

UNITRON

ASTRONOMICAL TELESCOPES

your key to the
EXPLORATION of SPACE



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GENERAL INFORMATION on UNITRON REFRACTORS

OBJECTIVE LENSES

The UNITRON achromatic objectives have been designed and manufactured to meet the exacting requirements of critical astronomical observation. They far surpass in performance the usual objectives offered in telescopes of these sizes. The lenses are air-spaced, rather than cemented, to insure superior corrections, freedom from strain under extremes of temperature conditions, and absence of clouding with age. UNITRON objectives are fully corrected for spherical and chromatic aberration and coma, and coated for maximum light transmission. Resolving power equals or exceeds the Dawes empirical criterion. The crown and flint components are mounted in a specially designed cell which is matched to fit a second cell mounted on the telescope tube.

SPECIFICATIONS

	1.6"	2.4"	3"	4"
Diameter:	42mm.	62mm.	78mm.	105mm.
Aperture:	40mm.	60mm.	75mm.	100mm.
Focal Length:	700mm.	900mm.	1200mm.	1500mm.
Focal Ratio:	f/17.5	f/15	f/16	f/15
Resolving Power:	2.8 sec.	1.9 sec.	1.5 sec.	1.1 sec.

EYEPIECES

Eyepieces have been carefully designed to match the objective lenses. They are offered in the following focal lengths: K-60mm., K-40mm., H-25mm., K-18mm., K-12.5mm., A.S.-9mm., A.S.-7mm., O-6mm., O-5mm., O-4mm. (K = Kellner, H = Huygens, A.S. = Achromatized Symmetrical, O = Orthoscopic). The eyepieces may be used alternately in the telescope drawtube, star diagonal, UNIHEX Rotary Eyepiece Selector, and other accessories. The magnification of each eyepiece is determined by dividing its focal length into the focal length of the telescope objective. Unlike the case with microscope optics, there is no international standard for the diameter of telescope eyepieces, and the diameters of UNITRON eyepieces have been selected on the basis of utility and optimum design. Most eyepieces have outside diameter 24.5mm., while those of 40mm. and 60mm. focal length have diameters $1\frac{1}{4}$ " and 58mm. respectively. It is the optical design of an eyepiece and not the outside diameter of the metal barrel which determines the field of view — this fact is often not clearly understood.

FOCUSING MECHANISMS

The smooth action of the UNITRON micrometric rack and pinion focusing mechanisms allows the image to be focused rapidly with ease and accuracy. In the 2.4" and 3" refractors and in the 4" Altazimuth model, the sleeve of the **Standard** rack and pinion focusing mechanism holds either the adjustable, 36.8mm. diameter drawtube and eyepiece holder; or alternately, the tubes of accessories such as UNIHEX, DUETRON, the Astro-Camera 220, etc. The 3" refractors and the 4" Altazimuth can be furnished at an extra cost of \$15.50 with a **Deluxe** mechanism of more sophisticated design which also includes clamps to lock both the drawtube and focusing sleeve to prevent motion during photography. The 4" Equatorial models use the **Super** rack and pinion, a considerably larger mechanism with a drawtube of 58mm. diameter. Both the giant, wide field 60mm. eyepiece and the Super-UNIHEX may be used with this latter model. Clamps are provided to lock both the drawtube and focusing sleeve.

EQUATORIAL MOUNTINGS

The UNITRON Equatorial mountings are of massive design with oversized components to insure the utmost stability. Slow motion controls as well as rapid motions are provided for both declination and right ascension. With these, the celestial object may be rapidly centered and then kept in the field of view using the right ascension slow motion. The UNITRON clock drives may be added to provide automatic following. The mounting is rapidly and accurately adjusted to the latitude of your observing station using a fine adjustment, and an azimuth clamp is provided for the North-South adjustment. The 3" and 4" models are provided with setting circles to permit the location of objects which are unfamiliar or too faint to be found with the viewfinder alone. The hour circle is divided in units of 10 min. and reads to 1 min. by vernier. The declination circle is divided in units of 2 degrees and reads to 5 min. by vernier. The base of the equatorial mounting is in the form of a cylinder which fits into the head of the wooden field tripod or the fixed metal pier.

ALTAZIMUTH MOUNTINGS

The UNITRON Altazimuth Mountings are of exclusive design with slow motion controls as well as rapid motions for both altitude and azimuth. Contrast their unique design, as shown in the illustrations, with the usual altazimuth mountings, many of which are hardly more than a universal joint with no means of controlling the movement of the telescope tube. The UNITRON mountings are exceptionally sturdy, portable, and easy to use.

TELESCOPE TUBES

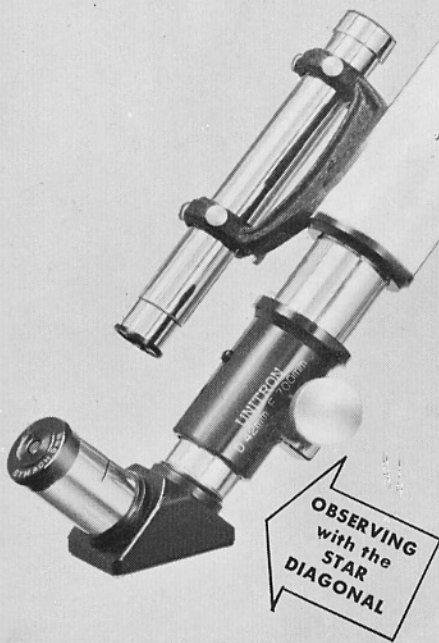
The duralumin body tubes provide exceptional rigidity and keep weight at an absolute minimum. They are designed to balance perfectly on the mountings. The inside of the tubes are painted with flat black and provided with antiglare diaphragms to prevent internal reflections and increase image contrast. The front of the tube holds a cell threaded to receive the objective lens cell. A large dewcap prevents dew formation on the lens surface and helps to keep out stray light. The tubes are handsomely finished in white enamel.

MATERIALS and CONSTRUCTION

Every part in a UNITRON is constructed of the very finest of materials, each selected with relation to the particular function of the component. The body tube is of duralumin. Moving parts are of brass, carefully machined to close tolerances and finished in chromium. There are no iron or steel parts to rust or corrode. The construction is such that with the normal care given a fine instrument, a UNITRON can, with absolutely no servicing, provide thrills for succeeding generations of observers. Illustrations can only hint at the handsome appearance of a UNITRON with its shining white, black, and chrome finish. Words cannot convey adequately the excellence of its optical performance. Only those who have looked through and at these famous refractors can understand the pride of ownership felt by all UNITRON owners.

UNITRON

DISCONTINUED



1.6-Inch ALTAZIMUTH REFRACTOR

MODEL 127 — COMPLETE with Altazimuth Mounting and slow motion controls for both altitude and azimuth, tripod, 5X-16mm. viewfinder, rack and pinion focusing mechanism, 3 eyepieces, star diagonal, sunglass, dew-cap, dustcap, wooden cabinet, instructions.

\$75.

EYEPIECES INCLUDED —

78X (9mm.), 56X (12.5mm.), 39X (18mm.)

