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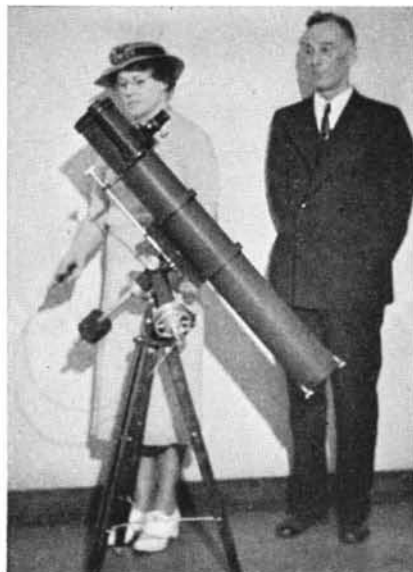
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THE BEGINNER'S CORNER

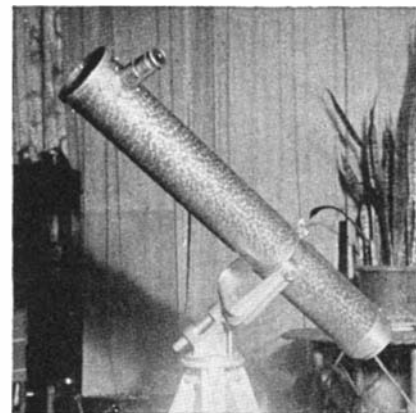
If you are tempted to jump from your first 6" telescope making job to a much larger size, the accompanying photographs and description by a worker who jumped



the other way and put his energies into refinement may be worth considering. It is a 4" made by L. J. Ashby, 437 Stone St., Kalamazoo, Mich., and by Mrs. Ashby, and is equal in both design and finish to professional work. Both, we say, since we have seen a few telescopes with very exquisite or even over-elaborated finish but poor design. Ashby, who has been a telescope maker for several years, writes:

"There are a few who want a really portable instrument—one which does not require several strong backs and a truck to handle and transport. My wife cannot conveniently carry around even a 6", hence this 4" Newtonian which carries easily in the family car and can be handled by a woman. Some details are: Mirror made by Mrs. Ashby, with much oral but no manual assistance on my part. No scratches. Tripod, wood. Setting circles, graduated 5 minutes and 2°. Slow motions in both directions—in R.A. by flexible shaft. Tube, aluminum, cork

lined for better temperature performance. Rack and pinion focusing. Level and compass for quickly aligning polar axis. Finder, diagonal type, 7X, 5° field. Eyepieces, 1", ½", ¼" (after Clarke, in 'ATMA'). Field of view with 1" eyepiece, 1½°. Tube wt.,



11½ lbs., mount and counterweight, 27 lbs. Cost, \$35. Time, 210 hours.

"This little telescope resolves components of Epsilon Lyrae with ½" eyepiece, Pi Aquilae with ¼"."

After all, no beginner on his maiden telescope should attempt so fine a job as the Ashbys' but should aim to equal its design for rigidity, especially at two vital places: on the declination axis near the tube, where a large cross-section is here seen, and in the plate between this axis and the tube, which is here amply thick.

A little telescope, but built like a watch.

ANOTHER TN (which stands for Telescope Gnut, socially correct designation for telescope makers,) who, after making the beginner's 6", did not scorn to drop to a 4" because of its portability, is G. F. Hofferberth, R. F. D. 3, Dayton, Ohio; a telescope maker of long standing and now owner of a 12" Cassegrainian. It has a tube of copper sheet which was rolled, the edges scarfed and silver-soldered. The finish ("engine finish") was done on a drill press with a rubber grommet, oil and emery. Hofferberth made the patterns and did the machining for the polar axis support and bearing and for the well-proportioned fork, but the very beginner—the absolute tyro—need not worry about such refinements as the latter, since easier methods are available.

TELEOPTICS

(Continued from preceding page)

are all zero with exception of spherical aberration, as in the case of the usual Schmidt. The front surface of the solid Schmidt behaves as a single prism face, so that, for large field angles, a star photographs as a very short spectrum. This defect is of no importance in spectroscopy, for which such a glass camera is most useful. The Harvard Observatory has under construction a solid off-axis Schmidt, for which the focal ratio has been pushed to the extreme of $f/0.30$. The focal length is 15mm, and the usable field 3mm linearly, or about 11 degrees. The field is still larger for reduced aperture.

"A variation of the Schmidt in glass is offered by converting the spherical mirror

into a spherical lens surface, with a corresponding change in the depth of the correcting surface. Because of the small power of a lens surface of the same radius as a mirror surface, as compared with that mirror, the aperture-ratio of this type camera is limited to $f/1.5$ or slower. It is, nevertheless, a true Schmidt camera. The focal surface is spherical and concentric with the lens surface.

"In the article by Hendrix and Christie, even for the folded type, they mention a plane focal surface, and count it among the seven plane surfaces to be made. This is inaccurate, for the focal surface, as in the usual Schmidt, is spherical and concentric with the mirror, and should be made so.

"In the discussion of the Wright type, which has a flat field, the authors state that their $f/1$ was unsatisfactory because of higher order aberrations. This is not alto-