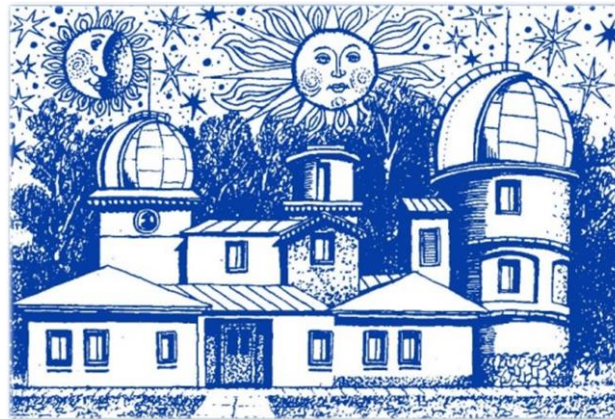


# KONKOLY PROTUBERANCE SPECTROSCOPE AND THEODOLITE



Mgr. Adrián Takáč

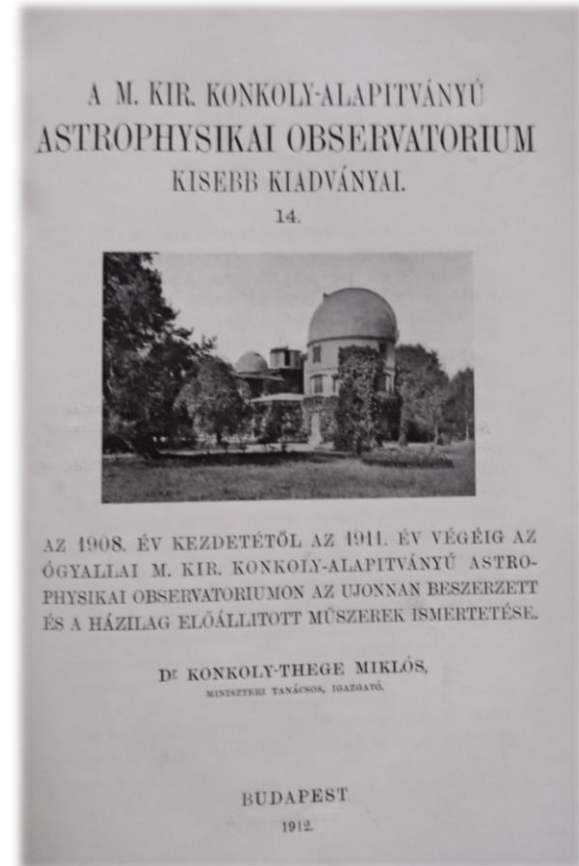
Slovak Central Observatory

Section of the History of Astronomy

Slovak Astronomical Society by SAS and Slovak Union of Astronomers

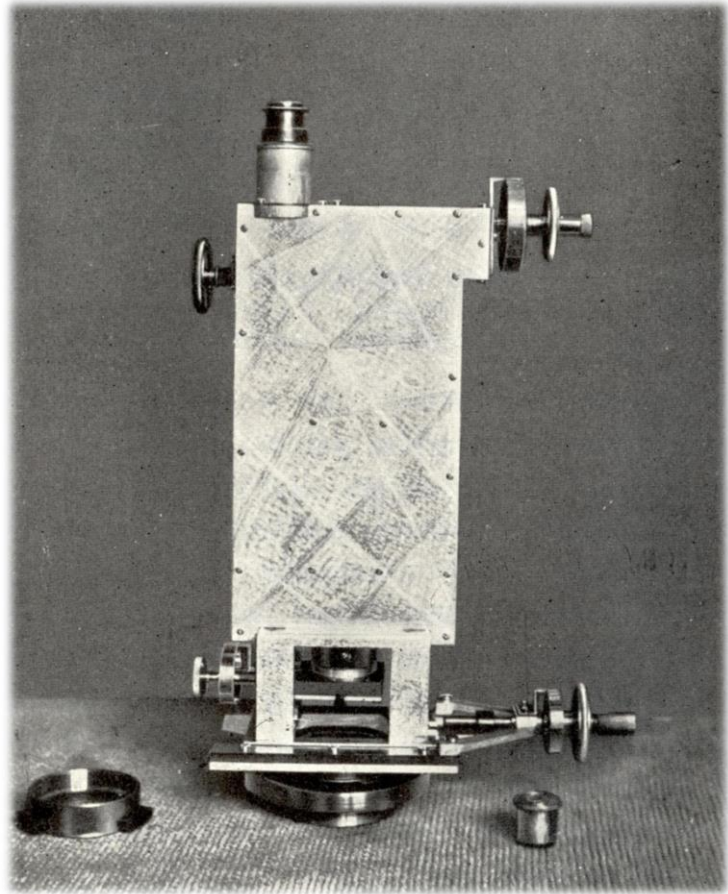
# KONKOLY PROTUBERANCE SPECTROSCOPE

- Translation from the book: „AZ 1908. ÉV KEZDETÉTŐL AZ 1911. ÉV VÉGÉIG AZ ÓGYALLAI M. KIR. KONKOLY-ALAPITVÁNYÚ ASTROPHYSIKAI OBSERVATORIUMON AZ UJONNAN BESZERZETT ÉS A HÁZILAG ELŐÁLLITOTT MŰSZEREK ISMERTETÉSE” - *OPIS PRÍSTROJOV KÚPENÝCH A VYROBENÝCH NA ASTROFYZIKÁLNOM OBSERVATÓRIU OD ZAČIATKU ROKU 1908 DO KONCA ROKU 1911*
