ASKANIA

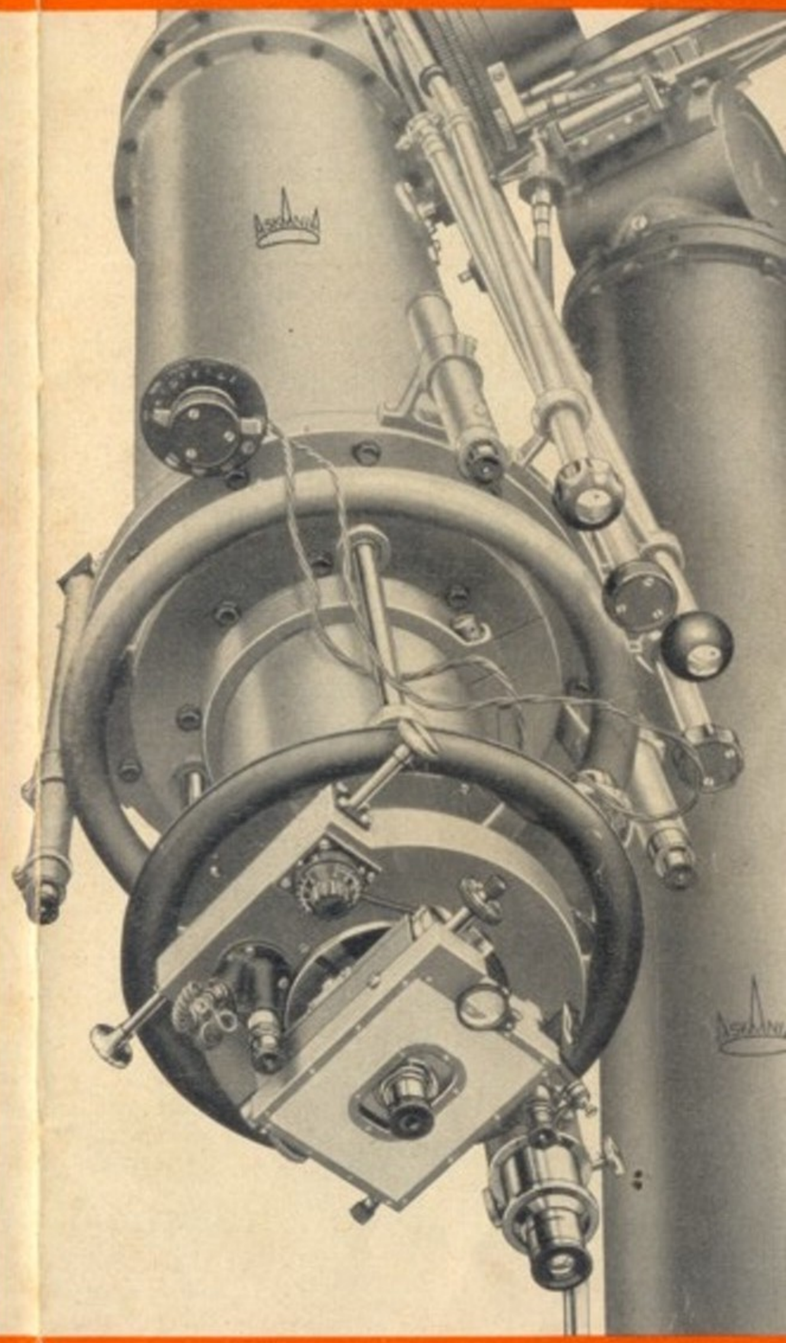
ASTRONOMICAL INSTRUMENTS

ASKANIA-WERKE A.G.

BAMBERGWERK

BERLIN-FRIEDENAU

KAISERALLEE 87/88



With compliments of the

ASKANIA-WERKE A.-G. / BAMBERGWERK / BERLIN-FRIEDENAU

GERMANY

The Askania Werke originate from the firm of Carl Bamberg, established 1871, manufacturers of high class precision and optical instruments. This firm has supplied astronomical, geodetical, terrestro-magnetical, meteorological and nautical instruments to the major countries of all continents and has gained a world wide reputation for the superior workmanship of its products. The development of the Bambergwerk is marked by the continuous successful development into new lines. From 1919 to 1923 consolidations took place with the firms of Otto Toepfer & Sohn, Hermann Wanschaff and Hans Heele, Berlin, Germany, all leading in their respective lines of instruments. At the same time the manufacturing of the Sterneck Pendulum Apparatus together with other instruments for geophysical use and also the departments for motion picture cameras and oceanography were added. The increasing importance of air transportation created the new line of aeronautical and aerodynamical instruments ● The development of automatic regulation for industrial purposes further added the department for automatic control and industrial measuring instruments ● An extensive sales organisation with factory representatives in more than fifty places all over the world takes care of the distribution of Askania products ● This booklet contains the pictures of a number of modern astronomical instruments for general information. The various departments of the Askania-Werke are listed below with the most important lines of instruments.

● **GEODETICS:** Universal instruments, micro-theodolites, repeating theodolites, levelling instruments and mathematical instruments.

● **GEOPHYSICS:** Torsion balances with photographic recording, horizontal and vertical magnetometers, mechanical and electrical seismographs, three and four pendulum apparatus, magnetic theodolites for absolute and relative measurements.

● **OCEANOGRAPHY:** Current meters, tide calculating machines, tide gauges with remote recording.

● **METEOROLOGY:** Balloon theodolites for visual observation and photographic and cinematographic recording, instruments for measuring wind velocity and direction, barographs, meteorographs, multiple recorders for meteorological and aero-dynamical research.

● **PHYSICS:** Laboratory instruments, spectroscopes, spectral apparatus, polariscopes, refractometers, colorimeters, glass strain testers, testing instruments for optical equipment.

● **CINEMATOGRAPHY:** Motion picture cameras, "Zeitraffer", cameras for scientific and technical purposes.

● **NAUTICS:** Compasses, sextants, shadow line projectors, deviation magnetometers.

● **AERONAUTICS:** Compasses, altimeters, indicators for level flight, speed, pitch, rate of climb, turn and bank, remote indicating compass, automatic flight control.

● **AUTOMATIC CONTROL AND INDUSTRIAL MEASURING INSTRUMENTS:**

Gauges and recorders for measuring pressure, temperature, volume and quantity, Askania proportional flow meters, water-column micromanometers, automatic control with Askania jet-pipe regulator for all industrial purposes, for the regulation of pressure, quantity, temperature speed etc., for boilers, steam engines, turbines, for the distribution of gaseous and liquid products, for chemical apparatus, for blast and open hearth furnaces as well as all other types of production plants.

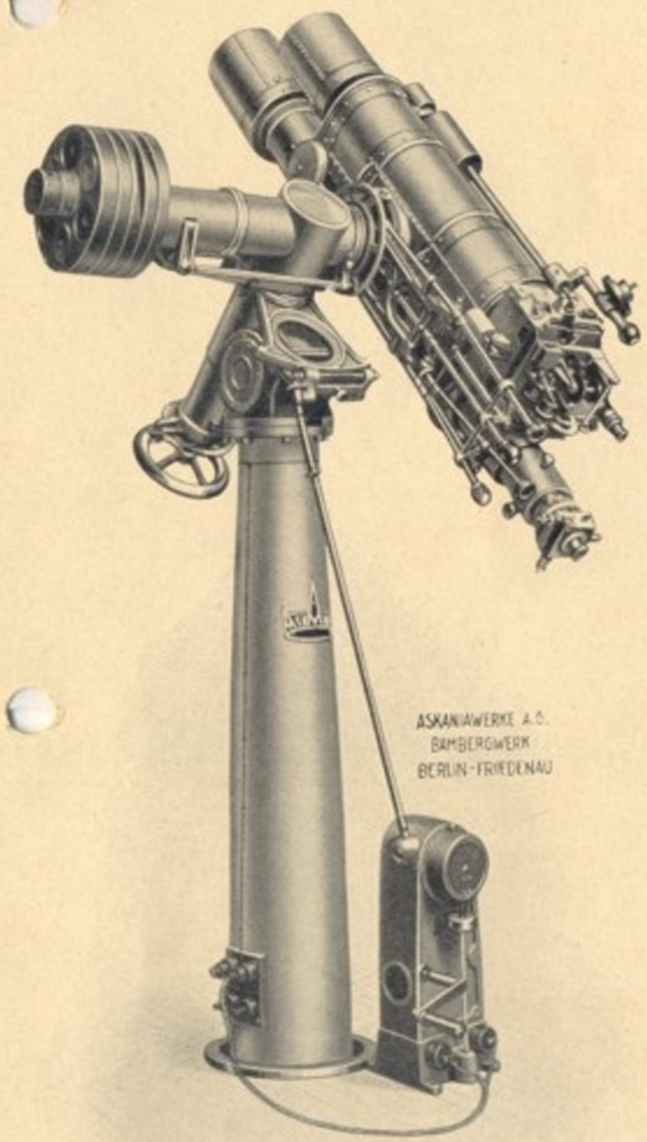
300. VII. 32. P.

Pamphlet: Astro 103 E

Printed in Germany

ASKANIA ASTRONOMICAL INSTRUMENTS

REFRACTORS AND REFLECTORS FOR VISUAL AND PHOTOGRAPHIC OBSERVATIONS • AZIMUTH AND PARALLACTIC TELESCOPES • CŒLOSTATS AND HELIOSTATS • VERTICAL CIRCLES • MERIDIAN CIRCLES • FIXED AND PORTABLE TRANSIT INSTRUMENTS • SPECTROGRAPHS • ASTROPHOTOMETERS • ASTRO-SPECTROGRAPHS • SPECTROHELIOGRAPHS • PROTUBERANCE-SPECTROSCOPES • MICROPHOTOMETERS FOR VISUAL OBSERVATION AND PHOTOGRAPHIC RECORDING • PLATE MEASURING APPARATUS • ZENITH TELESCOPES AND CAMERAS • UNIVERSAL INSTRUMENTS • ASTRONOMICAL OPTICS •



DOUBLE REFRACTOR

with photographic recording.

Telescope for visual observation:
Objective . . . . . 125 mm ø
Focal length . . . . . 1500 mm
Magnification between 188 and 30 x

Telescope for photographic recording:
Quadruple objective . . . . 160 mm ø
Focal length . . . . . 720 mm
Size of plate 13 x 18 cm or 16 x 16 cm.

The declination is adjustable to 5′ and the rectaszension to 20″ • Clamping and fine adjustments to be made from the observation end of the telescope.

Movement in AR by means of a clockwork with electrical correction.

Delivered 1928 to the Observatory at the University of Belgrade (Jugo-Slavia).

VISUAL REFRACTOR

with pillar mounting, German type.

