Sky and Telescope

Cape Cod from Landsat

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A Tale of Two Eclipses
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The Strange RS Canum Venaticorum Binary Stars
The Atkinson Sundial at Indiana University
Measuring Radial Velocities with an Objective Prism
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GLEANINGS FOR ATM’s
CONDUCTED BY ROGER W. SINNOTT

REPORT OF A BELGIAN TELESCOPE MAKER

SINCE childhood, I have been extremely interested in astronomy. Through reading SKY AND TELESCOPE for many years, and after making contact with other amateurs in Belgium who knew how to grind mirrors, I undertook this activity too, with good success.

Then one day, I got the idea to make a mirror of 40-cm diameter by hand grinding. Friends thought this would be impossible and advised against trying it. Nevertheless, I ordered a low-expansion Duran blank of this size, 8 cm thick and weighing 25 kg (over 50 pounds), and proceeded as I had earlier with smaller glass disks. Indeed, hand working proved easier than I had expected. The grinding required about 200 hours, and the polishing about twice that much time.

With a focal length of only 213.5 cm, this large f/4 mirror could not be adequately figured with the aid of the Foucault test alone. So I tried the Dall null test, in which a small planovconvex lens is placed in front of the light source to provide just the right amount of spherical

Near Ypres, western Belgium, Dany Cardoen stands on the observing ladder of his 40.6-cm (16-inch) f/4 reflector. It is an especially suitable instrument for photographic work, as the deep-sky pictures with this article show.

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In this photograph, additional weights are seen on the declination shaft and behind the primary mirror cell. They counterbalance the author's hydrogen-alpha spectrophotometer, parallel-mounted under the main tube. It has a 100-mm f/15 objective and, when fitted with a focal-plane occulting disk, gives striking views of solar prominences. The author has recently mounted a 16-mm camera on this instrument and experimented with time-lapse prominence movies. On the far side of the main tube, with only the eyepiece showing, is a long refractor for photographic guiding.

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aberration to cancel that of the desired paraboloid, when the mirror is being tested at the center of curvature (see the September, 1976, issue, page 210). But defects of the small lens could be seen during testing, so I abandoned this method too and finally went over to the caustic test. The light that is returned to the center of curvature by a nearly paraboloidal mirror forms a three-dimensional dis-
torted image, or caustic, whose coordinates can be measured to 0.001 mm with suitable micrometers. From these measurements, the departure of the mirror from the paraboloidal form can be measured to about 0.00001 mm, as is explained in Amateur Telescope Making — Book Three, page 429. At the end of figuring, the caustic test indicated that my 40-cm mirror was accurate to 1/50 wave of yellow light.

For a sturdy mounting worthy of this mirror's optical quality, I adopted the German equatorial design, with right ascension and declination shafts 6 cm in diameter. The whole instrument weighs 1,000 kg and is sheltered in a building with a roll-off roof.

The telescope has motor drives on both axes for precision tracking. Photographs can be made at the Newtonian focus and also inside the tube at the prime focus, with a homemade astrocamera. Most of
Over 1° long, the Network nebula NGC 6992 is well shown in this 40-minute exposure. It is part of the Veil nebula in Cygnus, a 2½° wreath whose expansion rate suggests an age of about 300,000 years. If the original explosion was a supernova, prehistoric human beings must have witnessed it.

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