- Chapter title: „KONKOLY PROTUBERANČIA-SPEKTROSKOP (MÁSODIK MODELL)” - *KONKOLYHO PROTUBERANČNÝ SPEKTROSKOP (DRUHÝ MODEL)*



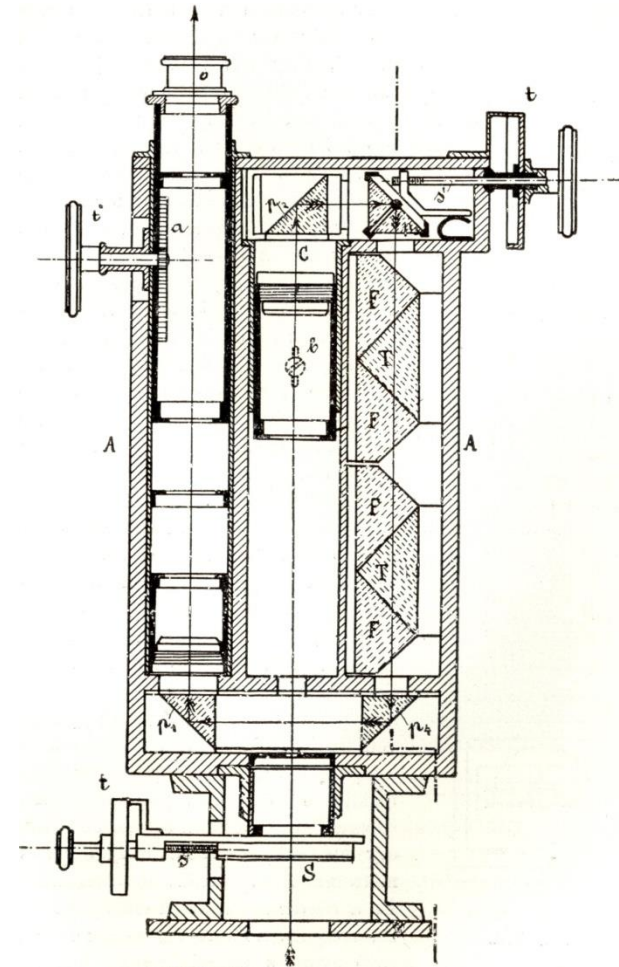
# KONKOLY PROTUBERANCE SPECTROSCOPE

- This device is completely different than previous spectroscopes
- The device differs in shape, internal structure, weight and dimensions
- Spectrum measurement and optical axis adjustment using micrometric screws
- Spectroscope frame is from magnalia - aluminum alloy and magnesium
- Frame cover is made of aluminum sheet



