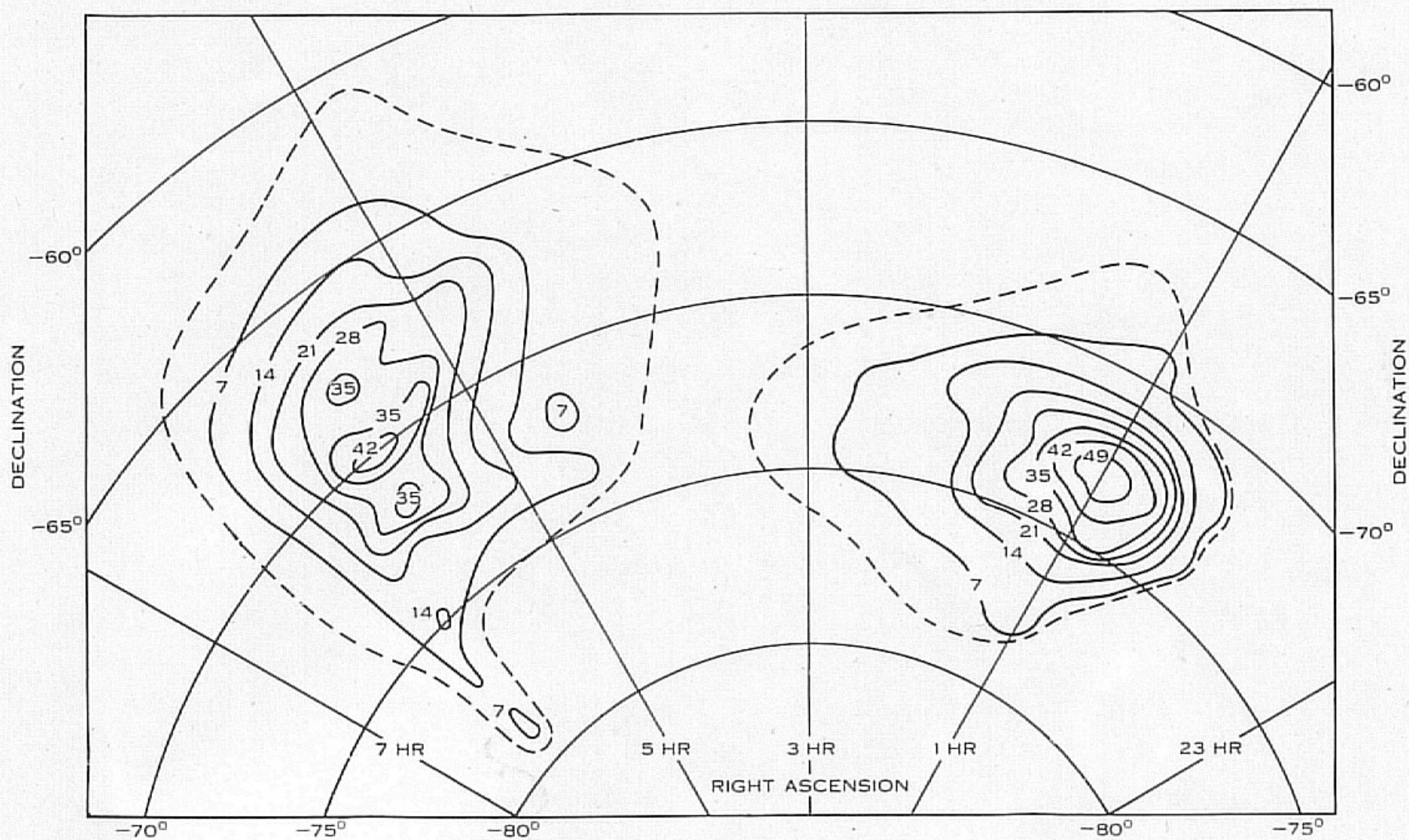




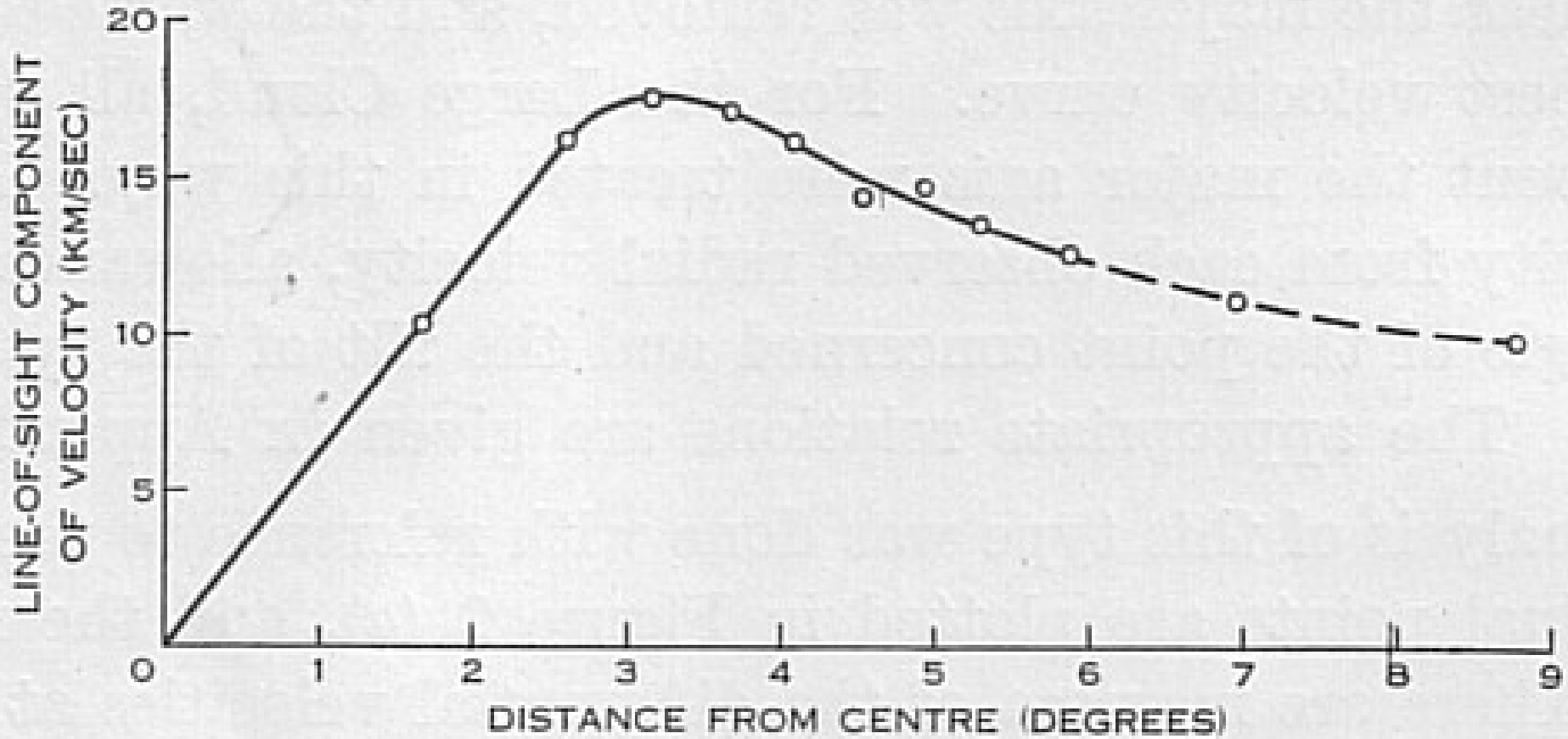


Brian Robinson

Magellanic Clouds Survey



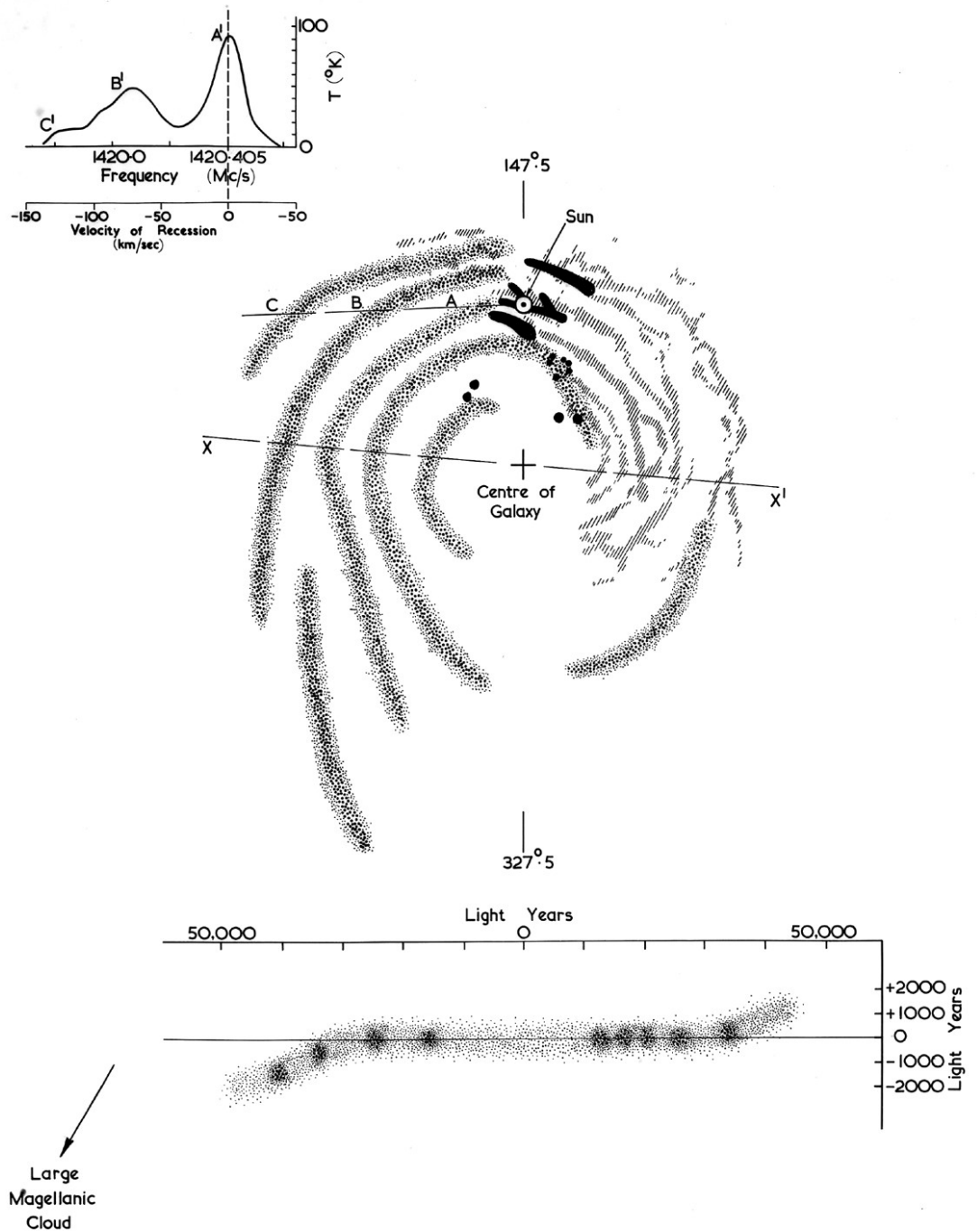
Rotation Curve

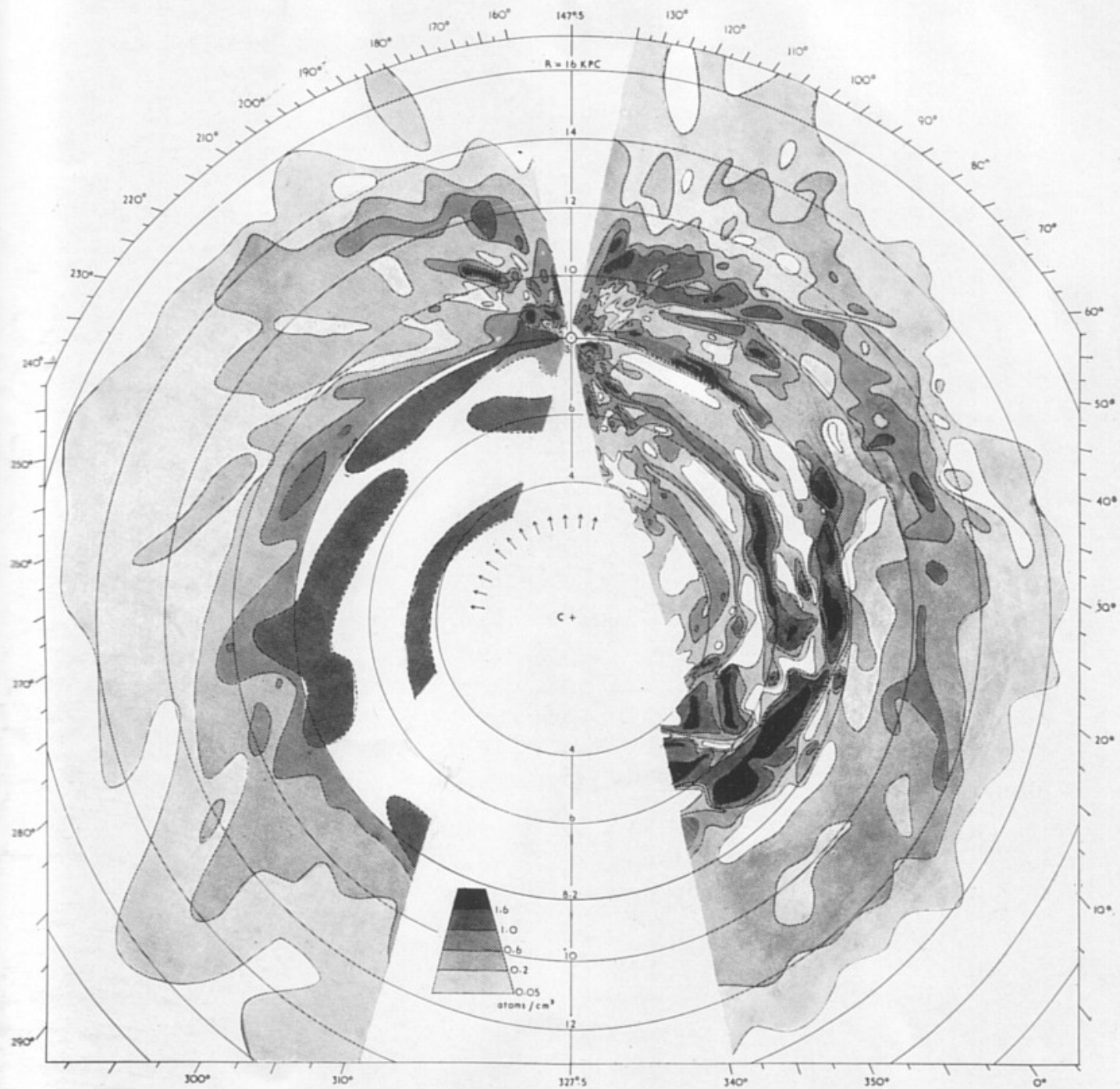


Evidence for Multiple Spiral Arms in Southern Sky Survey

Left-Hand portion of
Galactic Map based
on Potts Hill
observations

Evidence for Galactic
