

The Evolution of Computers

60 years with Parkes, Murriyang

CSIRO S&A Colearnium

Ron Ekers,
24 Mar 2022

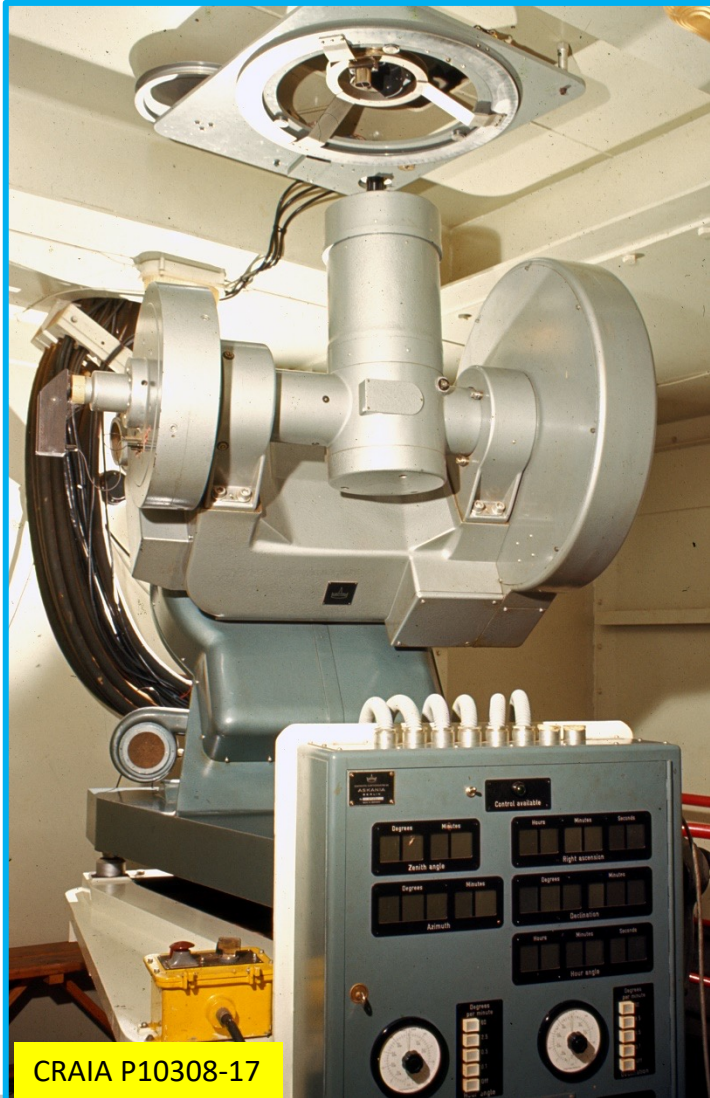
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Summary

- Inspired by the 60 years history of the Parkes - Murriyang Telescope
 - GatherTown
 - <https://gather.town/app/uUZhK6tXbUAzIRuJ/Parkes%20history>
- The Telescope hardly changes in 60 years
 - Parabolic reflector focussing radio waves
- The name has changed - *Murriyang*
- The computers changed dramatically
 - Analogue
 - Digital off line
 - Digital real-time
 - Remote operation
- Future ?
 - AI
 - Quantum
 - Analogue

Master Equatorial



CRAIA P10308-17

- Equatorial to Alt-AZ coordinate converter
- Placed at the intersection of the axes
- Barnes Wallis innovation
 - Dam busters in WWII
- Still better than a digital solution!