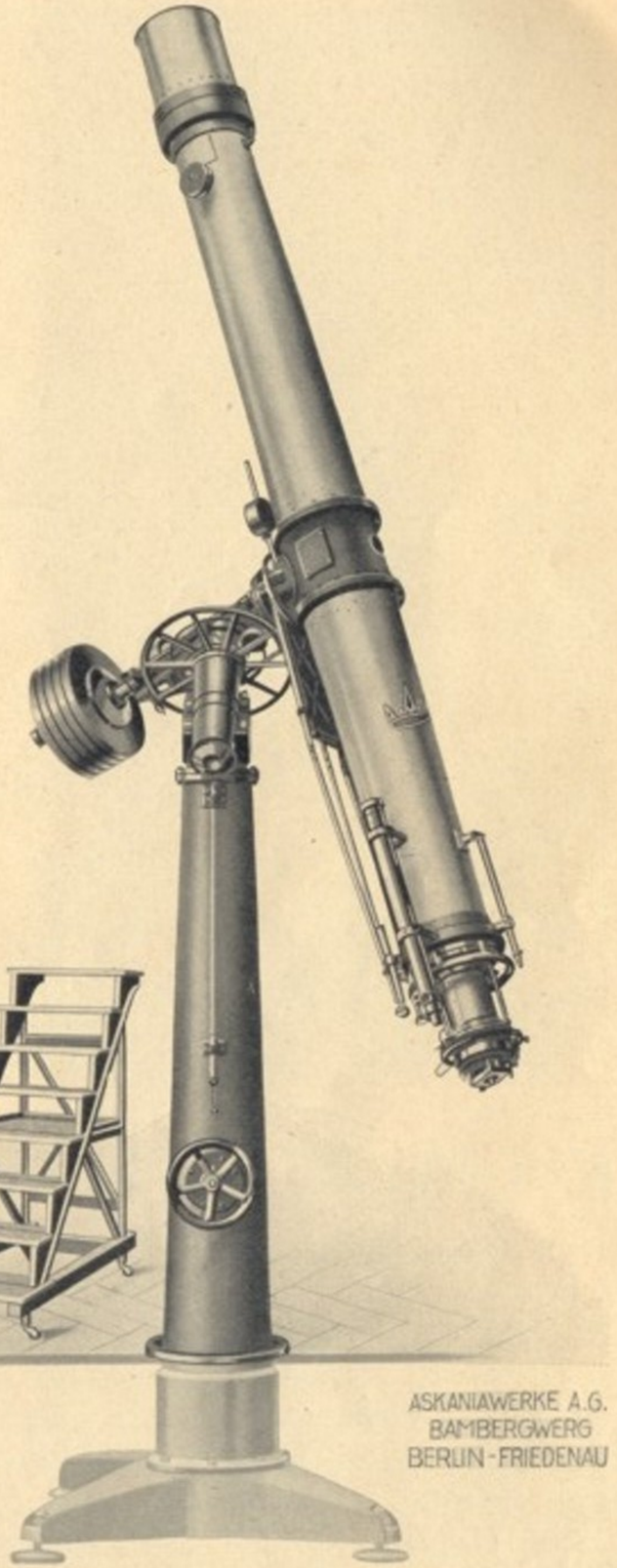
Objective . . . . . 350 mm ø
Focal length . . . . . 5600 mm
Magnification . . . . . 2650 x

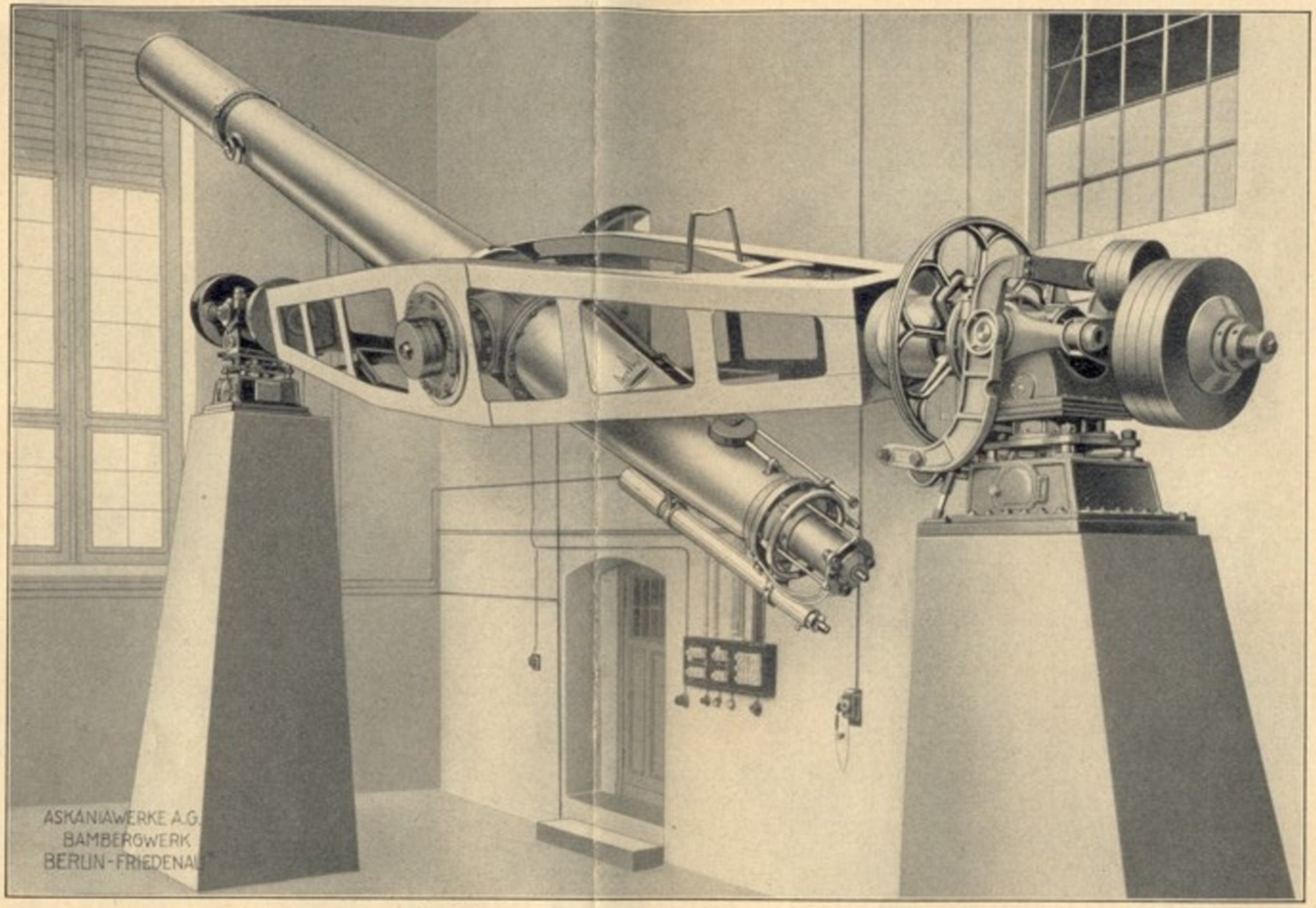
Fine adjustment of the ocular by means of a triple worm gear. Position micrometre with 20′ measuring range, readings of declination to 30″ • AR circle ruled to 5′, readings to 1″. The readings can be taken through a telescope on the pillar or on the ocular end of the refractor • Approximate adjustment of AR by means of a handwheel on the pillar. Clamping and fine adjustment in AR and D at the observation end of the telescope. Clockwork with automatic winding, running continuously.

Viewfindertelescope: Objective . . . . . 80 mm ø
Focal length . . . . . 1000 mm
Magnification . . . . . 25 x

Electrical illumination of cross wires and of all readings.

Delivered 1928 to the Observatory at the University of Belgrade (Jugo-Slavia) and in similar construction to the Urania-Sternwarte Berlin (Germany).





VISUAL REFRACTOR, erected 1928 at the Bosscha Sterrenwacht Lembang, Java, East Indies

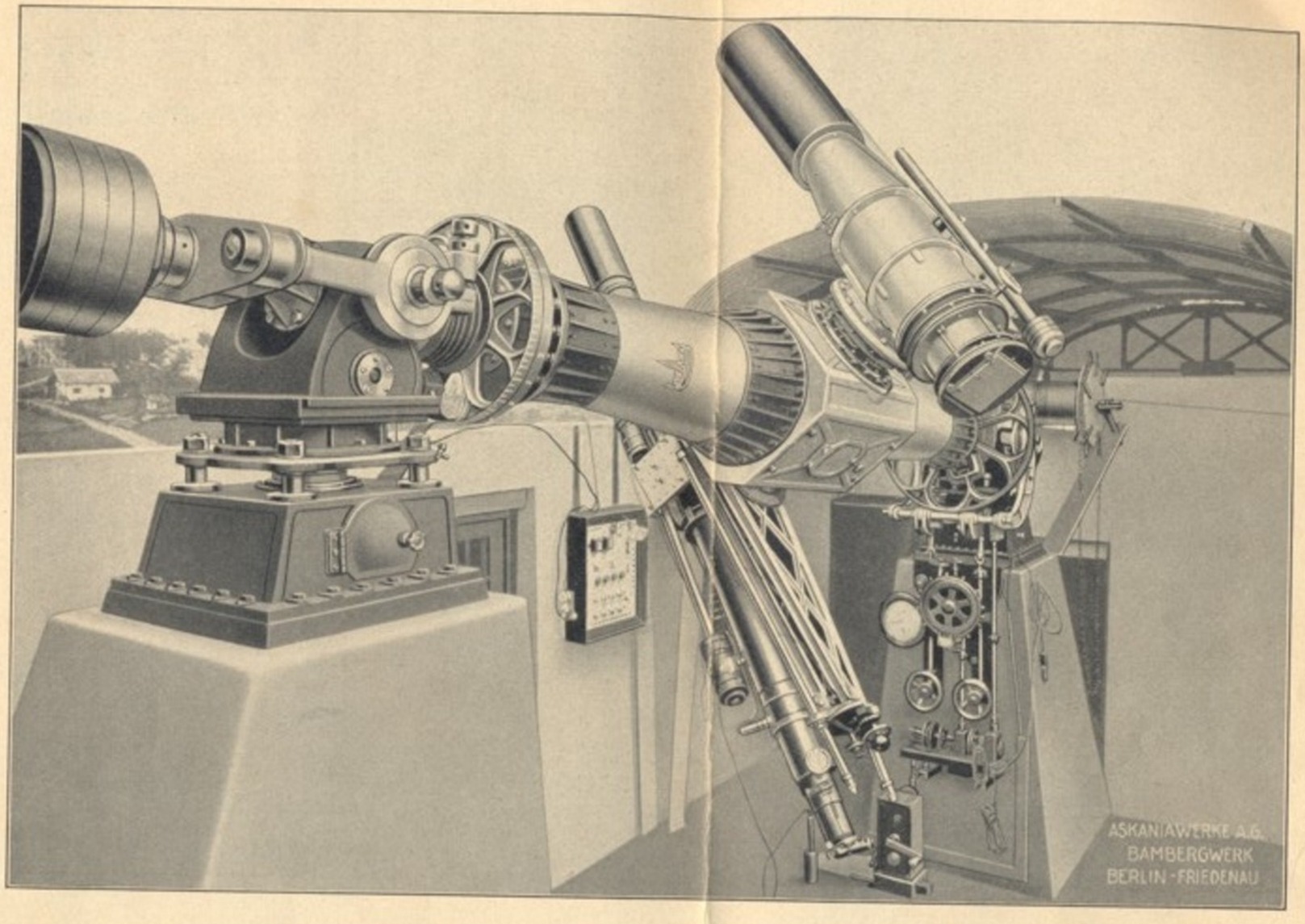
Visual telescope:

Objective . . . . . 360 mm Ø
Focal length . . . . . 7000 mm
Magnification is adjustable between 700 and 280 x by means of 6 orthoscopic oculars.

