

than astronomical origins—possibly related to the earlier “discovery” by William Herschel of the rings of Uranus, in turn attributable to astigmatism in Herschel’s new telescope. Indeed it is an interesting question why Saturn should have rings and the other Jovian planets not, although this point is not pursued in Baum’s book. Future spacecraft to the outer solar system or observations by large space telescopes might be able to determine whether thin debris rings might indeed exist around Jupiter, Uranus, and Neptune.

The author also presents us with an interesting case of the alleged discovery of a large planet in the outer solar system in the middle of the last century, subsequently found to be due to the mislabeling of a wire on a filar micrometer, mounted in the telescope focal plane. These observations were communicated on 3 September 1851 directly to the Secretary of the Navy from the U.S. Naval Observatory. The announcement of the source of error was forwarded to the *Astronomische Nachrichten* with a covering letter by a rear admiral. I wonder if comparable interest in recent discoveries made, say, by the Naval Research Laboratory, is today taken by SecNav and by officers of flag rank.

The pleasures of this book are in its later chapters and in those subjects requiring little sophistication. The first two chapters unfortunately have a variety of serious flaws. Chapter 1 is a discursive treatment of searches for natural satellites of the moon. The author thinks that absorption rather than scattering reddens light transmitted through the earth’s atmosphere; and that asteroids such as Amor and Adonis come “perilously close” or “uncomfortably close” to the earth. There are too many significant figures, a confusion of brightness and magnitude, misunderstandings of the photographic process, and no discussion at all of the use of radar for detecting natural satellites in circumlunar space even though the radar detectivity is now far superior to the optical detectivity.

Chapter 2 is on the deductions by Schröter and others of 20- or 30-mile-high mountains above the clouds of Venus, determined by visual observations of the faintly serrated terminator and cusp extensions of the planet. Herschel was properly skeptical in this instance, but Baum’s sympathies lie with Schröter. The author comments at the end of this chapter that mountains have once more been invoked, to

explain the radar scattering of Venus; but he neglects to say that the maximum altitudes are 5 kilometers above the surface—which would hardly penetrate the cloud deck, now known to be 60 kilometers above the surface. All the observations to which Baum refers are made in the visible, when it is in the ultraviolet that the cloud contrast clearly emerges. There is no reference to the four-day rotation of the ultraviolet cloud markings; to Kuiper’s hypothesis of differential Rayleigh scattering as the explanation for these features; or to the debate following the Venera 4 mission, in which the Soviets proposed a 26-kilometer-high mountain on Venus. There are erroneous claims about Mariner 2 findings on the clouds. The author neglects to notice that since Venus presents the same face to the earth at each inferior conjunction we would expect regularities in the time of appearance of optical features were they tied to the surface; he stresses that such regularities do not exist.

The book assumes that the reader is familiar with such phrases as “right ascension,” “greatest elongation,” “equatorially mounted Schmidt,” “pier,” and “phase angle.” It is marred by many stylistic infelicities, such as the “activation” rather than the exposure of a photographic plate and a reference to a probe of “deep planet space.” Baum also has a penchant for putting down dependent clauses as if they were complete sentences. The book is too obscure for the general reader and too error-ridden for the historian of science. But the astronomical anecdotes are important object lessons on the necessity of strict critical standards in science.

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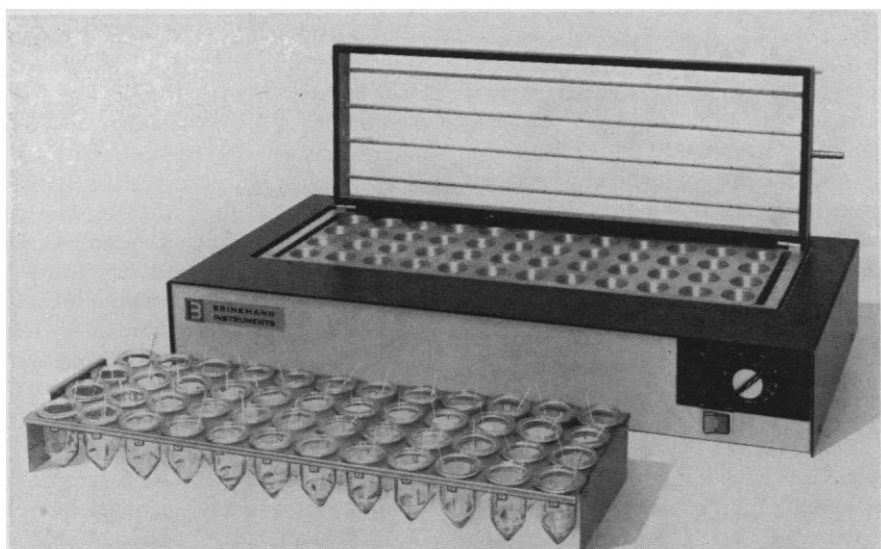
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(Continued on page 1388)



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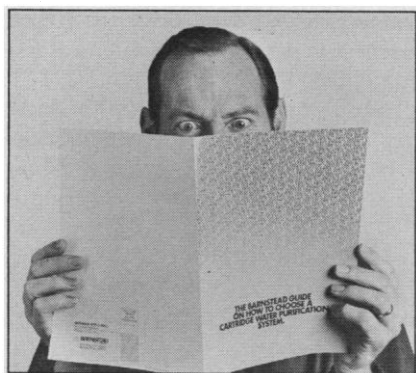
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SCIENCE, VOL. 184

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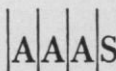
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