

Astronomical Notes.

ALGOL.

- "The one on the right is the brighter."
 "Of course it is."
 "Why, certainly it is."
 "To my eye the two seem about the same."
 "Me, too."

It was on the evening of September 20, quite early in the evening. They were looking at a couple of stars in the north-east. The first three speakers were ladies, as might be guessed from the positive and emphatic forms of their verdict.

The stars were the two brightest in the head of the Gorgon Medusa, which forms a part of the constellation Perseus. The one on the right was Rho Persei, the other Beta Persei. Beta is better known by its Arabic name Algol and is one of the most famous of the variable stars. Our observers had happened to catch Algol at his most interesting phase, when his brightness was at his minimum. Two hours later they all agreed that Algol was decidedly brighter than Rho, and in another hour or so the variable shone out with three to four times the brightness of its neighbor.

Very curious and interesting is it to watch the changes in this star. And there is more than curious and interesting in it to some observers. Given at this late age of the world's history there are those who cannot shake themselves free from an uneasy feeling that there is something eerie and uncanny in a phenomenon of this kind. In earlier ages this feeling was much stronger, a baleful influence was ascribed to the changing aspect of the star, and, from the destruction and calamity which they thought it threatened, the Arabs called it Algol, the Demon-star. The Greeks—or whoever else it was—who placed it among the snaky locks of the frightful and fatal Gorgonian head would seem also to have looked upon it as a death-dooming portent. Until a couple of years ago astronomers looked upon it as a riddle to be read.

Algol is situated between the Pleiades and Cassiopeia. The constellation it belongs to—Perseus—is easily recognized by the J which a number of its stars form. Alpha Persei, the brightest star in the constellation, is in the middle of the down-stroke of the J. The brightest of all the stars in the same quarter of the heavens is Capella. A line joining Capella and Alpha Persei makes a right angle with the line joining Algol and Alpha, and this last line makes another right angle with the line joining Algol and Gamma Andromedæ. Having found Algol, look for its companion Rho. On a clear moonless night the eye can see have-a-dozen or more small stars quite near to Algol. Rho is the brightest of those near it on the

side farthest from the J. The distance between Algol and Rho is $2\frac{1}{2}^\circ$, between four and five times the moon's diameter. Most of the time Algol is from three to four times as bright as Rho. According to photometric observations made by Pickering, of Harvard, the magnitude of Algol is 2.31 and that of Rho 3.68. This makes Algol 1.37 of a "magnitude" brighter than Rho, and this is the same as saying that Algol's brightness is three and a half times that of Rho.

This degree of brightness Algol maintains, except for about nine hours out of about every three days. During the first half of these nine hours its light gradually decreases until, as happened with two of our observers on Sept. 20, Algol and Rho seem equally bright; or, as happened with the other three, Algol sinks below the brightness of Rho. There it stays for a quarter of an hour or so. Then, during the next three or four hours, its light gradually increases until it rises once more to the grade of a star of magnitude $2\frac{1}{2}$, and there it remains for the next two days and a half.

The exact interval between one minimum and the next is, according to the latest catalogue of variable stars, 2 days, 20 hours, 48 minutes 55.43 seconds. Given this period and the date of any one minimum, it is an easy matter to calculate the dates of future minima. But as the period is slowly shortening there is no use in carrying your calculations too far into the future; and an elaborate degree of precision in the calculation is not at all necessary to enable the stargazer to enjoy a sight of this very interesting phenomenon.

On September 20 minimum occurred at 7.16 (60° time). From this and the period as given above it will be found that the dates of the only minima that fall between sunset and midnight from now to the middle of November are October 10, 9.00; October 30, 10.40; November 2, 7.30. If possible, and if convenient, you should take observations at intervals of half an hour or so for two or three hours before or after (before and after is better still) the given dates.

Of all the two hundred and more stars that are known to be variable there are only ten that vary in Algol's peculiar way. Most of them are continually varying, either waxing or waning. But those of the Algol type maintain a constant brightness for the greater part of the time, and then during a small fraction of their period they dip down to a minimum and rise again to their normal lustre.

What is the cause of this strange conduct on their part? Until two years ago astronomers could only guess. Some preferred one hypothesis and some another. Some backed Zöllner's spots and others