are sometimes not of the best definition so that if one took an average of all the component lines there would be a likelihood that the components would be assigned as in the previous publication. By paying attention, however, solely to the 4481 line of magnesium,—a proceeding warranted by the uniformity of exposure in that region—the writer found that with the period 2.15165 days the component velocities in every case fell on the proper branch of the curve.

With this period the Mount Wilson observations are in accord. A circular orbit with semi-amplitudes of 113 and 130 kms. per sec. is obtained. Moreover the values of $m_1 \sin^3 i$ and $m_2 \sin^3 i$ are respectively 1.7 and 1.5 instead of each being 18.0 times the sun as formerly. A more detailed article will appear as a Publication of the Dominion Astrophysical Observatory.

TWO SPECTROSCOPIC BINARIES, H.R. 2962 AND H.R. 5472

By W. E. Harper

I. *The Orbits of the Spectroscopic Components of H.R.* 2962

The binary character of this star has not hitherto been announced. It was discovered early in 1924 by the writer and 28 plates secured since then are used to determine the period and other elements of its orbit. The spectra of both components have been measured and are of type F3 or thereabouts, with one considerably stronger than the other.

The variation in velocity is small, the semi-amplitudes being 45 and 52 kms. only. Thus the component lines at their maximum separation are not greatly in excess of the limit of resolution of the one-prism instrument and it is considered quite satisfactory to have obtained the orbit when for fully 75 per cent. of the period the lines would, under normal conditions of observing, be partially or completely superposed. By narrowing the slit it was possible to get the lines resolved where the separation was not over 80 km. and thus the velocity curves are fairly satisfactorily determined.

The orbital elements are as follow:

$P = 31.50$ days
$e = 0.208 \pm .045$
$\omega_1 = 44°.0 \pm 4°.0$
$\omega_2 = 224°.0 \pm 4°.0$
$K_1 = 45.18$ km. ± 1.94
$K_2 = 52.43$ km. ± 2.49
$\gamma = -12.11$ km. ± 0.42
$T =$ J.D. 2,423,884.45 ± 0.33 days
$a_1 \sin i = 19{,}142{,}000$ km.
$a_2 \sin i = 22{,}214{,}000$ km.
$m_1 \sin^3 i = 1.53 \odot$
$m_2 \sin^3 i = 1.32 \odot$

The probable error of a plate is for component I ± 3.4 and for component II ± 2.6 km. per sec.

A parallax of 0″.02 is deduced by the spectroscopic method from six pairs of lines.

II. *The Spectroscopic Orbit of H.R.* 5472

This spectroscopic binary was discovered at Victoria in June 1923. Four plates of that year, four of the following year and twenty-one of 1925 were deemed sufficient to determine the orbit as the numerous lines of its F5 spectrum permit fairly accurate determinations of its radial velocity to be made.

It was found necessary to confine attention solely to the 1925 series of 21 plates which were fairly well distributed over one cycle with a period of 101 days. The four observations of 1924 fell below the curve whilst those of 1923 were slightly more below, suggesting a change in the velocity of the system.

A change of 1 km. every 85 days would cause these observations to fall on the curve but it was felt best to use the 1925 series alone from which the following elements resulted:

$P = 101$ days
$e = 0.101 \pm .019$
$\omega = 134°.12 \pm 9°.39$
K (1925) $= -4.44 \pm 0.24$ km.
$\gamma = 18.88$ km. ± 0.36 km.
$T =$ J.D. 2,423,581.68 ± 2.60
$a \sin i = 26{,}086{,}000$ km.

Indicative of the orbit being fairly well determined it may be stated that the probable error of an observation is less than 1.5 km. per sec., a value considered quite satisfactory for single-prism dispersion.

Observations from time to time will be made and their residuals from the 1925 curve used to determine the period and amplitude of variation of the velocity of the system. At present the results are: 1923, −7.6; 1924, −6.9; 1925, ±0.0; 1926, +3.6.

The period of the spectroscopic pair about the third body may be as much as five or six years judging by these limited results.

Dominion Astrophysical Observatory,
Victoria, B.C.