ADDITIONAL ACCESSORIES AVAILABLE —

Erecting Prism System \$18.50

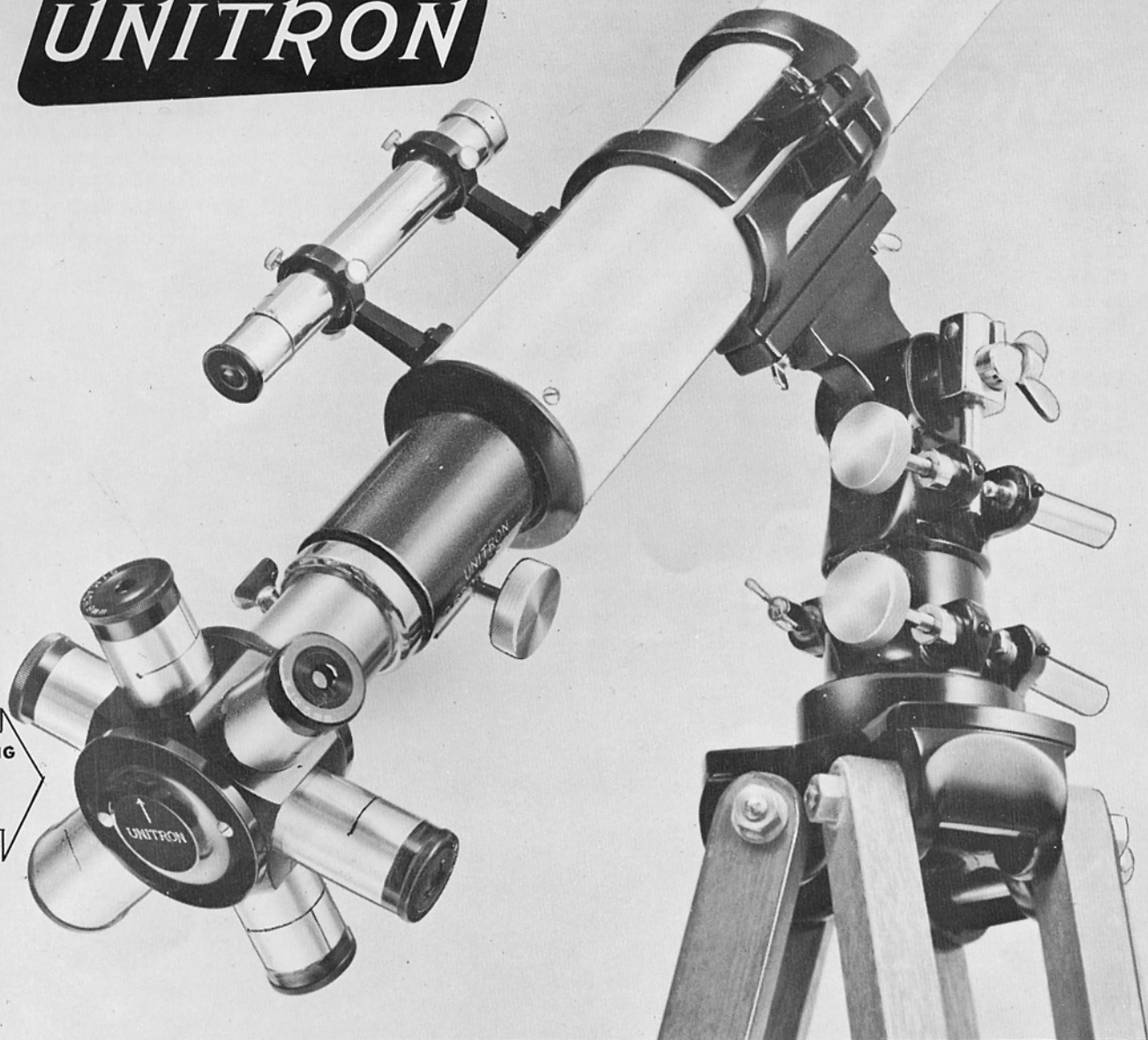
ADDITIONAL EYEPIECE AVAILABLE —

7mm. for 100 power \$ 9.75

Observing with the STAR DIAGONAL: With the prismatic star diagonal the observer may view at right angles to the telescope tube. This is an important observing aid when the celestial object is nearly overhead. The diagonal may also be rotated to bring the eyepiece to the most convenient viewing position so that observations may be made comfortably while sitting as well as standing. The star diagonal is available with any of the models as standard equipment. It is available separately at a cost of \$8.75.

UNITRON

OBSERVING
with
UNIHEX



2.4-Inch ALTAZIMUTH REFRACTOR

MODEL 114 — COMPLETE with Altazimuth Mounting and slow motion controls for both altitude and azimuth, tripod, 5X-16mm. viewfinder, standard rack and pinion mechanism, 4 eyepieces, choice of UNIHEX or star diagonal and erecting prism system, sunglass, dewcap, dustcap, wooden cabinets, instructions.

\$125.

ADDITIONAL ACCESSORIES AVAILABLE —

*UNIHEX Rotary Eyepiece Selector	\$24.75
DUETRON Double Eyepiece	23.50
Sun Projecting Screen with UNICLAMPS	12.75
Astro-Camera 220 with Accessories	69.50
*Erecting Prism System	18.50
2.4" UNICLAMP Camera Bracket	3.25
2.4" Counterbalance Clamp	4.00

†Can be used to advantage only under favorable observing conditions.

‡Must be used in UNIHEX or in special adapter priced at \$3.00.

*Available as standard equipment as noted.

EYEPIECES INCLUDED —

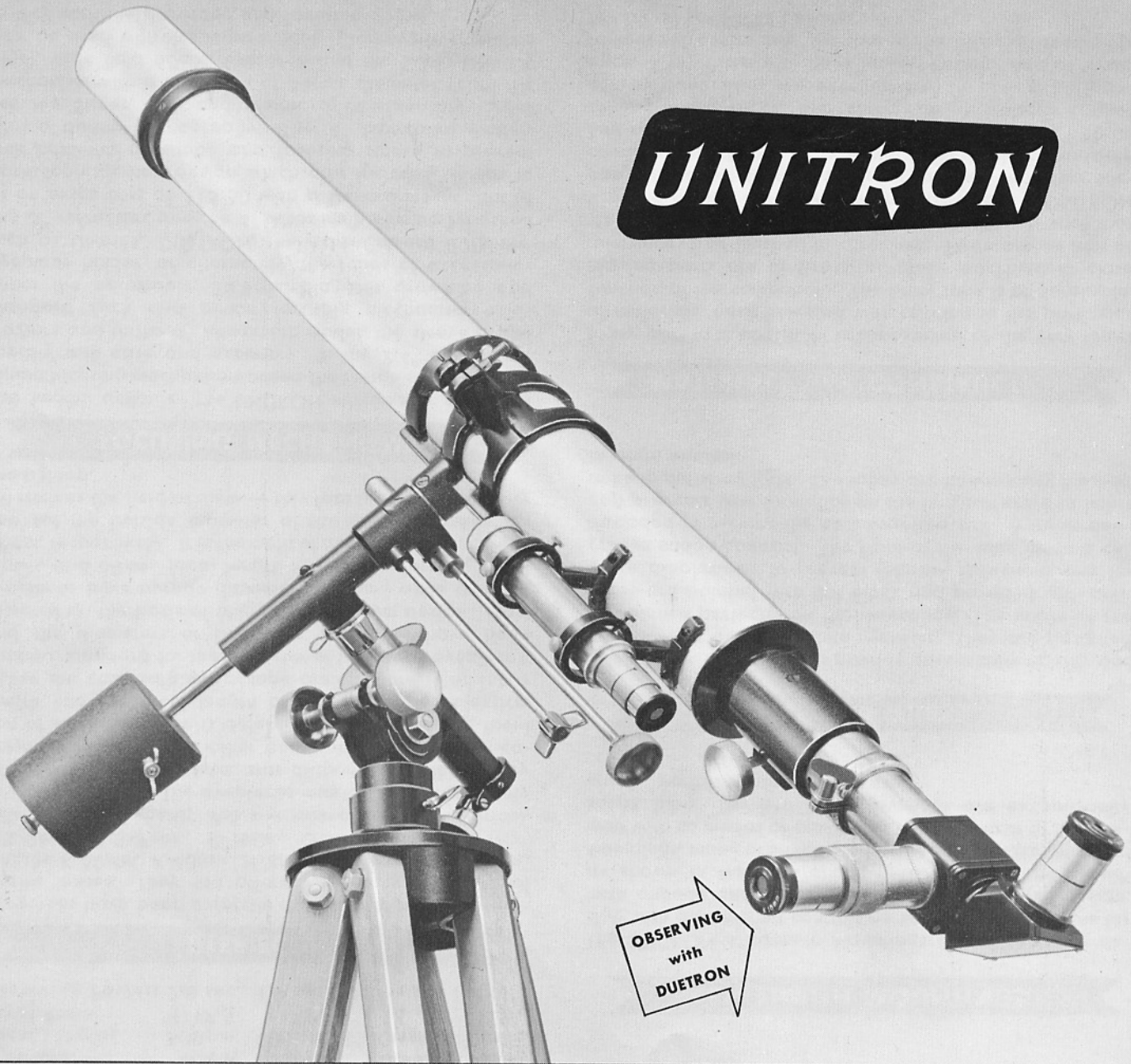
100X (9mm.), 72X (12.5mm.), 50X (18mm.), 35X (25mm.)

ADDITIONAL EYEPIECES AVAILABLE —

4mm. for 225 power†	\$14.75
5mm. for 180 power†	14.75
6mm. for 150 power	14.75
7mm. for 129 power	9.75
40mm. for 22 power‡	14.75

Observing with UNIHEX: The old-fashioned method of fumbling with eyepieces in the dark has been outmoded by the UNIHEX Rotary Eyepiece Selector which puts 6 magnifications at your fingertips. To change power, merely rotate a new eyepiece into position while the object stays centered and in focus in the field of view. Suppose, for example, that through inaccurate tracking you lose the object under observation. Rotating the wide field 40mm. eyepiece into position converts your telescope into a giant viewfinder. Assume you are observing a region of the Orion Nebula. You may start with the lowest powers to look at the nebulosity and then gradually increase the magnification to study the Trapezium and the finer nebular details. The convenience and speed with which such a sequence of observations can be made adds much to the pleasure of observing. UNIHEX is available as standard equipment with any model except No. 127. It is available separately at a cost of \$24.75.

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2.4-Inch EQUATORIAL REFRACTOR

MODEL 128 — COMPLETE with Equatorial Mounting and slow motion controls for both declination and R.A., tripod, 6X-23.5mm. viewfinder, standard rack and pinion mechanism, 5 eyepieces, choice of UNIHEX or star diagonal and erecting prism system, sunglass, dewcap, dustcap, wooden cabinets, instructions.

\$225.

