

Astronomical Notes.

THE PLANETS FOR APRIL AND MAY.

In the middle of April all the planets except Jupiter are above our horizon sometime between sunset and midnight, and so too are the four principal planetoids—Ceres, Pallas, Juno and Vesta.

Mercury. Many star-gazers have never seen Mercury. There have been astronomers who never saw him either. Tradition says that Copernicus was one of them and that he lamented the fact on his death-bed. There are books which say that Mercury can't be seen without a telescope. This were strange if true, seeing that he was known ages before there were any telescopes. Of course it is not true. Mercury is sometimes as bright as Jupiter. At such times he fairly forces himself upon your attention and draws from you a "Hello! What's that?" February, 1888, and January, 1889, were times like these. But usually that's not the way you get a sight of Mercury. It's not a case of seeing an unknown bright object and asking "What's that?" but a case of first forming a wish to see the known object and then saying "Go to, let us look for him." And if we know where and when to look and have a clear sky to look into, verily we shall have our reward.

Where to look? For the present suffice it to say that when Mercury is morning star you must look for him in the east and when evening star in the west, in both cases within 20° or so of the point where the sun rises or sets.

But it is only as evening star that I am going to consider him here.

When to look? The Almanac will tell you when he is "in superior conjunction." That is when he is beginning a season of evening star performances. It will also tell you when he is "in inferior conjunction." That is the end of his evening star season. Don't look for him at either of these times. Between these dates you will find another one, that of his "greatest elongation." That is when the apparent distance in the sky between him and the sun is greatest for that season, when he is at the furthest point of his swing on the east side of the sun.

In works on Popular Astronomy the star-gazer is generally recommended to look for Mercury at the times of greatest elongation. Those are the times—or very nearly so—which Newcomb gives in his Section on Mercury. And he says that "the period of visibility extends a week or ten days on each side" of the given dates. In the "Annuaire Astronomique pour 1890," Flammarion also gives the dates of the greatest elongations, and says, "C'est à ces dates qu'il conviendra de chercher la planète, dans une période de cinq ou six jours de part et d'autre de ces grandes elongations."

Now let us consider Mercury's present season of evening appearances. It began on April 9th and will end on May 29th. That is a week less than the average, but so much the better. The brilliancy will be greatest on April 19th, the elongation on May 6th. This being the case, it will be better to modify the general rules given by Newcomb and Flammarion. Instead of beginning to look for Mercury "cinq ou six jours" or even "a week or ten days" before greatest elongation you may begin about three weeks before. If the sunset sky is clear and if you look in the right place,

you ought to see him in the middle of April or a day or two after. Use your glass of course in looking for him as early as that. Don't expect to see him three weeks or even two weeks before greatest elongation. On April 20th he will be above our horizon for one hour after sunset and so he will be on May 20th, but on May 20th he will be only one-sixth as bright as on April 20th. At greatest elongation on May 6th he will be above our horizon for two hours after sunset. Half an hour after sunset on that evening he will be 15° above the horizon, above the W. N. W. of it nearly, a little to the south of where the sun went down. This may be of use to you if you don't happen to see him before May 6th, but you ought to see him long before that.

The latest news about Mercury is that his day and his year are of the same length. Popular Astronomies give his day as 24 hours 5 minutes long. The good ones warn you that this is very uncertain, "quite doubtful, if not entirely void of foundation," says Newcomb. And now Schiaparelli of the Milan Observatory announces that Mercury takes as long to rotate on his axis as he does to revolve in his orbit, that is, his day and his year are equal in length. We have several cases of this kind among the satellites—our own moon is the best known—but it is quite a new experience to find it in a planet. Those interested in the matter and who read German will find an article on it in the February number of *von Himmel und Erde*.

Venus. In the middle of April last year Venus was within two weeks of the end of her career as evening star for that season. In the middle of April this year she is evening star again and has been so for two months. Then, although a moribund Hesper with only a fortnight of life left, she was bright enough to be seen at noon-day. Now, although she has been playing Hesper again for nearly two months, there are probably many who have not yet seen her. There is nothing strange in this, for she is seventy-seven millions of miles farther from us now than she was then, and not half as bright. Also, although she is now two months past conjunction and was then within only two weeks of it, she has as yet swung out to the east of the sun only two-thirds of the distance she was then from him. But there is plenty of time yet to see her; she will be evening star until December. She deserves and will perhaps get an article all to herself some time between now and then. Meantime you should be observing her increasing brilliancy, her increasing elongation from the Sun, and, later, her motion among the stars. On April 15th she is 14° east of the sun and sets an hour and a quarter after him.

Mars. The last time that Mars could be easily seen in our evening sky was about the middle of last April. He set then an hour and a half after sunset. In the middle of this April he rises about an hour and a half before midnight. He is now 160 millions of miles nearer us than he was then, and more than ten times as bright. Six weeks hence he will be more than twice as bright as he is now. This is one of his good years, and the owners of big telescopes are taking advantage of it to examine those curious "Canals" which Schiaparelli discovered in 1877. The trees along the banks of the Canals were "discovered" by our own Wiggins.

When you look for Mars in the south-east about an hour before midnight you will see *two* red stars. One is brighter