Warp





W.N. "Chris" Christiansen







URSI 1952



Joe Warburton

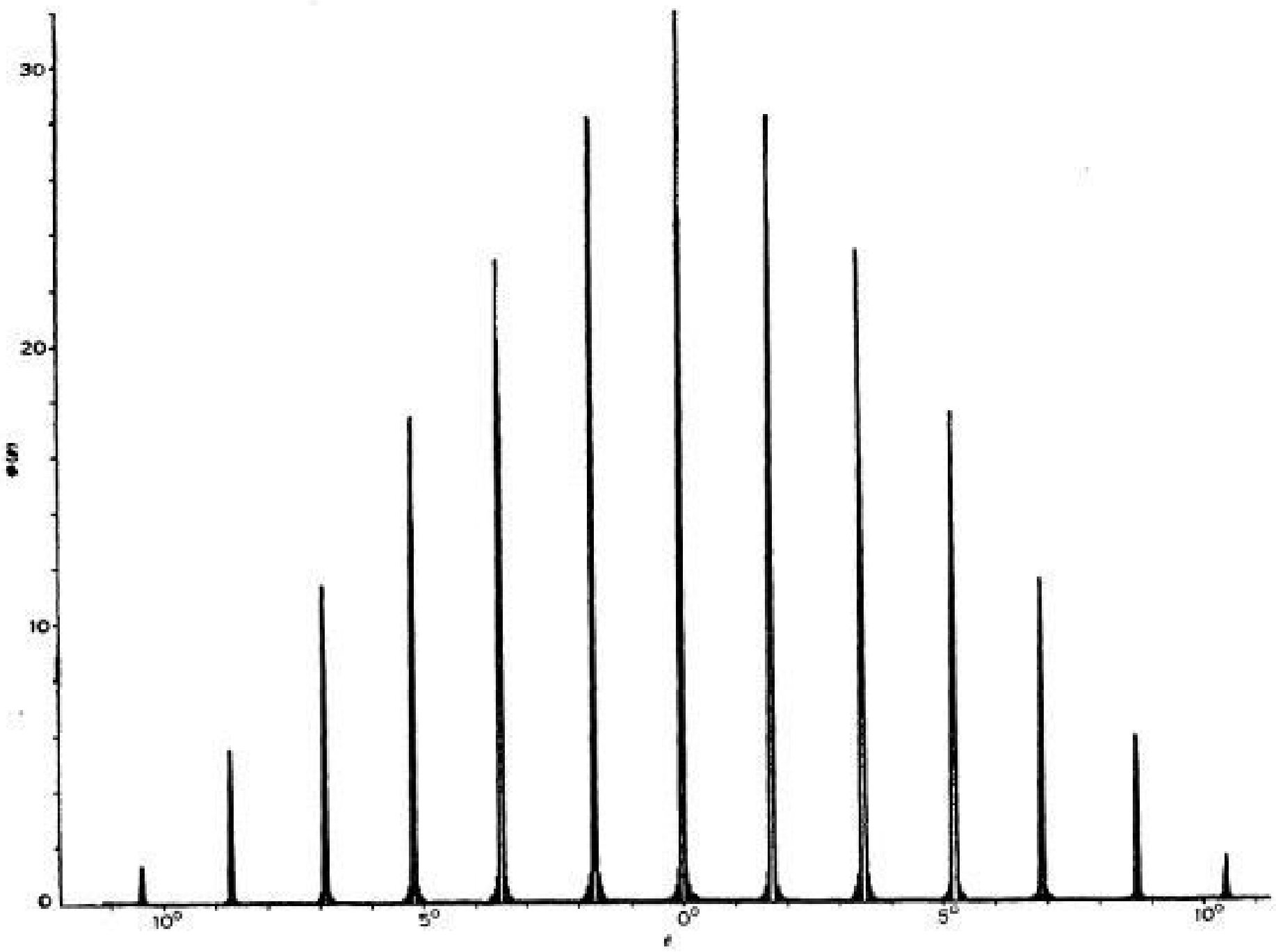
32 ELEMENT INTERFEROMETER (2)

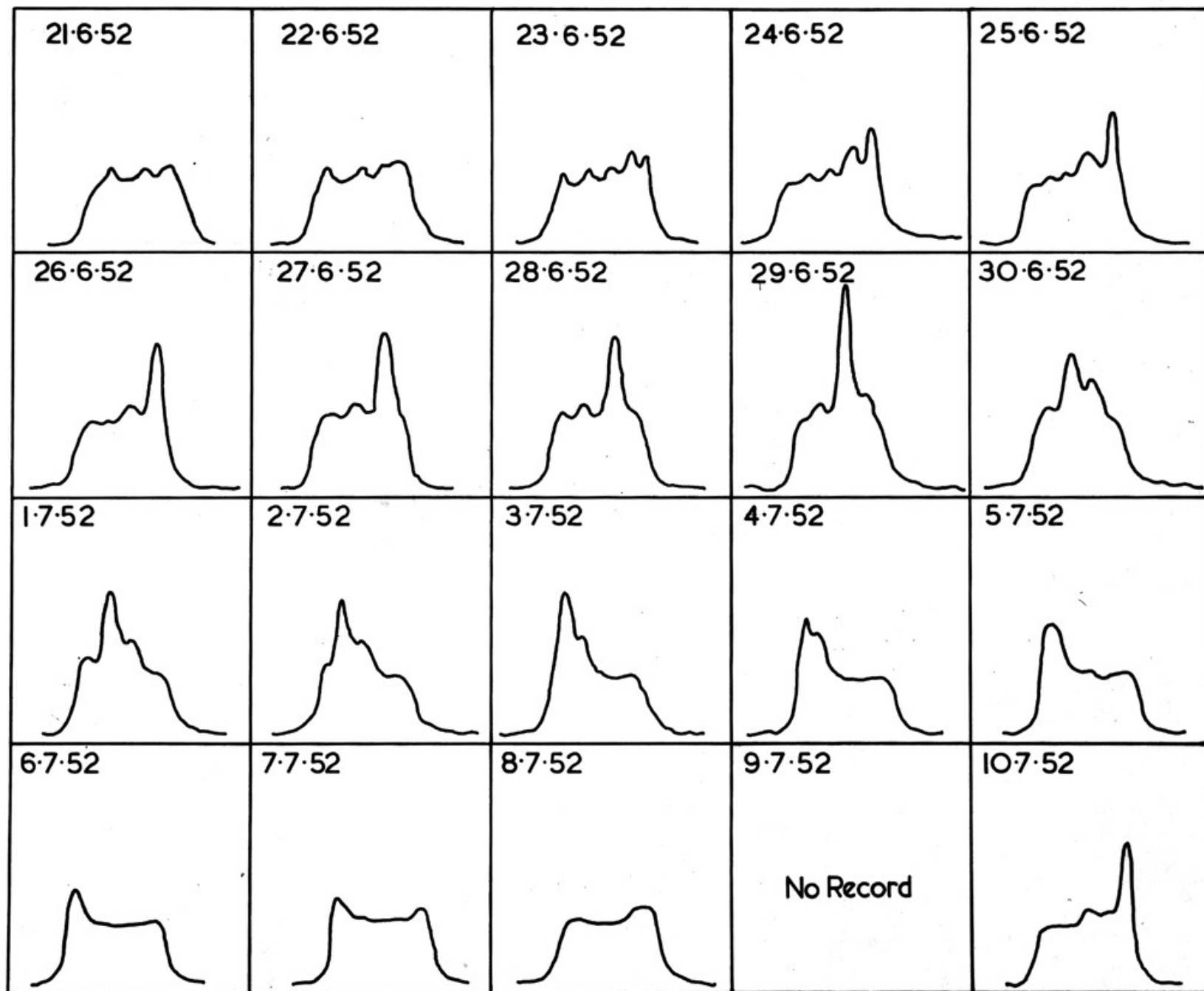
5. The system consists of 32 aerials each 2 metres in diameter and spaced at 7 metre intervals along an east-west line. Maxima occur when path difference Δ is an integral number of wavelengths.