ADDITIONAL ACCESSORIES AVAILABLE —

*UNIHEX Rotary Eyepiece Selector	\$24.75
DUETRON Double Eyepiece	23.50
Sun Projecting Screen with UNICLAMPS	12.75
Astro-Camera 220 with Accessories	69.50
*Erecting Prism System	18.50
2.4" UNICLAMP Camera Bracket	3.25
2.4" Counterbalance Clamp	4.00

†Can be used to advantage only under favorable observing conditions.

‡Must be used in UNIHEX or in special adapter priced at \$3.00.

*Available as standard equipment as noted.

EYEPIECES INCLUDED —

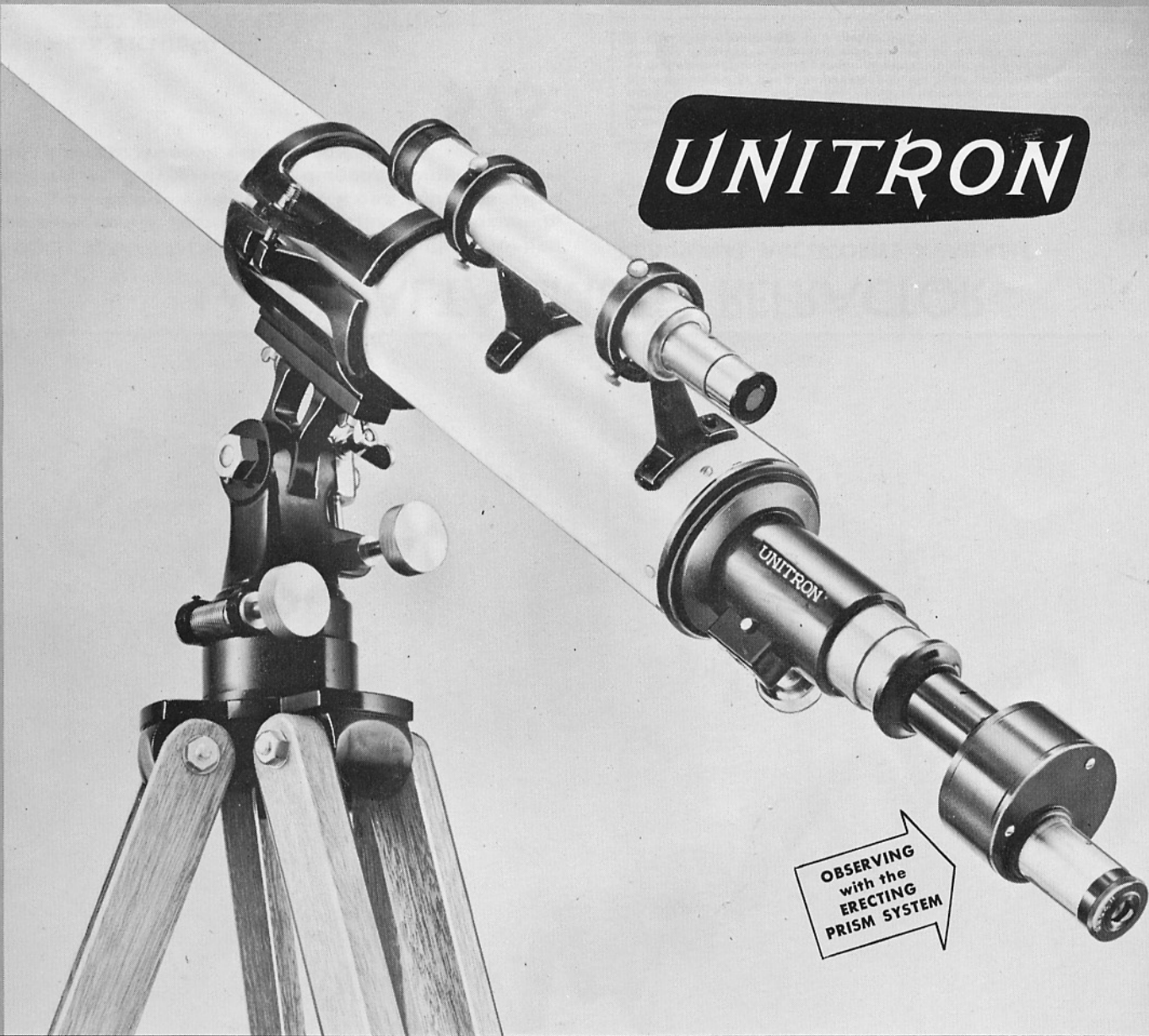
129X (7mm.), 100X (9mm.), 72X (12.5mm.),
50X (18mm.), 35X (25mm.)

ADDITIONAL EYEPIECES AVAILABLE —

4mm. for 225 power†	\$14.75
5mm. for 180 power†	14.75
6mm. for 150 power	14.75
40mm. for 22 power‡	14.75

Observing with DUETRON: With the DUETRON Double Eyepiece, two observers may use the telescope simultaneously and with equal comfort. The two eyepiece holders may be turned independently with respect to the telescope tube to suit the convenience of each observer. A focusing sleeve is provided so that the eyepieces used need not necessarily be of the same magnification. DUETRON is ideal for father and son teams and a boon for those who buy their UNITRON in partnership. With DUETRON, more observers may be accommodated at star parties and the advanced members may provide valuable instruction to the beginners as they look through the UNITRON together. DUETRON is an optional extra accessory priced at \$23.50.

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3-Inch ALTAZIMUTH REFRACTOR

MODEL 140 — COMPLETE with Altazimuth Mounting and slow motion controls for both altitude and azimuth, tripod, 8X-30mm. viewfinder, standard rack and pinion mechanism, 5 eyepieces, choice of UNIHEX or star diagonal and erecting prism system, sunglass, dewcap, dustcap, wooden cabinets, instructions.

\$265.

ADDITIONAL ACCESSORIES AVAILABLE —

*UNIHEX Rotary Eyepiece Selector	\$24.75
DUETRON Double Eyepiece	23.50
Sun Projecting Screen Apparatus	13.75
Astro-Camera 220 with Accessories	69.50
*Erecting Prism System	18.50
3" UNICLAMP Camera Bracket	3.75
3" Counterbalance Clamp	5.00

†Can be used to advantage only under excellent observing conditions.

‡Must be used in UNIHEX or in special adapter priced at \$3.00

*Available as standard equipment as noted.

§The De-Luxe rack and pinion is available at an additional cost of \$15.50. See Model 145.

EYEPIECES INCLUDED —

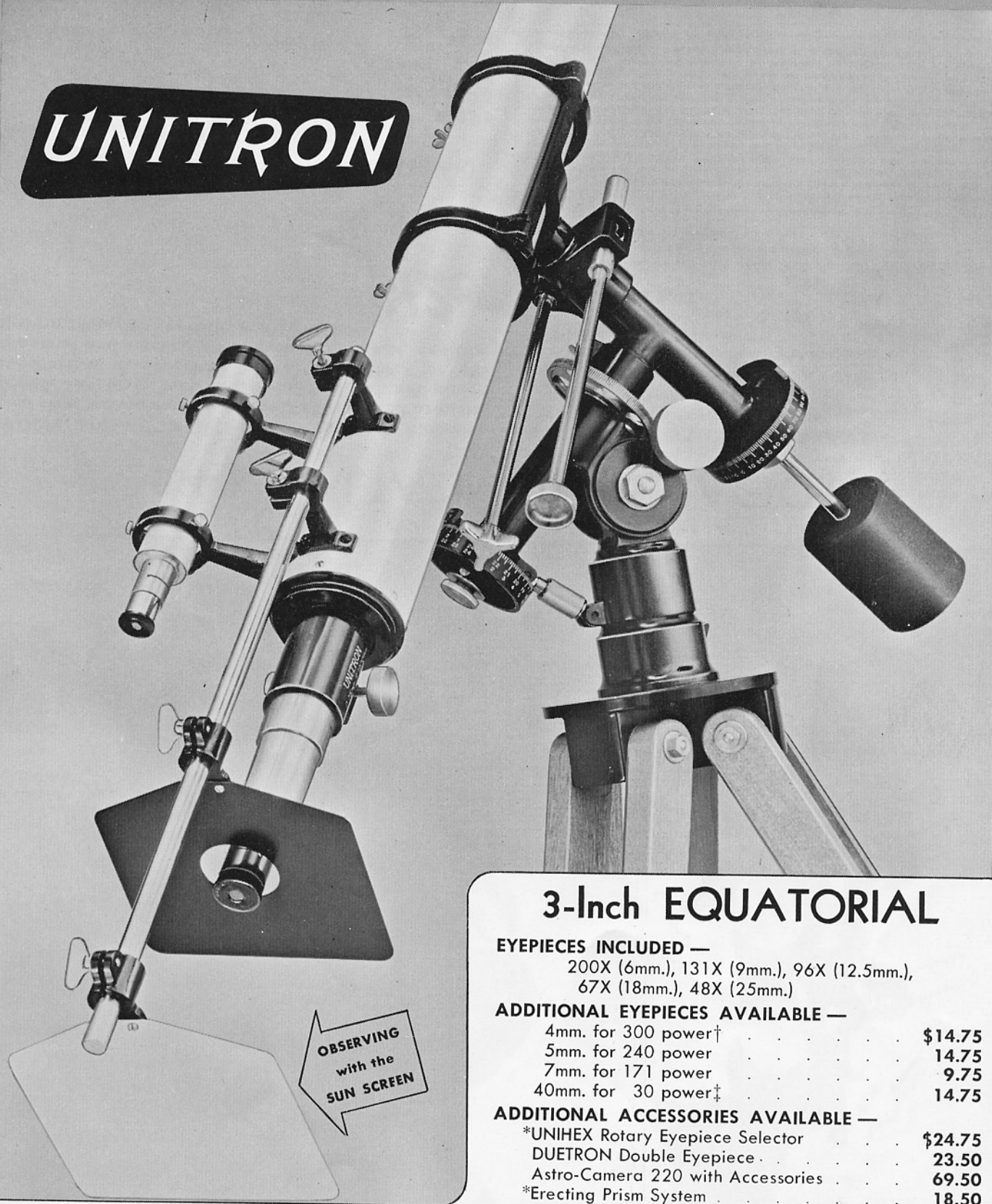
171X (7mm.), 131X (9mm.), 96X (12.5mm.),
67X (18mm.), 48X (25mm.)