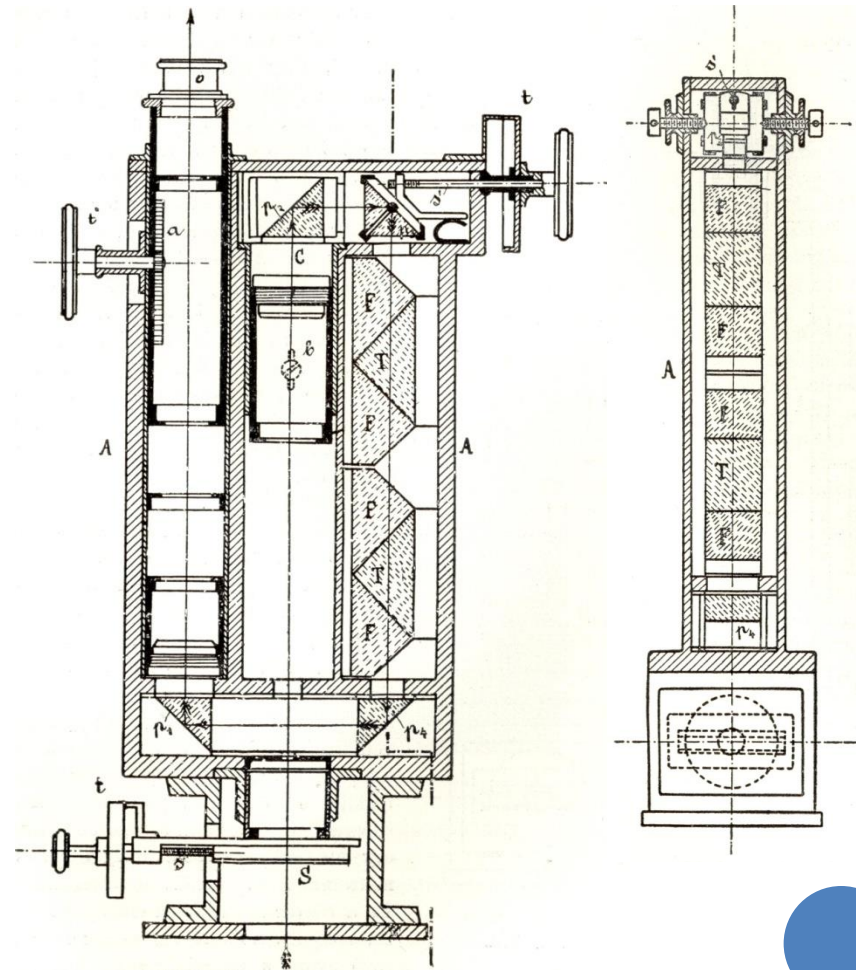
# CONSTRUCTION OF PROTUBERANCE SPECTROSCOPE

- Four legs are attached to the extended frame between which the slot with and the sliding tube
- From the slots with the beams on the collimating lens  $C$  that is set by the sliding tube  $B$  to be within the range of focal length
- Rays based on lens  $C$  stand out for optical prism  $p2$  from which they reflect on the  $p3$  prism further through  $FTF$  and  $FTF$  prisms, followed by  $p4$ ,  $p1$  and finally to the eyepiece lens