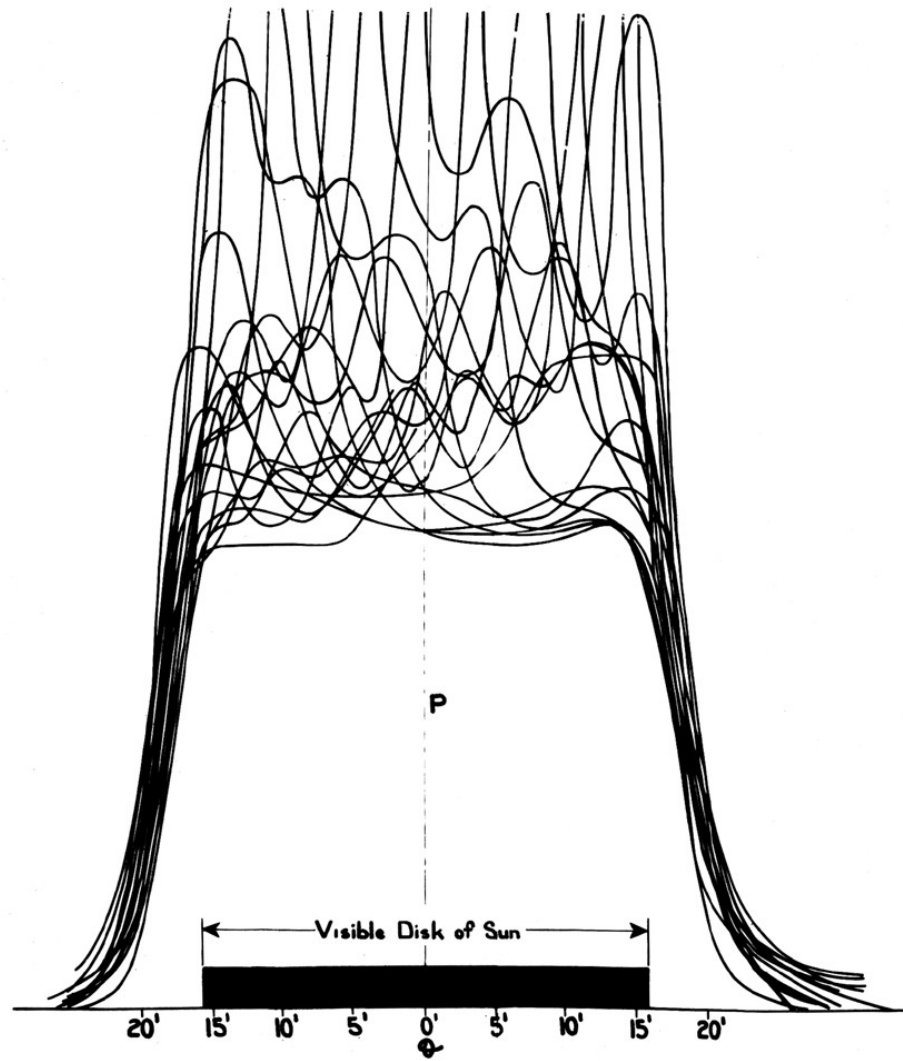


6. The system operates at $\lambda = 21\text{cm}$, each aerial is connected to the receiver by a branching system of transmission lines. The line is matched at each branch. The system is not sensitive to small changes in wavelength.

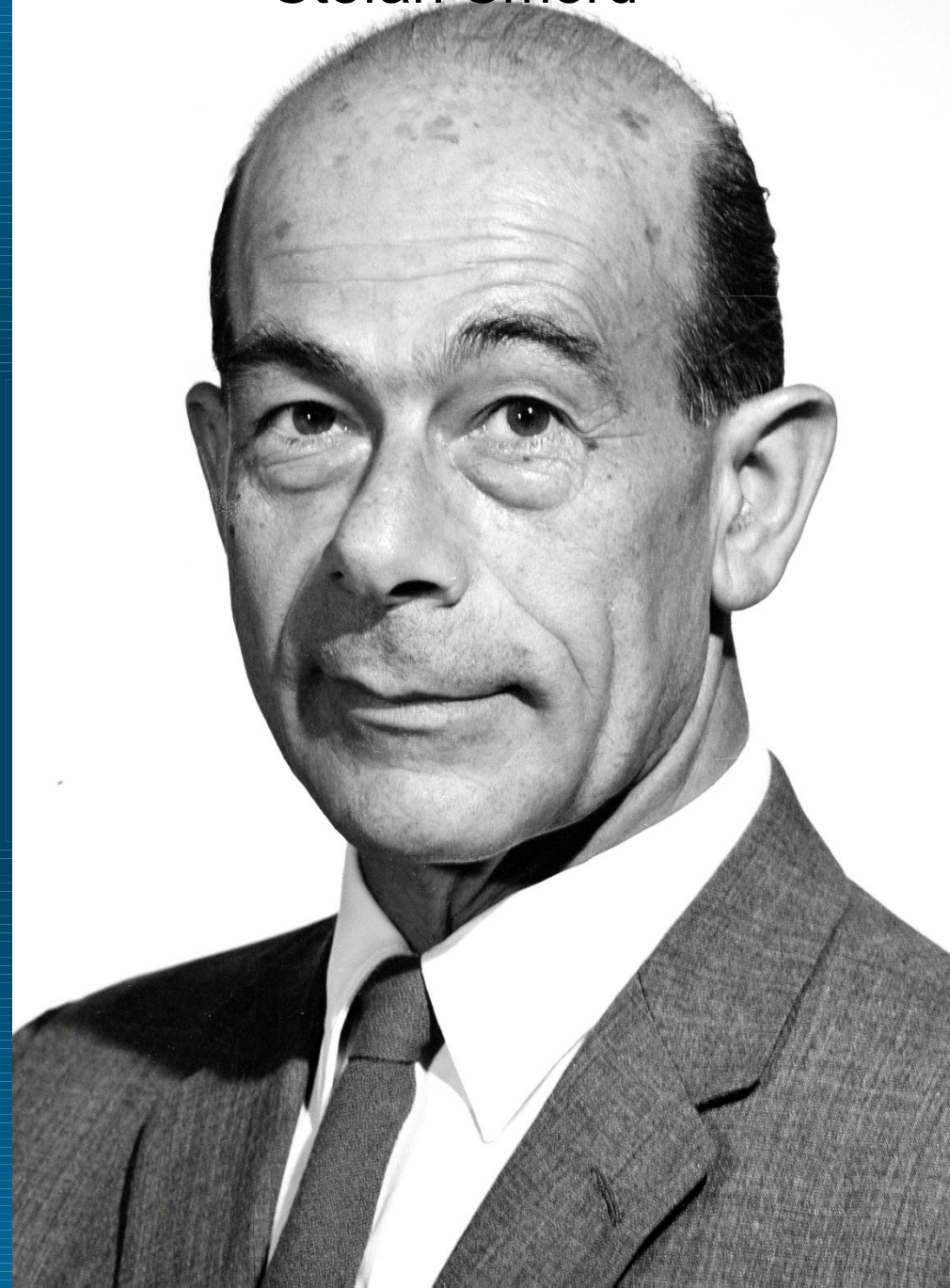
A series of knife-edge beams is produced, each is 0.05 wide and the spacing is 1.5. The Sun passes through one beam after another and curves is obtained.

