

COMET NOTES

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The third new comet of 1964, designated 1964 *h*, was found by Edgar Everhart, physics professor at the University of Connecticut and amateur astronomer, during a visual search for comets with his 5-inch refractor on August 7. Everhart proved the nature of his discovery by confirming motion of the diffuse ninth-magnitude object with half an hour of further observing with his 12-inch homebuilt reflector. At the time of discovery, Comet Everhart was located between β and ϵ Librae and was moving northeastward at a rate of $1\frac{1}{2}^\circ$ per day.

According to observations obtained at the U.S. Naval Observatory Station in Flagstaff during the following days, the declination component of the motion slowed rather rapidly. Accurate positions on August 8, 16, and 20 were used by L.E. Cunningham, Berkeley, for calculation of an orbit, which indicated that the comet passed perihelion on August 23 at a distance of 1.3 a.u. from the sun. The inclination of the orbit plane was nearly 70° to the plane of the ecliptic.

An independent discovery of Comet 1964 *h* was made by J. C. Bennett, Pretoria, not quite two days after Everhart's observation had been announced, according to information from M. P. Candy, director of the Comet Section of the British Astronomical Association. Bennett, as Everhart, used a short-focus 5-inch refractor. Pre-discovery images also have been found on patrol plates taken at the Sonneberg Observatory on August 5 and 6.

The first success to come from the study by B. G. Marsden of the orbits of several long-lost comets was achieved with the recovery by the writer of P/Holmes with the 40-inch reflector of the U. S. Naval Observatory at Flagstaff, Arizona. Nineteenth-magnitude images of the comet were recognized on four

plates exposed on July 16 and 17, and another pair of exposures on September 11 provided full confirmation. In spite of the fact that the last seven returns of P/Holmes went unobserved, the correction necessary to Marsden's predicted time of perihelion passage was only $+0.7$ day. It should be possible to obtain additional observations of this interesting comet before it is lost in the evening twilight. Further, this success should do much to stimulate searches at the appropriate time for the other "lost" short-period comets studied by Marsden.

Preliminary parabolic orbits of Comet Ikeya, 1964 *f*, by M. McCants, Houston, L. E. Cunningham, and Z. Sekanina, Prague, agreed in indicating that perihelion passage took place at the beginning of August at a heliocentric distance of 0.8 a.u. Motion was retrograde in an orbit inclined less than 10° to the ecliptic. Cunningham called attention to an approach within 0.2 a.u. of the earth on August 12. As more observations became available, further computations by Sekanina suggested that the orbit was in fact elliptic. His new elements include a rather uncertain value of the period of about 300 years. L. Kresák noted that the orbits of the comet and of the earth have a near-intersection at a longitude of about 105° and called attention to the possibility of a meteor shower associated with Comet Ikeya having occurred in late June or early July. Unfortunately the comet was unknown at that time, so no special watch was kept.

Comet Ikeya was a steadily brightening morning object during July and early August and was readily visible with the naked eye as it passed within a couple of degrees of α Orionis on August 6. Short-exposure photographs with the 40-inch reflector at that time showed the nuclear condensation to be no brighter than 11th or 12th magnitude even then. By late August Comet Ikeya had moved around to the evening sky and faded noticeably, though it was still easily seen with ordinary binoculars from Flagstaff on August 31. Observation of Comet Ikeya will become increasingly difficult as it fades and is gradually engulfed in the evening twilight during the next several weeks.

P/Wolf-Harrington, 1964 *g*, recovered at Flagstaff on July 10, brightened by almost two magnitudes, to 17.6, before the end of August. Plates on July 14, and August 6 and 30 all

showed an essentially stellar condensation, with a faint trace of coma or tail extending southwesterly up to 0.5 on the strongest exposures. This comet will remain in good position for the next several months and should brighten steadily as it approaches perihelion in February 1965.

Comet Tomita-Gerber-Honda, 1964 *c*, was rather widely observed at the beginning of July in spite of being badly placed with respect to the sun. Wide-field cameras were used by A. McClure to record sharp kinks far back in the long, narrow tail, especially on July 3. Short-exposure plates at Flagstaff on July 16 apparently were among the last observations prior to conjunction. A new orbit by Cunningham indicates that this comet may be observed again in October or November if it has not faded too much.

Several additional photographs of P/Pons-Winnecke, 1964 *b*, were obtained during July, August, and early September at the U.S. Naval Observatory Station in Flagstaff, the increasing separation from the sun making possible the longer exposures necessary to record this fading comet. A single 70-minute exposure on July 16 showed a practically stellar image of magnitude near 17.7, with a trace of coma, mostly northwest. Other exposures, of 92 minutes on August 6, of 110 minutes on August 15, and of 120 minutes on September 4 all recorded a sharply condensed nucleus of magnitude about 18.5, usually with a trace of coma on the north or northwest side.

Routine observation of P/Kopff, 1963 *i*, continued during August, short exposures with the 40-inch reflector being adequate to record the very sharp central condensation. As estimated from the photographs, the nucleus was of magnitude 15.4 on August 5 and 15.8 on August 30. Even so, the comet was readily visible with the 5-inch finder on August 5. A longer exposure on that night showed an elongated coma 1.2 in diameter, mostly on the northeast side of the nucleus, and a narrow tail to 5' southwest.

A pair of exposures for P/Encke on August 30 recorded fairly well-condensed images of magnitude about 19.0 with a weak trace of tail extending westward to 0.5. Exceptionally good seeing helped greatly in counterbalancing the usual diffi-

culties in observing at declination -35° from northern latitudes. A single 70-minute exposure on September 7 showed only a weak trace of the comet in poorer conditions.

Even though far past perihelion, P/Ashbrook-Jackson, 1962 *e*, was reobserved on September 11 following conjunction with the sun. The images, of magnitude 19.4 were fairly well condensed, though quite weak. This comet moves in an orbit of low eccentricity, and may become easier to observe with the smaller geocentric distance and good position at opposition near the end of the year.