ADDITIONAL EYEPIECES AVAILABLE —

4mm. for 300 power†	\$14.75
5mm. for 240 power	14.75
6mm. for 200 power	14.75
40mm. for 30 power‡	14.75

Observing with the ERECTING PRISM SYSTEM: An astronomical telescope gives an inverted image. The UNITRON Erecting Prism System contains a Porro prism system to re-invert the image for land observation. The Erecting Prism System may be used with any of the eyepieces to give the same complete range of terrestrial magnifications as for celestial observation. The thrilling, closeup views of distant objects as seen through a UNITRON far surpass in clarity and brilliance those obtained with a telescope designed for land viewing alone. The Erecting Prism System is available as standard equipment with any model except No. 127. It is available separately at a cost of \$18.50

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OBSERVING
with the
SUN SCREEN

MODEL 142 — COMPLETE with Equatorial Mounting and slow motion controls for both declination and R.A., setting circles and verniers, tripod, 8X-30mm. view-finder, standard rack and pinion focusing mechanism, 5 eyepieces, choice of UNIHEX or star diagonal and erecting prism system, sun projecting screen apparatus, sunglass, pocket eyepiece case, dewcap, dustcap, wooden cabinets, instructions.

\$435.

3-Inch EQUATORIAL

EYEPIECES INCLUDED —

200X (6mm.), 131X (9mm.), 96X (12.5mm.),
67X (18mm.), 48X (25mm.)

ADDITIONAL EYEPIECES AVAILABLE —

4mm. for 300 power†	\$14.75
5mm. for 240 power	14.75
7mm. for 171 power	9.75
40mm. for 30 power‡	14.75

ADDITIONAL ACCESSORIES AVAILABLE —

*UNIHEX Rotary Eyepiece Selector	\$24.75
DUETRON Double Eyepiece	23.50
Astro-Camera 220 with Accessories	69.50
*Erecting Prism System	18.50
3" UNICLAMP Camera Bracket	3.75
UNIBALANCE Tube Assembly	15.50
Guide Telescope with 3" UNICLAMPS	81.00
Extra Counterweight for Guide Telescope	4.75

†Can be used to advantage only under excellent observing conditions.

*Available as standard equipment as noted.

‡Must be used in UNIHEX or in special adapter priced at \$3.00.

§The De-Luxe rack and pinion is available at an additional cost of \$15.50.

Observing with the SUN-PROJECTING SCREEN: With the sun-projecting screen apparatus, an enlarged image of the solar disk is projected on the white screen where it may be seen by several observers at the same time. Charts may be placed directly on the screen and the position of sunspots plotted.

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PHOTOGRAPHY
with
ASTRO-CAMERA
220



MODEL 145.— COMPLETE with Equatorial Mounting and slow motion controls for both declination and R.A., setting circles and verniers, tripod, photographic guide telescope and accessories, 10X-42mm. viewfinder, rack and pinion focusing mechanism, 6 eyepieces, choice of UNIHEx or star diagonal and erecting prism system, sun projecting screen apparatus, sunglass, UNIBALANCE tube assembly, pocket eyepiece case, dewcap, dustcap, wooden cabinets, instructions.

\$550.

EYEPIECES INCLUDED —

200X (6mm.), 171X (7mm.), 131X (9mm.),
96X (12.5mm.), 67X (18mm.), 48X (25mm.)

ADDITIONAL EYEPIECES AVAILABLE —

4mm. for 300 power†	\$14.75
5mm. for 240 power	14.75
40mm. for 30 power‡	14.75

ADDITIONAL ACCESSORIES AVAILABLE —

*UNIHEx Rotary Eyepiece Selector	\$24.75
DUETRON Double Eyepiece	23.50
Astro-Camera 220 with Accessories	69.50
*Erecting Prism System	18.50
3" UNICLAMP Camera Bracket	3.75

†Can be used to advantage only under excellent observing conditions.

*Available as standard equipment as noted above.

‡Must be used in UNIHEx or in special adapter priced at \$3.00.

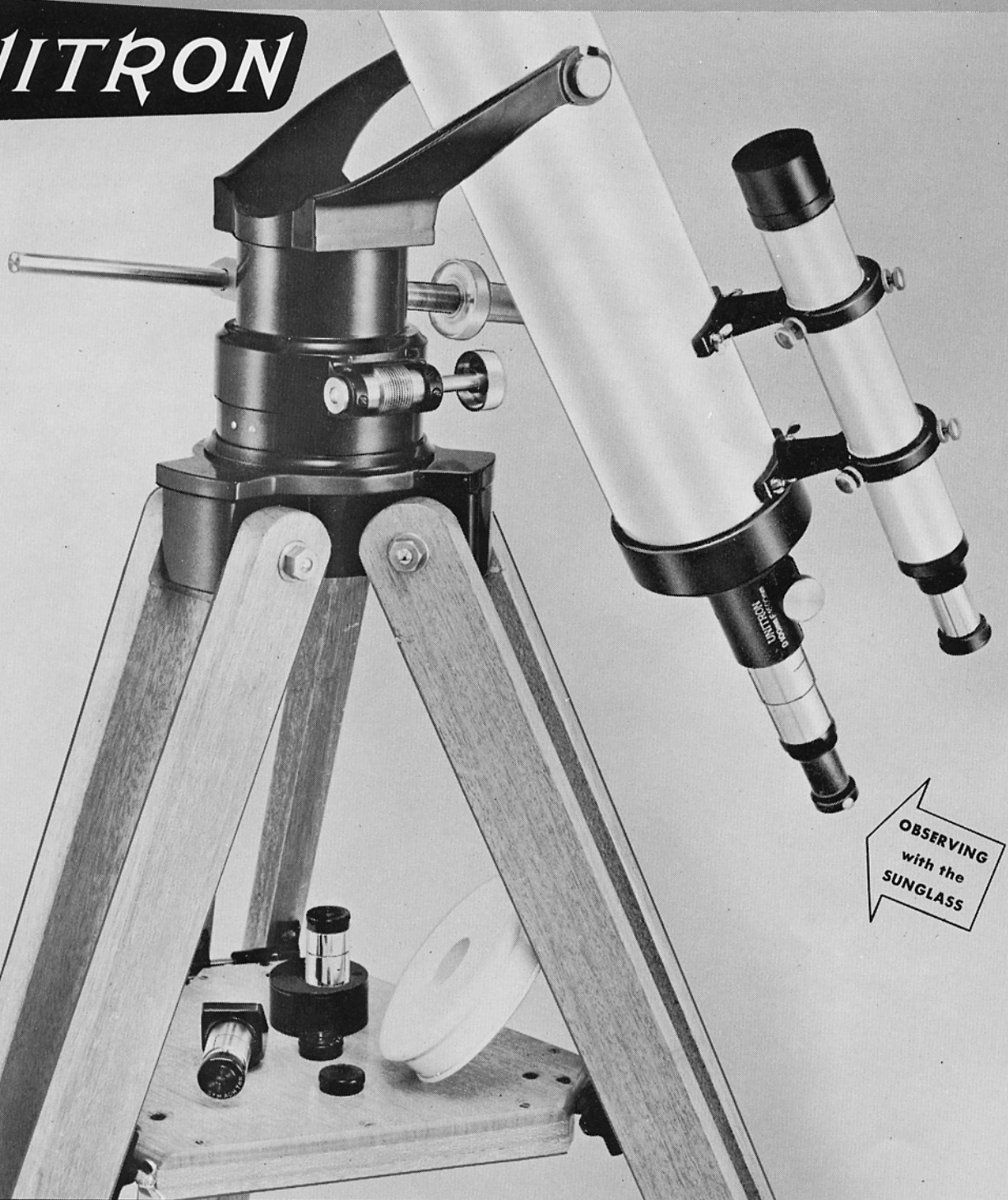
§The De-Luxe rack and pinion is available at an extra cost of \$15.50. This is described briefly in the section "General Information on UNITRON Refractors" and illustrated in the above photo.

