weights are 7½ and 3½ pounds, but the weights can be varied to suit the resistance and the pressure by changing the shot. Since these changes the performance of the clock has been tolerably good. Still this clock needs much care, and being dependent on an unsteady pressure of water a delay in the observations sometimes occurs. The great length of the telescope, which exposes it to the action of the wind, is also a hindrance to the steady driving of the clock.

The difficulty in turning the dome, of about 42 feet diameter, has increased. This difficulty is caused probably by the uneven settling of the supporting walls, and the bulging of the dome in the direction of the slit. The labor of turning the dome through a revolution is so great that lists of north and south objects are prepared beforehand by the observer in order to avoid as much as possible the turning of the dome.

After some practice, and on becoming familiar with the instrument and micrometer, my manner of observing a double star has been as follows: In order to measure the angle of position the two wires are separated a convenient distance and the stars are placed between them. The position-circle is turned by the hand until both stars appear midway between the wires, and then the circle is read. The light having been taken out of the micrometer, the wires are turned thirty or forty degrees forward and backward several times before the light is thrown on the wires again for the purpose of making the settings of the circle as independent as possible, and another reading is made. Generally four readings of the position-circle are taken. Then this circle is turned 90° from the mean of the readings and the double distance is measured. First the stars are bisected by the wires and the micrometer is read; then the wires are reversed and the stars are bisected again. The wires are then restored to their original position and another double distance is measured. Two such distances are generally observed. An estimated value of the angle of position is always recorded, as well as the sidereal time of the observation, and also an estimate of the weight of the observation. This weight depends simply on the condition of the images of the stars, and the numbers **1** to **5** are used for expressing the weights; **1** denoting a very poor condition of the images, **3** an average condition, and **5** a perfect condition. I have very rarely observed double stars when the images were so poor as to be given the weight **1**. As far as possible I have avoided all knowledge of the angles and distances observed by other astronomers. In my observing-list these quantities are omitted, and no comparison with other observations is made until my own observations of a star are completed. It is possible, therefore, that in some cases my angles may differ by a multiple of a quadrant from those observed elsewhere.

I have omitted observations of color and of magnitude. These observations have now become a specialty, and such observations as I could make would not do much more perhaps than tend to introduce confusion. In the case of stars observed by the Struves, to which most of my observations belong, I have adopted their magnitudes. In most cases these magnitudes are brighter than those of the scale to which I have been accustomed; thus what the Struves would call a 7th or 8th magnitude I would call an 8th or a 9th.

Very few of the observations have been made in the twilight, which offers the best conditions for observing double stars, since, the observer residing at a distance from the observatory, it has not been convenient to do this.

With such a large objective great changes occur in the appearance of the stars during a single night. Generally so long as rapid changes of temperature are going on the performance of the object-glass is not good. But on a few nights of the year, when all the atmospheric conditions are favorable, the performance of the glass is excellent, and its separating power is all that could be desired. Usually ruddy and reddish stars are the most difficult to observe, a result which may be caused by the figure of the objective. After having been in use two years the form of the lenses seemed to have undergone a slight change, and in the beginning of May, 1876, the surfaces of the flint lens were refigured by Mr. Alvan Clark and his son, Mr. Alvan G. Clark. This is the only change that has been made in the objective. On a single occasion water collected between the lenses, and they were taken out, cleaned by Mr. Gardner, and returned to their cell with very little trouble.

Until March, 1878, all the observations were made with my left eye; but having used my eyes very much during the preceding year, and having done a good deal of computing by gaslight, my eyes became weakened. In March, 1878, while observing the stars in the Trapezium of Orion with a field illumination which was very unsteady, my left eye suddenly became bloodshot. After a rest of a week the eye resumed its natural appearance, but on observing again the blood reappeared in the eye. I then began to use my right eye, and have used it since in most of the observations. From a number of trials I think that this change of eyes has produced only a small change in my habit of observing an angle of position. Still it is possible that some systematic difference in the angles may exist on account of this change, as there was at first some awkwardness in observing with my right eye. In all my observations the head of the observer was kept in an upright or natural position."

The elaborate introduction of Professor Hall leaves us little scope for further explanation. We may state, however, that the tables in which these observations are condensed cover nearly 150 folio pages, and will be accepted as a valuable addition to the literature of this subject, which has been much developed of late by the researches of Mr. Burnham and others.

A PARASITE IN ÆGERIA SYRINGÆ. HARR.

By G. H. French, Carbondale, Ill.

When examining the stems of some lilac bushes in my yard, I found a place in the bark of one where it seemed that an Ægerian pupa might soon protrude for the purpose of liberating the moth. Upon cutting away the thin film of bark, I found the end of a chrysalis visible. I carefully cut away the wood, took this out and put it in a jelly dish surrounded with lilac leaves to prevent its drying up, and waited for the imago to come forth. June 5th, a week after the chrysalis had been put into the jelly dish, I saw something among the leaves which I supposed was the expected moth, but which proved to be a hymenopter. I did not know but the insect might be one of the boring bees that often resort to the holes left by Ægerians in which to rear their young, but an examination of both the insect and the empty pupa case assured me that I had a parasite. The chrysalis was certainly that of an Ægerian, having all the characteristic marks of the pupæ of that family; and the insect in emerging from it had gnawed a hole near the end on the left side instead of the usual method of emergence of insects from their own pupa cases. More than this, the specimen was a true Ichneumonide and not a Crabronide as I at first thought it might be. This is the first time I have known of any parasite working in the Ægerians.

I make the parasite to be *Phœogenes Ater*, Cres. It is shining jet black, 40 of an inch long, the antennæ 25 jointed, the first 8 black, the next 4 white and the rest dark brown. The joints of the legs are a little pale.

It is impossible for me to say when the parasite was introduced into its host; but it must have been before it pupated, because the chrysalis when taken from the bush was entire, showing no broken place. That the Ægerian was *Æ. Syringæ*, I have no doubt, I do not know of any other boring in the lilac.—*Papilio.*