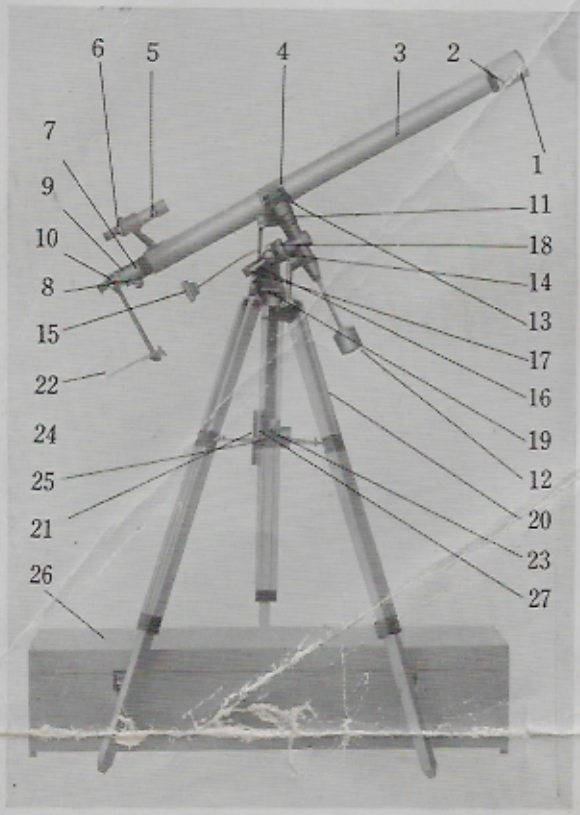
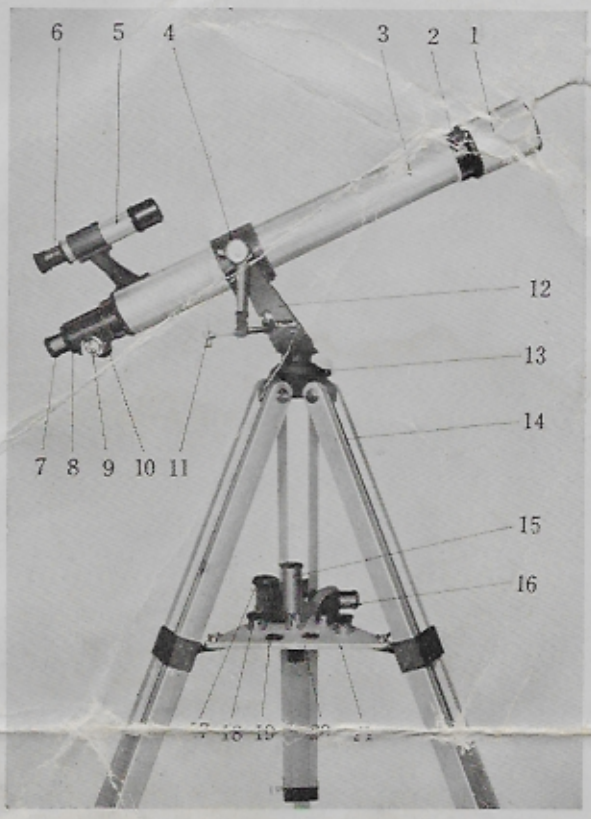
ASTRONOMICAL TELESCOPE INSTRUCTION

NAME OF PARTS





EQUATORIAL MOUNT TELESCOPE

1. Dew-cap (Lens Hood)
2. Objective Cell
3. Main Tube
4. Main Tube Trunion sleeve
5. Finder telescope
6. Finder Eyepiece
7. Eye-end
8. Micro focusing knob
9. Draw tube
10. Eyepiece Adapter
11. Declination Axis
12. Balance weight
13. Declination Slow-Motion Handle
14. Worm wheel
15. Right Ascension Slow-Motion Handle
16. Right Ascension Clamp Lever
17. Polar Axis
18. Horizonal Axis Clamp Lever
19. Tripod Base
20. Two-section Tripod
21. Accessories Tray
22. Sun Screen
23. Diagonal Prism
24. Barlow lens
25. Eyepiece (Sunglass & Moonglass attached)
26. Wooden carrying case
27. Erecting Prism

ALT-AZIMUTH MOUNT TELESCOPE

1. Dew-cap (Lens Hood)
2. Objective Cell
3. Main Tube
4. Main Tube Trunion sleeve
5. Finder telescope
6. Finder Eyepiece
7. Eyepiece Adapter
8. Draw Tube
9. Micro focusing knob
10. Eye-end
11. Vertical Slow-motion Knob
12. York Mount
13. Mount Base
14. Two section Tripod
15. Barlow lens
16. Star Diagonal Prism
17. Erecting Prism
18. Eyepiece
19. Moon glass
20. Sun glass
21. Accessories Tray