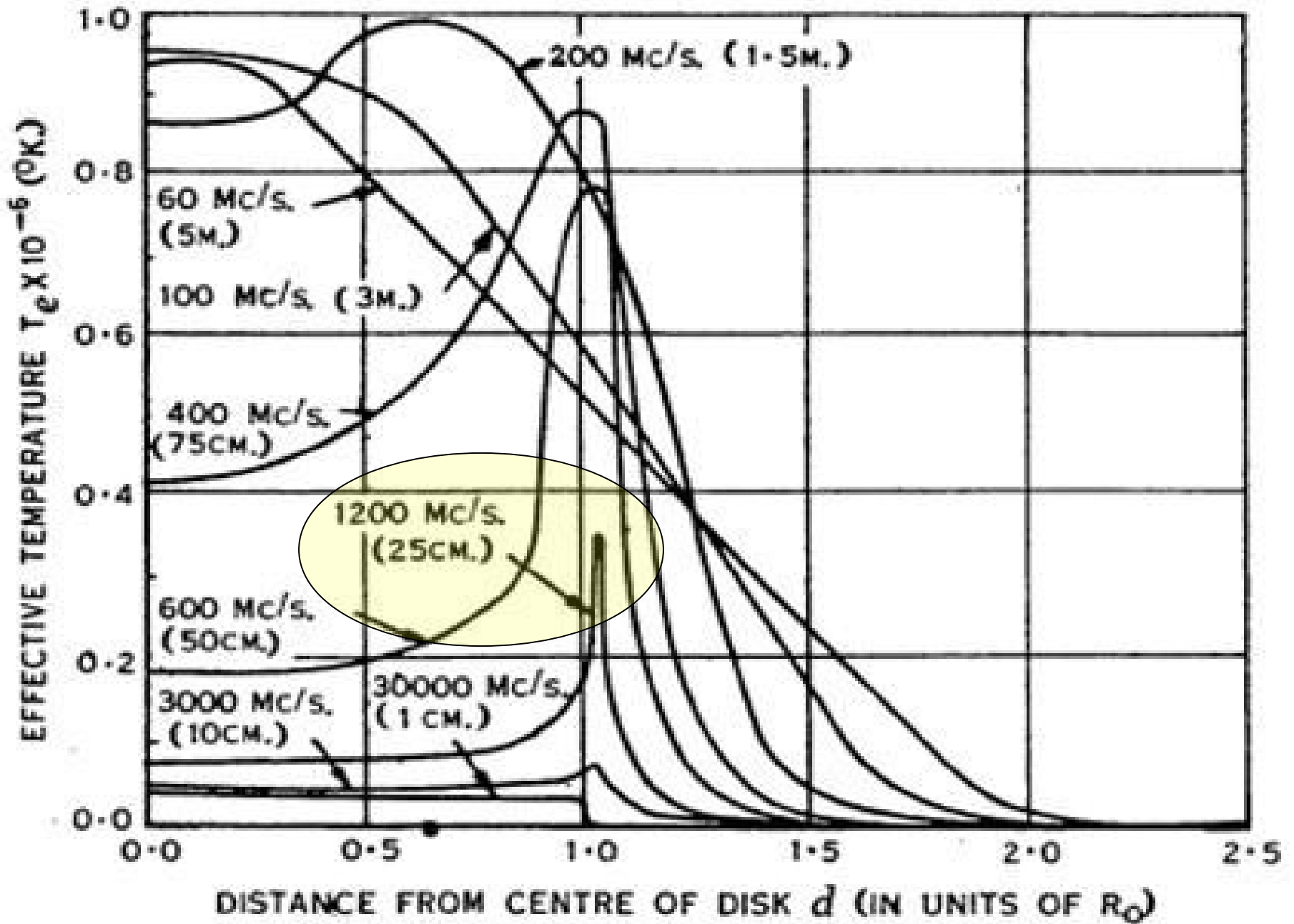


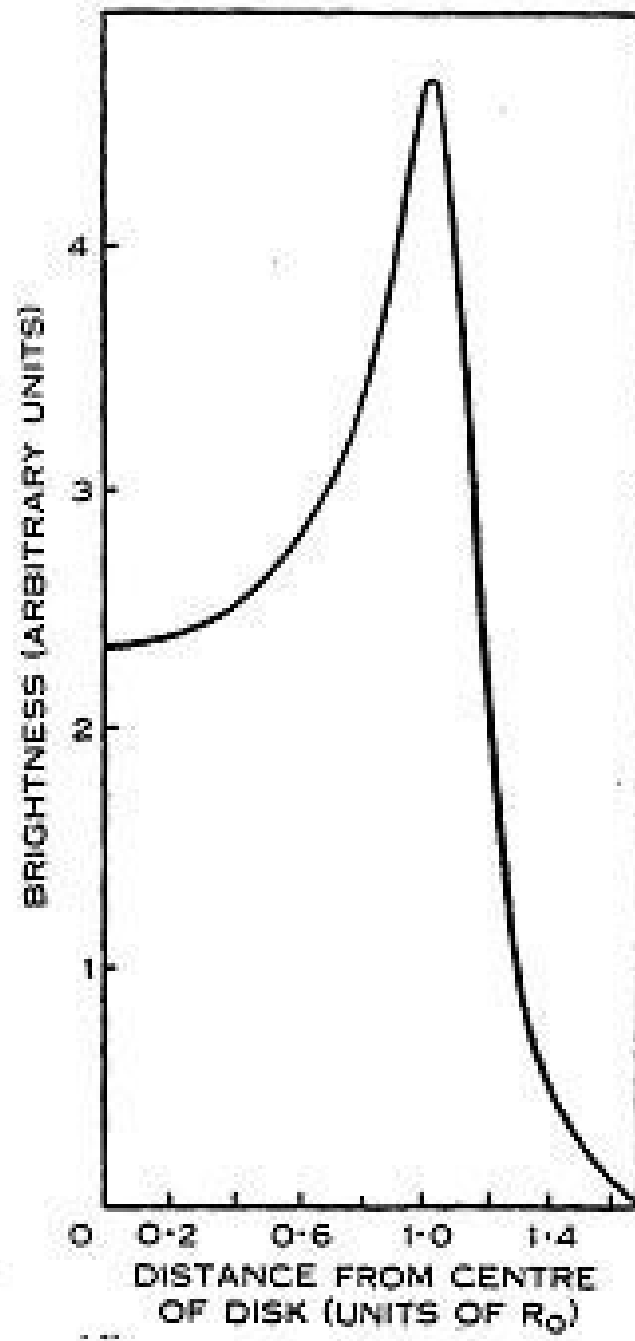




Stefan Smerd





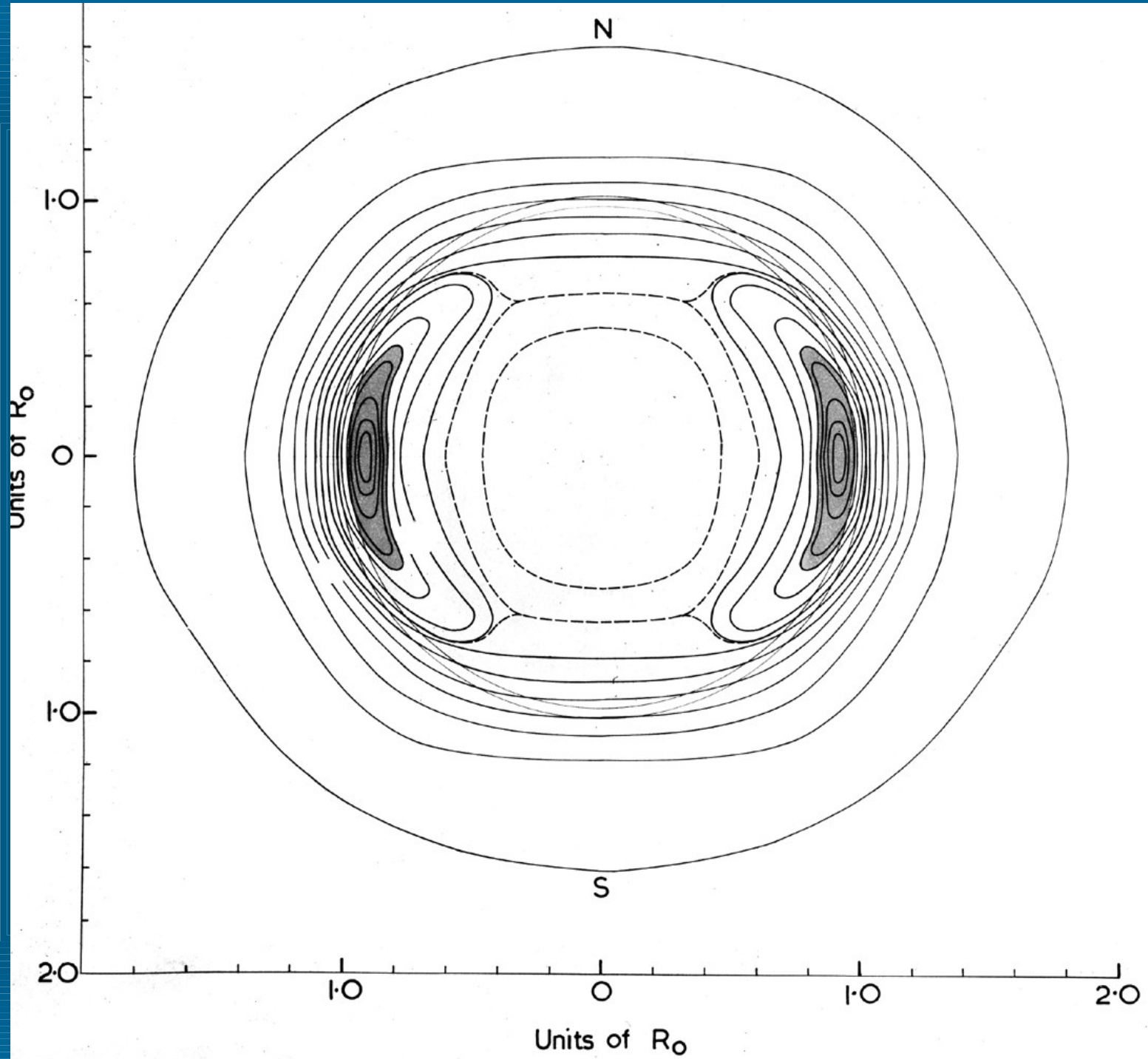




