ASTRONOMY

Bright Stars Shine

April Evenings Will Be Adorned By Ten First Magnitude Stars, Record for Year and More Than Half of Total

By JAMES STOKLEY

THE EVENING skies of April, at the hours for which these maps are prepared (about 11 p. m., WT, at the beginning of the month and 10 p. m. in the middle) show more first magnitude stars than any other month. Ten are indicated, the record number for the year.

There are only 22 first magnitude stars in the whole sky. Six of these are so far south that they are not visible from most of the United States, or from any part of Canada. Thus, more than half of those which we can ever see are in the sky simultaneously these evenings.

This is true every April, but in this April of 1942 the glorious spectacle is further enhanced by the addition of three planets which, as it happens, are all in the same constellation of Taurus, and among some of the most conspicuous stars.

The brightest star or planet that you will see in the evening is Jupiter, now of magnitude minus 1.6 and very slightly brighter than Sirius, the dog star. There should not be very much trouble in distinguishing star and planet. For one thing, Sirius is farther south. It shows the typical "twinkling" of a star, while Jupiter shines with a steadier glow.

Mars Close By

Close to Jupiter, and much fainter, is the planet Mars, of magnitude plus 1.6. On the evening of April 3 Mars passes Jupiter, to the north, at a distance of less than two degrees, which is about four times the apparent diameter of the moon. Saturn is the third of our evening planets, but it is not indicated on the maps. It is also in Taurus, but much lower than the other two, so it sets before the map times. Just as soon as the sky is dark, especially during the first half of the month, you can see it low in the west.

As for the other planets, Venus is still very brilliant, of magnitude minus 4, as a morning star, which comes up some two hours ahead of the sun. Mercury is so close to the sun that it will not be seen at all this month.

Among the stars, Sirius is, as we mentioned, the brightest. It can be seen to the southwest. To the right of Sirius is Orion, with the three stars of the warrior's belt near the horizon. Above them is Betelgeuse. (Rigel, below the belt, is not shown on the map, but it is visible earlier in the evening.) Farther to the right, and near Jupiter, is Aldebaran, in Taurus, the bull. Above Orion are Gemini, the twins, with first magnitude Pollux, and his brother Castor, of the second magnitude. About half way between Sirius and Pollux is Canis Minor, the lesser dog, with Procyon. And in the northwest, below Gemini, is Auriga, with Capella to be seen.

Spring Stars in South

These are all stars of the winter sky, ones that will soon vanish from the evening firmament. But to the south and east we see others that are typical of the skies of spring. High in the south is Leo, the lion, which can be recognized by a group called the Sickle, with Regulus at the end of the handle. Left of Leo, and lower, is Virgo, the virgin, in which Spica shines. Above the easternmost end of Virgo is Bootes, the bear driver, marked by Arcturus. Finally, very low in the northeast, Vega is indicated. This is in Lyra, the lyre. On summer evenings, with Sirius out of sight, Vega is the brightest star.

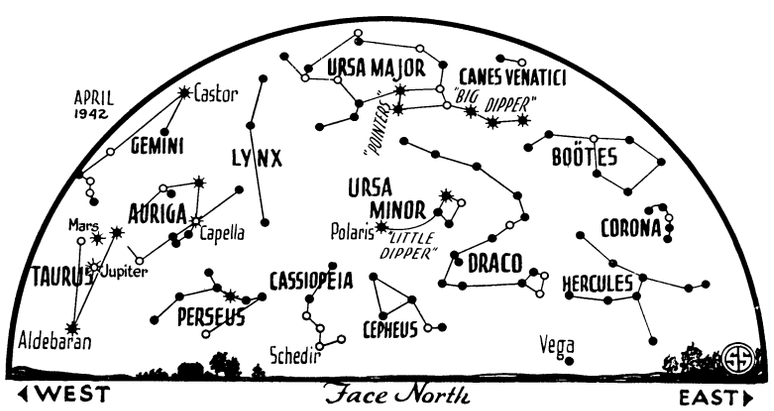
Though it contains no first magnitude stars, the great bear, Ursa Major, of which the great dipper is part, appears now in its best position, high in the north. And also this is the best time to see another constellation that is one of the longest in the sky. It is Hydra, the water snake, in the south below Leo. An irregular figure of six stars in the southwest makes the head of the snake, and his tail extends far to the southeast, ending just under the star Spica. Brightest star in this group is Cor Hydrae, of the second magnitude, marking the serpent's heart, and almost under the sickle.