View finder telescope:

Objective . . . . . 110 mm Ø
Focal length . . . . . 1289 mm
Magnification . . . . . 32 x

English mounting on two pillars with correction for latitude and azimuth • Special support construction carrying the main load • Clamping and approximate adjustment for AR on South pillar • Clamping for D and fine adjustment for AR and D at observation end of telescope • Adjustments for AR by means of the hour angle circle driven by special clockwork • AR and Declination readings to 30″ • Movement in AR by means of a clockwork with electrical correction



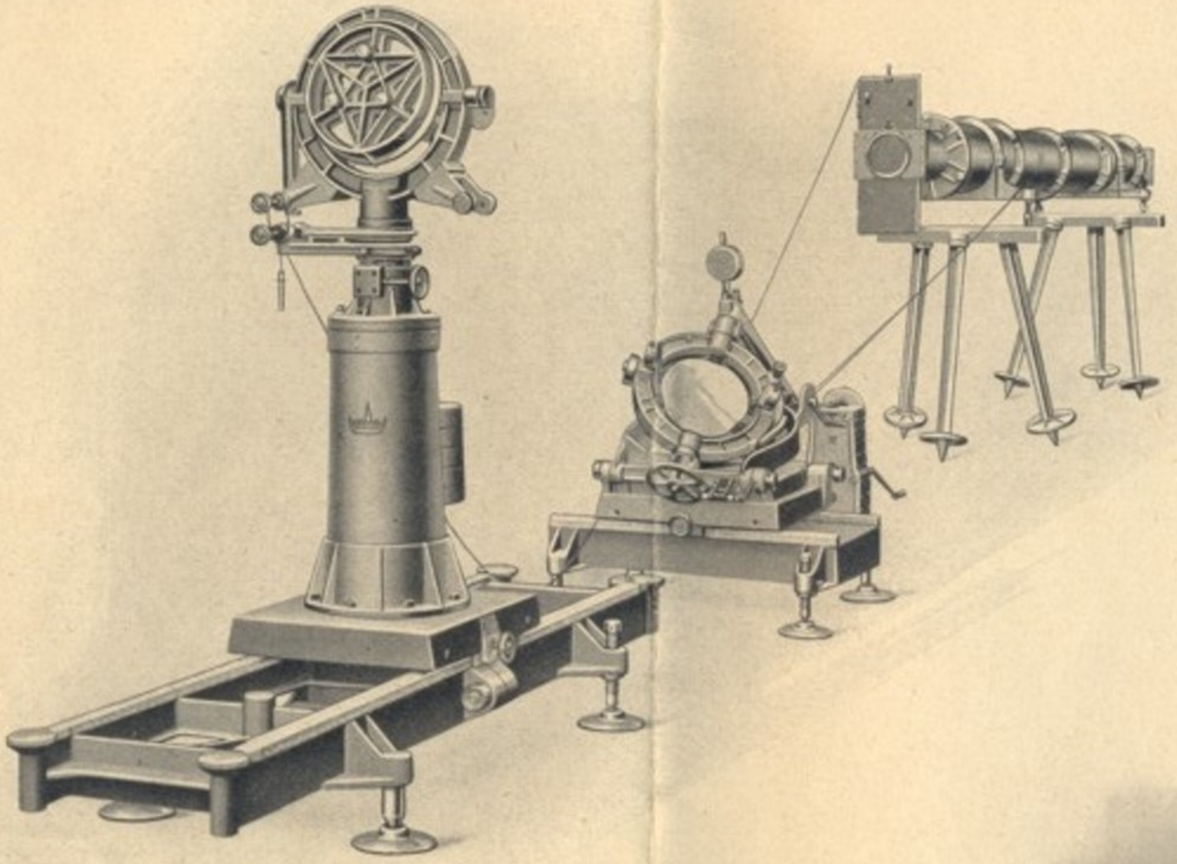
ASTROGRAPH, erected 1922 at the Bosscha Sterrenwacht Lembang, Java, East Indies

Photographic telescope:
Quadruple objective 160 mm Ø
Focal length . . . . . 960 mm
Size of plate . . . . . 13 x 18 cm

Visual telescope:
Objective . . . . . 200 mm Ø
Focal length . . . . . 4000 mm
Magnification is adjustable between 500 and 160 x by means of 7 orthoscopic oculars.

View finder telescope:
Objective . . . . . 60 mm Ø
Focal length . . . . . 570 mm
Magnification . . . . . 25 x

English mounting on two pillars with correction for latitude and azimuth and a special support carrying the main load • Individual adjustment of both telescopes for D • Readings of AR and D to 30″ • Clamping and approximate adjustment for AR on South pillar • Clamping for D and fine adjustment for AR and D at observation end of telescope • Adjustment of AR by means of the hour angle circle driven by special clockwork



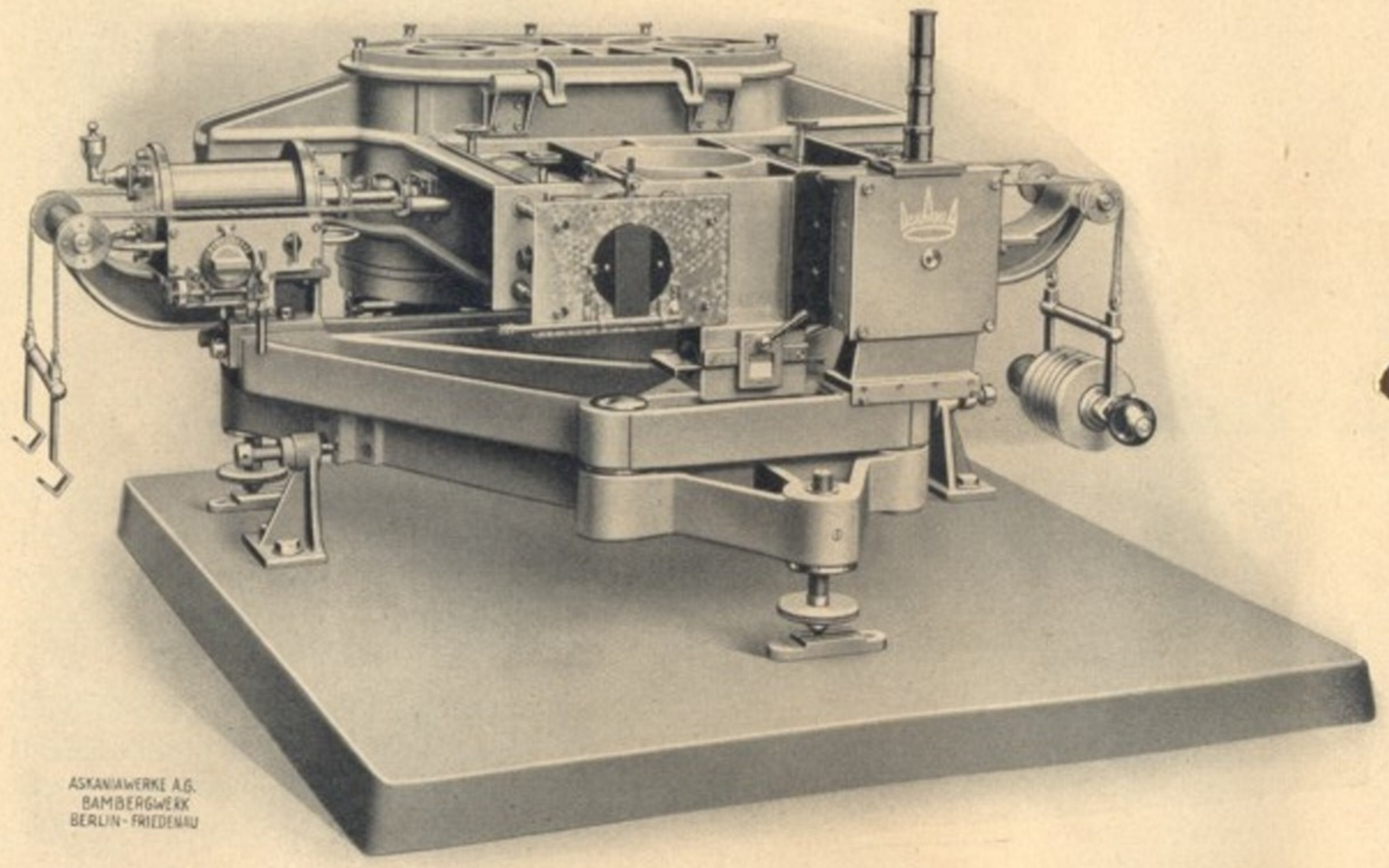
HORIZONTAL CAMERA

with coelostat and a second reflecting mirror.

Objective	160 mm Ø
Focal length	4800 mm
Size of plate	13 x 18 cm
diameter of coelostat mirror	300 mm

Movement of main mirror by special clockwork. This camera can be delivered either for permanent mounting or for use on expeditions.

Latest deliveries to the Astro-Physical Institute, Potsdam/Berlin (Germany) and Royal Observatory Rome (Italy).



SPECTRO-HELIOGRAPH

for use in connection with the Coelostat and Horizontal Camera. Complete solar image up to 55 mm. Objective and Collimator diameter 60 mm, height of slit 60 mm. To be used either with two or three prisms of 65° (dispersion is 16 Å/mm at λ=3900 Å or 24 Å/mm at λ = 4350 Å) or a screen (dispersion in 2nd order 22 Å/mm).