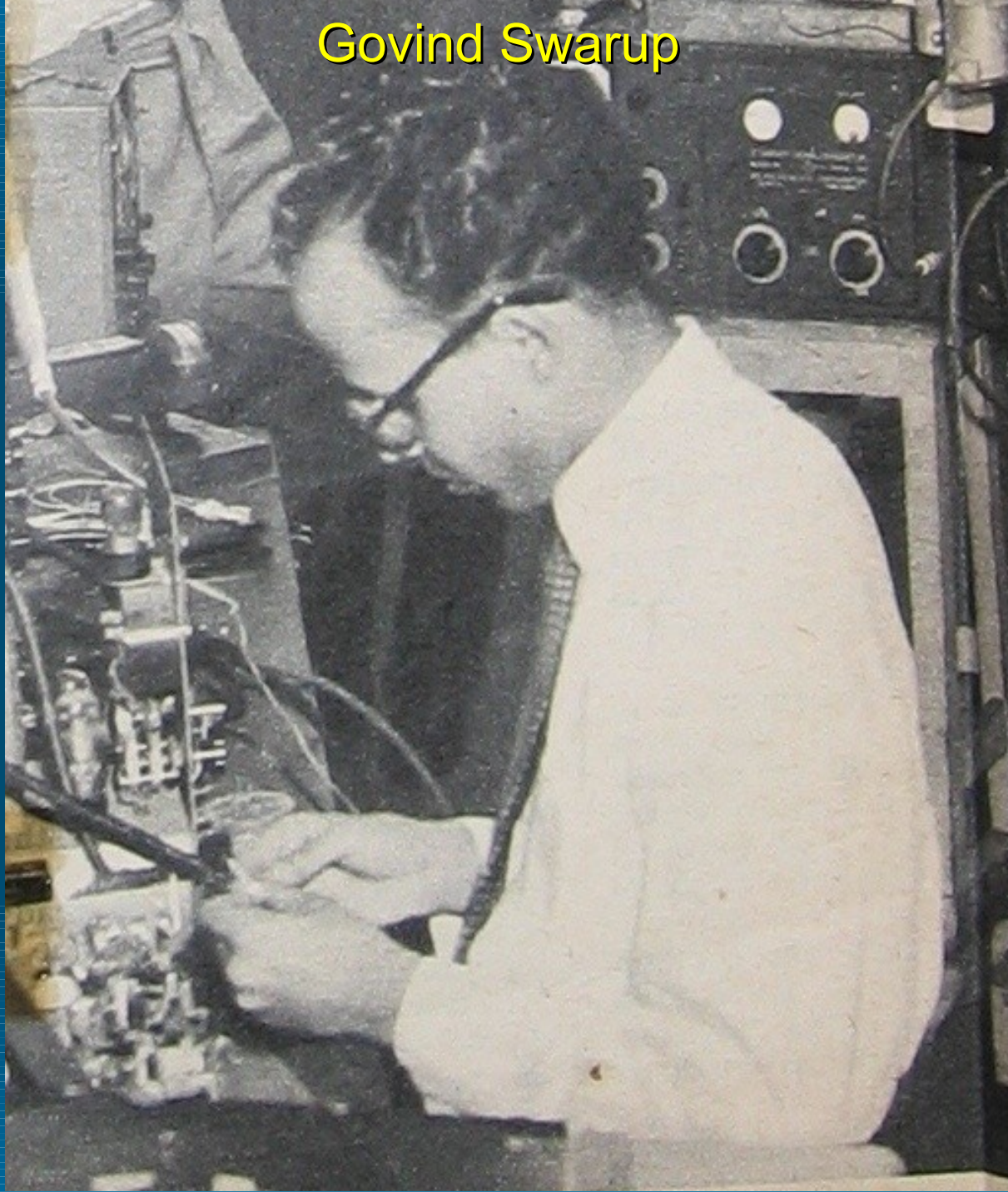
E-W Grating Array

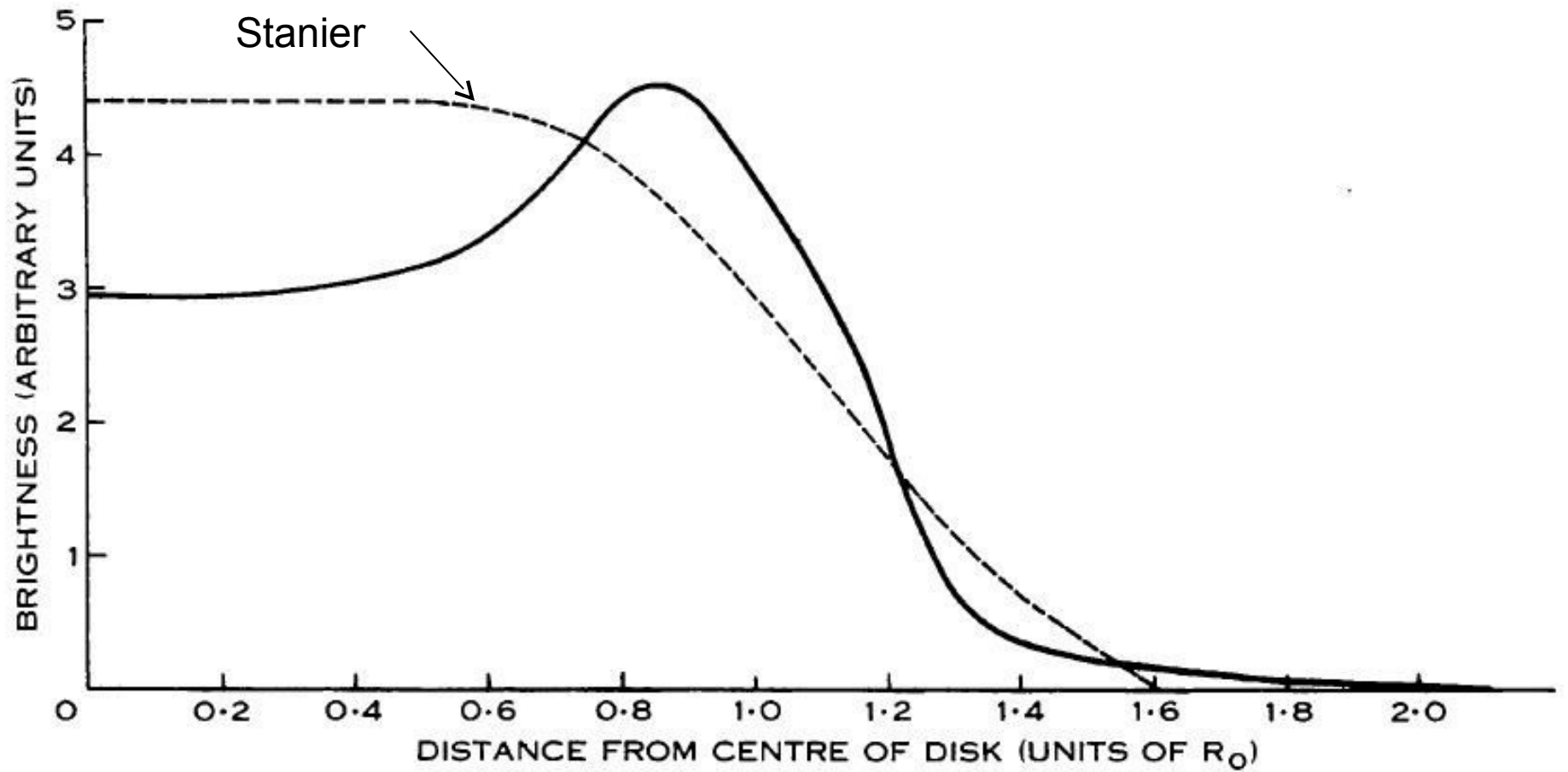
N-S Grating Array



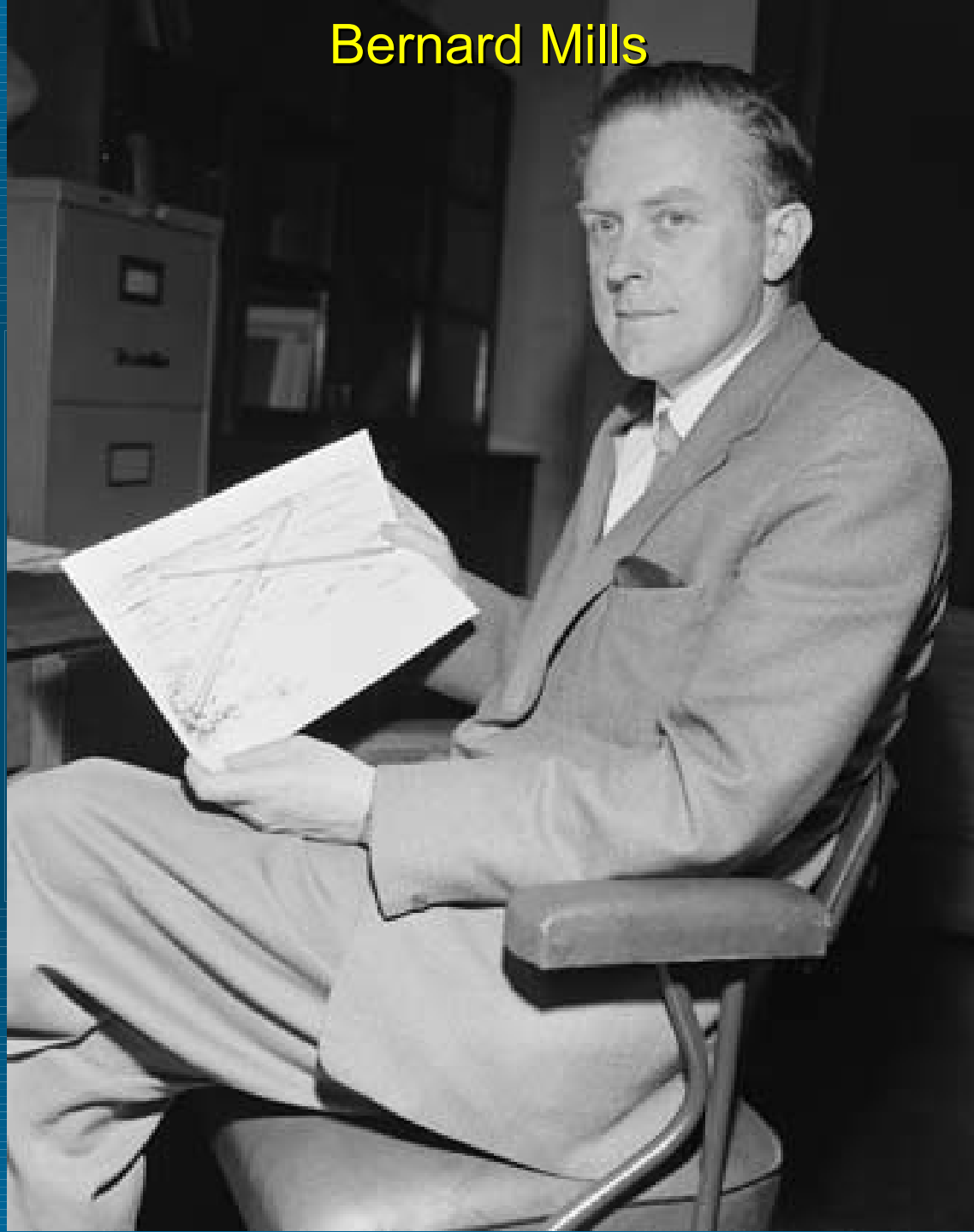


