

20a. SOUS-COMMISSION DES ORBITES ET DES
EPHEMERIDES DES COMETES

PRÉSIDENT: Dr J. G. Porter, H.M. Nautical Almanac Office, Royal Greenwich Observatory, Herstmonceux Castle, Hailsham, Sussex, England.

MEMBRES: Cunningham, Dubyago†, Fayet, Kepinski, Mlle Roemer, van Biesbroeck, Mlle Vinter Hansen†.

The lack of information as to current investigations, which was mentioned in the last report, is still noticeable. This may be due to a misunderstanding, since the work of the Sub-Commission now covers all branches of cometary computation, and not merely the orbits of short-period comets. Of the near-parabolic orbits under investigation only four appear to have been completed, *viz.*, Kopff, 1905 IV (Pels), Ryves 1931 IV (Antishina), Mrkos 1957*d* (Schrutka-Rechtenstamm) and Minkowski 1951 I (Staniĭá). The only additional investigations in this class that have been notified are those of Bester 1948 I (van Biesbroeck), Burnham 1958*a* (Marsden) and Wirtanen 1956*c* (Haségawa).

Predictions for periodic comets have, in general, provided adequate coverage, and here the work of the Computing Section of the British Astronomical Association has been greatly aided by an increasing number of predictions from other sources, notably the U.S.S.R. computers. The only notifications to be added to previous lists (see reports for 1955 and 1958), omitting the B.A.A. computers, are:

P/Arend-Rigaux	Haségawa
P/Giacobini-Zinner	Kordylewski
P/Perrine-Mrkos	Szafraniec
P/Grigg-Skjellerup	Sitarski
P/Holmes	Dobrzycki
P/Reinmuth (1)	Szulakowska
P/Kulin 1939 VIII	Haségawa

The continuous and valuable investigations of periodic comets Encke (Makover), Wolf (1) (Kamienski) and Kopff (Kepinski) have proved remarkably accurate. The identity of P/Harrington 1952 II with P/Wolf (2) 1924 IV has been confirmed by Wisniewski; this comet might well be referred to in future as P/Wolf-Harrington. Increasing use is made of large electronic computers for this work, both in the U.S.A. and U.S.S.R. A further instance is provided by the investigation into the motion of P/Halley, which Zadunaisky hopes to complete on an electronic machine at the Smithsonian Institution. The late J. Bobone had made considerable progress with this work before his death in 1959, and Zadunaisky proposes to check the figures so far obtained and to complete the task.

The large number of short-period comets throws an extra burden not only on computers but also on observers. A very large share of the credit for the recovery of these faint objects and for following them as long as possible is due to Elizabeth Roemer of the Flagstaff Station of the U.S. Naval Observatory. She has, since the last report, recovered 12 of the periodic comets whose returns were predicted, and has followed 20 comets to the magnitude-limit of the 40-inch reflector. The lack of other observers who can undertake such work increases the responsibility of the U.S. Naval Observatory's Flagstaff Station, but this responsibility is fully recognized, and every effort is made to provide the best possible service of accurately measured positions with the equipment and staff available. Miss Roemer has experienced some difficulty

in photographing comets in those cases where the true motion of the comet cannot be derived from the ephemeris with sufficient precision. A large reflector has a small field and the telescope cannot be guided directly on the comet, even when the comet is very bright. Guiding must be done by offset from a field star, and the position and motion of the comet must therefore be obtainable with considerable accuracy from the ephemeris. The old rule that an ephemeris should be capable of interpolation using second differences only, would ensure such a result, but this rule is not always followed. Miss Roemer makes certain recommendations, which, with others, are set out above in the report of Commission 20, and which may well form suitable topics for discussion at the Berkeley meeting.

J. G. PORTER
President of the Sub-Commission