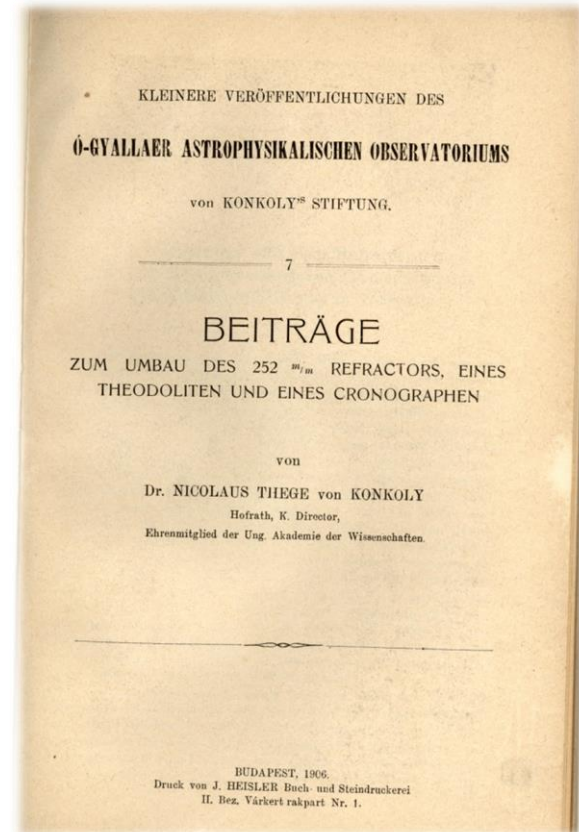
# CONSTRUCTION OF PROTUBERANCE SPECTROSCOPE

- Binoculars are built into a frame and just its eyeglass
- Focus is set using bolt  $B$  with mechanism  $a$
- Measurement is performed using a micrometric screw  $s'$  which shifts the  $p3$  prism and adjusting the beam reflection and the whole spectrum
- Swivel wheel of a micrometric screw  $s'$  with which is divided into 100 pieces



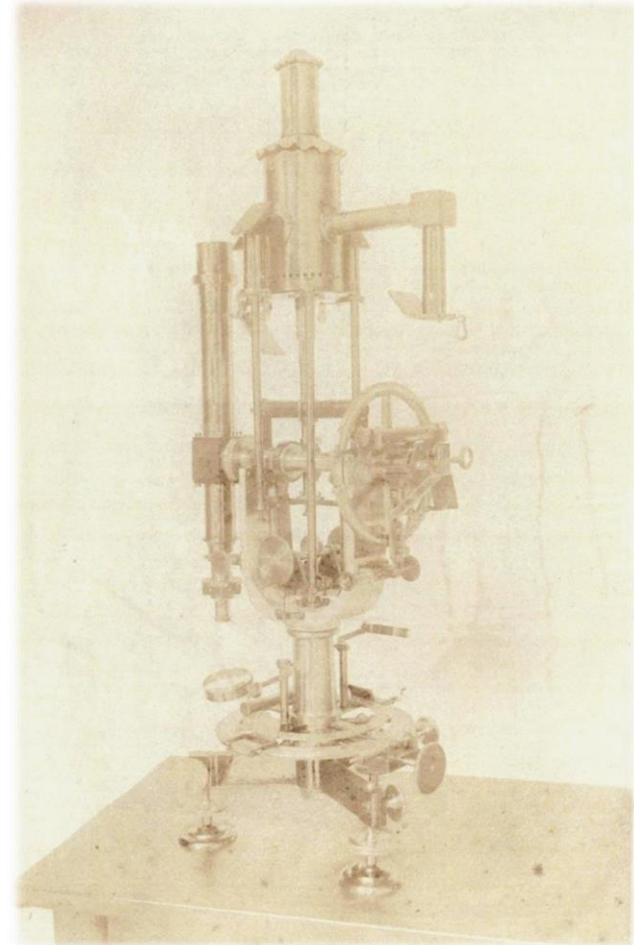
# KONKOLY TRAVEL THEODOLITE

- Translation from the book: „BEITRÄGE ZUM UMBAU DES 252 mm REFRACTORS, EINES THEODOLITEN UND EINES CRONOGRAPHEN“ – ***CONTRIBUTION TO THE RECONSTRUCTION OF THE 252 MM REFRACTOR, THEODOLITE AND CORONOGRAPH***
- Chapter title: „UMBAU EINES ÄLTEREN THEODOLITHEN“ – ***RECONSTRUCTION OF AN OLDER THEODOLITE***