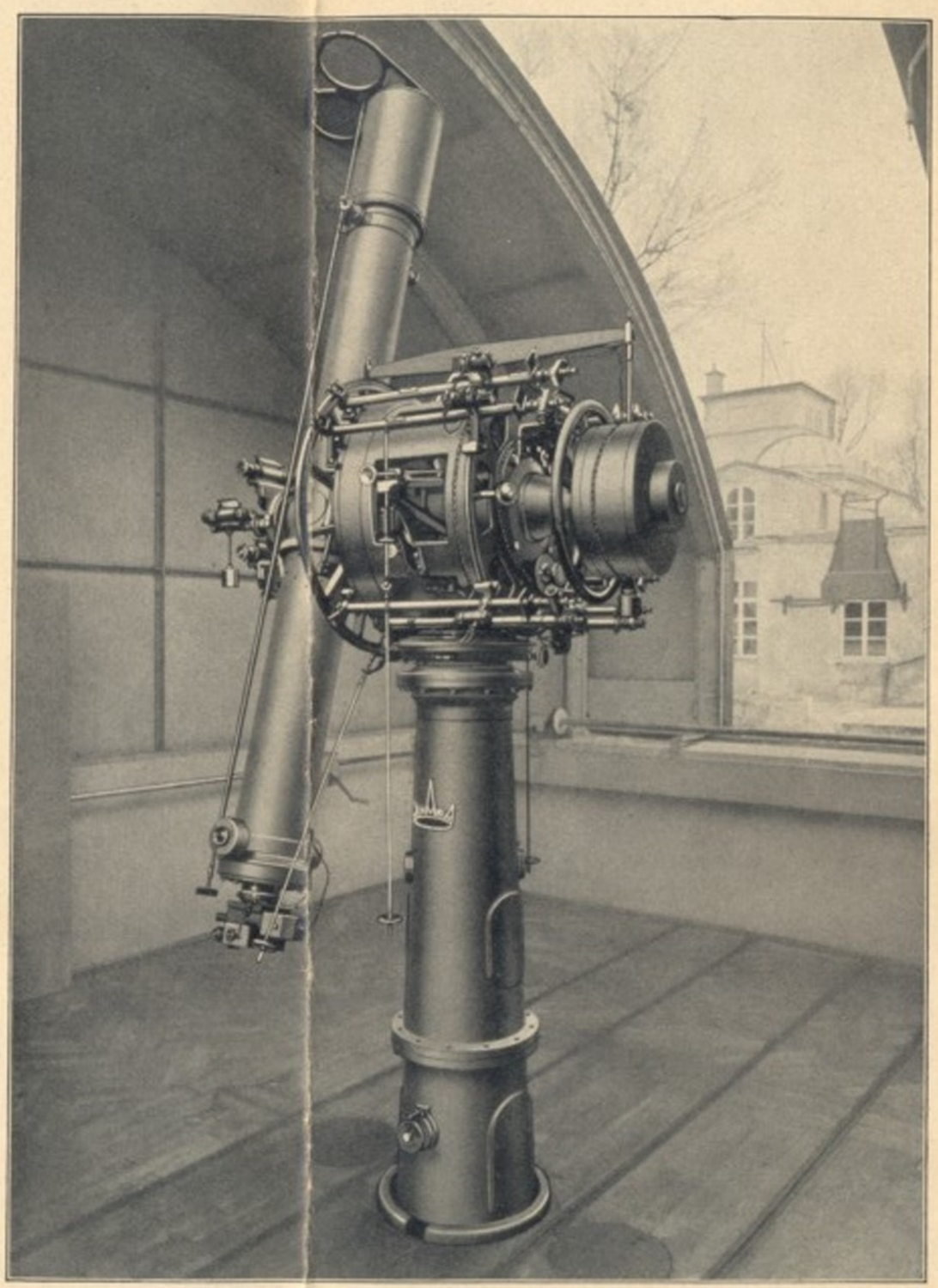
Latest deliveries to the Observatory Belgrade (Jugo-Slavia) and Kyoto (Japan).

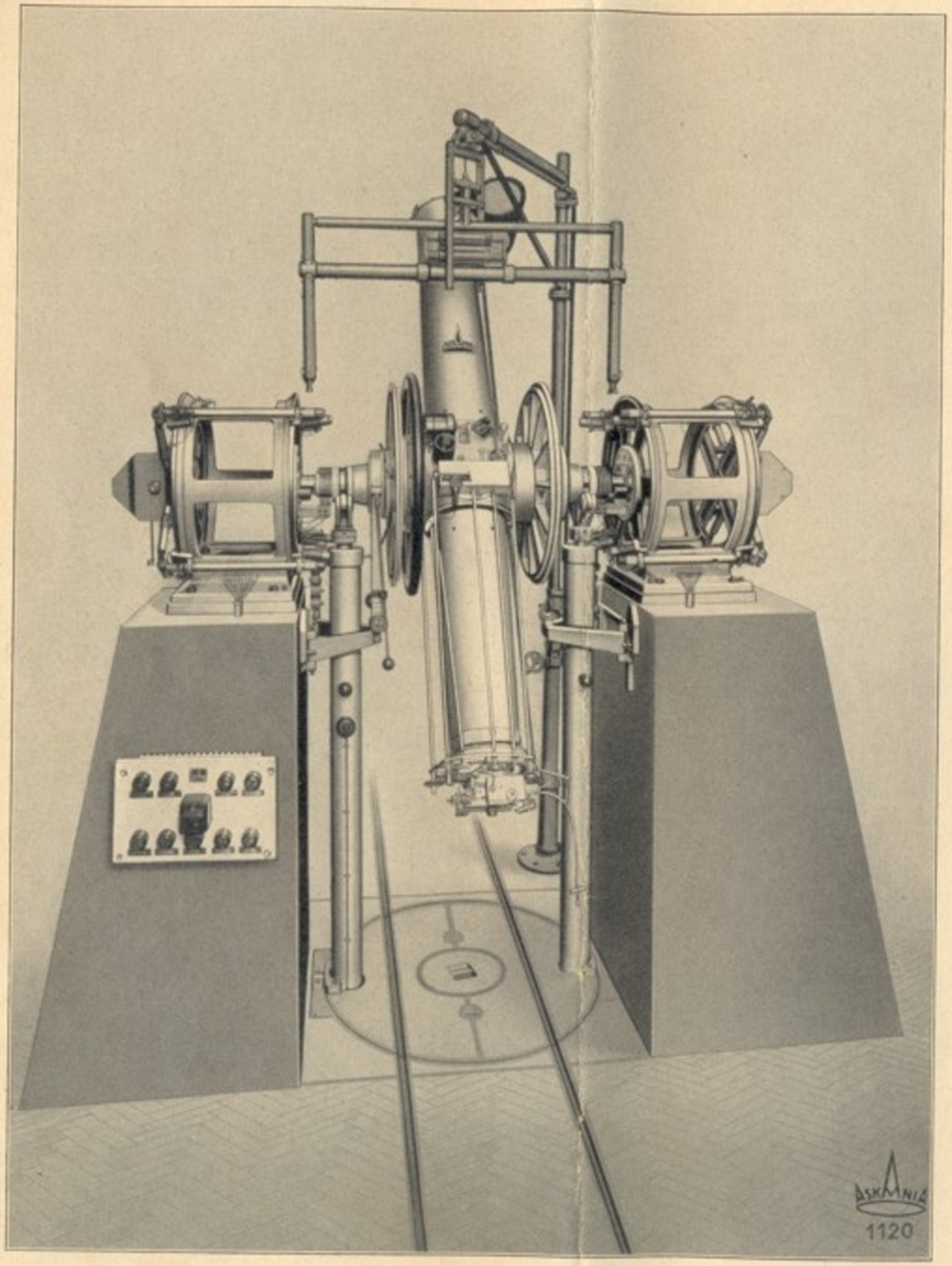
VERTICAL CIRCLE Av 190

Objective . . . . . 190 mm ø
Focal length . . . . . 2578 mm
Vertical circle . . . . . 800 mm ø
ruled to 2′, readings by means of 4 microscopes to 1″.
Horizontal circle . . . . . 380 mm ø
ruled to 10′, readings by means of 2 microscopes to 1″.

Sensitivity of levels on drum with microscopes and of the two Horrebow-Talcotte levels 1″ • Two mercury horizons in the base of the pillar for Nadir observation • Electrical illumination of cross wires and of all readings.

Latest deliveries to the Observatory in Munich and Babelsberg/Berlin (Germany), and Belgrade (Jugo-Slavia).



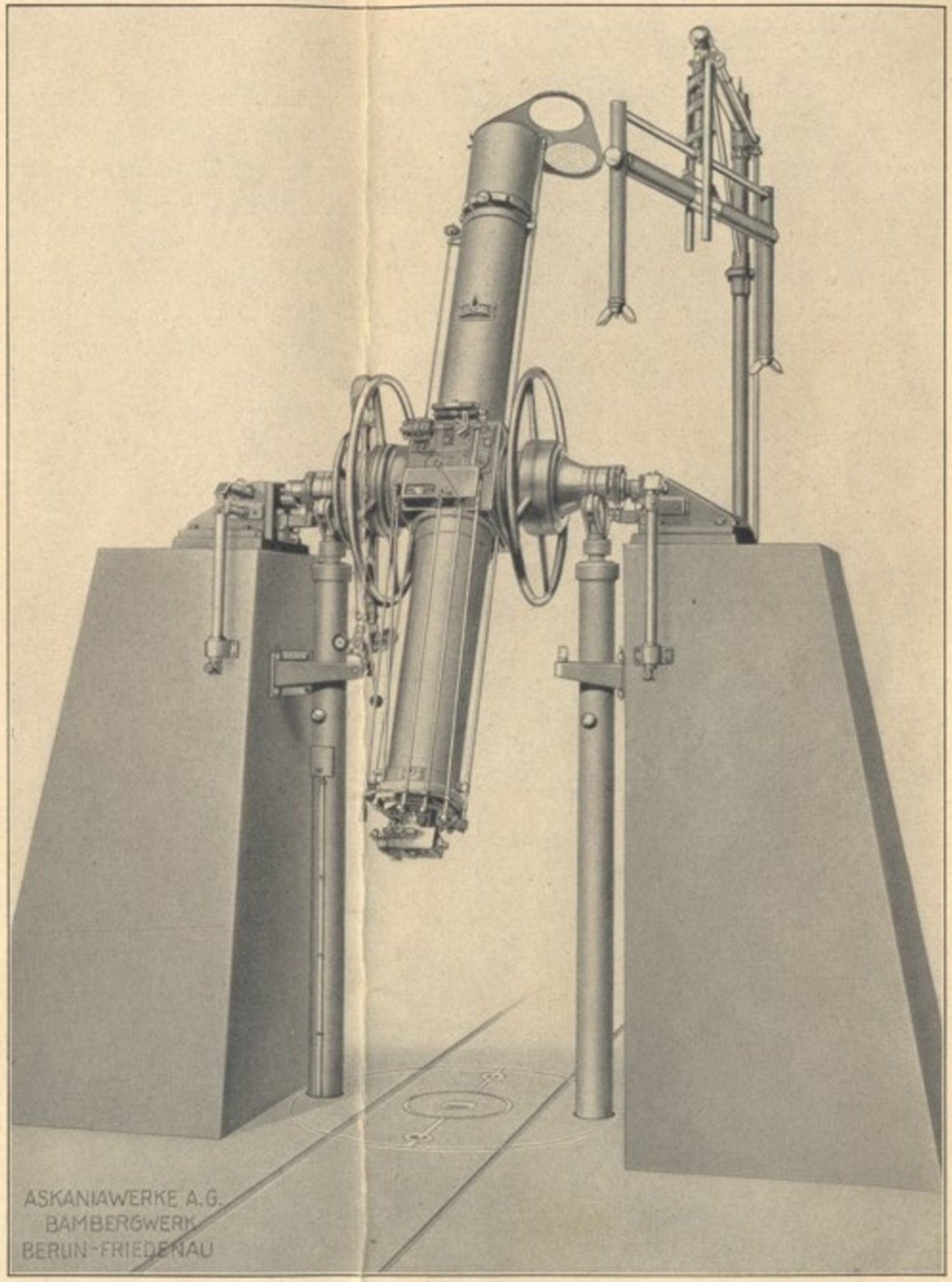


MERIDIAN CIRCLE Am 190

Objective . . . . . 190 mm Ø
Focal length . . . . . 2578 mm
Magnification . . . . . 103 — 322 x

This instrument is built entirely of cast steel. To avoid thermal effects and distorsion the telescope is equipped with special temperature protection • Impersonal recording micrometers for AR and D. Position of the micrometer for declination is recorded by type printing. Declination circle . . . . . 80 mm Ø of Palladium-Platinum or Monel metal • Ruled to 2′ or 4′ • Visual and photographic reading of the circle of both drums to $^{1}/_{10}$″ by means of 4 microscopes with 30 x magnification. Automatic recording of all 4 circle readings on standard film • Electrical movement of the impersonal micrometer in AR • Electrical lifting of the instrument and semi-automatic reversion with central support construction to carry the main load • Double level suspended on a crane with sensitivity of 1″ with remote reading.

