


Saturn

and How to Observe It

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ASTRONOMERS'
OBSERVING GUIDES

 Springer

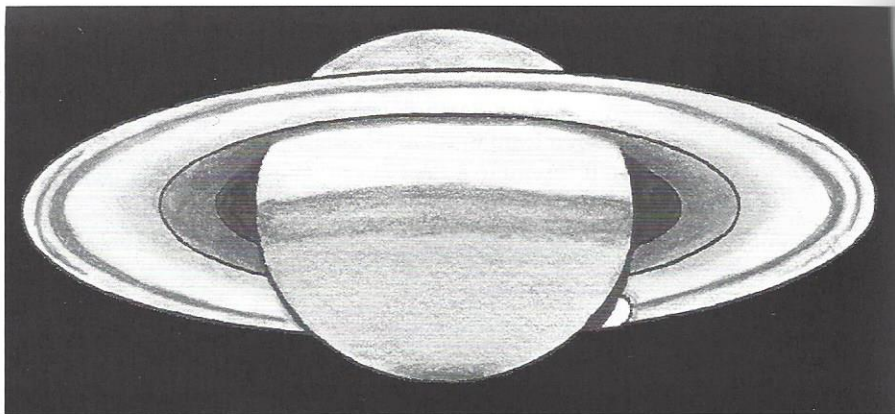


Figure 4.15. To the west (right) of the globe's shadow on the rings is a prominent Terby white spot (TWS) in this drawing contributed to the ALPO Saturn Section by Phil Plante of Braceville, Ohio, using a 20.3-cm (8.0-in) refractor at 333 \times in excellent viewing conditions on October 22, 1992, at 23:57 UT. The TWS is almost certainly a spurious contrast effect. (Credit: Phil Plante; ALPO Saturn Section.)

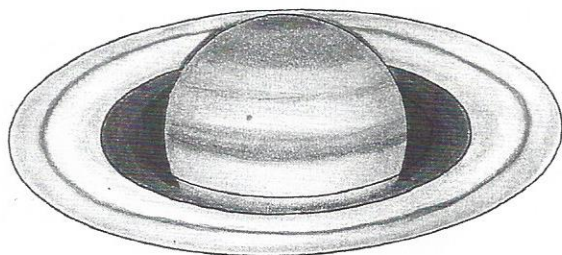
brightness of a star during its passage behind the ring system can reveal intensity differences that would not otherwise be perceptible with the same aperture. Unfortunately, only reasonably large instruments are useful in this kind of work, and it is worth noting also that ring A, overall, is much less dense than ring B. For instance, a 15.0-cm (6.0-in) refractor will reveal a star of 7th magnitude ($m_v = 7.0$) in occultation behind ring A, while a 25.0-cm (10.0-in) instrument will be challenged by an 8th magnitude star ($m_v = 8.0$). This should not discourage observers with smaller apertures from attempting such observations, but work with any small instrument is necessarily limited to brighter stars that Saturn, unfortunately, seldom occults. Even so, observations that record the times of contact with the planet's limb or ring edges are of great value. Although the star is frequently invisible most of the time the rings are in front of it, the star may suddenly appear when behind an area of lesser density and be visible in the smaller telescope. For a valuable and dynamic record of stellar occultations by Saturn and its rings, high-resolution digital images and "time-stamped" videotape of the entire sequence of events is extremely worthwhile to supplement visual work (Fig. 4.16).

Occultations of Saturn by the Moon

The moon occasionally passes in front of the planet Saturn, and although lunar occultations of solar system objects are of limited scientific interest, they are often spectacular events to watch. Because of the sizeable dimensions of planetary disks, the duration of disappearance and reappearance of Saturn's globe and rings at the lunar limb takes considerably longer than pinpoint objects like stars. Predictions of lunar occultations of Saturn appear regularly in popular magazines and on the Internet, allowing observers to make long-range plans to time the events of disappearance and reappearance. Observers should attempt to record the following

Association of Lunar and Planetary Observers (A.L.P.O.): The Saturn Section
 A.L.P.O. Visual Observation of Saturn for $B = -26^\circ$ to -28°

S



N

Coordinates (check one): [] IAU [] Sky

Observer Phil Plante Location Poland OH
 UT Date (start) Dec 27 2003 UT Start 2^h 20^m CM I (start) 317.2 ° CM II (start) 339.9 ° CM III (start) 318.4 °
 UT Date (end) Dec 27 2003 UT End 2^h 38^m CM I (end) 327.8 ° CM II (end) 350.0 ° CM III (end) 328.5 °
 $B = -25.4$ ° $B' = 25.6$ ° Instrument 8" SCT (6-8) Magnification(s) 333 X_{min} X_{max}
 Filter(s) IL(none) f_1 38A f_2 23A f_3 Seeing 5.7 *momeul* Transparency 4.0 (SI. HAZE)

Saturn		Visual Photometry and Colorimetry			Absolute Color Estimates	Latitude Estimates ratio y/r
Global and Ring Features	IL	f_1	f_2	f_3		
Ring	A10-5	7.0	7.5	7.0		
	A 5-0	7.5	7.5	7.0		
	B10-7	8.0	8.0	8.0	<u>Rep.</u>	
	B 7-0	7.6	8.0	8.0		
	C10-3	0.7	0.3	0.1		
	C 3-0	0.0	0.0	0.0		
	EZ	7.6	6.5	8.0		
	SEBn	6.0	6.0	6.5		
	SEBy	6.8	6.0	6.5		SEBn N edge -0.3
	STrZ	7.8	6.0	7.0		SEBy S edge +0.0
	STeB	7.5	6.0	6.0		STeB +0.5
	STeZ	7.8	7.0	7.0		SPR N ed. +0.65
	SPR	6.5	5.8	6.0		SPC N edge +0.85
	SPC	5.0	5.8	5.8		
	CRope Band	1.0	-	0.5	<u>access Glabe @ B0-C8</u>	
					<u>Ske tch made in IL</u>	

Bicolored Aspect of the Rings: No Filter (IL) (check one): [] E ansa = W ansa [] E ansa > W ansa [] W ansa > E ansa
 (always use IAU directions) Blue Filter (38A) (check one): [] E ansa = W ansa [] E ansa > W ansa [] W ansa > E ansa
 Red Filter (23A) (check one): [] E ansa = W ansa [] E ansa > W ansa [] W ansa > E ansa

IMPORTANT: Attach to this form all descriptions of morphology of atmospheric detail, as well as other supporting information. Please do not write on the back of this sheet. The intensity scale employed is the Standard A.L.P.O. Intensity Scale, where 0.0 = completely black \leftrightarrow 10.0 = very brightest features, and intermediate values are assigned along the scale to account for observed intensity of features. Copyright © 1996 Form S-2628 JLB

Figure 5.5. Phil Plante of Braceville, Ohio, made this sketch using an ALPO Saturn Section observing form on December 27, 2003, between 02:20 and 02:38 UT with a 20.3-cm (8.0-in) Schmidt-Cassegrain at 333 \times . All of the pertinent data appear on the form, including intensity and latitude estimates (discussed later in this book). (Credit: Phil Plante; ALPO Saturn Section.)