Owens Valley Radio Observatory

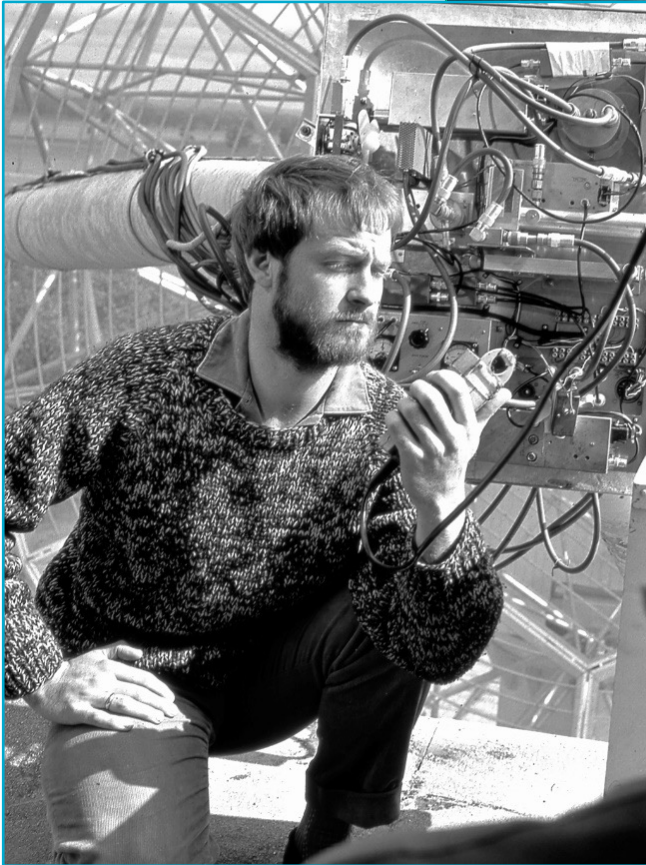
- 2x 90' (27m) dishes
- Interferometer
- 1959