3-Inch PHOTO-EQUATORIAL

ASTRO-PHOTOGRAPHY with a UNITRON

Photography and astronomy go hand in hand and recording your observations can add a new dimension to your observing program. **Astro-Camera 220** uses the telescope objective as the camera lens to photograph at the primary focus of the telescope or, with a telescope eyepiece in position, to project an enlarged image on the film. The camera may be used with any of the altazimuth models except No. 127 to photograph the sun, sunspots, the moon, solar and lunar eclipses, as well as distant terrestrial objects. For stars, nebulae, clusters and comets, an equatorial mounting is necessary. The **UNITRON Guide Telescope** permits accurate tracking and a clock drive is essential for prolonged exposures. **Astro-Camera 220** is pictured and described in more detail in a later page. For star fields, a camera of short focal ratio is of interest and **UNITRON** will offer a number of such astro-cameras of different apertures. Owners of suitable cameras may attach them to their telescopes as shown above by means of a **UNICLAMP Camera Bracket** which is available to fit 2.4", 3", and 4" refractors. The clamp encircles the tube and holds a screw threaded to fit the tripod socket of standard cameras. The bracket is designed primarily for equatorial models in which the telescope may be used to guide the camera during a time exposure. The **UNIBALANCE Tube Assembly** shown above is used to balance heavy accessories.

UNITRON



OBSERVING
with the
SUNGLASS

4-Inch ALTAZIMUTH REFRACTOR

MODEL 150 — COMPLETE with Altazimuth Mounting and slow motion controls for both altitude and azimuth, tripod, tripod shelf, 10X-42mm. viewfinder, standard rack and pinion mechanism, 6 eyepieces, choice of standard UNIHEX or star diagonal and erecting prism system, solar aperture diaphragm, sunglass, pocket eyepiece case, dewcap, dustcap, wooden cabinets, instructions.

\$465.

EYEPIECES INCLUDED —

250X (6mm.), 214X (7mm.), 167X (9mm.),
120X (12.5mm.), 83X (18mm.), 60X (25mm.)

ADDITIONAL EYEPIECES AVAILABLE —

4mm. for 375 power	\$14.75
5mm. for 300 power	14.75
40mm. for 38 power	14.75

ADDITIONAL ACCESSORIES AVAILABLE —

*UNIHEX Rotary Eyepiece Selector	\$24.75
DUETRON Double Eyepiece	23.50
Sun Projecting Screen	15.75
Astro-Camera 220 with Accessories	69.50
*Erecting Prism System	18.50
4" UNICLAMP Camera Bracket	5.50

*Available as standard equipment as noted above.

§Available also with the De-Luxe rack and pinion at an extra cost of \$15.50 or with the Super rack and pinion for \$32 extra.

Observing with the SUNGLASS: The sunglass contains a dark filter made of special heat-resistant glass. It fits over any of the eyepieces for direct observation of the sun. When used with the UNITRON 4" models, the solar aperture diaphragm (illustrated on this page on the tripod shelf) is placed on the dewcap to reduce the aperture. The sunglass is standard equipment with all models.

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OBSERVING
with the
60mm.
EYEPIECE

4-Inch EQUATORIAL

MODEL 152 — COMPLETE with Equatorial Mounting and slow motion controls for both declination and R.A., setting circles and verniers, tripod with levels, tripod shelf, battery operated shelf illuminator, 10X-42mm. viewfinder, Super rack and pinion focusing mechanism with clamps, 7 eyepieces, choice of standard UNIHEX or star diagonal and erecting prism system, sun projecting screen, solar aperture diaphragm, sunglass, pocket eyepiece case, dewcap, dustcap, wooden cabinets, instructions.

\$785.

MODEL 155 — Photographic Model, same specifications as Model 152 but with, in addition: The 2.4" Photographic Guide Telescope with UNICLAMP Mounting Brackets, 78X (9mm.) crosshair eyepiece, star diagonal, and UNIBALANCE tube assembly.

\$890.

EYEPIECES INCLUDED —

250X (6mm.), 214X (7mm.), 167X (9mm.), 120X (12.5mm.)
83X (18mm.), 60X (25mm.), 38X (40mm.)

ADDITIONAL EYEPIECES AVAILABLE —

4mm. for 375 power	\$14.75
5mm. for 300 power	14.75
60mm. for 25 power	28.75

ADDITIONAL ACCESSORIES AVAILABLE —

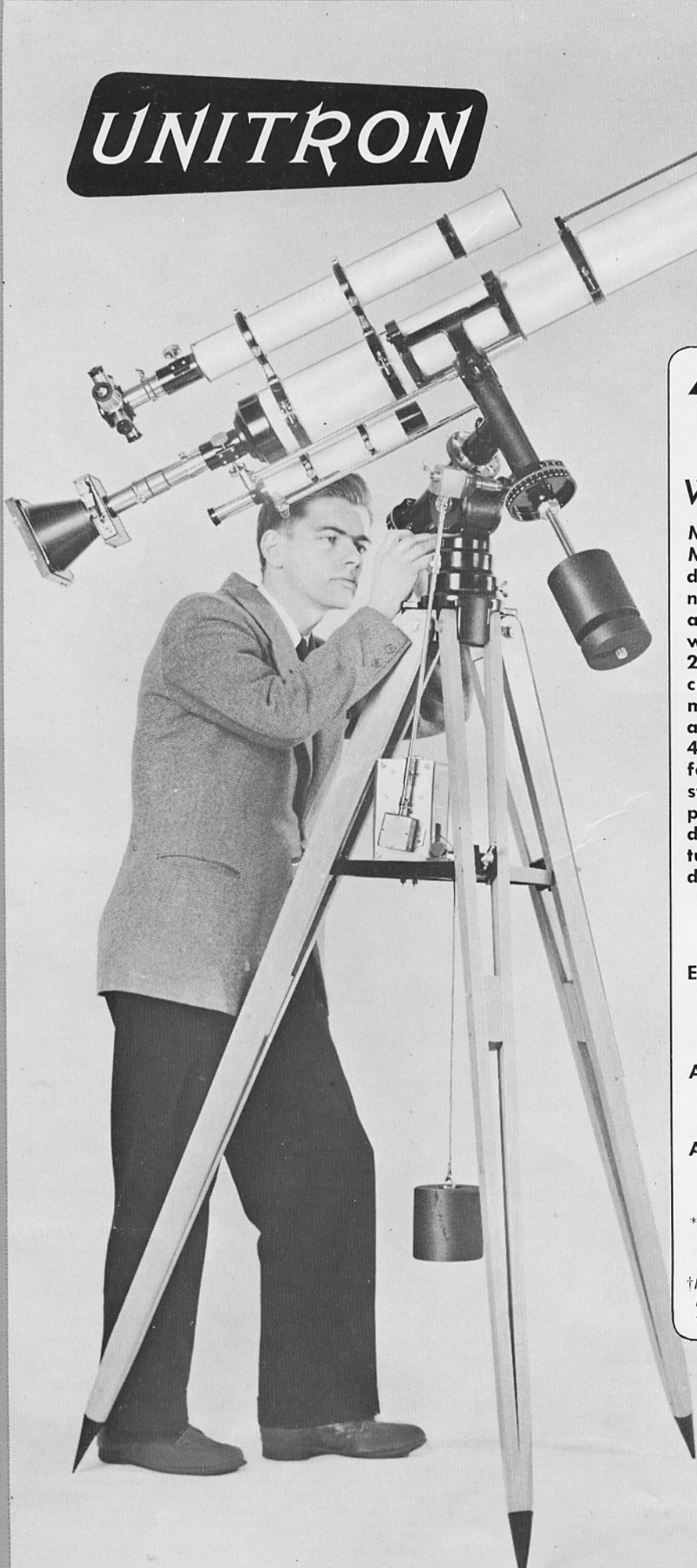
*UNIHEX Rotary Eyepiece Selector	\$24.75
DUETRON Double Eyepiece	23.50
Astro-Camera 220 with Accessories	69.50
*Erecting Prism System	18.50
UNIBALANCE Tube Assembly	22.75
4" UNICLAMP Camera Bracket	5.50
Clock Drive	(price to be announced)
Metal Fixed Pier	188.00

*Available as standard equipment as noted.

Models 152 and 155 are available with the Super-UNIHEX as shown on Model 166, in place of standard UNIHEX, for \$19.75 extra.

Observing with the 60mm. EYEPIECE: The wide angle 60mm. eyepiece is designed for use with the Super rack and pinion focusing mechanism supplied with the 4" Equatorial Models. It gives spectacular wide field views of the heavens at a magnification of 25X.

