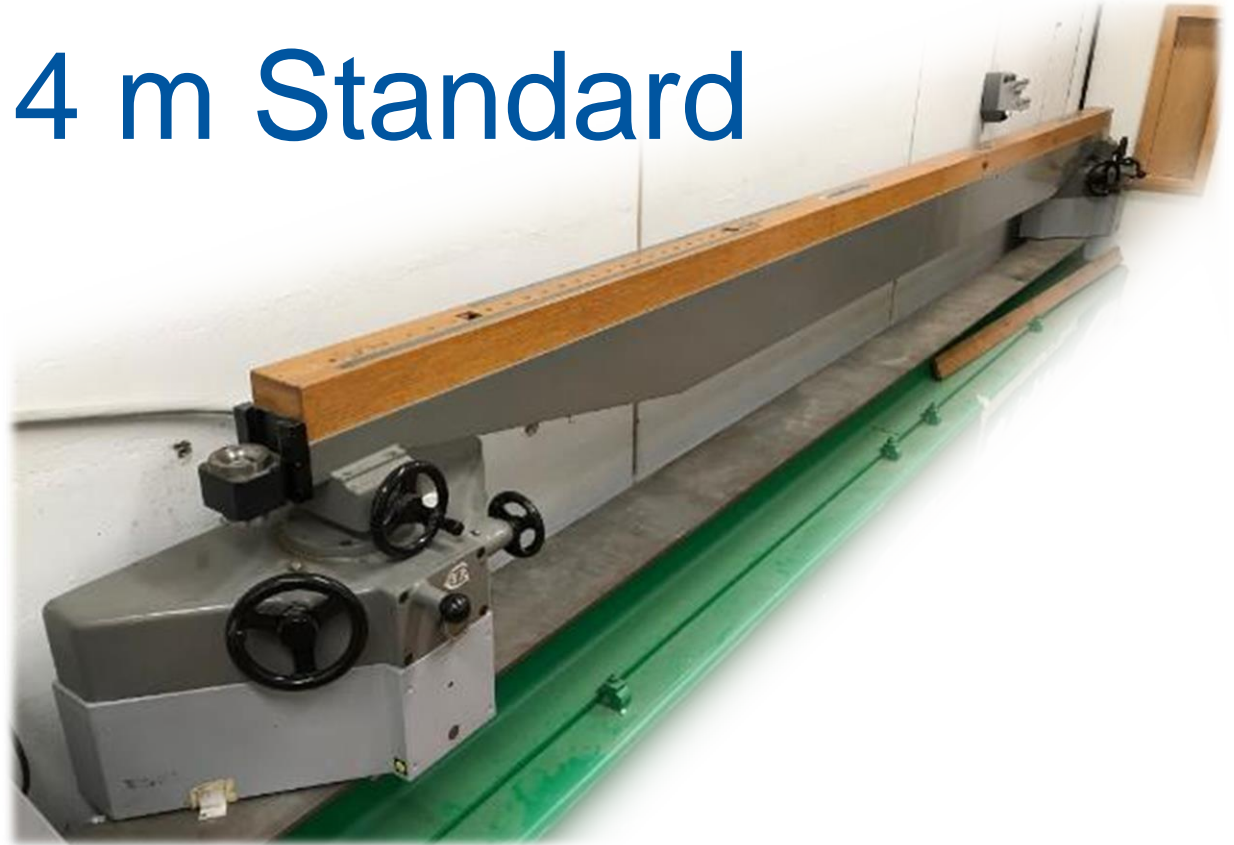


Distance Calibration Bench

Precision 4 m Standard



Provenance



- 128 -

HIGH PRECISION GEODESY APPLIED TO CERN ACCELERATORS

J. Gervaise and E.J.N. Wilson
CERN, Geneva, Switzerland

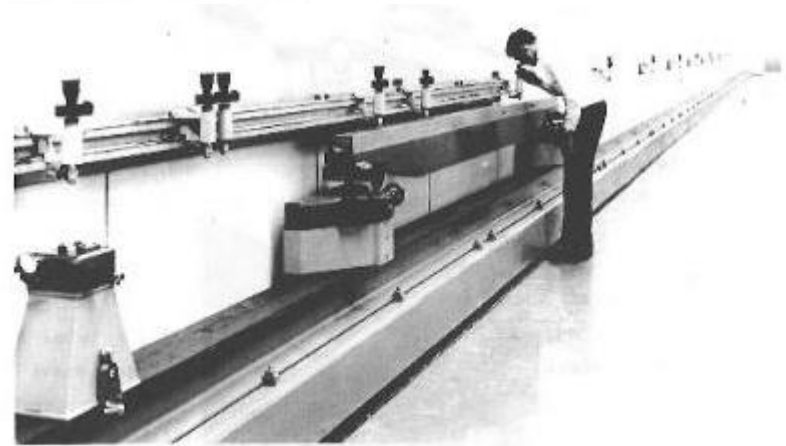


Fig. 23 Calibration bench

Precision 4 m Distance Standard



- Precision $\sim 5 \mu\text{m}$?
- Principal part of a distance calibration bench
 - 64 m long, constructed by Société Genevoise d'Instrument de Physique
 - Located in one of the PS radial tunnels between 1959 and 1969
 - Bench relocated to building 839 in 1969
 - This distance standard was the only part retained
- Eventually replaced by an interferometer in 1980s

Distance Calibration

- Calibration of invar wires
 - Lengths from 0.4 m to 64 m
 - Unique facility in the world at the time
- Identified elongation of invar wires over time
 - Some tenths of a millimetre
 - A phenomenon subsequently confirmed by BIPM



Synopsis

- Essential and unique tool
 - Used at CERN for 25 years from 1959
- Assured a common distance standard for the alignment CERN's first accelerators
 - Enabled the precision alignment of the PS, ISR and SPS accelerators
- An amazing part of our heritage!