Latest deliveries to the Royal Astronomique Uccle Brussells (Belgium) and in similar construction to the Observatory at the University of Belgrade (Jugo-Slavia) and Babelsberg, Berlin (Germany).



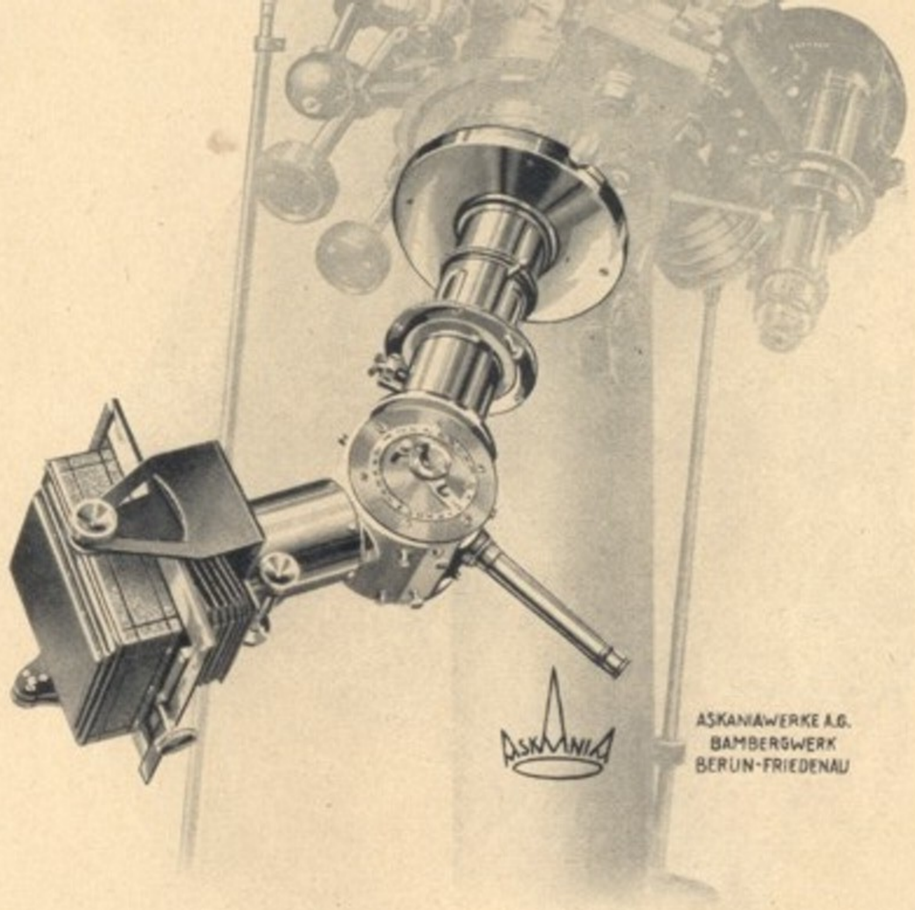
TRANSIT INSTRUMENT Ap 190

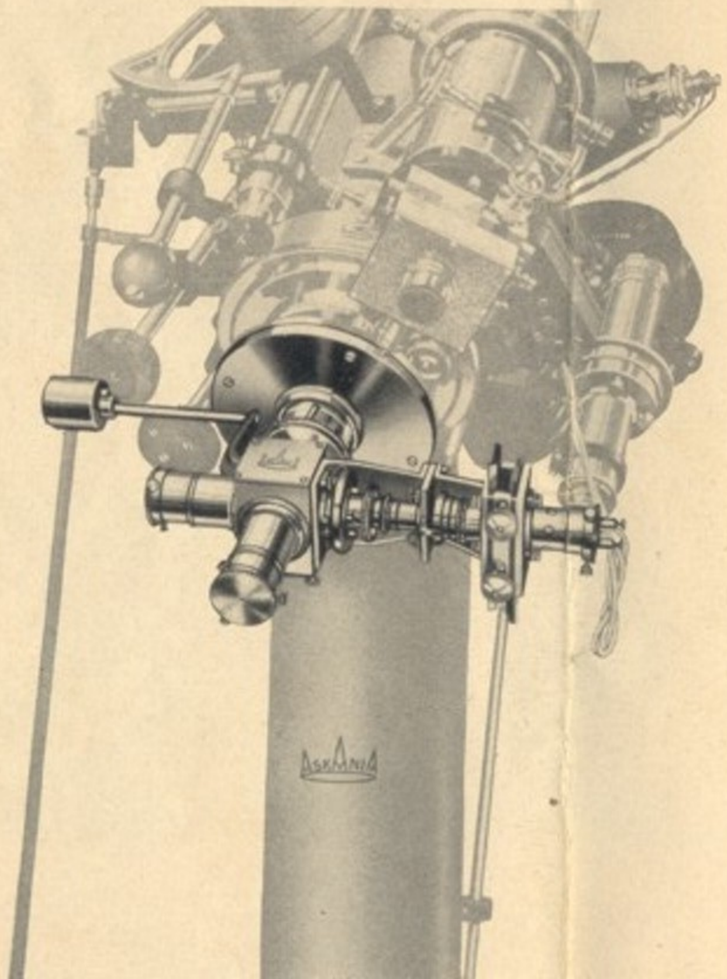
This instrument is built similar to the Meridian Circle Am 190 on the opposite page. According to its limited use the two declination circles are only of 400 mm Ø, ruled to 10′. Reading accuracy 1′ • The photographic recording as well as the type printing mechanism is omitted • Electrical illumination of all readings and of cross wires.

Latest deliveries to the Observatory at the University of Belgrade, (Jugo-Slavia), and Babelsberg, Berlin (Germany).

UNIVERSAL STELLAR SPECTROGRAPH Asp 2,
according to Rosenberg

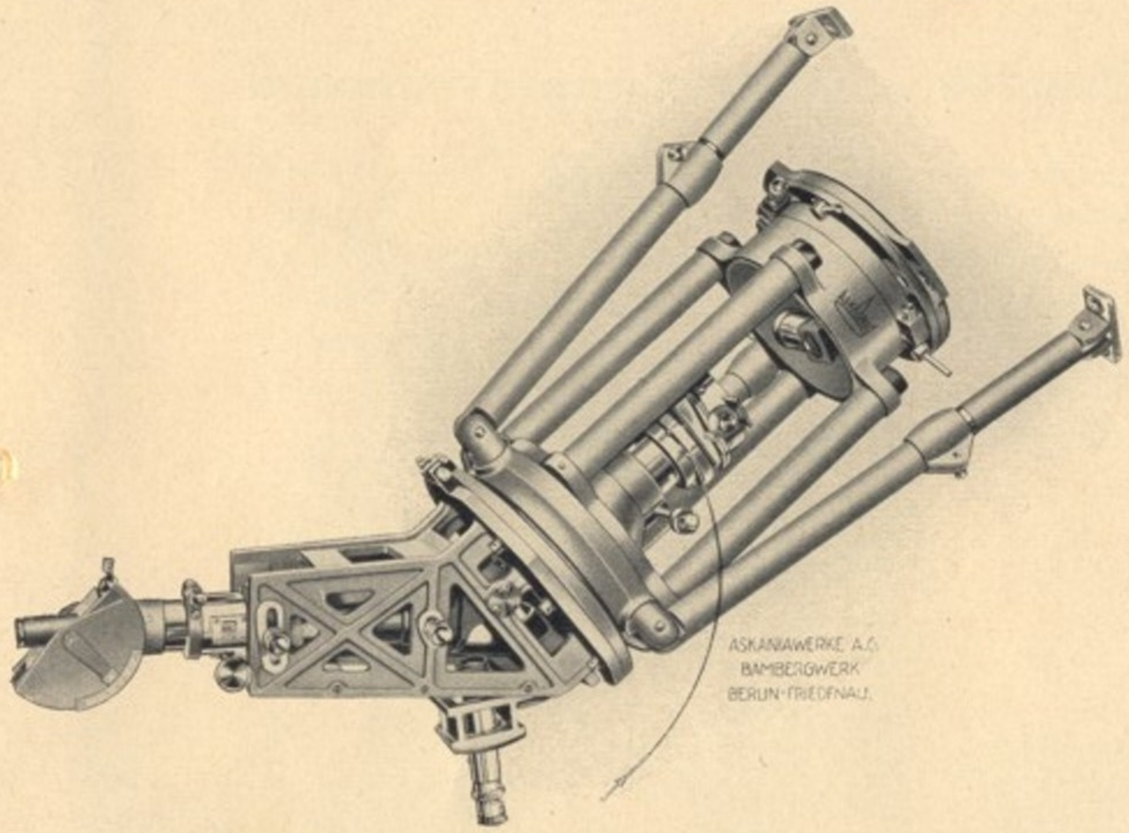
Slit 10 mm in length, ultra-violet 63° prism, interchangeable with a screen of 40 x 50 mm • Camera with compound shutter working at speeds up to $^1/_{100}$ sec. also a roller blind shutter • Collimator and camera objectives have a clear aperture of 20 mm • Collimator objective 120 mm, camera objective 180 mm focus • Dark-slide with adjustable focus and variable inclination • Plate size 4½ x 6 cm Dispersion of the prism is 263 Å/mm at λ=4350 Å, and 70 Å/mm at λ=3000 Å; that of the screen when using the 1st order is also 70 Å/mm. • Small auxiliary telescope to facilitate setting and to guide the instrument during exposure.





ASTRO-PHOTOMETER Apho 4,
according to Zoellner-Rosenberg

For the determination of brightness of stars by visual observation • Equipped with intensity circle and 3 Nicol systems of which the center one is rotatable, one wedge for color compensation, one measuring wedge with several different diaphragms in the light path of the artificial star, which is reduced to measurable values and compensated in colors by means of the Nicol-systems and the wedges • Measuring accuracy 0,1 magn. • This astro-photometer can be attached to any medium size telescope.