UNITRON



4" PHOTOGRAPHIC EQUATORIAL

With Clock Drive, Astro-Camera

MODEL 160 — COMPLETE with Equatorial Mounting and slow motion controls for both declination and R.A., setting circles and verniers, weight-driven clock drive with governor and speed regulator, tripod*, metal tripod shelf with levels, battery operated shelf illuminator, 2.4" photographic guide telescope with 78X crosshair eyepiece, star diagonal, UNICLAMP mounting brackets, Astro-Camera 220 with accessories, UNICLAMP Camera Bracket, 10X-42mm. viewfinder, Super rack and pinion focusing mechanism with clamps, 8 eyepieces, standard UNIHEx, erecting prism system, sun projecting screen, sunglass, solar aperture diaphragm with two apertures, UNIBALANCE tube assembly, pocket eyepiece case, dewcap, dustcap, wooden cabinets, instructions.

\$1175.

EYEPIECES INCLUDED —

250X (6mm.), 214X (7mm.), 167X (9mm.),
120X (12.5mm.), 83X (18mm.), 60X (25mm.),
38X (40mm.), 25X (60mm.)

ADDITIONAL EYEPIECES AVAILABLE —

4mm. for 375 power
5mm. for 300 power

ADDITIONAL ACCESSORIES AVAILABLE —

DUETRON Double Eyepiece	\$23.50
Metal Fixed Pier	188.00

*The tripod of Model 160 is approximately 12" higher than that of Models 152 and 155 to allow extra travel for the clock drive weight.

†Model 160 is available with the Super-UNIHEx as shown on Model 166, in place of the standard UNIHEx, at an additional cost of \$19.75.

UNITRON



OBSERVING
with
Super-UNIHEX

4" PHOTO - EQUATORIAL *Fixed Pier, Clock Drive, Astro-Camera*

Fortunate indeed is the observer who has this UNITRON 4" Photo-Equatorial, Model 166, at his disposal. Never before has such a wealth of equipment and features been found in an instrument of this size.

With the weight-driven clock drive, the telescope is completely independent of a source of electric current. The speed of the clock is maintained at a constant rate by means of a spinning governor rotating within ball-bearing supports. A speed regulating control is provided. Gears and other components of the mechanism are of machined brass. The clockwork is protected by a chromed brass and plexiglas outer case. A number of extra weights are furnished to provide for the addition of extra accessories to the telescope tube.

MODEL 166 — Identical with Model 160 but with metal fixed pier in place of the field tripod, Super-UNIHEX in place of standard UNIHEX, and additional eyepiece for 375X (4mm.). Erecting prism system not included.

\$1280.

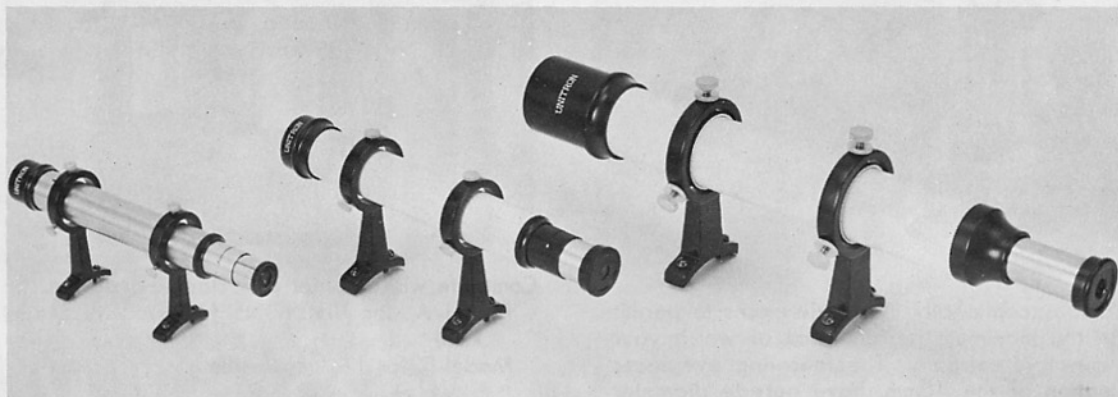
Observing with Super-UNIHEX: This rotary eyepiece selector accommodates the giant (58mm. o.d.) 60mm. eyepiece as well as the 40mm. (1 $\frac{1}{4}$ " o.d.) eyepiece and four of the standard (23.5mm. o.d.) UNITRON eyepieces. Super-UNIHEX may only be used in the Super-Rack and Pinion mechanism as supplied with the UNITRON 4" Equatorial models. Contrast the size with that of the standard rack and pinion focusing mechanism and the standard UNIHEX as shown on the photographic guide telescope.

Telescope Accessories and Components by UNITRON

These accessories and components are all standard equipment in UNITRON Refractors and are therefore of the finest quality obtainable. Most items are illustrated on the refractors themselves and in such cases reference

is made to the particular models. Unless otherwise stated, all items are quoted POSTPAID in the U.S. Accessory orders totaling \$50 or over in value may be purchased under the UNITRON Easy Payment Plan.

VIEWFINDERS



From left to right 23.5mm., 30mm., 42mm.

All models have coated, achromatic objectives and cross-hair eyepieces. Furnished with mounting brackets with centering screws for collimation also installation screws. The brackets are designed so that they may be mounted on tubes of any curvature and provide more than adequate support. If desired, the curvature of the bottom of the brackets may be altered by the customer using a half-round file to provide an exact fit to the telescope tube. The brackets are made of an aluminum alloy and are easily modified.

- 23.5mm., 6X: (as shown on Model 128)
Chromed brass tube. \$ 8.50
- 30mm., 8X: (as shown on Models 140, 142)
Duralumin tube finished in white enamel. 10.75

VIEWFINDER MOUNTING BRACKETS

As used with UNITRON Guide Telescopes and Viewfinders. Centering screens for collimation. These may be obtained already attached to UNICLAMPS of any larger diameter at an extra cost of \$2.00 in addition to the cost of the UNICLAMPS.

- for 1.6" tubes ($2\frac{3}{16}$ " i.d.) per pair \$ 4.50
- for 2.4" tubes ($3\frac{1}{8}$ " i.d.) per pair 6.00
- for 4" tubes ($5\frac{5}{16}$ " i.d.) per pair 15.50

PHOTOGRAPHIC GUIDE TELESCOPES

2.4" Model as supplied with UNITRON 3" and 4" Photographic Equatorials. 62mm. diameter, 700mm. (27.5") focal length, coated, air-spaced, achromatic objective. Furnished with 78X (9mm.), achromatized symmetrical eyepiece with crosshairs. Eyepieces of other focal lengths may be used. Prismatic star diagonal. Duralumin tube finished in white. Chromed brass drawtube with Standard rack and pinion focusing. Dewcap and dustcap. Furnished with mounting brackets and centering screws for collimation. Wooden cabinet. f.o.b. Boston \$75.00

4" Model as supplied with UNITRON 6" Models 610 and 620. Complete as described under the specifications on the 6" models. With mounting brackets but without UNICLAMPS. With 9mm. crosshair eyepiece, but without Illuminated Crosshair Mechanism. Wooden cabinet. f.o.b. Boston \$290.00

42mm., 10X: (as shown on 4" Models) Air-spaced objective. Duralumin tube, finished in white enamel. Dewcap and dustcap. 18.00

62mm., 12.5X: (as shown on 6" Models) 500mm. (19.7") focal length, coated, achromatic objective. Furnished with 12.5X (40mm.), Monochro eyepiece. Eyepieces of other focal lengths may be used. Prismatic star diagonal for $1\frac{1}{4}$ " eyepieces. Duralumin tube finished in white. Chromed brass drawtube with Standard rack and pinion focusing. Dewcap, dustcap. Furnished with mounting brackets and centering screws for collimation. Wooden cabinet. f.o.b. Boston 76.00

OBJECTIVE LENSES



From left to right 4", 3", 2.4"

Achromatic, air-spaced, coated objectives mounted in a cell. These objectives are truly unique in the excellence of their definition. Superb optical corrections are obtained by exclusive lens designs and the use of the newest types of optical glass.

- 2.4" diameter \$ 35.00
- 3" diameter 69.00
- 4" diameter 135.00
- 6" diameter 790.00

Outer cell to attach to telescope tube is threaded to receive the objective lens cell. Dewcap and dustcap included.

- for 2.4" objective \$ 8.00
- for 3" objective 13.00
- for 4" objective 24.00
- for 6" objective 70.00

UNITRON

INSTRUMENT COMPANY — TELESCOPE SALES DIV.
66 NEEDHAM STREET, NEWTON HIGHLANDS 61, MASS.

Telescope Accessories and Components by UNITRON

EYEPIECES



Manufactured to exceptionally close tolerances to permit you to obtain the maximum performance of which your objective or mirror is capable. The following eyepieces with the exception of the 40mm. have outside diameter 24.5mm. (.97"). A plastic adapter bushing is available for 1 1/4" o.d. eyepiece holders at an additional cost of 35¢. The eyepieces are coated.

40mm. Monochro (1 1/4" o.d.)	\$14.75
40mm. — as above, with double-crossline	17.75
25mm. Huygens	11.50
18mm. Kellner	9.75
12.5mm. Kellner	9.75
9mm. Achromatized Symmetrical	9.75
9mm. — as above, with double-crossline	12.75
7mm. Achromatized Symmetrical	9.75
6mm. Orthoscopic	14.75
5mm. Orthoscopic	14.75
4mm. Orthoscopic	14.75

The following special eyepiece has 58mm. o.d. and may be used only in the Super rack and pinion (or equivalent) or in a holder which will accept an eyepiece of this diameter. It is described and shown with Model 152.

