

additional photographs before the true one could be selected, for altho the two hyperbolic orbits were recognized as exceedingly improbable, the problem in hand demanded not only the proof that the elliptic orbit would satisfy future observations, but also that the other two orbits were impossible. Positions were computed from the ellipse for August 21st and 23d, and at that time I went to Mount Hamilton to secure further observations. The object was found very near the predicted place on the three nights of August 21st, 22d and 23d.

Of the three orbits the ellipse around *Jupiter* was the only one that represented these observations satisfactorily, thus proving the ellipse to be the real orbit, and establishing the identity of the object as a newly discovered satellite of *Jupiter*. The fact that this identity could be established without previous assumptions by LEUSCHNER'S method, particularly from observations so close together—the entire interval for the original solution being only nine days—shows the remarkable efficiency of the method. The elements of the orbit are of course only approximate, but they serve to establish the identity of the object and to describe the nature of the orbit, which is very similar to that of the eighth satellite. The motion is retrograde, and the period about three years. A detailed account of the discovery and the orbit computation will be published in the Lick Observatory Bulletin. SETH B. NICHOLSON.

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AN A-TYPE STAR OF VERY LOW LUMINOSITY.

It has been suggested by HERTZSPRUNG that there is no such range in absolute brightness among the A-type stars as among those of types F to M, and, in fact, it is doubtful whether hitherto any certain case of a very faint A-type star has been found. A recent observation of the ninth-magnitude companion of *o Eridani* shows, however, that this star must be considered as such. The companion is at a distance of 83'' from the principal star and shares in its immense proper-motion of 4''.08 annually. Its parallax, therefore, may be assumed to be that of the bright star which is 0''.17. This would make the absolute magnitude of the companion 10.3, the Sun being taken as 5.5. The spectrum of the star is A0.

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