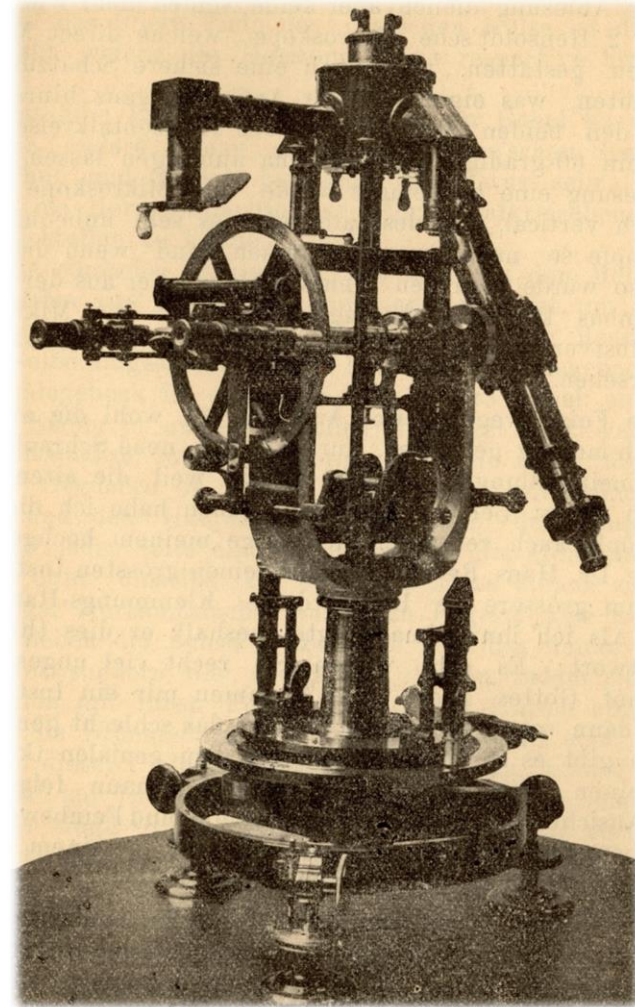
# ORIGINAL KONKOLY TRAVEL THEODOLITE

- The device made in a mechanical workshop of astrophysical Observatory in Ó-Gyalla in 1878
- Horizontal measuring ring made by the Royal Polytechnic Institute in Budapest and Vertical Measuring Circle Made by Liebherr in Munich
- The part of instrument was a base and lighting lamp for gasoline produced in the Gaggenau factory in Badischene
- Focal distance telescope 35 mm and 20 x magnification



# REBUILD KONKOLY TRAVEL THEODOLITE

- New circular tripod with three adjusting screws
- New Horizontal Circle Made of canon Metal (Copper, Bronze) by Ferdinand Süß - Director of Engineering Education Institute
- Subtraction of degrees using two Hensoldt microscopes on the alidad circle
- Conical axis bearing a fork with beds for horizontal axis and swivel rack with sliding fork lifting horizontal axis





# REBUILD KONKOLY TRAVEL THEODOLITE

- On the rotatable stand there is a jumper with a disk and two handles to lift the entire stand along with a horizontal axis
- The horizontal axis is attached to a telescope, a vertical measuring ring, two Hensoldt microscopes to subtract grades and libela
- Four columns bearing a lamp illuminating theodolite with the pivot rack
- Light with mirrors bounced into a lens or eyepiece telescope
- Rebuilding the Theodolite led Johann Klassohn - Director of the Mechanical Department of Royal Hungarian Meteorological Institute and Mechanic Anton Schober



THANKS FOR PAYING ATTENTION

