ASTRONOMICAL NOTES

Planets during June 1939.—Mercury will be in superior conjunction with the Sun on June 7 and will be visible as an evening star about the end of the month. Venus can still be seen as a fairly bright object near the eastern horizon for about an hour and a half before sunrise. It continues to get closer to the Sun and is becoming fainter. On June 17 there will be a close conjunction of the planet with the Moon. Mars reaches the meridian at about 3 a.m. and is well placed for observation during the latter part of the night. On June 24, it will be at one of the stationary points of its apparent orbit. The planet is increasing considerably in brightness, the stellar magnitude being −2·0 at the end of the month.

The major planets Jupiter and Saturn continue to be visible as morning stars; the former rises about an hour after midnight and can be seen as a bright object (mag. −2·0) in the early hours of the morning. The ring ellipse of Saturn is gradually getting wider, the angular dimensions of the major and minor axes being 38″·0 and 10″·0 respectively, about the middle of the month. Uranus is also a morning star and will be situated about 2° to the south of the star δ Arietis (mag. 4·5). A close conjunction with the moon will occur on June 15 and will be helpful to observers in locating the planet.

Comets.—Pons-Winnecke's Comet is visible as a faint object (of magnitude 13 on May 10) and is moving slowly in the constellation Bootes. Information has been received of the discovery of a bright Comet (1939 d) on April 18 by Hassel at the Oslo Observatory. At the time of discovery the Comet was of the third magnitude and is reported to have had a nucleus and a short tail.

It has become fainter since then and has been moving rapidly in a south-easterly direction in the constellations Perseus and Taurus. An orbit computed by Möller gives 1939 April 10 as the date of perehelion passage.

Kopff's periodic comet was re-discovered on April 22 by Prof. Van Biesbroeck at the Yerkes Observatory. It appears to have been a faint and diffuse object without central condensation or nucleus. T. P. B.

SCIENCE NOTES AND NEWS

The Drainage of India.—Dr. S. L. Hora has made an important contribution (*Proc. Nat. Inst. Sci. India*, 1938, 4, No. 4) on "Changes in the Drainage of India as evidenced by the Distribution of the Freshwater Fishes". Dr. Hora has, by this and other publications, pointed out the zoogeographical importance of the Indian fish fauna and thus made the study of Ichthyology more interesting. It has been clearly shown that the distribution of both past and present-day freshwater fishes constitute an important criterion for the elucidation of the palæohydrographical features of land masses. A brief geological history of India is given. A main drainage of the Upper Gondwana period has been indicated by the presence of the Dipnoan and the Ganoid fishes in the Kota-Maleri beds in the Godavari valley. Based on the occurrence of the estuarine fishes in infra- and inter-trappean beds of the Central Provinces, it is concluded that during pre-trappean period a main river flowed towards Rajputana. Further it is pointed out that during the post-trappean period the drainage of the Peninsular India was reversed. That the modern bony fishes particularly the Siluroids had become dominant as early as the Siwalik period is evidenced by their remains among the Siwalik rocks. Based on the distribution of fishes Dr. Hora supports the view of the existence of 'Indobram' or 'Siwalik' river.

Further Dr. Hora contends that freshwater fishes originated in Southern China and from thence spread to all directions. A close similarity between the fish fauna of the Peninsular India, Eastern Himalayas, Burma, S. China and Malay regions is shown. The occurrence of forms like *Bhavania* and *Silurus* in the hill streams of the Western Ghats indicates that they must have migrated from the Assam hills *via* the Satpuras by a series of river captures. The publication of Dr. Hora's article on the fish remains of the Central Provinces, to which reference has been made in this paper, is keenly awaited.

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The Indo-Brahm or the Siwalik River.—At the ordinary monthly meeting of the Royal Asiatic Society of Bengal, held on Monday, 1st May 1939, Dr. Baini Prashad presented a paper on the Siwalik River, the occurrence of which during the Tertiaries was postulated in 1920 by Sir Edwin Pascoe of the Geological Survey of India, as a result of his study of the Punjab Oil Belt. The headwaters of the river corresponded with those of the Brahmaputra. "Through Assam the river flowed westwards and north-westwards along the foot of the Himalayas as far as North-West Punjab, and then turning southwards along a course, not very different from that of the modern Indus, it emptied itself into the Arabian Sea. Almost simultaneously Dr. G. E. Pilgrim of the Geological Survey, from a study of the Siwalik Conglomerates, communicated a paper to the *Asiatic Society*, in which he suggested that there was a single westwardly flowing river, the Siwalik River, in place of the Indus, the Ganges and the Brahmaputra River systems, which served for the drainage both of the eastern and western Himalayas. Both the authors did not refer to the earlier communications by