

ASTRONOMY

Springtime Constellations

March brings best opportunity to see elusive Mercury. Mars, Saturn and Jupiter are other planets visible in the coming month's night sky.

By JAMES STOKLEY

► WITH THE coming of spring, which begins officially on March 20 as the sun passes directly over the equator, the new season is reflected in the appearance of the evening sky.

Orion, the warrior; Taurus, the bull; the great and lesser dogs, Canis Major and Minor, and their neighbors, are still with us but have shifted from their position of honor high in the south which they held a month or two ago. They are now in the western sky, preparing to disappear soon as the spring and summer constellations replace them.

Two constellations that are typical of the springtime skies are seen in the east. Their positions are indicated on the accompanying maps, which depict the sky at about 10:00 p. m., your own kind of standard time, at the beginning of March, an hour earlier in the middle of the month and two hours earlier at the end.

These constellations are Leo, the lion, and Virgo, the virgin, the former being uppermost. In Leo is a smaller group, called the Sickle, and the first-magnitude star, Regulus, is at the end of the handle.

Below Leo we find Virgo in which, close to the horizon, is another star of similar brightness, Spica. In addition, Virgo now is the location of the planet Saturn, which is even brighter.

March also brings us the best opportunity of the year to see elusive Mercury, a planet which never gets far enough away from the sun to be seen in a really dark sky.

When it is farthest east of the sun, it remains above the horizon for a time after sunset, and the time is longest when such a "greatest eastern elongation" occurs near the beginning of spring, as it does this month on March 18.

For a few evenings before and after that date, if it is clear toward the west soon after the sun has gone down and as dusk begins to fall, look in that direction for a single, bright object, not far above the horizon. This will be Mercury.

It will then be about two and a half times as bright as Saturn, though of course it will not appear as brilliant because it will be so low, and surrounded by the glow of twilight.

A third planet can also be seen these evenings, though, like Mercury, it sets before the times for which the maps are prepared.

This is Jupiter which is in the constellation of Pisces, the fishes, just below the figure of Aries, the ram. It is even brighter than Sirius, the brightest star, which is in Canis Major in the south.

Mars, at the beginning of March, rises a little before midnight, while Venus is a morning star, shining brightly low in the east, just before sunrise.

By the end of March, Mars will rise considerably earlier—about 9:30, and will be more than twice as bright as it was 30 days earlier. It is now rapidly moving earthwards for its close approach in May. While on March 1 its distance is 87,704,000 miles, by the 31st it will have drawn some 23,000,000 miles closer, to a distance of 64,731,000 miles. It is this approach that will make it shine more brilliantly in the sky.

Mars is not the only celestial object that changes its distance considerably during the month, for so does the moon. This, however, is a regular event. In the 29-day period during which the moon swings around and goes through its change in phase, it comes closer to earth and then recedes, because its orbit is not circular, but elliptical.

Every month, therefore, we have a time when the moon is in perigee (which means near earth). A little more than two weeks later, it is in apogee (away from earth). This month apogee comes first, on March 6, at 6:00 p. m., EST, when we are separated from our satellite by 251,830 miles. On the 22nd, at 5:00 p. m., we have perigee, when the two bodies are only 277,070 miles apart.

This, of course, is the distance between centers. With the earth's diameter of nearly 8,000 miles, and the moon's of more than

2,000 miles, the actual distance from surface to surface is roughly 5,000 miles less than the figures given.

One important effect of this changing distance of the moon is in the height of the tides, which are due to the gravitational pull of the moon and, to a lesser degree, of the sun. This pull decreases with the square of the distance. Accordingly, water nearest the moon is pulled the most and bulges toward the moon.

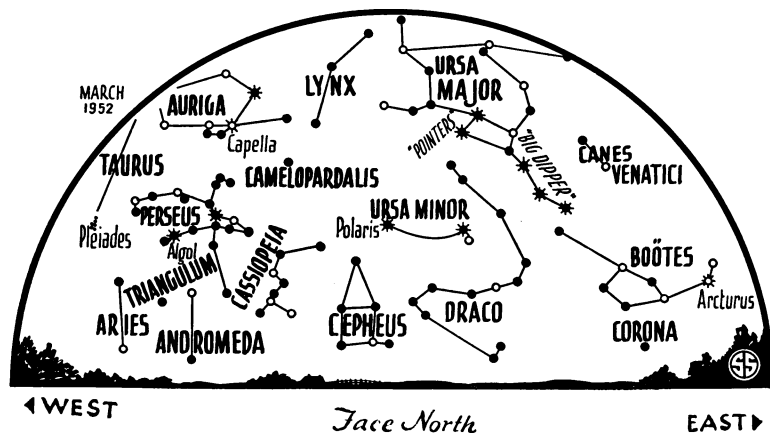
On the opposite side, the water is pulled least; less, in fact, than the solid earth itself. This means that there is also a bulge on the side away from the moon, since here the earth is pulled away from the water.