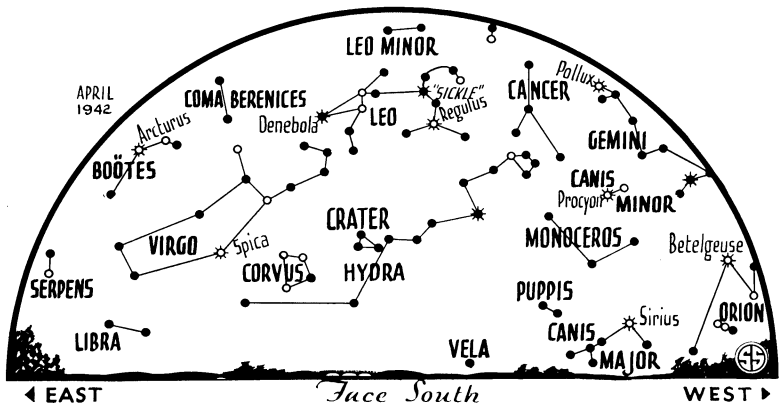
When, on Sunday, April 5, despite the war, the Christian world celebrates Easter, they are observing an event which depends on astronomical considerations. This year it happens that the event falls about in the middle of its range. It can come as early as March 22, which it did last in 1818. Or it can come as late as April 25, as it did in 1886, and will next year.

It all depends on the phases of the moon. Easter represents an adaptation, by the early Christian church, of the Hebrew Passover. The Jewish calendar is a lunar one, each month starting with the first appearance of the new crescent moon. Fourteen days later the moon is full, so the 14th of every Jewish month is a day of full moon. The 14th day of the month of Nisan, which comes right after the vernal equinox, the beginning of spring in March, is the beginning of Passover.

First Easter on April 9

According to leading authorities, the Crucifixion took place in 30 A. D. The 14th day of Nisan in that year, a date which we can check because astronomers can figure back to see exactly when the phases of the moon occurred even thousands of years ago, was Thursday, April





☼ ✱ ○ • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

6, according to our reckoning. This was the day when Christ ate the Passover feast with the Disciples. The next day, Friday, April 7, was Good Friday, the day of the Crucifixion. The next day was the Hebrew Sabbath, and the day after that, Sunday, April 9, was the first Easter.

In the early days of the Christian church, there was a long and famous controversy, as to the exact date that Easter should be celebrated. The converts from Judaism wished to go on celebrating Passover, which to them had a new meaning. They wanted to observe it immediately after the Full Moon, regardless of the day of the week. But the Gentile Christians wanted to celebrate Easter always on Sunday, since it had been on that day originally.

The Council of Nicaea, in 325 A. D., recognized the latter view, and set the rule for Easter which we still observe. That is, Easter is the first Sunday after the full moon on or after the vernal equinox. In case the full moon falls on a Sunday, it is the following Sunday that is Easter. This was done to prevent Easter and Passover from ever coinciding.

Since Easter varies over a range of 35 days there was, before the war, a movement to stabilize the date on the first Sunday after the second Saturday in April. Of course, this is also connected with the whole problem of calendar reform. Certainly there are many things wrong with our calendar of today, even though we are used to them. Perhaps, in the new and better world that we hope will follow our victory, the calendar may have a long overdue change.

