ASTRONOMY

March Brings Us Mars

Planet Now Appearing Once Thought to be Inhabited Because of Markings Called Through Error "Canals"

By JAMES STOKLEY

OF ALL the planets of the solar system, the one that has been most advertised is probably Mars, now appearing in the eastern evening sky. The great Italian astronomer, Giovanni Schiaparelli, who was born just a century ago the fourteenth of this month, was unwittingly responsible for this. In the year 1877 he announced that he had observed peculiar fine dark lines crossing the surface of Mars, and he called them "canali," an Italian word that is best translated as "channels." Since then controversy has waged.

One group of astronomers, headed by the late Percival Lowell, founder of the famous Lowell Observatory in Arizona, not only apparently confirmed the discovery, but has carried it further. Lowell reported that he had found over 400 canals, as he preferred to call them, and advanced the theory that they were the work of intelligent beings. Other astronomers, some equipped with even larger instruments than Lowell had available, failed to see them.

Photographs made of the planet under the very best conditions do show some such straight markings, and it seems likely that they are not entirely illusory. Few astronomers agree with Lowell in accepting them as evidence of intelligent life, however.

Fine Details Lost

At best, through large telescopes, Mars appears about as large as the moon through a pair of opera glasses, and so it is not surprising that fine details can not be seen. As spring and summer come on the planet, certain changes occur. Green areas appear, only to disappear with the coming of the Martian fall, and they are most reasonably interpreted as regions of vegetation. The chief objection to any form of intelligent life as we know it is the fact that the atmosphere of Mars seems almost lacking in oxygen, an element which we find essential.

The composition of the planet's atmosphere is determined by means of the spectroscope, which analyzes light into its constituent colors. When the light passes through it, various gases absorb certain colors, and the resulting spectrum shows a series of dark bands. Some of these can be definitely ascribed to oxygen, and these are absent in the spectrum of the light from Mars.

Until recently there was some faint hope that this was not conclusive. It was suggested that the atmosphere of Mars might scatter the light so that the oxygen bands might be completely blotted out. During the past year astronomers at the Mt. Wilson Observatory, in California, used the moon to test this.

In New Moon's Arms

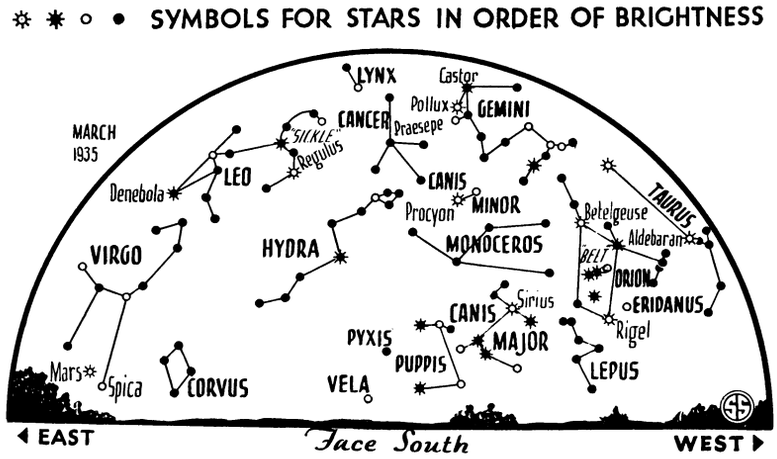
When you look at the crescent moon as it first appears in the western evening sky, about the seventh of this month, you may notice the effect called "the old moon in the new moon's arms." In addition to the narrow crescent you see faintly the moon's entire outline. The crescent is lighted directly by sunlight. The rest that you see is lighted by earthshine, sunlight that has fallen on the earth, has been reflected to the moon and thence back to the earth and our eyes. Consequently, the light that enters our eyes from the bright crescent has passed through the earth's atmosphere only once, while that from the earth-lit side has been through it three times.

Astronomers know, of course, how much oxygen the earth's atmosphere contains, and it is possible to calculate how strong the oxygen bands should be in the spectrum of earth-reflected sunlight. So what the Mt. Wilson astronomers did was to photograph the spectrum of the moon, including the light from the crescent as well as that from the darker side.

Stronger Where Earth-Lit

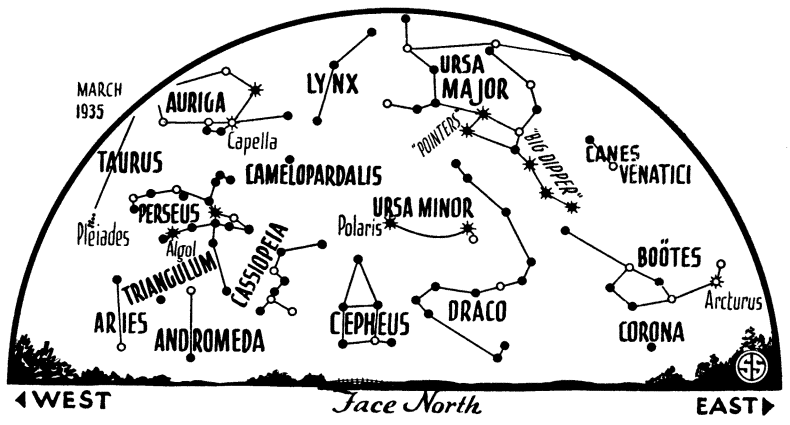
Both showed the oxygen bands, of course, but they were much stronger in the spectrum from the earth-lit regions. Furthermore, the difference in strength was just what was expected from the known constitution of our atmosphere. What the astronomers really did was to photograph the spectrum of the earth as it looks to the Man in the Moon. Consequently it was demonstrated that oxygen in a planet's atmosphere can be detected with the spectroscope, and so the lack of that essential element in the air layer around Mars seems pretty well substantiated. Accordingly, the chances for life on that planet seem more remote than ever.

