Hansen is avoided through use of the exponential form rather than the trigonometric form, in the developments employed. Since publication, the Berkeley Tables have been extended and revised and have been applied to 35 cases; the results are summarized in the table given above. The column, No. of opp., gives the number of oppositions that were represented by the solution, and the column, El. corr., explains the type of orbit correction that was made; n , M in this column indicates that only corrections to the mean longitude at epoch and to the mean motion were made. It has been found that the range of usefulness of the Berkeley Tables is considerably in excess of that which was first assumed, namely, mean daily motion between $550''$ and $650''$, and inclination of the orbit plane and eccentric angle each up to 10° as a maximum, the table showing the extent to which these ranges have been extended. Preparation of manuscript is nearing completion with the writer and A. O. Leuschner, Professor of Astronomy and Director of the Students' Observatory, Emeritus, University of California, joint authors. Acknowledgment is made to the National Academy of Sciences through its Trustees of the Watson Fund, and to the Regents of the University of California, through its Board of Research, for grants in aid of this work. Credit for the carrying through of the computations is due a number of persons and specific acknowledgments will be made in the publication of this work.

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McLaughlin, Dean B. The orbit of γ Persei.

The spectrum of this star is composite gG0 and A2. Only the K line is measurable in the A-type spectrum. Large relative displacements of the two spectra were observed in 1932 and 1947.¹ Velocities of both stars were measured on 34 Michigan plates and were combined with 22 published velocities of the G star in 1897 to 1911 (Lick, Bonn and Columbus plates). Orbital elements are as follows:

Period	5350 days		
γ	+ 2.5 km/sec		
K_G	12.7 km/sec	K_A	21.9 km/sec
e	0.72		
ω_G	344°	ω_A	164°
T	JD 2432263 = 1947 March 18-19		
$a_G \sin i$	6.44×10^8 km	$a_A \sin i$	11.1×10^8 km
$m_G \sin^3 i$	4.72 $\odot$	$m_A \sin^3 i$	2.74 $\odot$

The spectrum of the G-type star is that of a normal giant, with no indication of c-character.

The values of $m \sin^3 i$ suggest that $i \approx 90^\circ$. The masses are then very similar to those of Capella A and Sirius A. Assuming luminosities equal to those stars, the combined absolute magnitude is $M = -0.45$ and the parallax $0''.020$. The semi-major axis of the orbit of the G star is $0''.086$. An astrometric orbit should therefore be observable in yellow light with negligible interference from the A star. At apastron in 1954 the separation of the two stars should be about $0''.4$.

1. *Ap. J.* **88**, 358, 1938; *Harv. Announcement Card* No. 795, 1947.

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McMath, Robert R. and Orren C. Mohler. A reflecting spectrometer for the solar infra-red.

In order fully to utilize the possibilities of the new photoconductive infra-red detectors, such as the lead-sulfide cells now constructed by R. J. Cashman at the Northwestern Technological Institute, a reflecting optical system must be employed. Experiments during the past year (1947) at the McMath-Hulbert Observatory have revealed so many new and important features of the solar infra-red spectrum under high dispersion, that we have designed and constructed a reflecting spectrometer for use with the McGregor tower telescope. One of the original telescopes of the McMath-Hulbert Observatory, a $10\frac{1}{2}$ -inch Cassegrainian telescope of equivalent focal length 45 feet, and a calcium fluoride prism monochromator constitute the image-forming and pre-dispersing system that precede the main spectrograph.

Since our interest is primarily in highly dispersed solar spectra, we have used an aluminized speculum metal diffraction grating as the dispersing element. The grating we are now using has been very kindly loaned to us by the Mount Wilson Observatory. It is ruled with 600 lines per millimeter and is very bright in the first order infra-red at about $20,000\text{\AA}$ wave length.

The chief problem encountered in the design of any spectrometer is the provision of an absolutely smooth rotation of the grating about an axis parallel to its rulings. This problem is comparable to that of producing an errorless drive for a large telescope, and the long experience of Dr. McMath in the construction of telescope drives led to the following solution.

The grating table is mounted on a specially selected precision grinder spindle, which acts as the axis of rotation for the grating. The grating