QUARTZ SPECTROGRAPH

according to Vogel-Hartmann • With one quartz prism of 60° and one plano-convex quartz lens • This spectrograph has been designed on the principle of the objective prism for photographing spectra of nebulae and comets of weak intensity and for photometric studies in the ultra-violet region of the spectrum •

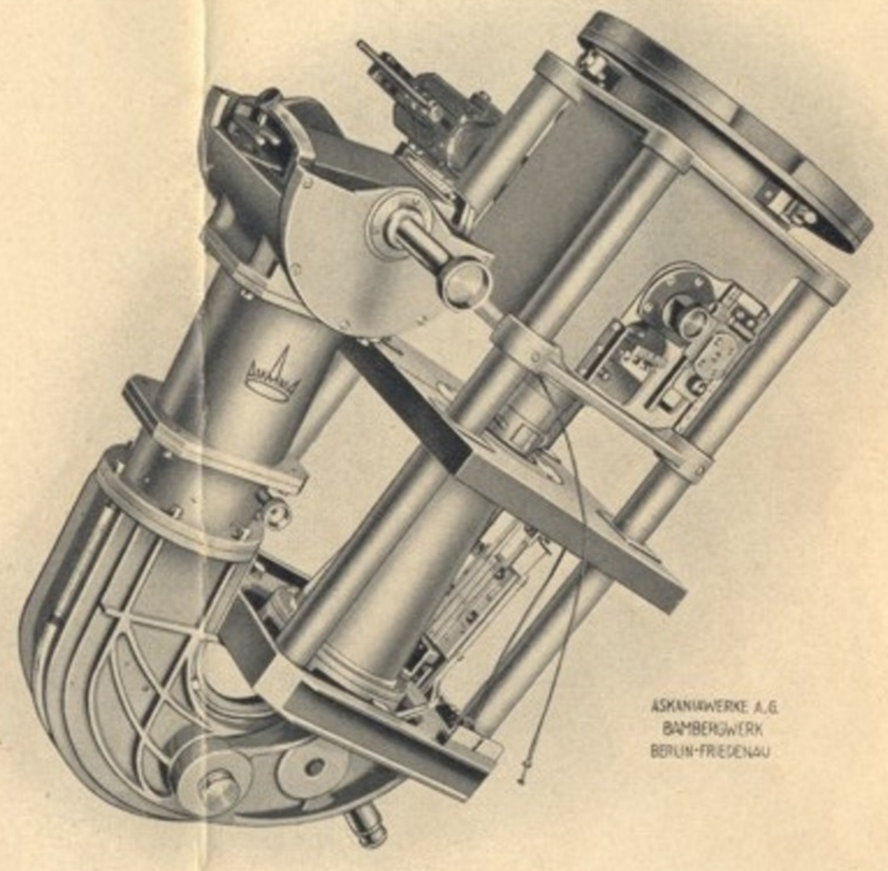
Camera objective of quartz . . . 40 mm Ø • focal length . . . 320 mm
Dispersion is 156 Å/mm at $\lambda = 4400$ Å and 50 Å/mm at $\lambda = 3000$ Å.
Specially suitable in connection with a reflector for N. V. observations
size of plate . . . . 3x6,5 cm

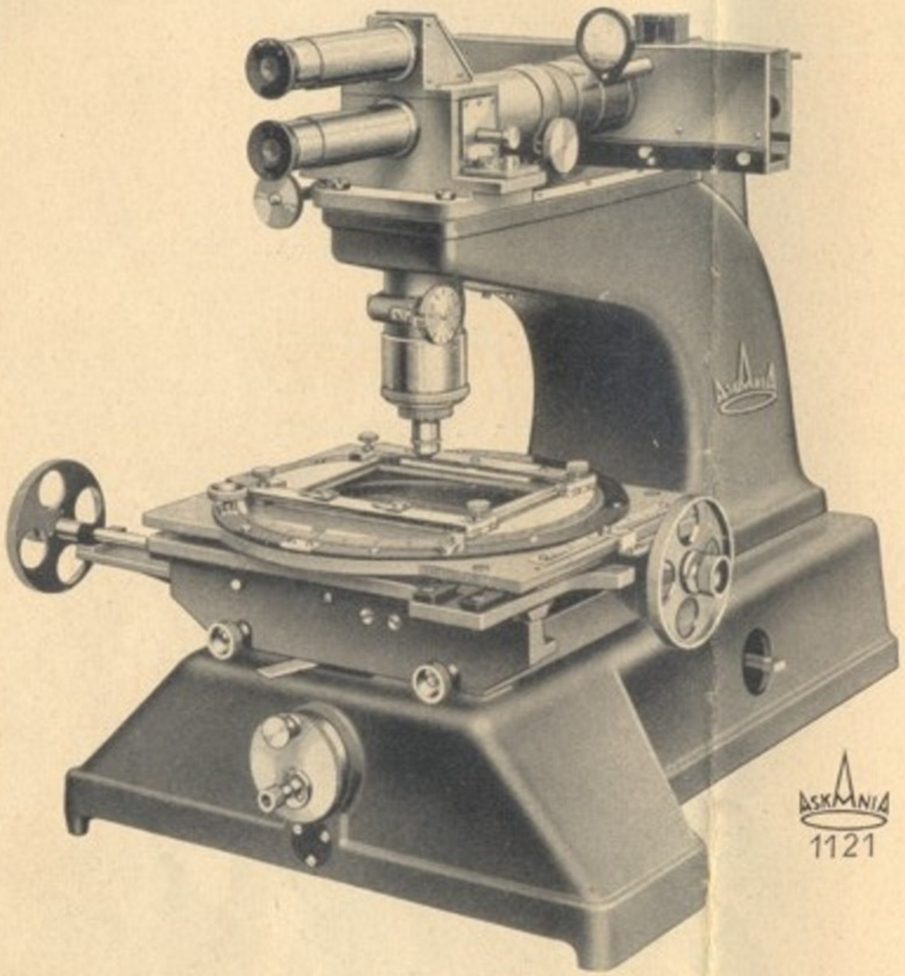
Latest deliveries to the Astro-Physical Observatory Potsdam/Berlin (Germany) and Observatory Simeis in U.S.S.R.

ASTRO-SPECTROGRAPH

For use with either 1 or 3 prisms of 60° angle • Collimator objective 45 mm Ø, focal length 360 mm • Dispersion is from 15 to 38 Å/mm at $\lambda = 4350$ Å (G') • Equipped with three cameras of 550, 360 and 210 mm focal length and a device for producing a spectrum for comparison. This spectrograph can be furnished with a heating jacket with automatic control to keep the instrument at a constant temperature

Latest delivery to the Astro-Physical Institute Potsdam/Berlin (Germany) and to the Observatory at the University of Belgrade (Jugo-Slavia).

