been completed. As was expected, large variations from the first elements were found. These three observations cannot be represented by a parabola. They lie, however, on an ellipse whose semi-major axis is 3.54 astronomical units. The period is about six and two-thirds years. Its nearest approach to the Sun was May 2d, at which time it was 158,000,000 miles from it.

The plane of this second orbit is inclined 8°.44′ to the plane of the ecliptic. The longitude of perihelion is 283°. The comet is receding from both the Earth and the Sun, so that it is becoming fainter. It can no longer be seen with a telescope of moderate size, and will soon be too faint for any but the largest telescopes.

An ephemeris giving the positions of the comet up to November 2d is printed with these second elements in *Lick Observatory Bulletin,* No. 100. The comet is at present traveling southwest through the southern part of *Pegasus.* On October 10th it will be in Right Ascension $22^h\ 26^m$, and 5° 46′ north of the equator.

RUSSELL TRACY CRAWFORD.

BERKELEY ASTRONOMICAL DEPARTMENT.

September 22, 1906.

NOTE ON Σ 2028 (Rej.).

In the *Mensuræ Micrometricæ* fourteen stars, originally suspected of being double but finally rejected as single, are omitted by STRUVE. Among these is Σ 2028, which, in his 1827 catalogue, was marked "oblonga?" but evidently was not seen in subsequent years. I examined this star (B. D. + 39° 2963) with the 12-inch telescope on the night of September 4, 1906, and at once saw that it was really double. A measure with the 36-inch on September 7th gives 146°.8, 0″.49, magnitudes 8.0 and 8.5. It is worth noting that this is the only star finally rejected by STRUVE as single that has since been found to be double.

R. G. AITKEN.

September 17, 1906.

A 100-INCH MIRROR FOR THE SOLAR OBSERVATORY.

I am permitted to announce that Mr. JOHN D. HOOKER, of Los Angeles, has presented to the Carnegie Institution of Washington the sum of $45,000, to be used to purchase for the Solar Observatory a glass disk 100 inches in diameter

and thirteen inches thick, and to meet other expenses incident to the construction of a 100-inch mirror for a reflecting telescope of fifty feet focal length. The optical work will be done by Professor G. W. RITCHEY and the assistant opticians employed under his direction by the Solar Observatory.

In *Contributions from the Solar Observatory,* No. 13, I have outlined the difficulties that must be overcome in the construction and use of a 100-inch mirror. These include—

(1) The manufacture of a suitable glass disk. In view of their long experience and full understanding of the requirements, it seems probable that the St. Gobain Company will be able to make a satisfactory disk, although the amount of glass to be cast in a single piece will weigh over four and one half tons.

(2) The production of a perfect paraboloidal figure. After his successful work with the 60-inch reflector, Mr. RITCHEY will undoubtedly be able to accomplish this difficult task.

(3) The design and construction of a mounting capable of carrying the mirror with the necessary accuracy. There seems no reason to doubt that the experience gained from the use of the 60-inch reflector will render it possible to design a satisfactory mounting, which the Union Iron Works Company will be able to construct in such a way as to meet all requirements.

(4) Serious changes of focal length, due to variations in the temperature of the mirrors. The fact that the night temperature on Mt. Wilson is nearly constant after 9 P.M., during the best observing season, and the possibility of maintaining the mirrors during the day at the average night temperature by means of a refrigerating plant, seem to indicate that no insuperable difficulties will arise from this cause.

(5) Imperfect seeing. Our tests of the definition at night on Mt. Wilson, made with the Snow telescope and smaller instruments, lead us to believe that the occasions on which the full aperture of the mirror can be used for the most exacting work will not be very infrequent. The average conditions will undoubtedly permit the 100-inch reflector to be used advantageously in the various classes of work in which large light-gathering power, rather than the most perfect definition, is essential.

The funds for the mounting, dome, and building required for the 100-inch mirror have not yet been obtained. I have

some reason to believe, however, that a donor can be found. As these mechanical parts can be constructed in a single year, while the completion of the mirror will require four years, there is no need of haste in this regard.

GEORGE E. HALE.

REOBSERVATION OF THE SEVENTH SATELLITE OF *JUPITER*.

The first observation of the seventh satellite of *Jupiter* at the present opposition was secured with the Crossley reflector on September 17th. The image of the satellite (with one hour's exposure) is extremely faint. The identity of the object was only made certain from plates secured on September 25th and 26th with longer exposures.

The position of the satellite with respect to its primary on September 25th, at $23^h\ 54^m\ 30^s$, P. S. T., was

Position-angle	119° 4′
Distance	42″.96

A comparison of this place with Ross's ephemeris, published in *A. N.* 4101, gives the following residuals—in the sense observed *minus* ephemeris:—

Position-angle	−1°.1
Distance	+0″.2

This must be considered a very satisfactory agreement.

MT. HAMILTON, CALIFORNIA,
September 28, 1906.

C. D. PERRINE.

ERRATUM.

In No. 109, these *Publications*, p. 262, line 9, for 13.2 read 132.