



the line in the sky directly over the earth's equator, so half the ecliptic is in the northern sky and half in the southern. Thus we can get our four main points. Two are the intersections with the equator. These are the equinoxes, where the sun stands about March 21 and Sept. 23. The other two points are the solstices, marking the northernmost and southernmost parts of the ecliptic. The former is where the sun stands on June 21 and the latter where it is on Dec. 22.

As a convenient subdivision of the year, astronomers have long used the passage of the sun through the four quarters of the ecliptic, as marked by the four points mentioned above. These they have called "seasons," and the one between the equinox in March and the solstice in June they call spring. Therefore, in the astronomical sense, spring commences on March 21 at 12:33 a. m., EST.

Of course this is an arbitrary division of the year. People might do it—indeed, they have done it—in other ways. In common speech, for example, we often consider the whole of March, followed by April and May, as spring, and then have summer commencing at the beginning of June. Again, we might call summer the quarter of the year during which it is farthest north, beginning not at the solstice, but half way between the equinox and the solstice, or about May 7, and ending at the mid point between the solstice and the following equinox, or about August 9. Then the June solstice would be the middle, and not the beginning of summer, and we would be following an old practice in England, where June 21 is called "Midsummer day." The events of Shakespeare's "Midsummer Night's Dream" occurred at this time.

However, this practice is not generally used, and the astronomical usage is very

widely followed, with spring commencing with the vernal equinox, and summer with the summer solstice. This usage has the advantage of roughly corresponding with the weather, for there is a lag in the seasons as we do not get our warmest weather when the sun is farthest north, but some weeks later.

It is true, of course, that what has been said applies only to the northern hemisphere. In the southern the seasons are reversed. Their autumn comes at the time of our spring, and their winter with our summer. This was the reason, a few years ago, that the "American Ephemeris," an annual volume of astronomical tables published by the U. S. Naval Observatory, stopped making the statement that, for example, spring would begin on the 21st of March. Now they simply state that the equinox or solstice happens on a certain day at a particular time. The book is used in all parts of the world, and so now its statement is as true in South America as it is at home.

**Celestial Time Table for March**

March EST	
3	1:01 a. m. New Moon
6	8:00 p. m. Moon nearest, distance 227,900 miles
9	11:00 a. m. Mercury farthest east of sun
10	2:47 a. m. Algol (variable star in Perseus) at minimum
	7:03 a. m. Moon in first quarter
12	5:50 a. m. Moon passes Mars
	8:32 a. m. Moon passes Saturn
	11:37 p. m. Algol at minimum
15	8:26 p. m. Algol at minimum
17	2:11 p. m. Full moon
18	5:15 p. m. Algol at minimum
	8:00 p. m. Mars passes Saturn
19	7:42 p. m. Moon passes Jupiter
21	12:33 a. m. Sun crosses equator, spring commences in northern hemisphere.
22	6:00 p. m. Moon farthest, distance 251,600 miles
25	5:37 p. m. Moon in last quarter

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

Science News Letter, February 23, 1946

Overbaking potatoes causes a loss in their vitamin C.

OCEANOGRAPHY

**Surf Forecasters Trained During War**

► SURF FORECASTING was placed on the same kind of scientific basis as weather forecasting by scientists at the Scripps Institution of Oceanography at La Jolla, Calif., and during the war 200 Navy and Marine Corps officers were trained in the new technique, for use in connection with landing operations.

The work was carried on under the immediate supervision of Dr. Harald U. Sverdrup, director of the Institution, with the cooperation of other members of the staff.

"It has been possible to establish a relationship between, on the one hand, higher waves," said Dr. Sverdrup, "and on the other, the wind velocity and the stretch of water over which the wind has been blowing (the fetch) or the length of time the wind has been blowing (the duration).

"The formulation of these relationships, which was accomplished in the summer of 1943, represents the greatest single accomplishment of the project."

Scientific data accumulated during the long studies have been incorporated in two volumes, published by the Hydrographic Office of the Navy.

Science News Letter, February 23, 1946

The *maté tree* or shrub, that supplies perhaps 25,000,000 people with their customary beverage, is a species of the holly.

*Tobacco crops* in the United States will total for 1945 over 2,000,000,000 pounds, a 4% increase over 1944.

*Weather ships* are vessels stationed at intervals across the ocean carrying U. S. Weather Bureau observers and instruments; radio reports from them assist in the making of weather forecasts.

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