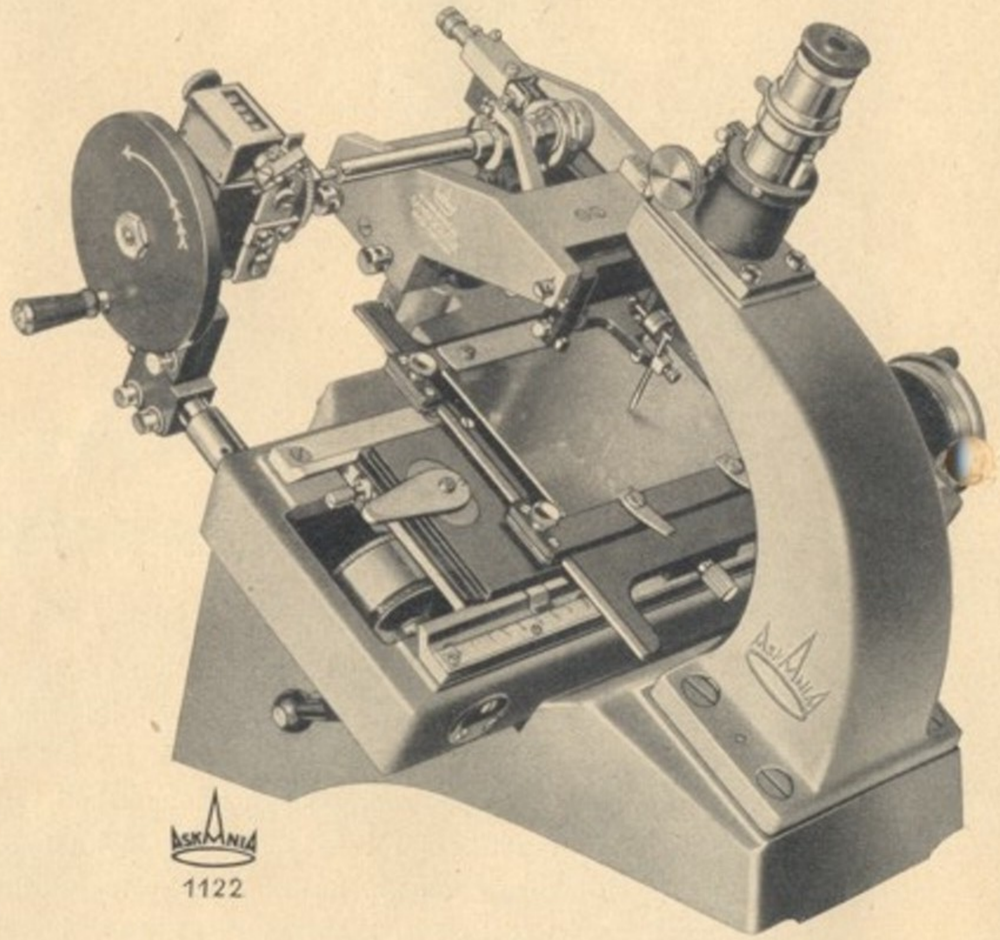




1121

MICROPHOTOMETER visual, according to Hartmann

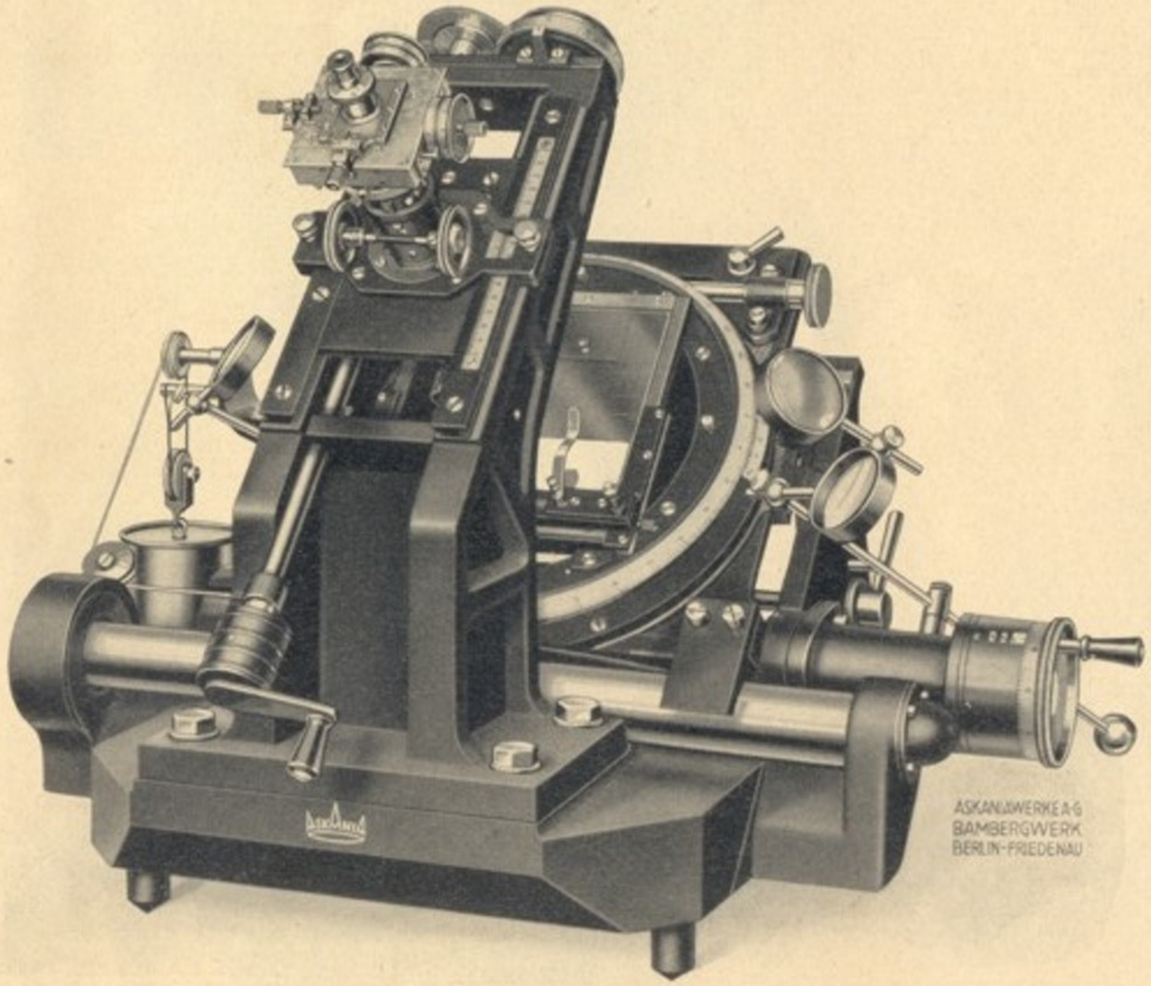
Interchangeable tables for plates from 9x12 cm up to 30x30 cm. For the measuring of spectra and light intensities of stars • Other designs of the same type: 1. Electro Microphotometer according to Rosenberg for measuring spectra and images of smallest focal stars. Equipped with two compensating photo-electric cells • 2. Measuring Apparatus according to Kohl. To be used as a standard electro-microphotometer and measuring apparatus for length as well as an electro-microphotometric measuring apparatus for determining radial velocity. Accuracy 0,0005 mm •



1122

MEASURING APPARATUS Ma 1

for the measuring of spectra, graduations and screens • Measuring range 60 or 120 mm length • Measuring screw of 0,5 mm pitch Reading accuracy 0,005 mm, estimated to 0,001 mm • Magnification 12 or 24 x • This Measuring Apparatus can be furnished with an attachment for the ruling of diaphragms, scales, screens etc. and a device for inserting cross wires and stadia • Different types of additional detachable plate tables can also be delivered.



MEASURING APPARATUS Ma 7

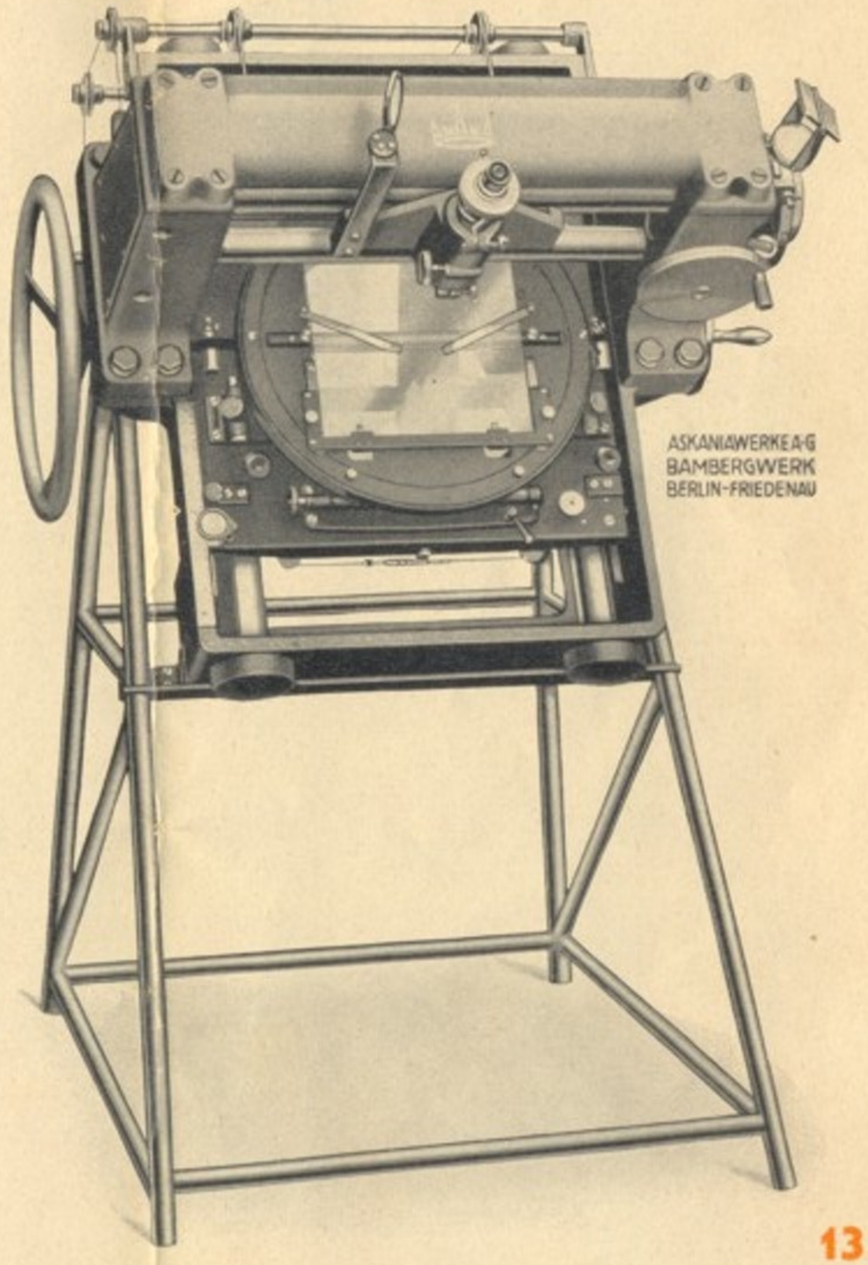
For plates of 16x16 cm size. Measuring screw of 0,5 mm pitch. Reading accuracy 0,005 mm, estimated to 0,001 mm. Magnification 5 — 66 fold with different sets of microscopes • The distance between the two vertical threads is adjustable • The micrometer is rotatable by 90° • The plate table is rotatable, reading accuracy on the circle of 280 mm Ø by means of two verniers to 1′ • The reading microscope can be adjusted in its y-axis with an accuracy of 0,1 mm

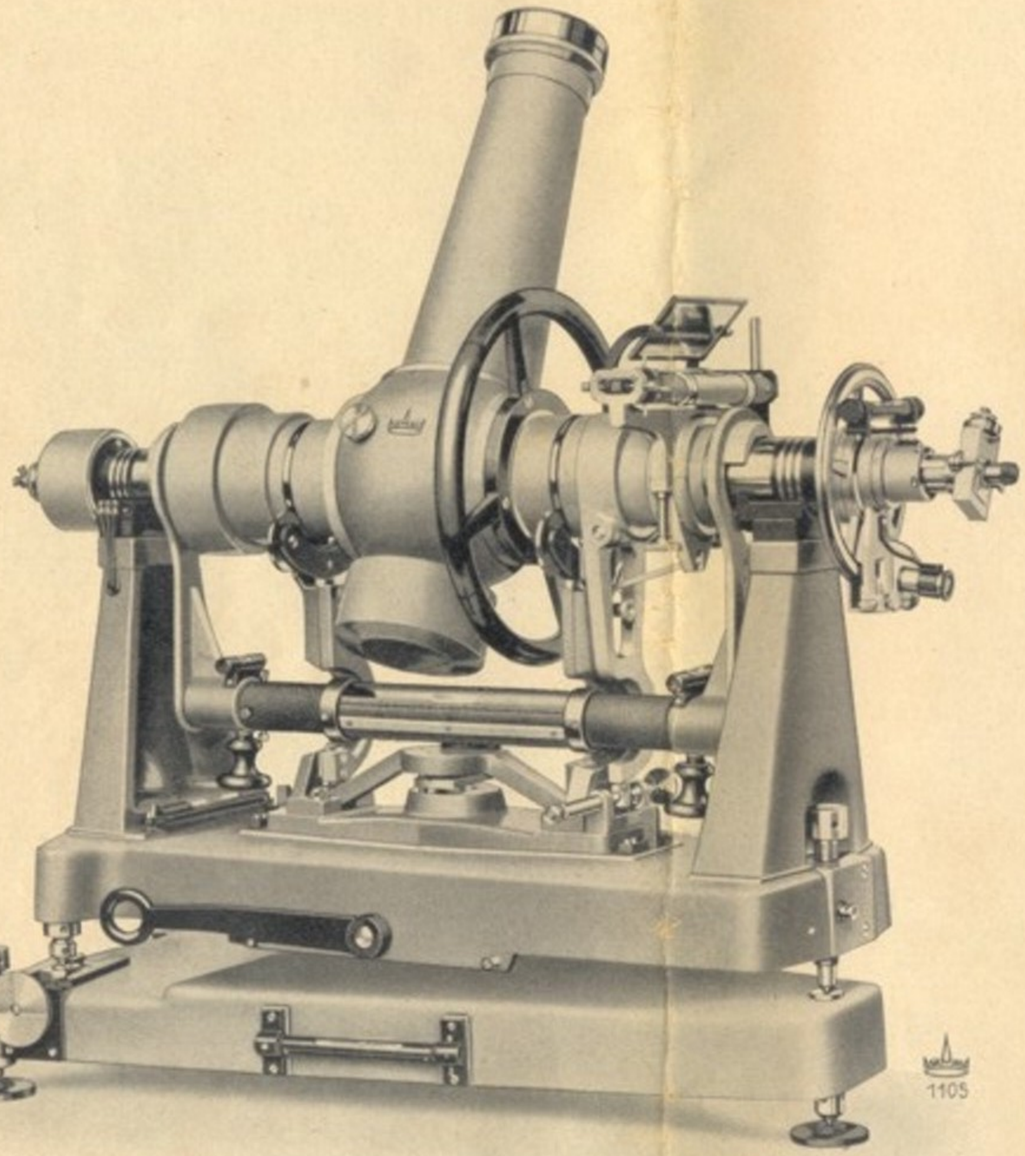
Deliveries in Germany, France, U.S.S.R, Japan.

