ASTRONOMY

Four Planets Now Visible

Venus, Saturn, Mars and Jupiter appear in April evening skies. Easter is on April 21, the latest that it comes between 1943 and 1957.

By JAMES STOKLEY

➤ AFTER making its debut in the 1946 evening sky in March, Venus has now drawn still farther from the sun. It sets later, so at the time of sunset it is now about 15 degrees above the horizon. This is roughly the span of the hand when held at arm's length. Thus Venus, which is of magnitude minus 3.3, more brilliant than any other star or planet, is easily seen in the early evening. However, it sets before the times for which the accompanying maps are prepared—namely, for 10:00 p. m. at the first of April and 9:00 p. m. in the middle of the month.

On the maps, however, there are shown three of the five planets that ever can be seen with the naked eye. Of these the most brilliant is Jupiter, in the constellation of Virgo, the virgin, toward the southeast. The planet is close to the star Spica, which is classed as first magnitude, 1.2 on the astronomical scale of brightness. Jupiter's magnitude is minus 2, which means that it is about 19 times as bright.

The other two, Mars and Saturn, are in the constellation of Gemini, the twins, where they have been performing an interesting dance in recent months, practically forming a new constellation with the bright stars of that group, Castor and Pollux. Saturn, magnitude 0.3, is a little below Pollux, brighter of the twins. Mars is to the left, red in color, and about the middle of April is in line with Castor and Pollux, making the twins temporarily triplets.

Brightest Star

Sirius, the dog-star, in the constellation of Canis Major, the greater dog, is the brightest star now seen, and it stands low in the southwest. Above it is Procyon in Canis Minor, the lesser dog. Leo, the lion, is high in the south, and part of this constellation, toward the west, is called the "sickle," with bright Regulus at the end of the handle.

High in the north is Ursa Major, the great bear, with the great dipper, upside down. In this figure are the two stars called the pointers, which indicate the pole star below. The handle of the big dipper points to the east, and if its curve is continued, it leads to first magnitude Arcturus, in Bootes, the bear driver.

In the northwest, below Castor, is Auriga, the charioteer, with Capella. Below Auriga is Taurus, the bull, with ruddy Aldebaran near the horizon. Though it was one of the brilliant orbs of the winter evening sky, it is now so low that it has lost much of its glory.

Lacking clocks and calendars, early man had to use recurring natural effects to mark time. The alternation of day and night provided the most obvious and fundamental unit—the day—while the parade of the seasons, with the sun high in the noonday sky at one period, and low in another, gave a longer measure—the year. But there was a need for an intermediate unit, and this was given by something that goes on in the nighttime sky, namely, the changing phases of the moon, which first appears in the west just after sunset as a narrow crescent, then gets bigger and bigger, night after night, until full moon is reached, and then wanes until it is last seen as a crescent in the east just before sunrise. A couple of days later the evening crescent reappears, and the cycle begins again.

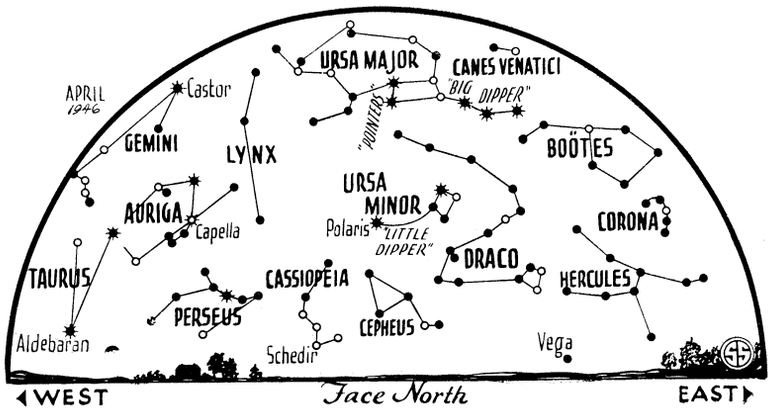
This marked the month, the name of which is derived from the moon, while the name of that body goes back to the ancient Sanskrit in which the moon was called "mas." That was derived from the Sanskrit verb "mati," meaning "it measures," indicating how early it was used for an indicator of time.