60mm. Kellner	\$28.75
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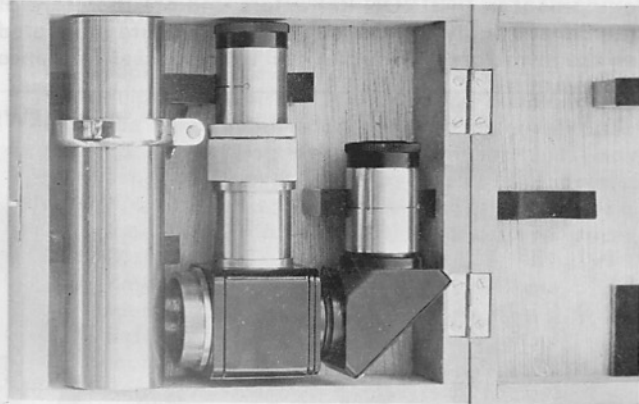
UNIHEX Eyepiece Selector



Complete with cabinet and clamping device.

Model A, for UNITRONS. (shown on Model 114)	\$24.75
Model B, for 1 1/4" eyepiece holders	24.75
Super-UNIHEX (shown with Model 166)	44.50

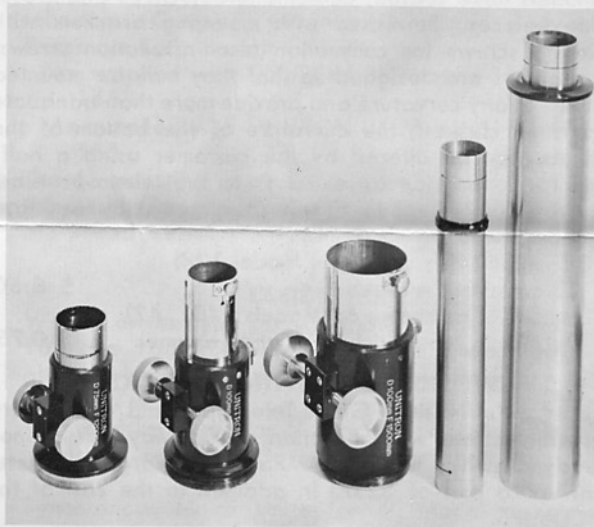
DUETRON Double Eyepiece



Complete with cabinet and clamping device.

Model A, for UNITRONS (shown with Model 128)	\$23.50
Model B, for 1 1/4" eyepiece holders	23.50

RACK AND PINION FOCUSING MECHANISMS



Shown, left to right, are the Standard, De-Luxe, and Super Models. The De-Luxe and Super Models have locking devices for both the focusing sleeve and drawtube. Furnished complete with long drawtube and eyepiece holders for both 24.5mm. o.d. and 1 1/4" o.d. eyepieces. The Super Model can, in addition, hold the 58mm. o.d. 60mm. f.l. eyepiece.

Standard Model (illustrated on Model 128)	\$12.50
De-Luxe Model (illustrated on Model 145)	28.50
Super Model (illustrated on Model 152)	44.50

The couplings are 2 3/8" outside diameter. For the above with coupling to fit 3 1/16" i.d. tubing, add \$3.00. For a heavy coupling to fit 4 3/8" o.d. add \$9.50. This heavy coupling aids in balancing the tube.

ADAPTER TUBES

Adapter to use 1 1/4" eyepieces and accessories in 24.5mm. o.d. eyepiece holders. For use with the 40mm. eyepiece or Goodwin Resolving Power Lens in the standard 24.5mm. star diagonal	\$3.00
Extra long drawtube with reversible 24.5mm. and 1 1/4" o.d. eyepiece holders	\$3.00

UNITRON

INSTRUMENT COMPANY — TELESCOPE SALES DIV.
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Telescope Accessories and Components by UNITRON

FILAR MICROMETER EYEPIECE

For accurate measurement of stellar distances. Turning the graduated drum traverses a crossline across the field of view and the motion is read directly from the scale on the drum. The crossline is brought into sharp focus for individual vision by a helical focusing device on top of the eyepiece. Recommended for use in connection with the illuminated crosshair diagonal although it may be inserted directly into the telescope drawtube.

\$



Illuminated Crosshair Diagonal equipped with Filar

ILLUMINATED CROSSHAIR DIAGONAL

Beam-splitter type. Built-in light source with variable-intensity rheostat control. Battery box and extension cord. Supplied with removable 9mm. A.S. double-crosshair eyepiece for guiding. Fits both UNITRON rack and pinion focusing mechanisms or 1 1/4" eyepiece holders. Wooden case

\$32.50

SOLAR APERTURE DIAPHRAGMS

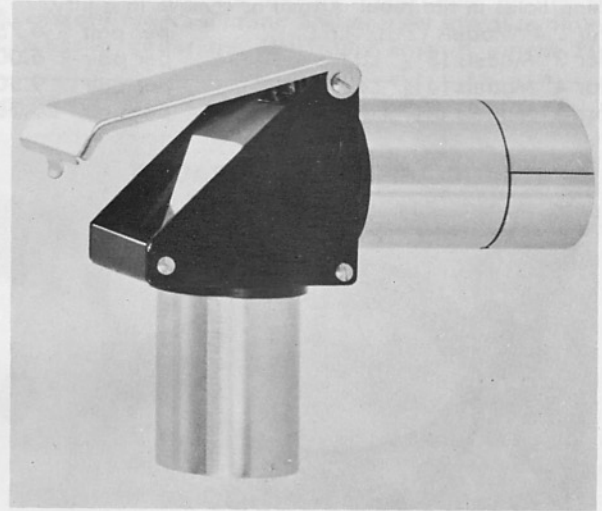
When observing or photographing the sun with 4" refractors, and when photographing with the smaller models, an aperture diaphragm is recommended for reducing the heat and light intensity.

- for 2.4" Refractors, single aperture \$0.75
- for 3" Refractors, single aperture 1.00
- for 4" Refractor, single aperture (shown with Model 150) 3.00
- for 4" Refractors, two apertures on revolving disk 4.25

SUNGLASS

- Sunglass for 24.5mm. o.d. eyepieces (as shown with Model 150) \$3.00
- Sunglass for 1 1/4" o.d. eyepieces 3.00

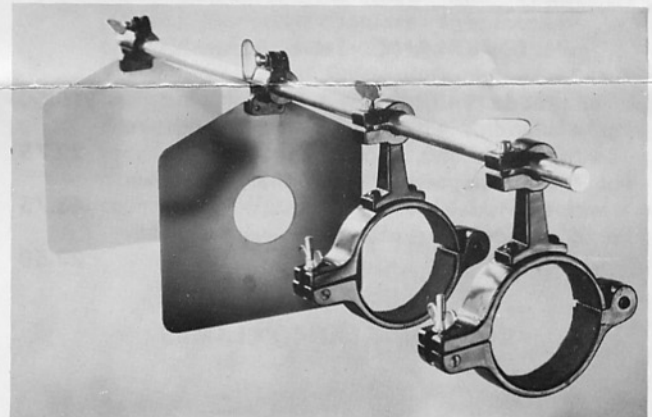
SUN DIAGONAL



Herschel solar wedge. A right-angle viewing attachment for solar observation. Reduces the intensity of the sun for safe viewing with larger apertures.

- Model A, for UNITRONS \$17.50
- Model B, for 1 1/4" eyepiece holders 22.50

SUN PROJECTING SCREENS



Sun Projection Screen for 2.4" UNITRON with UNICLAMPS

As illustrated with Model 142. White metal screen with matching black metal shade, chromed brass extension rod with mounting brackets and screws.

