axes and a theory for the perturbations in i, Ω and π.

We have calculated secular perturbations by Jupiter for the nine Taurids and for Comet Encke using Brouwer's extension of the earlier theory but neglecting the eccentricity of Jupiter's orbit. The "periods" for complete revolutions of the nodes, or 2 cycles in i, range from 3200 to 11,000 years. The maximum values of i range from 10° to 23°. For five orbits the values of π tend to converge, not far from the value for Comet Encke, some 6000 years ago. For three orbits π diverges appreciably in the past.

We find that the orbit planes of four meteors coincide reasonably well with that of Comet Encke at an average date 4700 years ago; these orbits include members from both the northern and southern streams. Three other orbit planes, from the southern stream in 1937, coincide roughly with each other, but not with that of Comet Encke, at a time some 1500 years ago. Of the remaining two orbits one is known to be quite uncertainly determined. Furthermore, we find that the orbits of each orbit-set tend to cross, those 4700 years ago, near the solar distance, $r = 3.0$ a.u., before aphelion, and those 1500 years ago near aphelion.

The above facts suggest that the Taurid streams were formed chiefly by a violent ejection of material from Encke's Comet some 4700 years ago but also by another ejection some 1500 years ago, from a body moving in an orbit of similar shape and π but somewhat greater aphelion distance, possibly a component of Comet Encke that split away at an unknown time in the past. On the basis of these suggestions and including only Jupiter's perturbations, we find that the observed range in q and the relatively large ratio of the range in q to that in Q demonstrate that (a) the velocities of ejection were of the order of 3 km/sec, (b) that the ejections occurred at $r \gg q$ and (c) that the changes in π need not have exceeded a few degrees. Deductions (a) and (b) are not consistent, however, with the continuous ejection of meteoritic material from the icy conglomerate comet model proposed by one of us. On the other hand, the Taurid streams are unique in several respects, so that the inconsistency, instead of weakening the theory, contributes basically to an understanding of cometary structure.

We propose tentatively that the violent ejections from Comet Encke and its possible companion(s?) were the result of encounters with small asteroidal bodies, since the suggested points of ejection lie near the plane of the asteroids and the earlier one near the region of their greatest concentration. The deviations in q and Q of the meteor orbits from the present ellipse of Comet Encke permit the calculation of the velocity vectors in the first encounter. The derived directions and velocities of the ejected meteoroids are entirely consistent with the encounter hypothesis if the asteroid moved in a nearly circular orbit.

Some of the conclusions of the present paper cannot yet be accepted as definitive, however, because (a) approximate perturbations were used, (b) the orbits are small in number and their accuracy difficult to determine, (c) the orbit of Encke's Comet may have changed erratically in the past, and (d) some of the orbits from the earlier ejection might be expected to show larger present-day variations in π. Nevertheless, we are convinced that the most likely process for the origin of the Taurid photographic meteors and fireballs involves encounters of Comet Encke and companion (s?) with asteroidal bodies.

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Wood, Frank Bradshaw. Irregular light-fluctuations of UX Monocerotis.

The eclipsing system, UX Monocerotis, has been observed photoelectrically in two colors. The observations were made with Photometer C^1 and the 36-inch reflector of the Steward Observatory. The effective wave lengths were 5200 A and 4250 A. While the light curve is not yet completely covered, the following preliminary results may be announced.

Primary minimum has a depth of about 0.95 mag. in the yellow and 1.3 mag. in the blue. Secondary minimum has a depth of approximately 0.15 mag. in both colors and seems centrally located on the present incomplete curve.

Irregular light-fluctuations were found on many nights on which the system was observed; the maximum size of these fluctuations was of the order of 0.2 mag. Observations of a check star and of other eclipsing systems on the same nights, indicate clearly that these are not caused by fluctuations in the photometer or in the sky. In the case of the more rapid fluctuations, it usually takes an hour or two for the system to complete the fluctuation and to regain its original brightness. The nature of the light change is