Celestial Time Table for April

Wednesday, April 1, 8:32 a.m., Full moon (this is the Paschal moon, determining Easter). Friday, April 3, 12:00 p.m., Mars passes Jupiter. Saturday, April 4, 2:00 a.m., Moon nearest, distance 226,700 miles. Wednesday, April 8, 12:43 a.m., Moon in the last quarter. Saturday, April 11, 12.03 p.m., Moon passes Venus. Monday, April 13, 4:00 p.m., Venus farthest west of sun. Wednesday, April 15, 10:33 a.m., New moon. Saturday, April 18, 12:18 a.m., Algol at minimum; 1:04 a.m., Moon passes Saturn. Sunday, April 19, 9:26 p.m., Moon passes Jupiter; 12:00 p.m., Moon farthest, distance 251,900 miles. Monday, April 20, 12:59 p.m., Moon passes Mars; 9:07 p.m., Algol at minimum. Tuesday, April 21, early a.m., Meteors of Lyrid shower, apparently radiating from constellation of Lyra. Thursday, April 23, 2:10 p.m., Moon in first quarter; 5:57 p.m., Algol at minimum. Thursday, April 30, 5:59 p.m., Full moon.

Eastern War Time throughout.

Science News Letter, March 28, 1942

From Page 199

little more breaking up, if necessary. Finally, work the smaller clods down to a proper granulation with the rake, at the same time smoothing and leveling the surface. The back of the rake, not the teeth, is the right tool for this.

Now you are ready to plant. Set your stakes at either end of your plot, stretch the line between them. If you are using commercial fertilizer, lay some along the line thus marked—a pound for every thirty feet. Work this in by raking lightly. Then move the stakes over a few inches, trace a shallow furrow for the seeds, drop them in and cover them up.

Depth and spacing vary according to the size of the seed and the amount of space the plant takes up when grown. In general, the smaller the seed the shallower the planting. Beans should go two or three inches deep, according to type of soil, beets about an inch, radishes and turnips a half-inch or so, carrots and lettuce only a quarter-inch.

Don't plant too thickly. Most home gardeners tend to do so, anyway. And in this year of war, when there are seeds enough to go around but none to lavish through over-planting, we should look on our seed-packets almost as cartridge-belts—make every one count.

Planting a garden is undoubtedly the most enjoyable part of the job. But your gardening isn't finished when you have got the seeds in the ground and stand up to straighten out the kinks in your back. ("Half a proper gardener's work," says a perspicatious poet, "is done upon his knees.") A little hoeing, and a great deal of laborious thumb-and-finger weeding, are necessary if you are to reap where you have sown. And if you are not willing to do the weeding, better not start a garden at all: an unweeded garden is largely a waste of labor, fertilizer and seed.

No particular instructions are needed for weeding, except that you keep everlastingly at it. Save all weeds and throw them on the compost heap; thus you will harvest good out of evil.

The one important thing about hoeing is that you do it often, and thoroughly enough to kill all weeds between rows, but not too deeply. Deep hoeing will cut off important feeding roots, for most garden vegetables are shallow-rooted. Frequent light hoeing will maintain a dust mulch on the surface, which will reduce loss of moisture through evaporation during dry spells, and keep the soil in better tilth throughout the season.

Finally, after many days of struggle against weeds and bugs and backache, you will begin to reap your crimson and green and golden rewards. Don't wait too long. Some gardeners, in a quite understandable desire to get the largest possible returns for their expenditure of effort and money, wait until their vegetables have reached maximum size. By that time there is danger of their being over-ripe, hard, tough or stringy. Catch them while they're young, and use them while they're fresh, is the be-all and end-all of the home vegetable harvest.

The illustrations on pages 198 and 199 are from "A Dozen Don'ts for Gardeners" which appear in *Consumers' Guide* (March 1) prepared by the Consumers' Service Section of the U. S. Department of Agriculture.

The interest taken in the home garden by even the youngest in the family is shown in the picture on the front cover of this week's SCIENCE NEWS LETTER, which is an official photograph of the Farm Security Administration.

Science News Letter, March 28, 1942