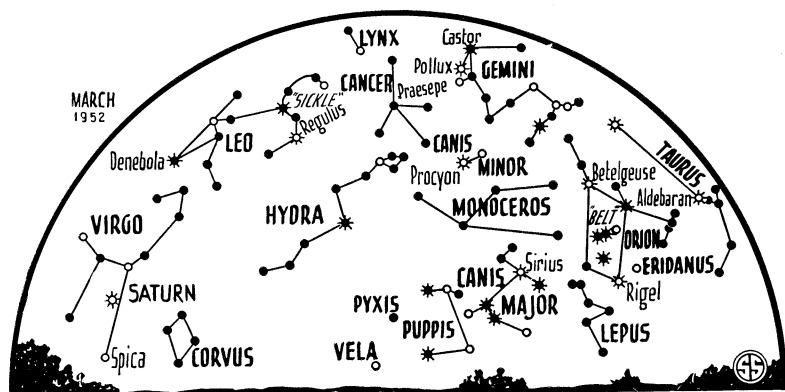
Of course, the difference of nearly 25,000 miles in the moon's distance during the month is about three times as great as that between the near and far sides of the earth. Thus, the tidal force at perigee is about 30% greater than at apogee, and the range of the tides at perigee is accordingly greater.

The sun, likewise, changes its distance during the year, from 91,400,000 miles on Jan. 4 to 94,600,000 on July 4. It has a tide-raising force which is nearly half as much as the moon's, and which varies through the year, being greatest in January when the earth is nearest and least in July.

When earth, moon and sun are all in line, as they are at new moon and full moon, the lunar and solar tides act together, and reinforce each other. In between, at first and last quarter phases of the moon, one tends to counteract the other.

The latter are called the "neap" tides, while the former are the "spring" tides. This word, "spring," of course, has no connection with the season of the year that starts on March 20, since there are such tides at any time of year. The greatest tidal range of all comes when there are spring tides when the moon is in perigee.





Face South
 * * o • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

Celestial Time Table for March

March	EST	Event
3	12:30 a. m.	Algol (variable star in Perseus) at minimum
	8:43 a. m.	Moon in first quarter
5	9:20 p. m.	Algol at minimum
6	6:00 p. m.	Moon farthest, distance 251,830 miles
8	6:05 p. m.	Algol at minimum
11	1:14 p. m.	Full moon
16	2:30 a. m.	Moon passes Mars

18	9:40 p. m.	Last quarter
	10:00 p. m.	Mercury farthest east of sun
20	11:14 a. m.	Vernal equinox, spring begins
22	5:00 p. m.	Moon nearest, distance 227,070 miles
23	9:22 p. m.	Moon passes Venus
25	3:12 p. m.	New moon
25	11:05 p. m.	Algol at minimum
26	10:50 p. m.	Moon passes Mercury
27	12:04 a. m.	Moon passes Jupiter
28	7:54 p. m.	Algol at minimum

Subtract one hour for CST, two hours for MST, and three for PST.

Science News Letter, February 23, 1952

METEOROLOGY

Cold Still Due in East; Warm in West

➤ THE NATION'S weather put on its brakes and slowed down during the first two weeks of February. The weather pattern predicted by the Weather Bureau's Extended Forecast Section for the month of February was about a week later in coming than was expected.

The long range forecasters are now predicting once more that temperatures will be colder than usual during the period up to the middle of March over the eastern half of the nation. The Great Lakes region, however, will experience near normal temperatures.

Until March 15, warmer weather than usual is forecast for the northern plains, the Northern Rockies and along the West Coast. Elsewhere it will be about as usual.

This is substantially the same weather pattern that was predicted the first of the month for all of February. However, it was about a week late in arriving.

Some snow and sleet and more rain than usual are predicted for the southern portions of the country. Less than normal amounts of rain and snow are expected in the northern sections of the country, and a band from east to west across the middle will have about as much precipitation as usual.

Science News Letter, February 23, 1952

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