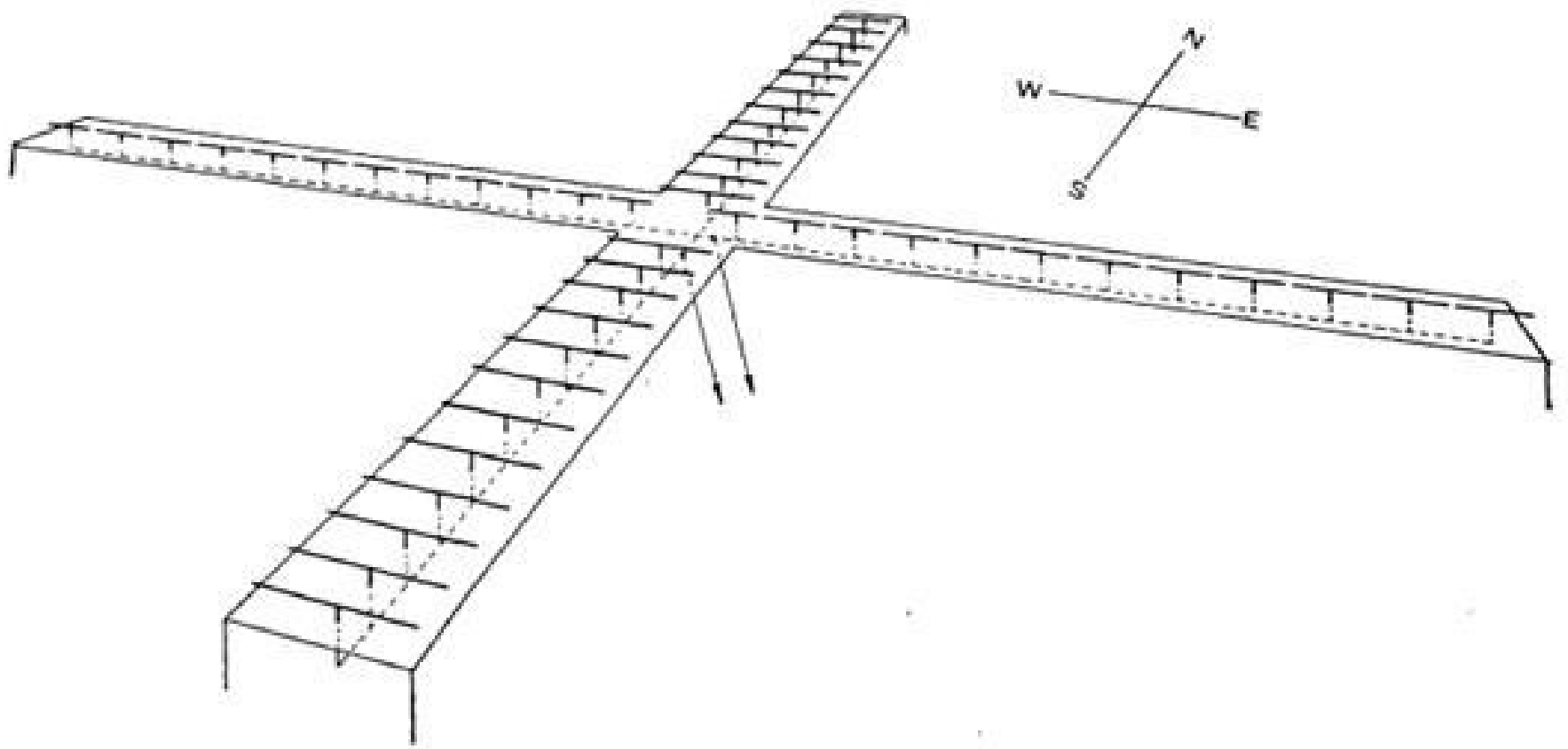
Govind Swarup

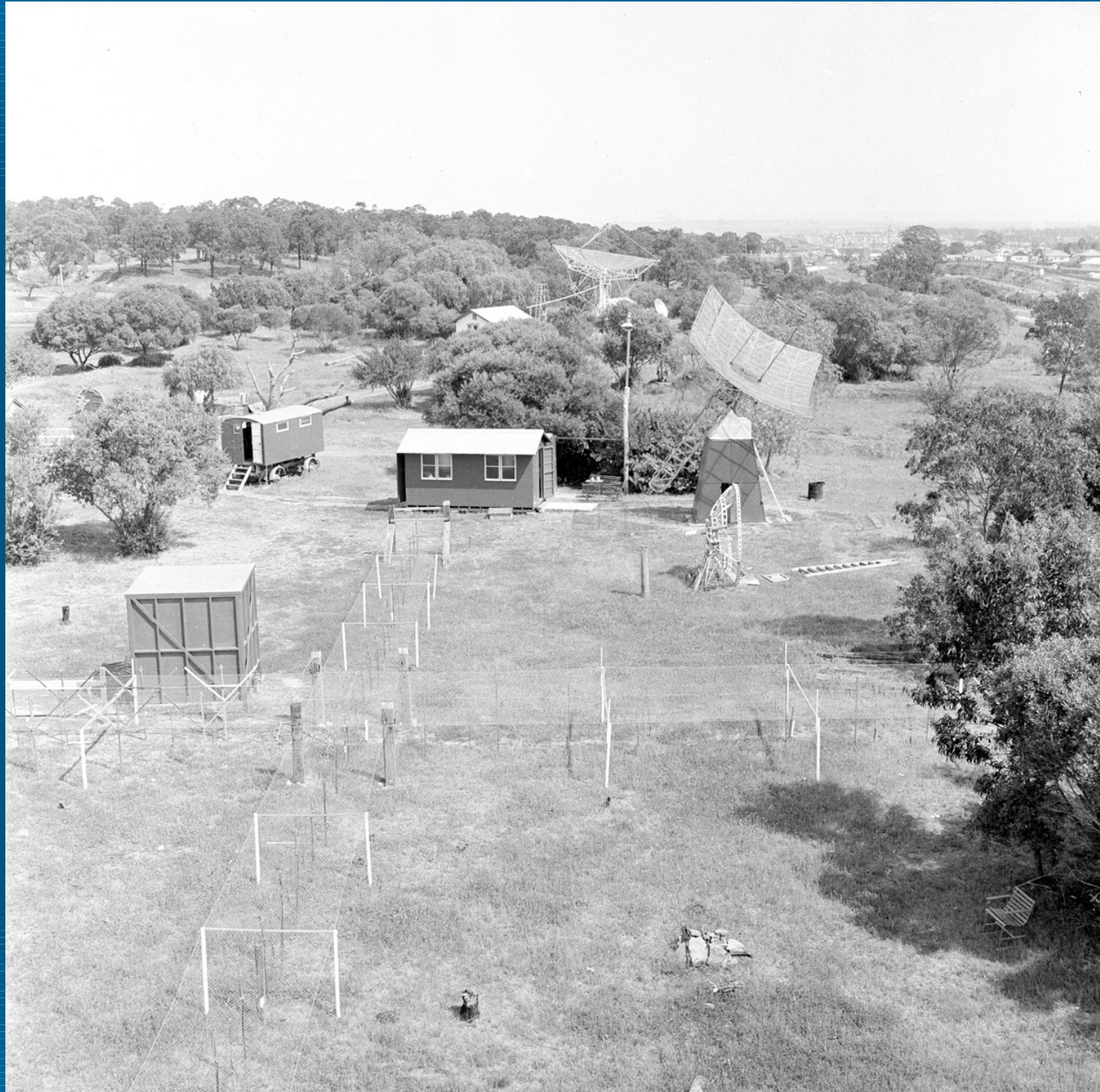




Bernard Mills

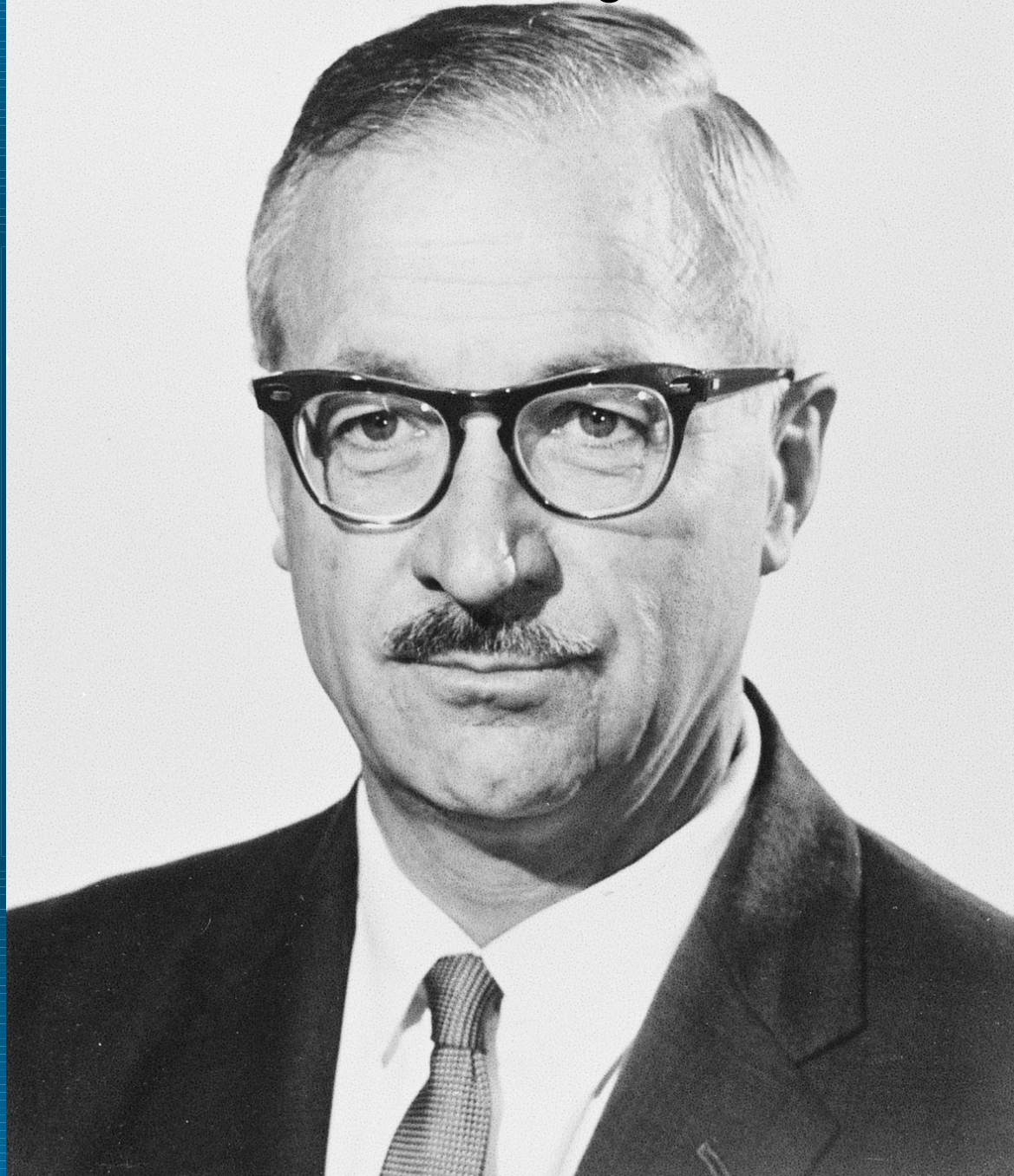