- Set for 2.4" Refractors (complete with UNICLAMPS) \$12.75
- Set for 3" Refractors with screens 6" x 6" 13.50
- Set for 4" Refractors with screens 7" x 7" 15.75
- Set for 6" Refractors with screens 13" x 13" 22.00

ERECTING PRISM SYSTEM

As shown on Model 140. Accepts eyepieces of 24.5mm. o.d. Add 35¢ for plastic bushing to use in 1 1/4" eyepiece holders. To hold eyepieces of 1 1/4" o.d. the short adapter, priced at \$3.00, is needed in addition

\$18.50

PRISMATIC STAR DIAGONALS

- As shown on Model 127.
- for 24.5mm. o.d. eyepieces \$ 8.75
- for 1 1/4" o.d. eyepieces 12.50

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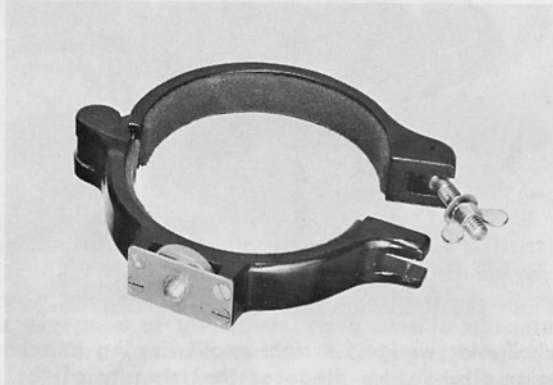
Telescope Accessories and Components by UNITRON

UNICLAMPS

For attaching accessories to the telescope tube without drilling holes in the tube. Attach or remove in a jiffy.

for 2.4" Models (2 $\frac{1}{16}$ " i.d.)	per pair	\$ 4.75
for 3" Models (3 $\frac{1}{4}$ " i.d.)	per pair	6.00
for 4" Models (4 $\frac{1}{4}$ " i.d.)	per pair	9.50
for 6" Models 6 $\frac{7}{16}$ " i.d.)	per pair	20.25

UNICLAMP CAMERA BRACKET



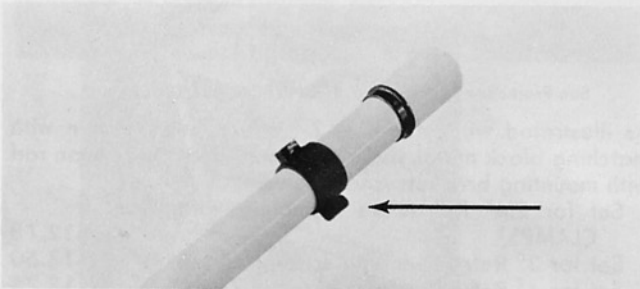
A convenient device to attach a camera to your telescope as illustrated with Model 145.

for 2.4" Models	\$3.25
for 3" Models	3.75
for 4" Models	5.50

UNIBALANCE Tube Assembly

For 3" Models with UNICLAMPS (as shown with Model 145)	\$15.50
For 4" Models with UNICLAMPS (as shown with Models 160, 166)	22.75
For 6" Models with UNICLAMPS (as shown with 6" Models)	43.75
For 6" Models, as above but without UNICLAMPS	23.50

COUNTERBALANCE CLAMPS



Consists of a heavy cylinder which clamps around the telescope tube to balance heavy accessories such as the Astro-Camera.

for 2.4" Models	\$4.00
for 3" Models	5.50

METAL PIERS

These piers are designed to hold the UNITRON Equatorial Mountings. With shelf to support clock drive. Prices are f.o.b. Boston.

for 4" mounting (as shown with Model 166)	\$188.00
for 6" mounting	555.00

REFRACTORS WITHOUT MOUNTINGS

The UNITRON 3", 4" and 6" Refractors (Models 142, 152 and 600) are available as separate units without the equatorial mountings, tripod or pier. Note carefully that the eyepieces, accessories, type of rack and pinion, and the equipment furnished is that of the equatorial (rather than the altazimuth) models. For complete information, refer to the catalog descriptions. These units may be purchased with some of the eyepieces and accessories omitted and in this case an allowance is given for omitted components equal to 90% of their prices. All prices are f.o.b. Boston.

3" Refractor, UNITRON Model 142, without mounting or tripod	\$ 237.00
4" Refractor, UNITRON Model 152, without mounting or tripod	415.00
6" Refractor, UNITRON Model 600, without mounting, drive or pier	1670.00

Also see the sections on Viewfinders and Guide Telescopes for information on 2.4" Refractors of focal length 500mm. and 700mm. and the 4" Guide Telescope.

EQUATORIAL MOUNTINGS

These mountings are sufficiently sturdy to accommodate larger refractors of average weight and much larger reflectors. Complete with wooden tripod and cabinets. Prices are f.o.b. Boston.

As supplied with UNITRON 3" Models 142, 145	\$198.00
As supplied with UNITRON 4" Models 152, 155	370.00

The 6" mounting is available as a separate unit without the metal pier and clock drive. These latter components are priced below.

CLOCK DRIVES

Weight driven type for 4" Model (as shown with Models 160 and 166) complete with coupling and hardware to attach to worm gear shaft, metal shelf to attach to tripod legs, and weights

Weight driven type for 6" Models complete with coupling, hardware to attach to worm gear shaft, and weights

Synchronous Motor Drive for 4" Model complete with coupling and hardware to attach to worm gear shaft For 110 volts, 60 cycles

Synchronous Motor Drive for 6" Model complete with coupling and hardware to attach to worm gear shaft. For 110 volts, 60 cycles

Clock drives for the other models will be offered as rapidly as conditions permit.

ASTRO-CAMERAS

Model 220 is illustrated and described with Model 145. Further descriptive information will be found on the page following Model 152. Complete unit as described.

Model 220A, for UNITRONS	\$ 69.50
Model 220B, for 1 $\frac{1}{4}$ " o.d. eyepiece holders	69.50

Model 330 is illustrated and described with the 6" models. Fits Super rack and pinion sleeve (58mm. o.d.) or equivalent

NOTE

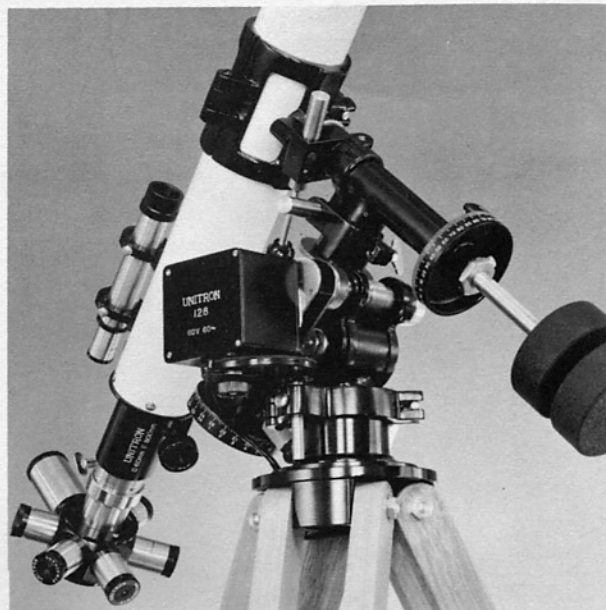
Please note that we do not offer: telescope kits, lens grinding supplies, mirrors, individual gears or lenses, separate altazimuth mountings, barlow lenses, binoculars, books or maps.

UNITRON

INSTRUMENT COMPANY — TELESCOPE SALES DIV.
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NEW CATALOG AND OBSERVER'S GUIDE: UNITRON'S popular Catalog and Observer's Guide has been out of print for an embarrassingly long period of time. Re-printing has been delayed to bring specifications up to date and to include new material. You will receive a copy just as soon as it is again available. In the meantime, we should like to tell you about some of the new developments which have taken place in UNITRON Refractors and Accessories.

NEW CLOCK DRIVE MODELS: Here are the telescopes for which all amateur astronomers have been waiting! UNITRON'S 2.4", 3", and 4" Equatorial Refractors are now available with synchronous motor clock drive. Using one of these instruments, the earth "stands still" for you or your Astro-camera, leaving you free to devote your entire attention to observing. To facilitate changes in right ascension while the clock is in operation, a second, supplementary slow motion has been added. The modest prices for the new models are as follows:



UNITRON 2.4" Equatorial with Motor Drive - Model 128C	\$ 275.
UNITRON 3" Equatorial with Motor Drive - Model 142C	\$ 495.
UNITRON 4" Equatorial with Motor Drive - Model 152C	\$ 845.

SETTING CIRCLES NOW INCLUDED WITH 2.4" EQUATORIAL: Setting circles for both right ascension and declination are now included with UNITRON'S 2.4" Equatorial at no additional cost. Using the circles, you can locate objects in the sky which are too faint to be readily seen through the viewfinder. This new feature is included with both the regular Equatorial Model 128 and the new Clock Drive Model 128C (illustrated above).

ACCESSORY CLOCK DRIVES AVAILABLE FOR OLDER UNITRONS: The new motor clock drive is available as a separate accessory to convert older UNITRON Equatorials. The drive attaches to the tripod head by means of a handy clamp bracket and shelf and connects to the hand drive knob in place of the flexible cable.

The cost for the complete unit, including motor, shelf, and clamp, is only \$50 for the 2.4" and \$60 for the 3" and 4" models. If you purchased your UNITRON before the flexible cable was standard equipment, we will include a special control knob with the required fitting at no extra charge. When ordering, we suggest that you send us one of your R. A. hand drive knobs so that we may supply a replacement with the correct size and threading.

ACHROMATIC AMPLIFIER NOW STANDARD EQUIPMENT: The new Achromatic Amplifier is a two-element Barlow-type, negative amplifying lens designed especially for UNITRONS. When used with the UNIHEX or STAR DIAGONAL, the customary power of each eyepiece is doubled. The high powers obtainable with the Amplifier are ideal for planetary and lunar observations and for separating close multiple stars. This valuable accessory is now included as standard equipment with all UNITRON Models at no extra cost. Owners of older models may add this valuable accessory for only \$6.00 — less than a third the usual cost of a precision optical component of this type. When ordering, please state whether you want an Amplifier to use with the UNIHEX or the Star Diagonal.