MEASURING APPARATUS Ma 12

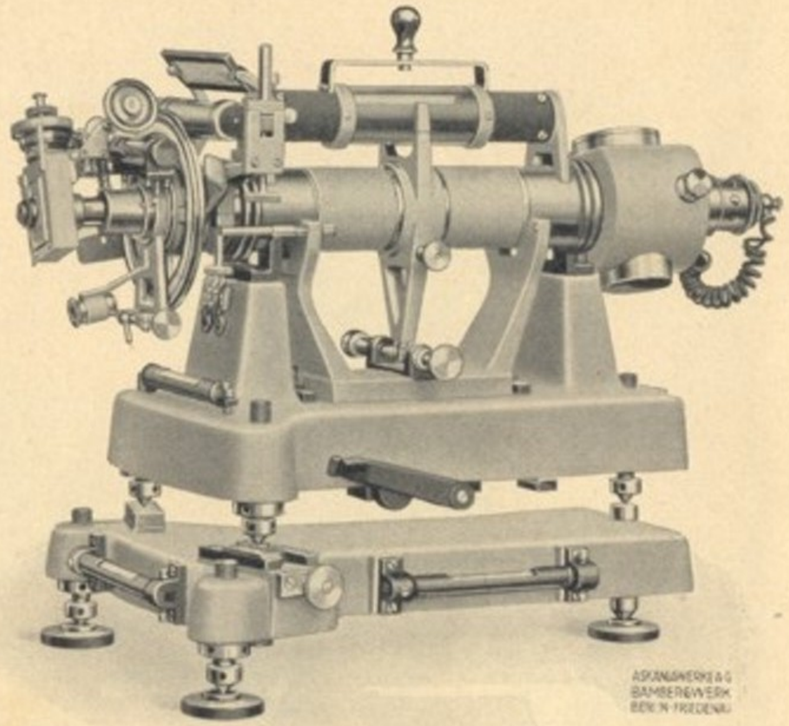
For plates up to 240x240 mm size, measuring accuracy of screw 0,001 mm • The plate table and the reading microscope are each guided on two special steel bars • Measuring in the y-axis by moving the plate table, in the x-axis by sliding the reading microscope • Magnification 5 — 28 x • This type has specially been constructed to avoid errors in the reading resulting from thermal effects of the instrument.

Delivered to the Observatory at the University of Bonn (Germany), and the Observatory Pulkowo (U.S.S.R.), to be used for the interpretation of the plates of the zone program of the Astronomische Gesellschaft.





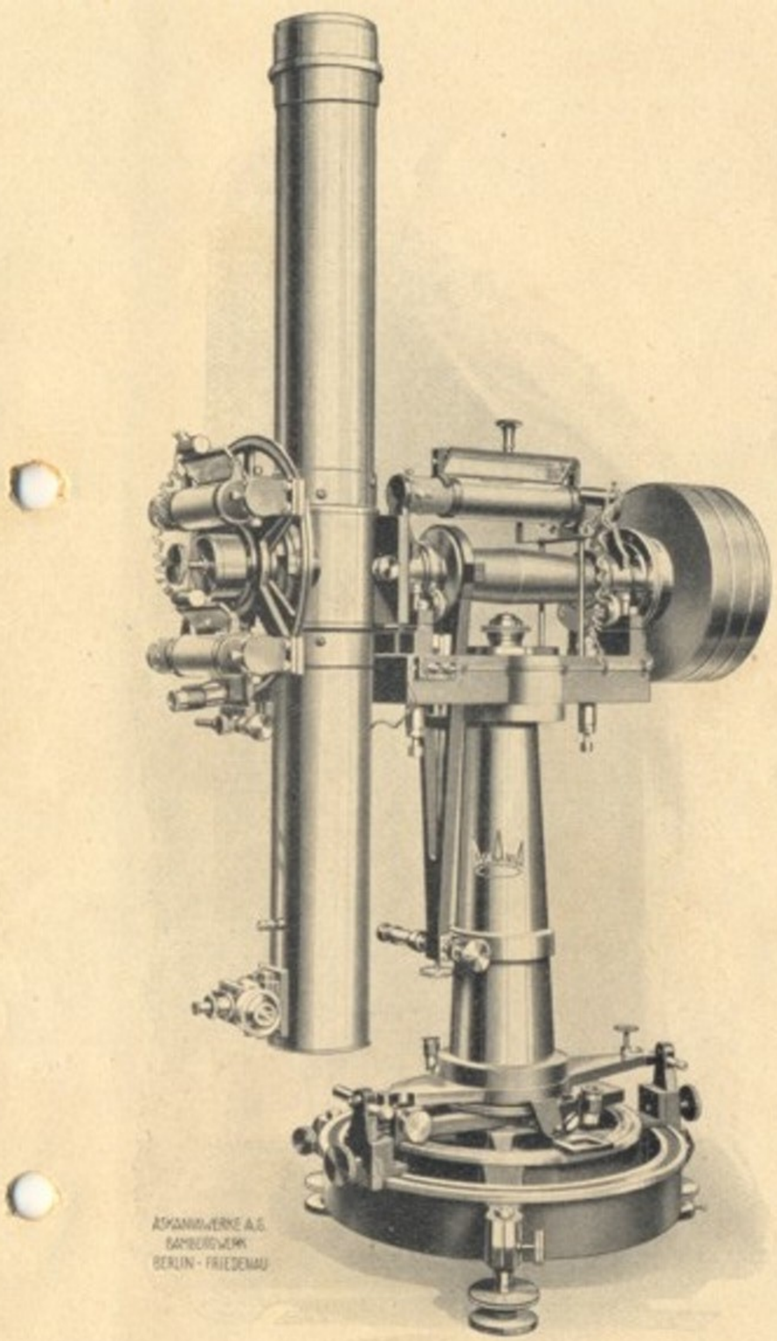
Portable Transit Instrument Ap 90



Portable Transit Instrument Ap 50

PORTABLE TRANSIT INSTRUMENTS

with objectives of 50, 70, 90 or 100 mm Ø and 450, 644,5, 859 or 1031 mm focal length • Magnification from 30—172 x • These instruments have been built for several decades and are in use in all parts of the world. They are free from any tension and are equipped with axles of specially hardened steel • With semi-automatic reversing mechanism. Either ocular micrometer or impersonal recording micrometer can be furnished. Sensitivity of the level for the axle and the Horrebow-Talcotte level is 1″ • The type Ap 90 and 100 can also be delivered as portable transit circles • Electrical illumination of cross wires and of all circle readings • Special support construction carrying the main load.



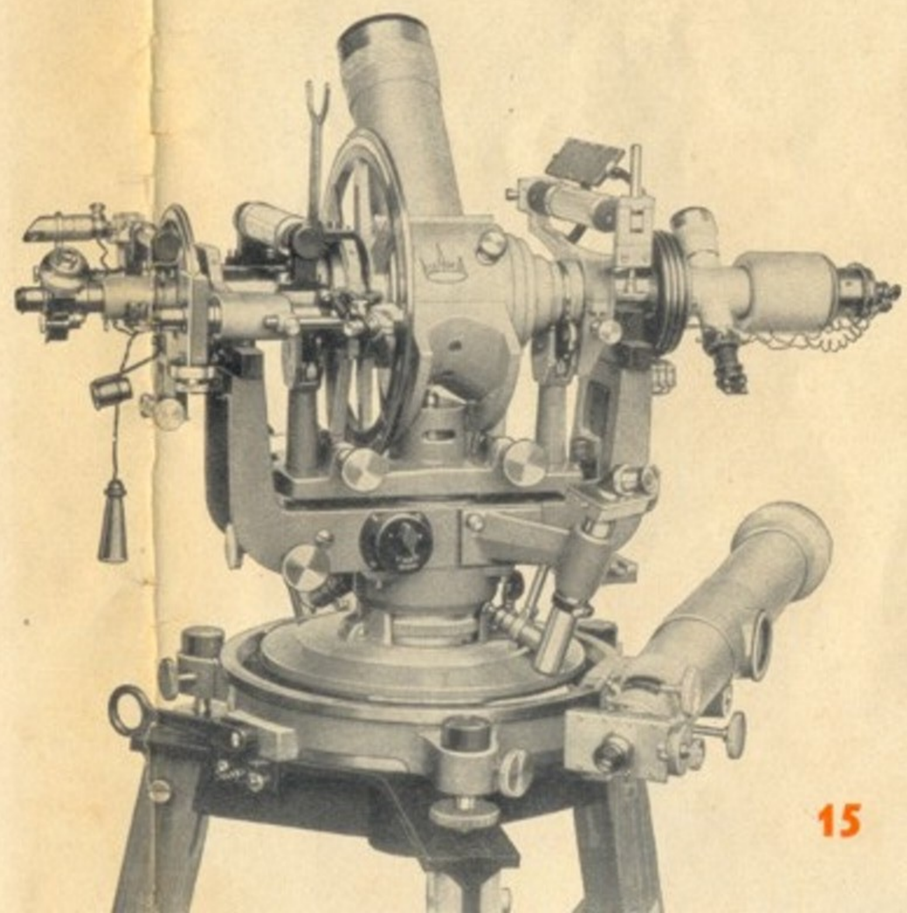
ZENITH TELESCOPES

Objective . . . . . 90 mm ø or 110 mm (or 130 mm with photographic recording)
Focal length . . . . . 150 mm or 1289 mm (or 1300 mm with photographic recording)
Magnification from 77—160 x • Vertical circle 270 mm ø, readings to 1″ • Horizontal circle 300 mm ø, reading to 10″ • Sensitivity of level for the axle and the Horrebow-Talcotte level 1″ • Electrical illumination of cross wires and of all circle readings.

UNIVERSAL INSTRUMENT

Objective . . . . . 55 mm ø
Focal length . . . . . 450 mm
Magnification . . . . . 25 — 56 x

Azimuth and vertical circle of 210 mm ø graduated to 5′ • Reading accuracy by means of two screw microscopes to 1″ • Special support construction carrying the main load and semi-automatic reversing by means of lever mechanism • Electrical illumination of cross wires and of all circle readings by one switch. Sensitivity of level for axle 2″, of Horrebow-Talcotte level 1″ • Telescope for checking position fastened on the tripod • Objective 50 mm ø, focal length 400 mm • This instrument can also be furnished with an objective of 65 mm ø and focal length of 520 mm and horizontal and vertical circle of 270 mm ø.

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