Parkes and the 60' dish



Ron Ekers in 60' focus tower

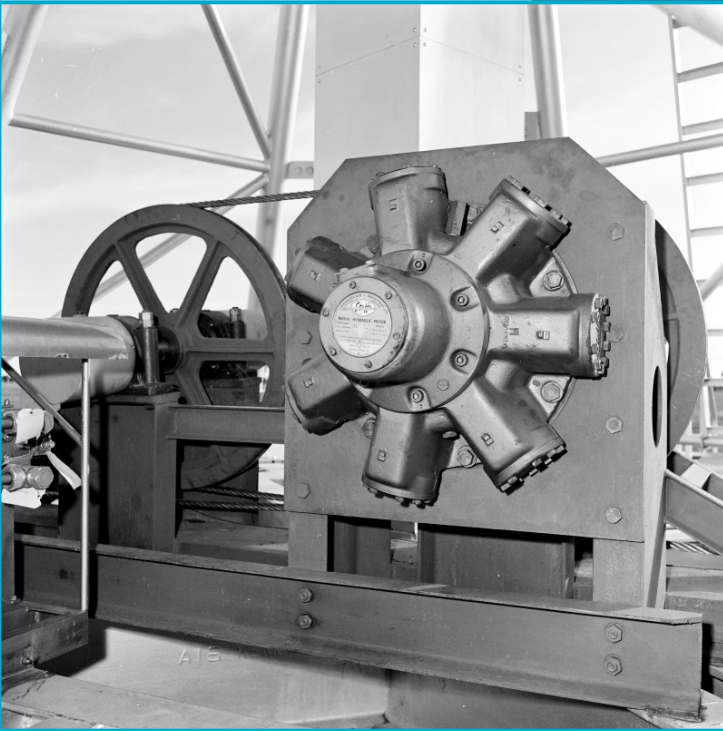


CSIRO Radio astronomy image archive

60' hydraulic drive

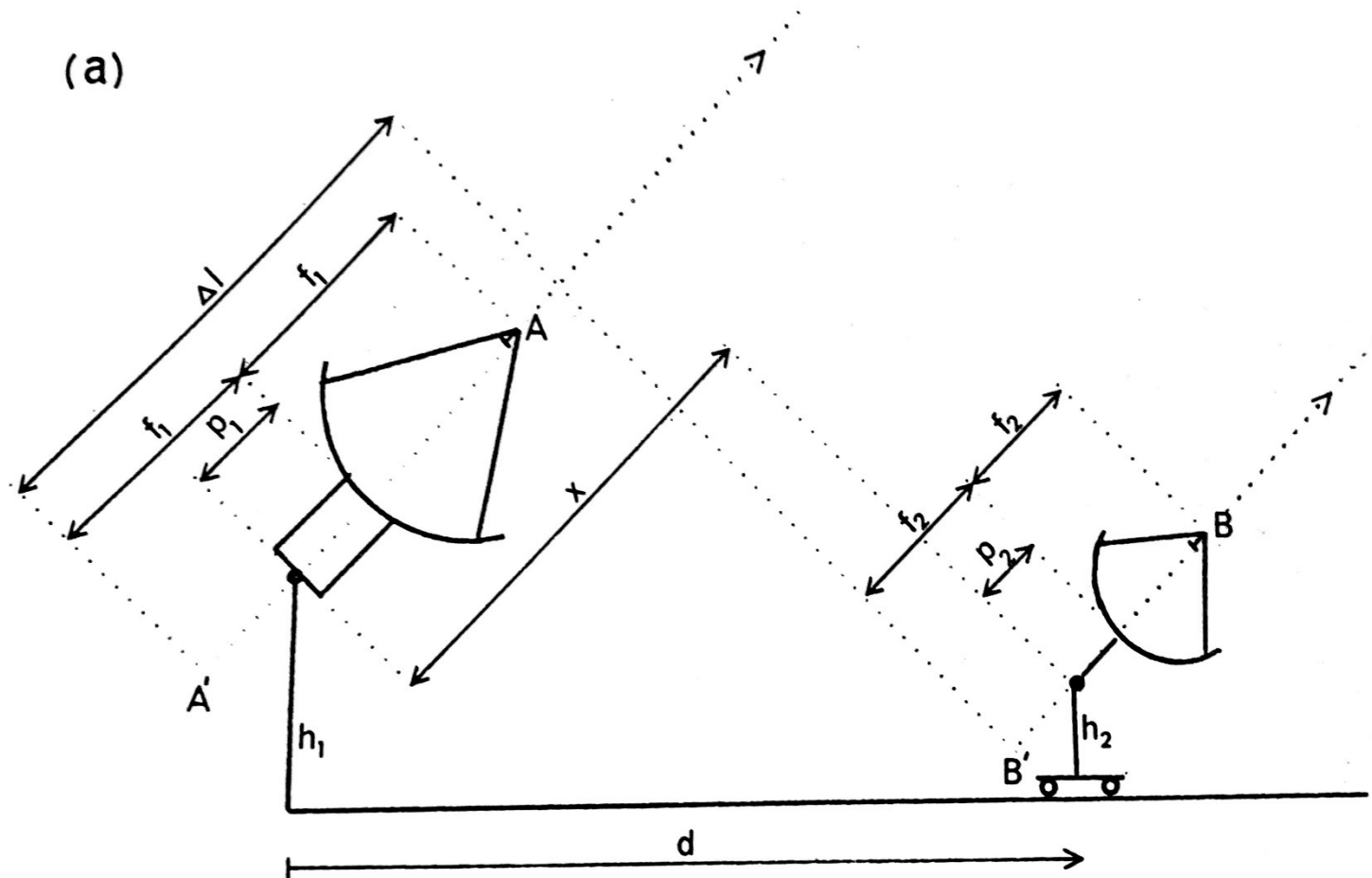


CSIRO Radio astronomy image archive

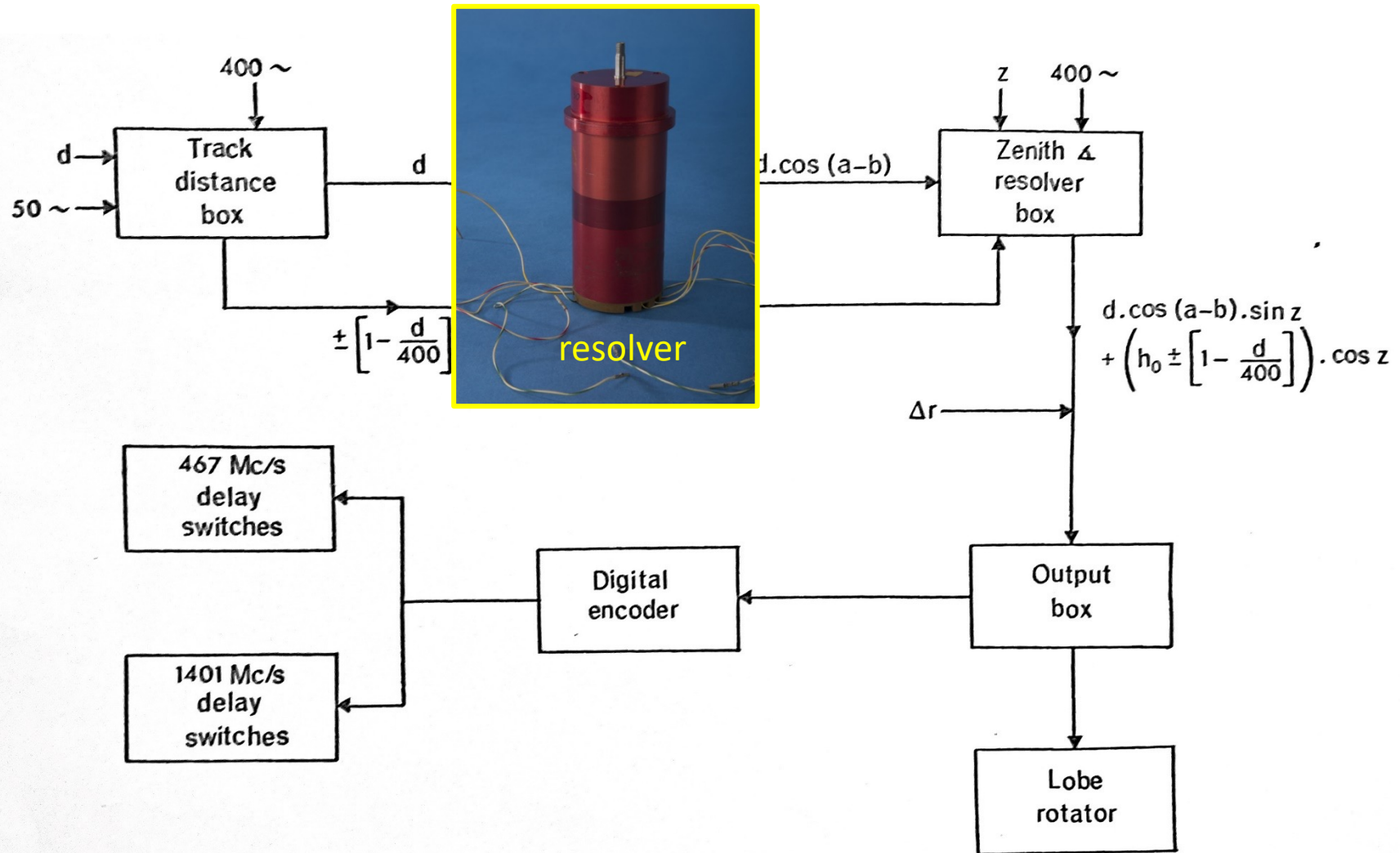