ASSEMBLING

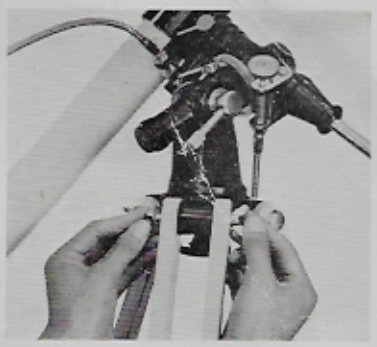


Fig. 2 - A

1. Equatorial: Remove the tripod, the mounting and bolts & nuts from the case, and attach the outer poles of the legs to the tripod head with bolts. Then, fix the telescope on the mounting; fix the balance weight at the end of the Declination axis. (Fig. 2-A) Alt-Az'muth: Simply assembled by attaching the tripod to the tripod head. (Fig. 2-B)
2. To balance the telescope tube, slide it properly.

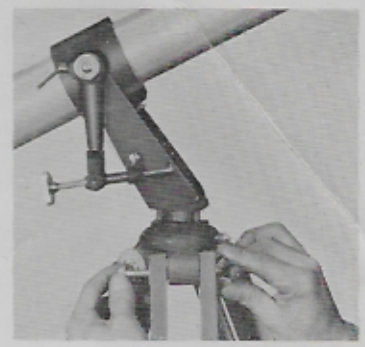


Fig. 2 - B

DISASSEMBLING

Disassembling procedure is the exact reverse of setting up. All accessories are removed first.

TELESCOPE AS AN EQUATORIAL

1. Generally speaking, the daily and nightly movements of heavenly bodies in the sky are regular and unvarying. (This is because the celestial sphere turns on its axis of the north (south) pole of the heavens, a motion identical with the rotation of the earth on its axis.) Accordingly the move ments of the heavenly bodies can be followed by letting the telescope rotate arround the axis which is parallel to the earth's axis.
2. The polar axis points to true north, the angle of inclination being equal to the degree of latitude at the point of observation.
3. The equatorial mount of the telescope is built so that, as shown in Fig. 1, the polar axis of the telescope may point to the north pole of the heavens.
4. For practical purposes, it is sufficient to point the polar axis of the telescope to the North Star Once this is done, the polar axis is secured at the place of observation and unless the telescope is moved, it is properly oriented.

Note:—A sketch of the area around North pole showing the Big Dipper (Ursa Majör), the Small Dipper (Ursa Minor) and Cassiòpeia. as shown in Fig. 3.

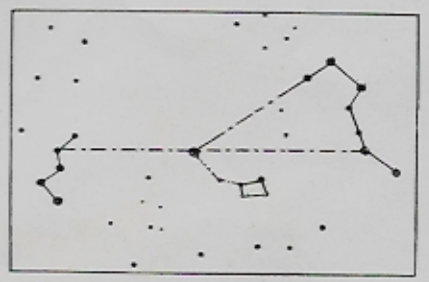


Fig. 3

ACCESSORIES

ASTRONOMICAL EYEPIECES

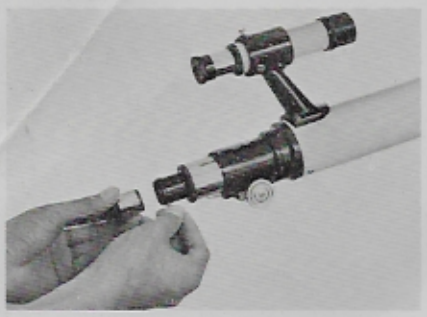


Fig. 4 Inserting the eyepiece into the adapter

1. As shown in Fig. 4, the astronomical eyepiece is into the adapter simply by being pushed in and clamped with a screw. To focus, turn the focusing slow motion flexible handle.
2. The engraved "HM" on the eyepiece stands for "Huyghenian Mittenzwey", a type of ocular which is an improved model of the Huyghenian. The engraved number shows the focal length of the eyepiece in millimeter.
3. The magnifying power of the telescope can be obtained by dividing the focal length of the objective lens by the focal length of the eyepiece.
4. Observers who wear other than astigmatic glasses should, if possible, remove them while observing.
5. The tube of the astronomical eyepiece has the international standard diameter of 24.5 mm.

BARLOW LENS

To obtain double the magnification of each eyepiece, just place this barlow lens on the adaptor. This is because a combined barlow lens and eyepiece produce double the own focal length. Eventually you will use these telescopes in 4 different magnifications with 2 eyepieces prepared.

DIAGONAL PRISM

1. The diagonal (right angle) prism is also known as the zenith prism. It permits greater ease in astronimical observation.
2. The diagonal prism is inserted as shown in Fig. 5. When the diagonal prism is inserted the draw tube must be pushed into the depth of approximately 60 mm to allow the diagonal prism's additional focal length.