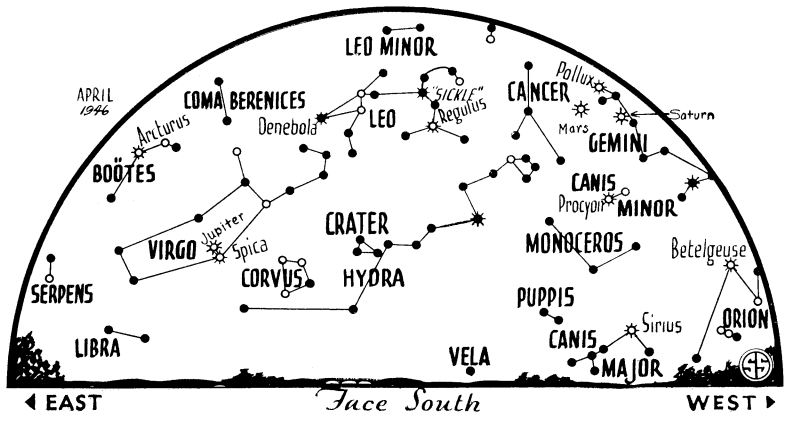
In many early calendars the month began with the first appearance of the crescent moon in the western sky. This was true of the Hebrew calendar, and it was the duty of the priests to watch and announce it to their people by blowing a horn. Since the time between return of the same phase of the moon is 29½ days, they alternated the lengths of their months between 29 and 30 days.

The first month in the old ecclesiastical calendar of the Jews is the month of Nisan, which starts with the new moon occurring about the time of the vernal equinox, the beginning of spring. The 14th of Nisan is the beginning of the holy season of the Passover, commemorating the sparing of the Hebrews in Egypt when God, smiting the first born of the Egyptians, passed over the houses of the Jews, which were marked with the blood of the lamb.

Passover and Easter

It was about this time, in the Jewish calendar, that Christ was crucified, and the Last Supper, which he ate with the disciples the day before the Crucifixion, was the Passover feast. Consequently, the Jewish Passover and the Christian celebration of Easter are closely connected. The rule for the determination of the latter was set in 325 A. D. by the Council of Nicaea. Passover, of course, comes at the full moon since it is 14 days after the start of the month of Nisan, and it may come on any day of the week. The Council, however, decided that Easter should always come on a Sunday, the one following the Paschal (or Passover) full moon, which in turn was the first full moon after the vernal equinox. But they wanted to keep Easter and Passover forever separate, so they decided that when the full moon, and Passover itself, came on a Sunday, the following Sunday should be Easter.





Now let us see how this works out this year. The vernal equinox came on March 21, only four days after a full moon. That puts off the Paschal full moon to April 16, when Passover begins, but that is a Tuesday, so Easter does not come until Sunday, April 21. This is an unusually late Easter, the latest between 1943 and 1957. Only 10 times in the twentieth century does it come as late. However, Easter can come, as it did in 1943, as late as April 25. To do this, there must be a full moon on the 20th, the day before the equinox, and that day must be a Saturday. This postpones the Paschal full moon until Sunday, April 18, making the following Sunday, April 25, that of Easter.

The earliest that Easter can come is March 22. This happens when the full moon comes on the 21st and that day is Saturday. It occurred last in 1818, and will not be repeated at all in the twentieth century. In 1845, 1856 and 1913 Easter came on March 23, but it will not occur again as early as that in this century. Easter in 1940 was March 24, but even that will not be repeated before the twenty-first century. In 1951, however, it will come on March 25.