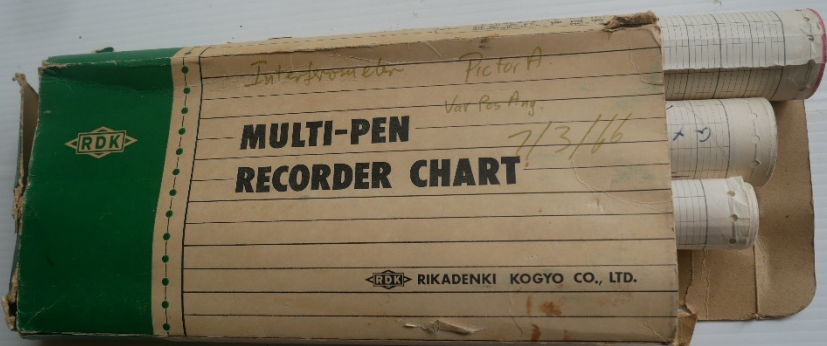
Geometry



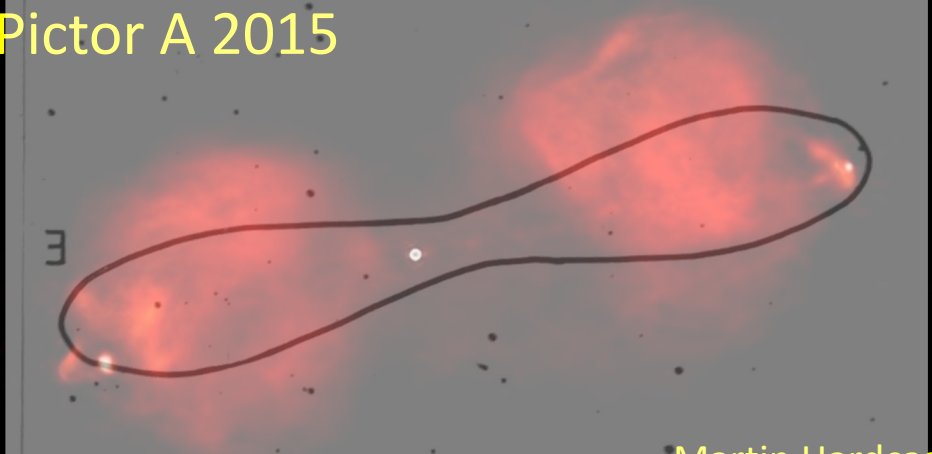
Path Difference Analogue Computer



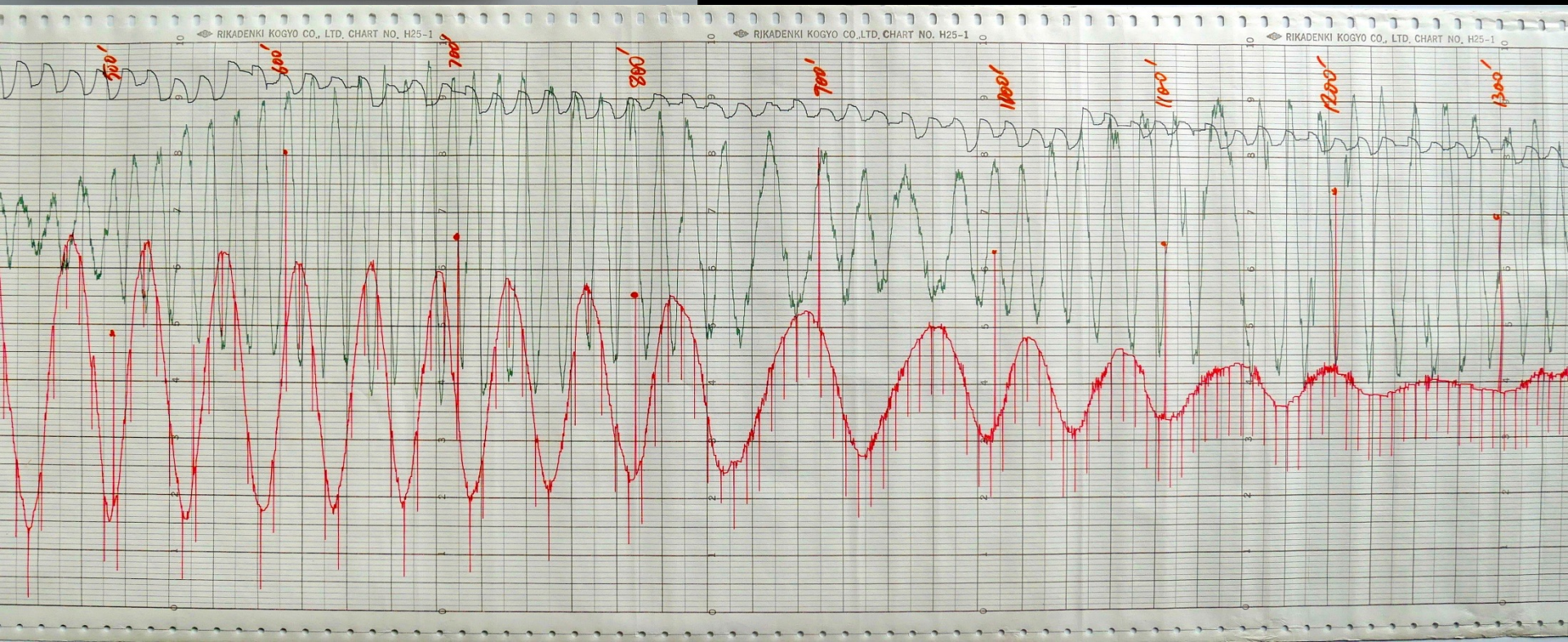
Pictor A 1966



Pictor A 2015



Martin Hardcastle

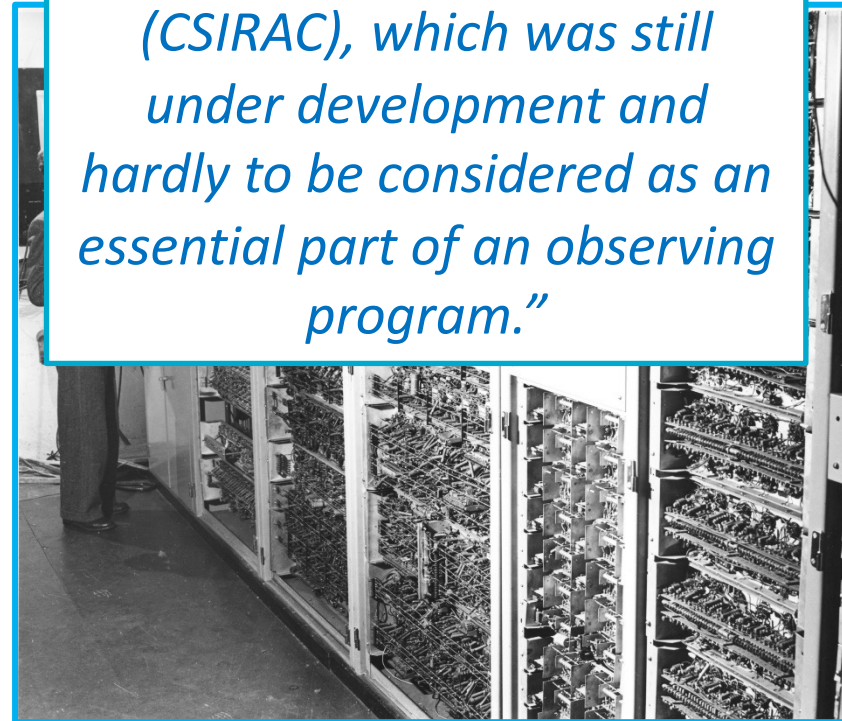


The context in the 1960s

- CSIRO had already built the first Australian digital computer
 - CSIRAC – Trevor Pearcey, CSIR Radiophysics!
 - Not considered of any practical value
 - Given to U. Melbourne (1955)
- By 1960 most universities and CSIRO had centralised batch processing computers but not used for any real-time functions.

Mills

“the Radiophysics computer (CSIRAC), which was still under development and hardly to be considered as an essential part of an observing program.”



Eric Hill with the first Parkes digital computer 1968



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The Slide Rule

our personal analogue computer