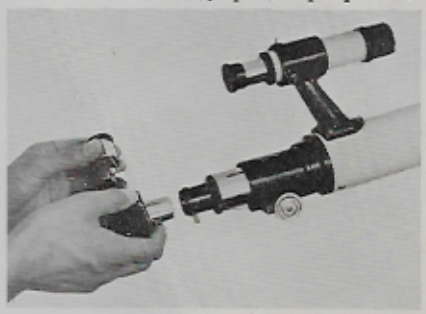


Fig. 5 Assembling the diagonal Prism and eyepiece

SUN-GLASS & MOON-GLASS

1. The sun-glass (or moon-glass) intercepting the heat and glare of the sun's (or moon's) rays, permits safe solar observation.
2. If is screwed into the inside threaded edge of eyepiece tube as shown in Fig. 6.

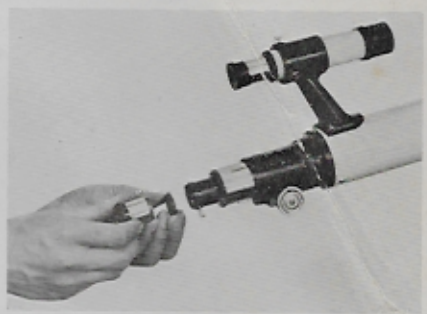


Fig. 6 Inserting the sun glass

SUN PROJECTION SCREEN

1. The sun projection screen, as its names indicates, is used for the projection of an image of the sun, as observed through the telescope, on the screen for observation.
2. The assembling of the sun screen is shown in Fig. 7. When attaching the ring of the rod holding the screen to the draw tube, be sure that the grooved side of the ring is toward the draw tube.
3. For best results, it is advisable to fasten a sheet of pure white paper on the reflecting side of the screen with a paper clip. Use of the diagonal prism will project an upright image on the screen.
4. To get a magnified image of sunspots, use a high power eyepiece.

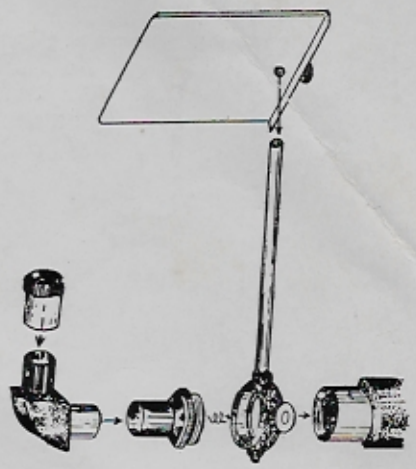


Fig. 7 Installing Sun Projection Screen

FINDER TELESCOPE

1. The finder is a small guide telescope and enables the observer to sight the object easily.
2. The eyepiece of the finder has crosshairs. When the object, viewed through the finder, is centered at the juncture of the crosshairs, it should be in the center of the view on the telescope. If you find this is not so, sight with your telescope some landmarks such as a smokestack or telephone pole at least 500 yards away. Then this object is centered in the telescop's view, look through the finder and set the adjusting screw on the base of its mount till the object appears at the juncture of the crosshair.

ERECTING PRISM

Any astronomical telescope shows an inverted image, and for terrestrial purposes the erecting prism is used.

The image is erected by means of two right angle prism. An ordinary astronomical eyepiece is to be attached.

By using Erecting Prism, considerably less light is lost than with the ordinary erecting eyepieces, and a wider field of view is obtained. If the prism is used, the drawtube will require shortening by approximately 10 cm.

Fig. 8 Erecting Prism and Altazimuth posture

THE TERRESTRIAL OBSERVATION

1. To observe the terrestrial objects, use tne erecting prism and eyepiece.
2. In this case, it is easier to use the telescope in an alt-azimuth position as shown in Fig. 8.

OPTICAL EFFECT

			OKT-217	OKT-218	OKT-219	OKT-221	OKT-222
Lens aperture			62.5 m/m	78 m/m	62.5 m/m	62.5 m/m	78 m/m
Clear aperture			60 m/m	76.2 m/m	60 m/m	60 m/m	76.2 m/m
Focal length			910 m/m	910 m/m	710 m/m	1,200 m/m	1,250 m/m
Light collecting power for nacked eye			73.5 X	73.5 X	73.5 X	73.5 X	118 X
Resolving power with respect to the double star			2.0"	2.0"	2.0"	2.0"	1.6"
Faintest discernible star			10.7 M	10.7 M	10.3 M	10.7 M	11.2 M
Magnification	OR 4 m/m					300 X	312 X
	HM 6 m/m		152 X	152 X	117 X		208 X
	H 20 m/m		46 X	46 X	35 X	60 X	62 X
	W/Barlow Lens	4 m/m				600 X	625 X
		6 m/m	304 X	304 X	234 X		416 X
		20 m/m	92 X	92 X	70 X	120 X	124 X