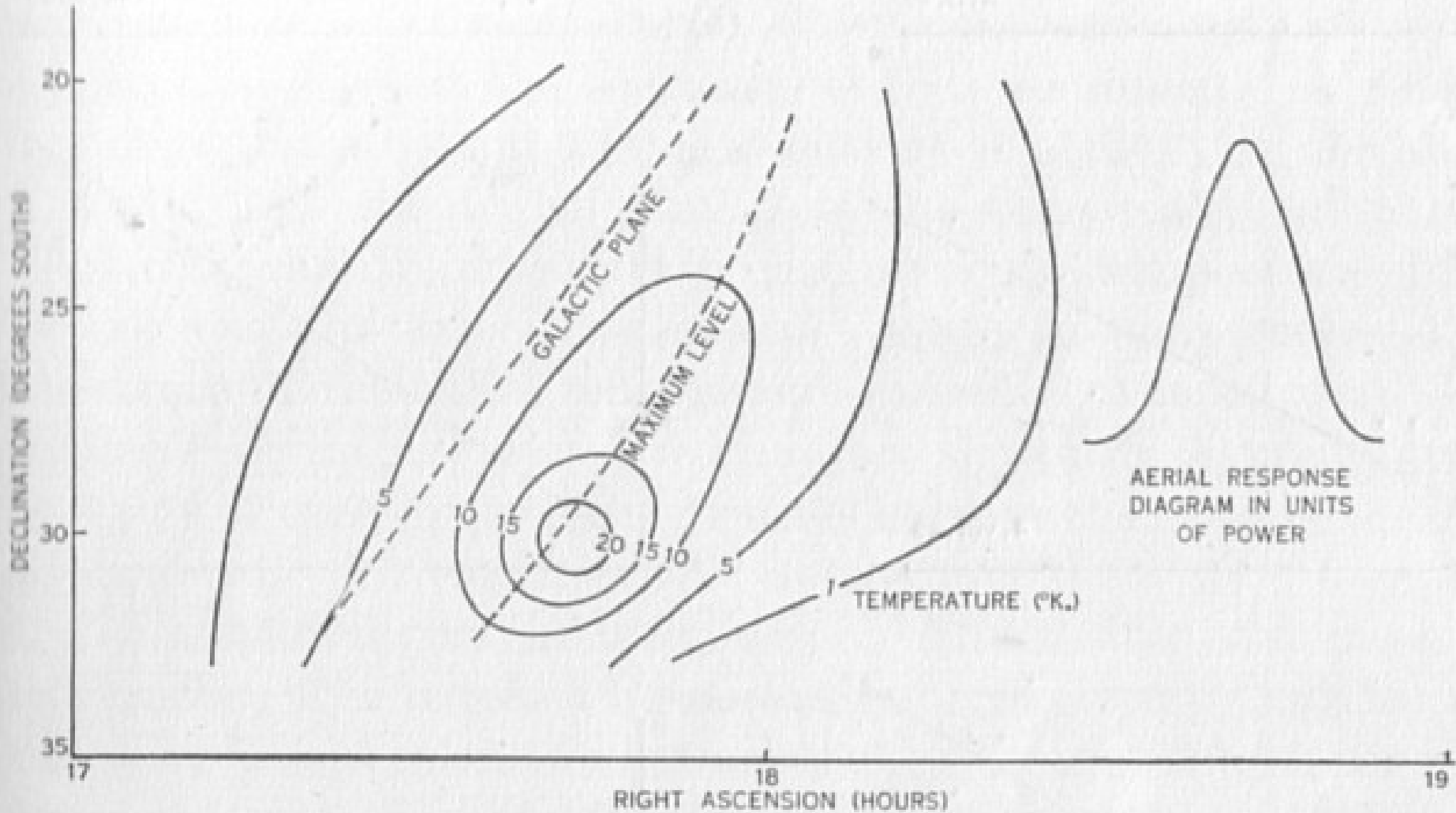
Jack Piddington

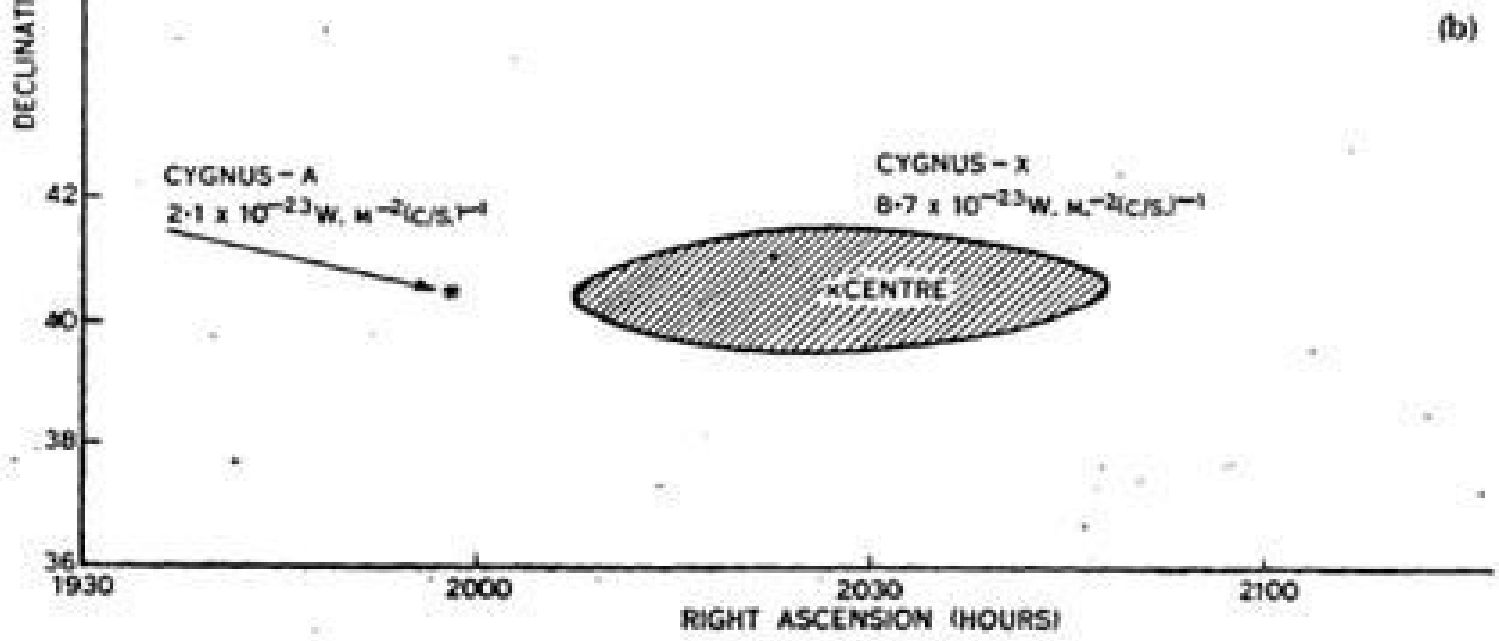
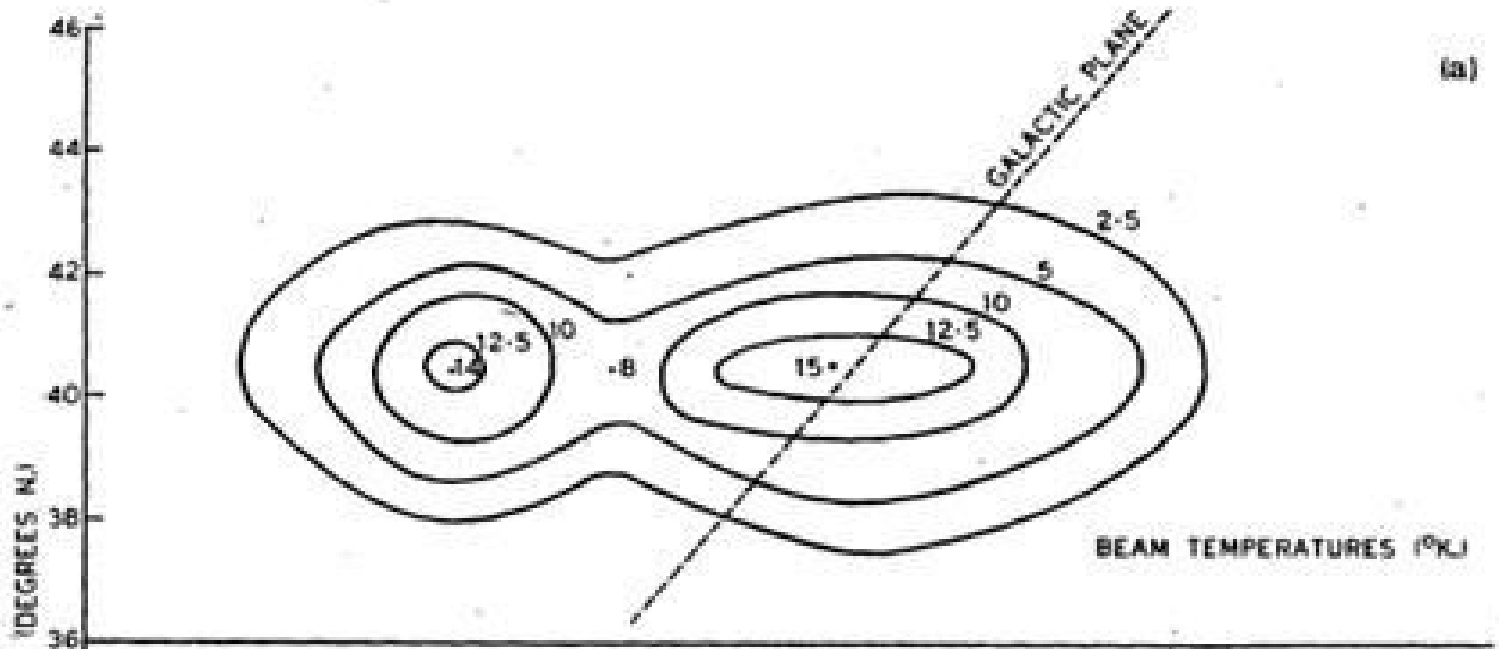


