Two Meteor Showers Will Light Heavens This Month

By James Stokley

This month, as last, the planet Mars is the chief object of interest in the evening sky, and astronomers in many observatories are carefully watching, drawing and photographing it, for this fall it is closer than it has been since 1924, and closer than it will be for many years to come. On the 27th of October only 43,728,000 miles separated the earth from this neighboring planet, which was its nearest approach on this visit. Now it has started to recede, and on the 15th of November will be 45,530,000 miles away, but will still be high in the heavens and well placed to observe. On the 4th it was in opposition, or on the side of the earth directly opposite the sun, when it rose in the east at sunset and set in the west at sunrise, making it a conspicuous object throughout the night. Its brilliancy and reddish hue as it shines in the eastern evening sky makes it easy to identify.

At the Lowell Observatory in Arizona, which is located on a plateau 7,000 feet above sea level, the most extensive observations of Mars are being made, chiefly by Mr. E. C. Slipher. These have been in progress since April 1, when the southern hemisphere of Mars was having its vernal equinox, and spring there was commencing. Since the planet takes longer to revolve around the sun than the earth does, the seasons there are longer than they are here, and so their summer in the south has just begun.

The most noticeable change that has occurred on the planet since observations began this year is the shrinkage of the south polar cap, consisting of ice and snow around Mars' south pole. According to Mr. Slipher, this polar cap was at least 3,500 miles across on April 1, but now it has shrunk to a fraction of the diameter.

"The 'seas' and other dark markings of the southern hemisphere are now quite dark," says Mr. Slipher, "and, on the whole, present an appearance remarkably similar to that at the opposition in 1909. One observing Mars now would be struck by certain changes in some of the dark markings since 1924." One of these changes he says, has affected the Syrtis Major, a wedge-shaped dark patch which is one of the most prominent of all Martian markings.

Low in the western evening sky, Jupiter can still be seen, and it also has been the subject of the Lowell Observatory scrutiny which shows that in recent months it has been undergoing remarkable changes in appearance. These have taken place principally in the planet's southern hemisphere, almost all of which has been affected, chiefly the broad belts which normally surround the planet, parallel to the equator, something like the zones on a terrestrial globe.

The south tropical belt, which was broad and prominent in 1925 and earlier, has almost disappeared during the last two months and now that part of the planet is covered by a broad, bright belt which is slightly brighter than the equatorial bright belt.

Another change has affected the "Great Red Spot." This first appeared in 1878 when it was about 25,000 miles long and 8,700 miles wide. At first it had a distinct reddish color, but this later faded out. According to Mr. Slipher, it now appears to show considerable color again, being decidedly pink, instead of the neutral gray that it has been in recent years.

In 1919 a change swept over the same region of Jupiter producing essentially the same changes that have occurred in the present disturbance, and later the dark belts reappeared in much the same form and position that they formerly possessed.

November is also one of the best times for meteors, for two of the principal meteor showers occur this month. They are the Leonids and the Andromedes, so called because they seem to radiate from the constellations of Leo and Andromeda. The latter is shown on the map for this month; Leo, however, is not visible until early morning, and about 4.00 a.m. it can be seen in the southeast. In it is the familiar "Sickle," a star group having the shape of a reversed ques-

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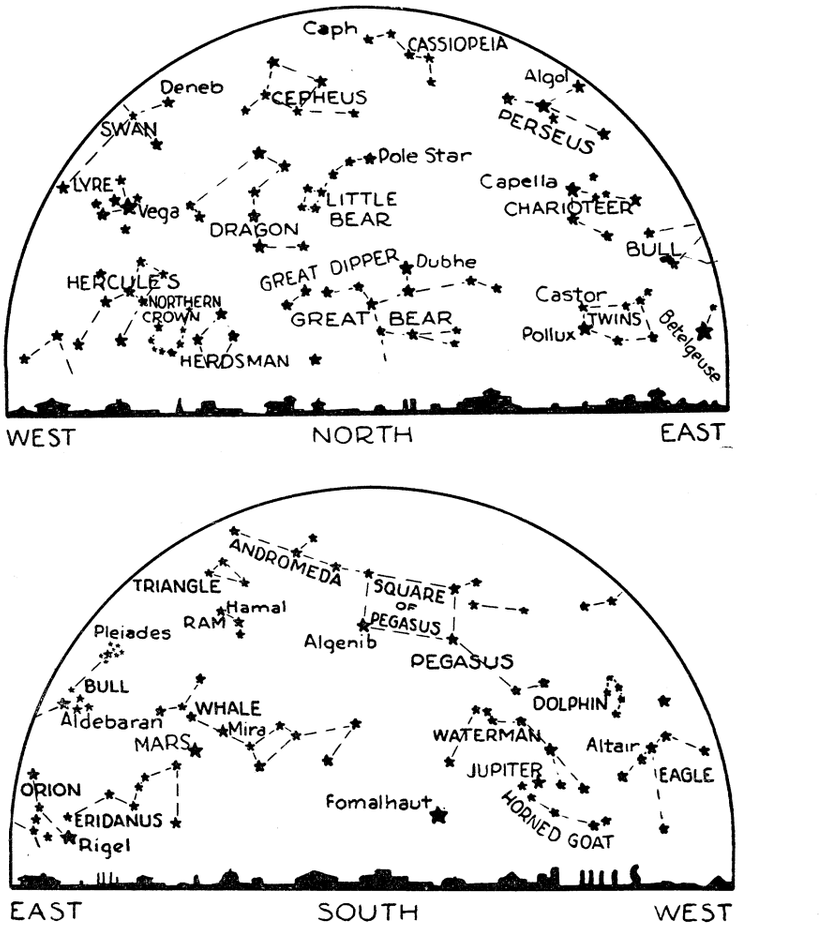

These two maps show the principal constellations that are visible in November. Face north or south, hold the map in front of you, and it will show the stars as they appear in the sky.