Thus, there is a variation in the date of Easter of 35 days. Many other activities in the church, as well as in secular life, depend on it and vary as well. For this reason there has been a movement for fixing Easter. There seems to be no religious objection to doing this. As a matter of fact, Christmas once varied in a similar manner, and was fixed in the fourth century.

The second Sunday in April has been suggested as the best date for Easter. It is close to April 9, accepted as the date of the Resurrection (in the year 30 A. D.). In 1928 the British Parliament passed a law fixing Easter on the first Sunday after the second Saturday in April, to take effect when other nations agreed to do the same. The League of Nations had a committee studying the problem. Perhaps, when they have settled matters of more immediate importance, the UNO will get around to this, and then Easter may stop its centuries of wandering.

Celestial Time Table for April

April	EST	
1	11:37 p.m.	New moon
2	11:01 p.m.	Moon passes Venus
3	5.00 p.m.	Moon nearest, distance 224,600 miles
8	2:26 p.m.	Moon passes Saturn
	3:04 p.m.	Moon in first quarter
9	1:39 a.m.	Moon passes Mars
12	7:00 p.m.	Jupiter opposite sun and nearest earth, distance 413,500,000 miles
15	8:05 p.m.	Moon passes Jupiter
16	5:47 a.m.	Full moon
19	8:00 a.m.	Moon farthest, distance 252,100 miles
21	early a.m.	Meteors of Lyrid shower visible
23	4:00 a.m.	Mercury farthest west of sun, in morning sky before sunrise
24	10:18 a.m.	Moon in last quarter

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

Science News Letter, March 30, 1946

NUTRITION

Quick Cooking Saves Vitamin Content

➤ QUICK COOKING methods not only save time for the cook but also save vitamins for her and her family's health.

Consider potatoes, for example. Nutritionists have long advised cooking them in their jackets, to save vitamins. Now scientists of the U. S. Bureau of Human Nutrition and Home Economics say that boiling potatoes in their skins is a better method even than baking them, so far as retaining vitamins is concerned.

Their pronouncement is based on tests with common foods cooked by home methods. Potatoes baked in their skins, these tests showed, lost as much as 80% of their original vitamin C and 50% of their thiamin or vitamin B_1. When potatoes were boiled in their skins, however, the vitamin C loss was only 40% and the loss of thiamin 15% to 20%. In other words, baked potatoes lose twice as much vitamin C and three times as much thiamin as potatoes boiled in their skins.

Oatmeal is another food the government scientists tested to see how cooking would affect its vitamin content. This food is a good source of thiamin and the tests showed that when cooked directly over the flame for two and one-half minutes the thiamin loss is small. When the oatmeal is cooked for 30 minutes in a double boiler, however, the thiamin loss is 30%, or 15 times as great.

The vitamin A value of yellow cornmeal cooked by these two methods, on the other hand, appears to be the same, the tests showed. This vitamin is present in plants or plant foods in the form of carotene, a chemical which the body converts into the vitamin. Carotene is, in general, relatively stable during cooking.

Science News Letter, March 30, 1946

ENTOMOLOGY

British Insecticide Controls Boll Weevil

➤ THE COTTON boll weevil, probably the most damaging pest to the American cotton crop, may completely succumb to a new British insecticide, benzene hexachloride, which American field tests indicate is more effective, as far as cotton insects are concerned, than DDT or the old stand-by, calcium arsenate. The new material killed also more cotton leafworms, plant bugs, cotton fleahoppers, and cotton aphids than the standard insecticides.

Benzene hexachloride, as a cotton insecticide, apparently has one weakness, scientists of the U. S. Department of Agriculture who made the tests state. It is not as effective as calcium arsenate or DDT for the control of bollworms. However, it has no ill effects on cotton plants when used in low dosages.

The new material will not be available during the coming cotton season for general application, but is now being made in the United States in sufficient quantities to continue experimentation. If tests to be made this summer are as satisfactory as expected, and serious shortcomings do not come to light, it will probably become available to cotton growers within a relatively short time.

Science News Letter, March 30, 1946