Harry Minnett

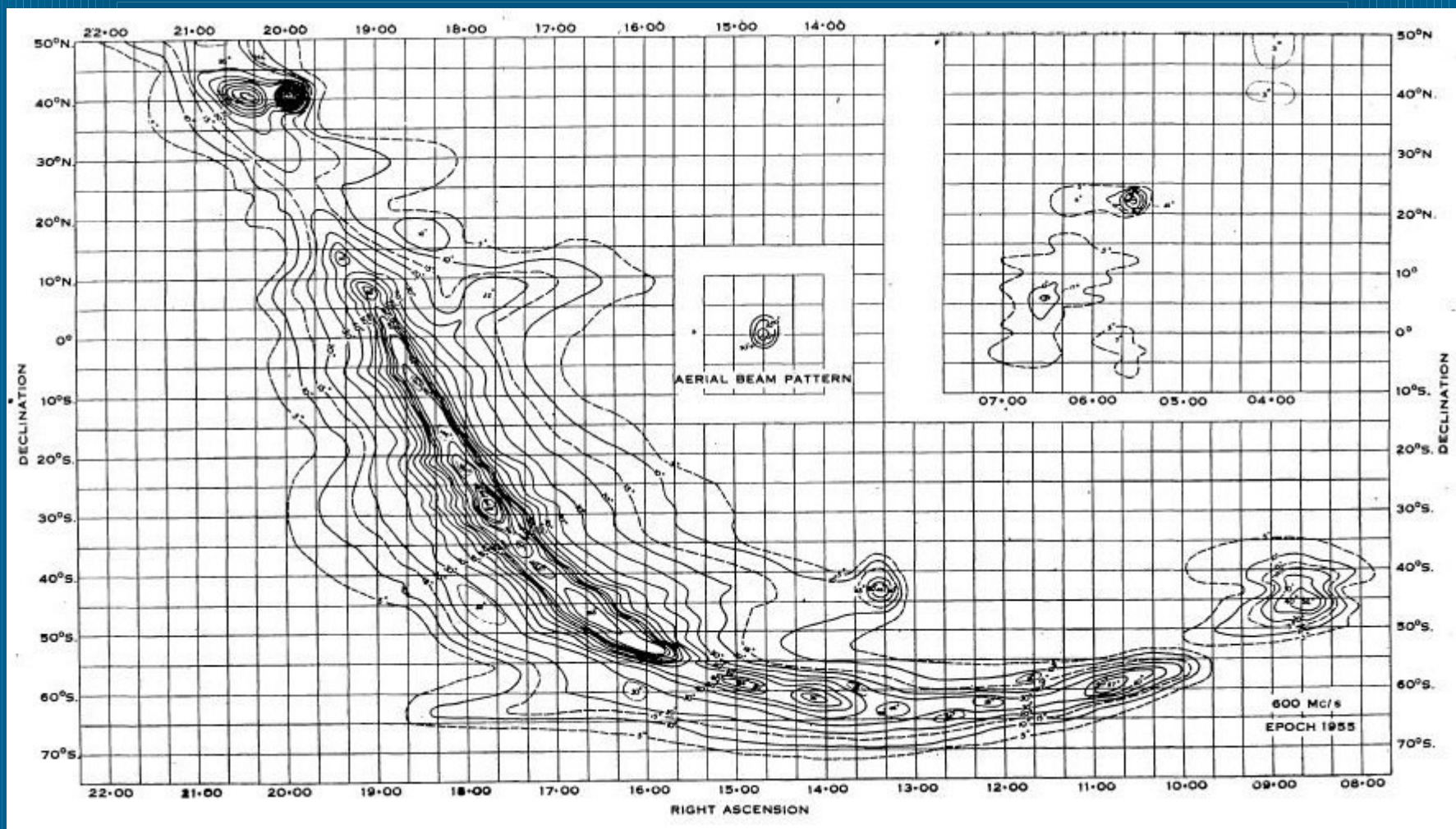


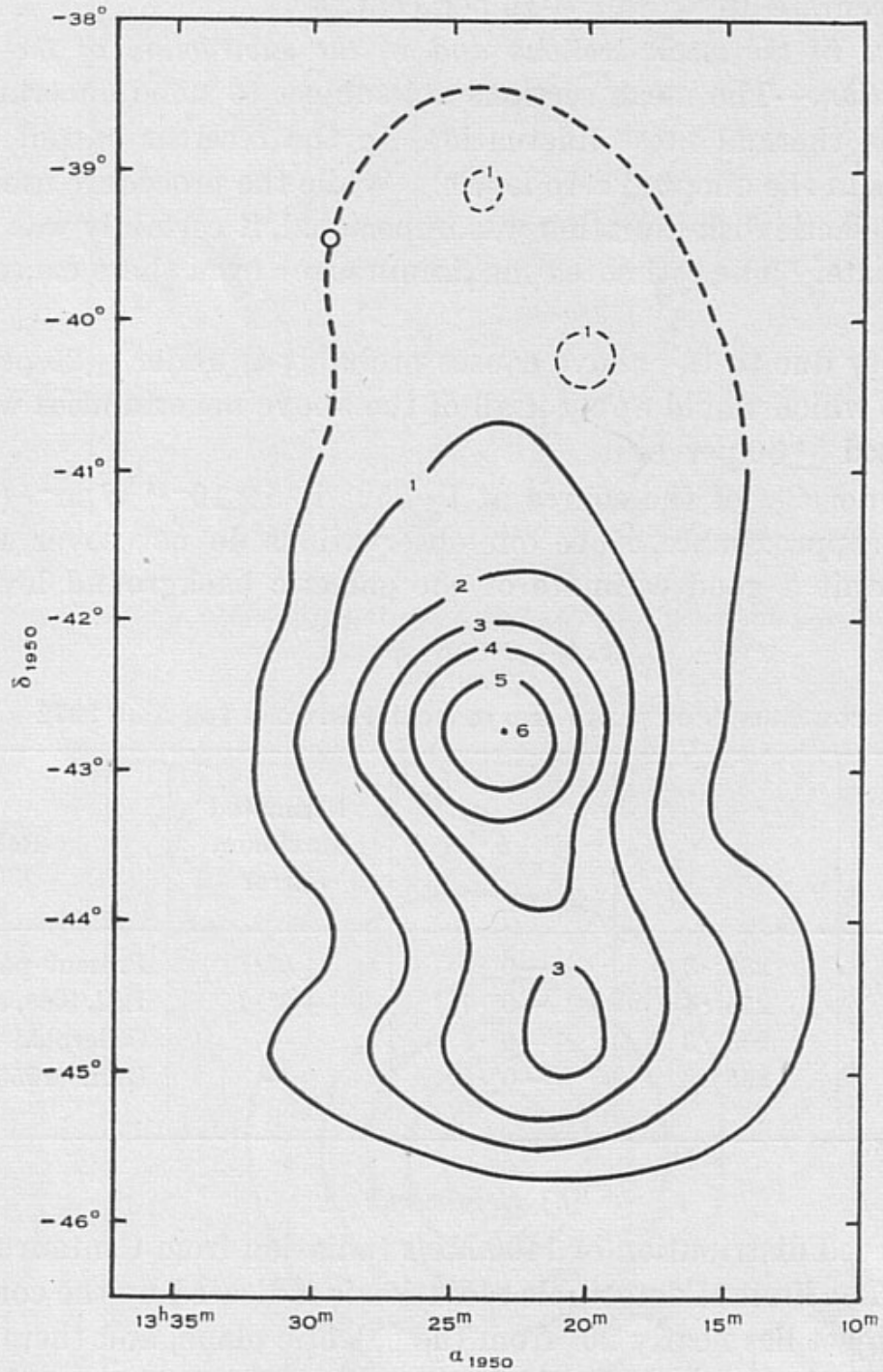
Sagittarius A



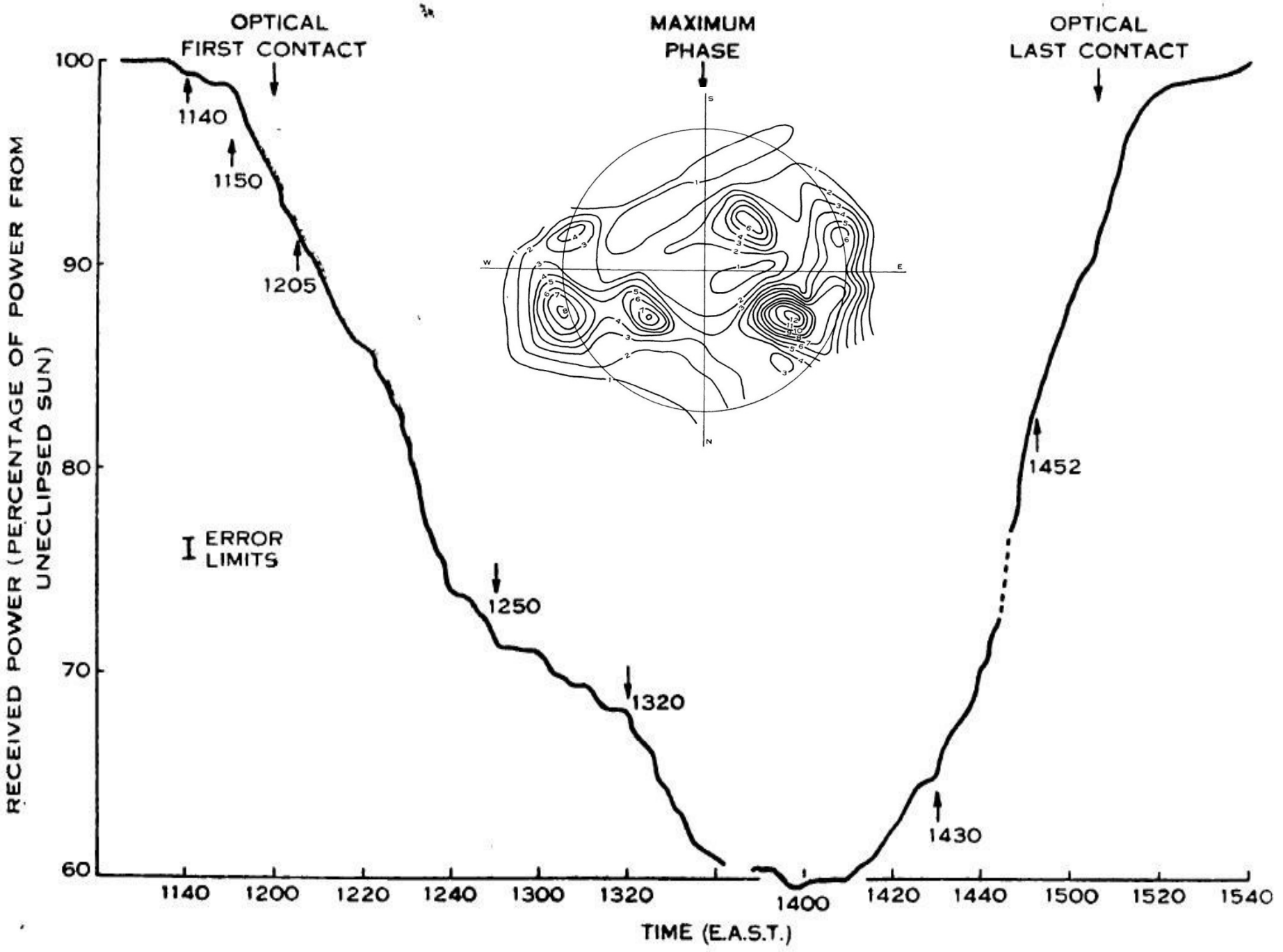


600 MHz Southern Sky Survey









Potts Hill Researchers

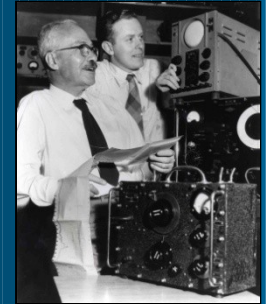
Christiansen, W.N.
Davies, R.D.
Hindman, J.V.
Kerr, F.J.
Labrum, N.R.
Little, A.G.
Mills, B.Y.
Minnett, H.C.
Parthasarathy, R.
Pawsey, J.L.
Payne-Scott, R.
Piddington, J.H.
Robinson, B.J.
Smerd, S.F.
Stahr-Carpenter, M.
Swarup, G.
Thomas, A.G.
Trent, G.H.
Wade, C.M.
Warburton, J.A.
Yabsley, D.E.



Christiansen



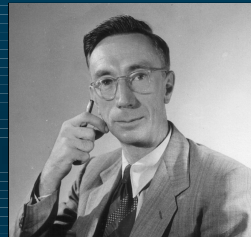
Payne-Scott



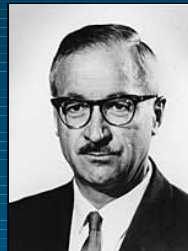
Mills



Minnett



Pawsey



Piddington



1952 URSI (Sydney)



I am grateful to the ATNF
Historical Photographic Archive
and the National Archives of
Australia for images in this
presentation.