ARCHÆOLOGY

Statues Show Foot Troubles

Famous statues of ancient times are usually cited to show that foot troubles are a comparatively modern plague, which came into existence along with confining leather shoes. But realistic statues of the ancient world also show that the ancients developed shoe troubles and that their feet were affected.

A report in a recent number of the *Antiquarian,* an archæological journal, states that very early statues do show perfect feet. Egyptian sculptors carved feet with a straight inner edge, and with toes of natural shape. The same perfection of shape is true in early Assyrian sculptures. In the Greek statues of the archaic period, usually dated as from 580 to 520 B. C., the symmetrical shape of the toes is always noticeable. The bronze Discus thrower, or Discobolus, of Myron of the early 5th century B. C. shows fine, well modelled, toes.

But beginning in the late 5th, and during the 4th century B. C., a deformity of the little toe begins to appear, the archæologist finds. Even the famous Hermes of Praxiteles, found at Olympia, shows the fifth or little toe pressed or crushed into the fourth toe. The typical foot for the next several centuries is a straight great toe, a rather wide gap between it and the second toe, and a deformed little, or fifth, toe.

The malformations mentioned, namely the gap between the great and second toes, and the deformed fifth toe are clearly due to the type of sandals, he says. The type generally worn had a single inter-toe thong that came up between the great and second toes, and a cross strap which prevented a natural expansion of the little toe. The statuary of the last three centuries B. C., and of the first two centuries A. D., are correctly realistic in their modelling, despite the fact that realism, if it extends to the reproduction of malformation, was and is considered unartistic.

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HYGIENE

City Water Must Be Pure

Polluted city water has enabled a typhoid patient to collect damages from the city of Albany for permanent injury to his health. A $3,000 verdict was awarded on the ground that the city contracts with each citizen to furnish unpolluted water and had failed to warn the people that such pollution existed.

Thirteen of the 200 cases that occurred in the same typhoid outbreak filed notice of suit within the required period and may also bring suit. If the decision is upheld by the higher court where the city intends to carry it the case will establish an important precedent.

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Two Meteor Showers

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tion mark, with the brilliant Regulus at the bottom.

Actually, these meteors are moving in practically parallel paths through space, and the radiant, or point from which they seem to spread out, is simply an effect of perspective, as the rails of a long straight track seem to meet in the distance. Once a year the earth crosses the path of the meteors and shooting stars, which are simply meteors that are being burned up by the friction of the earth's air, then are particularly numerous. In the case of the Andromedes, the meteors are probably the remains of Biela's Comet, which, after several visits to the earth, mysteriously vanished.

The average height of meteors above the earth's surface is about 61 miles, so that they are by far the closest of all celestial phenomena. Though the earth's atmosphere extends up much higher than that, the meteors do not begin to glow until the earth's atmosphere is dense enough to cause friction. Meteors in general first appear at heights of about 76 miles and by the time they fall to a height of 51 miles they are burned up, but occasionally one lands on the earth. They move with an average speed of about twenty-seven miles a second, so it is a fortunate thing that we are surrounded by atmosphere or else the earth would be continually bombarded.

The accompanying maps show the stars as they appear this month, the great "Square of Pegasus," which is partly in Andromeda, being conspicuous in the south. Below it is Fomalhaut, in the Southern Fish, one of the most southerly stars visible from the United States. Low in the east the Twins, Castor and Pollux, can be seen, and nearby Orion, perhaps the most magnificent of all the constellations and which, in a few months, will be in a position where we can fully appreciate it.

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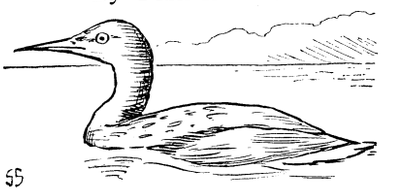
Owners of vessels whose ships must traverse shallow water watch water level reports and take advantage of high water to load their ships to greater drafts.

BIOLOGY

NATURE RAMBLINGS

By FRANK THONE



A November Voice

To most people there is nothing more suggestive of desolation and loneliness than the cry of the loon. Sounding through the chill dusk of a November evening, across the gray, cold surface of a lake that is sullenly waiting to be bound in ice, it is the very voice of the border-time between autumn and winter.

But from the bird's own point of view, the loon is a great success. Birds very much like them existed in Miocene geological times, something over a million years ago; and a survival with little modification for so long a time as that is in itself a strong argument of a good design to begin with. Latterly the loon has had to face the activities of the most destructive of all predatory animals, man, and it has survived even this terrific test far better than have most of its web-footed kindred.

One reason for this very considerable success is the superiority of the loon as a submarine mechanism. It can dive so quickly that the legend has arisen of its ability to see the flash of a hunter's gun and submerge before the shot can reach it. It can, at the other extreme, submerge so gradually that it does not betray itself by the slightest splash or ripple, and it can swim under water indefinitely with only the tip of its beak at the surface for air. Sometimes it sticks up its head like the top of a periscope for a look around, and then pops under again, to reappear dozens of yards away in a few seconds. It is one of the flying birds that also uses its wings under water for oars, and can thus attain an almost penguin-like speed swimming submerged.

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The Navy is to have an experimental airship built entirely of metal.

The house in Berlin where Koch discovered the tuberculosis bacillus has been marked by a tablet.

The Argentine government is organizing an expedition to explore the Antarctic and South Polar regions.