One event on the astronomical pro-



SUBJECT OF CONTROVERSY

The planet Mars, visible low in the east, has caused much debate among astronomers because of the peculiar markings on its surface. Details cannot be seen well, because even through large telescopes Mars appears only as large as the moon seen through a pair of opera glasses.



SWING AROUND THE POLE

Great bear and lesser bear swing in the heavens about Polaris, the navigator's guide to the north. These two familiar constellations may serve as landmarks to aid you in finding other heavenly objects.

gram for March is not attended by any visible signs in the sky, but will be welcomed by most of us. That is the beginning of spring. On Thursday, the twenty-first, at 8:18 a. m., eastern standard time, the sun crosses the equator. Ever since last December, on the day of the beginning of winter, it has been travelling northwards in the sky, and now it reaches its half way mark, the point called the vernal equinox. With the sun standing exactly on the equator, it rises directly east, and sets directly west, so that it is above the horizon as long as it is below. Days and nights are thus of equal length at this time of year.

Many of the constellations that were prominent in the evenings of winter have passed into the western skies, soon to disappear and give place to the groups of late spring and early summer. Orion appears in the southwest, with the three stars forming the warrior's belt in a horizontal row. Directly above is Betelgeuse, and below is Rigel. To the west is red Aldebaran, marking Taurus, the bull. A little higher, and in the northwest, is Capella, in Auriga, the charioteer.

The Jewel

On the other side of Orion, to the south, is Sirius, most brilliant star in the sky, which forms the jewel in the collar of the greater dog, Canis Major. Above is the lesser dog, Canis Minor, with the star Procyon. Directly overhead are the twins, Gemini, in which can be seen the two bright stars, Castor and Pollux. The brighter is Pollux, to the south. Low in the northwest is Cassiopeia, the queen, the constellation shaped like a W on its side.

Most conspicuous in the eastern sky now in the evening is the constellation of Leo, the lion. High in the southeast is Regulus, in the lion's shoulder. This star is at the end of the handle of the "sickle" which has a blade that points toward the south. Below the sickle, toward the east, is a triangle of stars, the lower one, Denebola, marking the tail of the beast.

High in the northeast is that most familiar of all star groups, the "great dipper," which is really part of Ursa Major, the greater bear, the handle of the dipper forming a most unbearlike tail. The pointers are uppermost. A line drawn through them to the left brings one to Polaris, the pole star, itself at the end of the handle of the little dipper. This again is part of a bear, the lesser one, Ursa Minor, and once more the dipper's handle forms the bear's tail.

Making the Tail Long

The lesser bear, like all the constellations in the sky, turns about the north pole of the sky, which is close to the pole star. When we recall that for centuries this bear has been swung around once a day by the end of his tail, we can perhaps understand why it might have stretched a little!

Following the curve of the handle of the great dipper around to the east, we come to a very bright star, Arcturus, in the constellation of Bootes. Continuing this line toward the south, one comes to two bright bodies close together, which, at the beginning of the month, rise about 9:30. The brighter of the pair, conspicuous for its steady red light, is Mars, not a star at all but one of the planets, member of the family of bodies including the earth which revolve around the sun. The fainter one is a star, and like all the other stars, a distant sun. It is Spica, in the constellation of Virgo, the virgin.

Though Mars is the only planet visible during the evening hours for which the accompanying maps are drawn, Venus can be seen in the west a little earlier, as it sets about eight. Its brilliance, greater than any other star-like object in the sky, makes it easy to locate. At the end of the month it will be in the sky until nine. The planet Jupiter, brighter than Mars, though fainter than Venus, rises in the east about midnight, in the constellation of Libra, the scales, which is next to Virgo. Saturn, during March, is very close to the sun, and cannot be seen at all. On March 15, Mercury is at its greatest distance west of the Sun, and rises about an hour before sunrise. It is so low in the southeast, however, that it cannot be seen.

Maps For Evening

The maps picture the March skies as seen at 10 p. m. on the first of the month, 9 p. m. on the fifteenth, and 8 p. m. on the thirty-first.

On Monday, March 4, at 6:54 a. m., E.S.T., the moon is at perigee, when it is closest to the earth for this month. It will then be 222,300 miles away. On Saturday, March 16, at 11:36 p. m., E.S.T., it will be at apogee, or farthest away, at a distance of 252,250 miles. New moon is on March 4 at 9:40 p. m. E.S.T., first quarter on March 11 at 7:30 p. m., full moon on March 20 at 12:31 a. m., and last quarter on March 27 at 3:51 a. m.

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Rain and snow of various colors are familiar to meteorologists, but colored hailstones are rarer; yellow hailstones, probably colored by dust in the air, were reported in Nebraska last May.