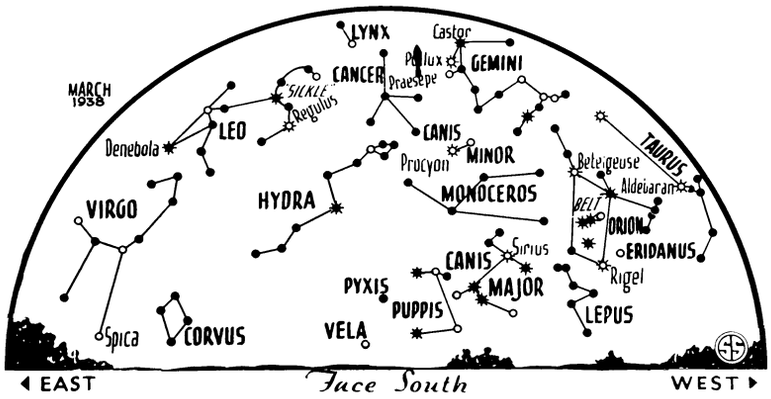

SPRING STARS APPEAR

In a sky without planets, the Hunter descends the western sky, while in the east the Virgin follows the Lion.

closely with March. It starts with sunset on March 3, when it should be possible to get a first glimpse of the narrow crescent moon low in the western sky.

The early Roman calendar was a lunar-solar one, very similar to that used today by the Jews. But instead of having regular rules governing the insertion of the extra month, it was left to the officials to have one when needed. Thus it became a very convenient tool for graft, as extra taxes might be collected, to fill the collector's pocket, by the simple expedient of having a leap year. Abuses such as this led to the reform of the calendar by Julius Caesar in 45 B. C., with the aid of an astronomer named Sosigenes.

Regulating the Calendar

After all, the calendar is a time-keeping instrument, like a clock. When a clock is fast, or slow, it is necessary to set the hands, so that they will indicate the correct time, then to adjust the pendulum, making it run faster or slower, in order that it will keep better time in the future. Caesar did these two things. To set the calendar he decreed the "Year of Confusion," which, with 445 days, brought the beginning of spring back to March 25, where it had been formerly. He ignored the moon and divided the year into the twelve months we have today.

Being advised that the correct length of the year was 365¼ days, he introduced the leap year. With three years of 365 days, the fourth of 366, the average was the desired figure. But, actually, 365¼ days is about 11 minutes 14 seconds too much, and over the ages this accumulated until after the year 1500 the equinox came on the 12th instead of the 25th.

In 325 A. D. the council of Nicaea had set the rule for determining the date of Easter—"The first Sunday after the first full moon after March 21"—that date being chosen because it was then the equinox. But as the equinox came earlier in the calendar, March 21 came later in the season, it would eventually have come at the beginning of summer, and Easter would have been celebrated in summer-time, even though it is essentially a festival of spring.

Accordingly, in a papal bull issued Feb. 5, 1582, Pope Gregory XIII decreed further changes. To set the clock, October 4, 1582, was immediately followed by October 15. This dropping of ten days returned the equinox to March 21.

To regulate it, the leap year rule was amended. Up to then, every fourth year, or every year divisible by 4, had been a leap year. By the Gregorian rule, however, an exception is made in the case of century years (e. g., 1900) which are leap years only if divisible by 400. This was a great improvement, for now the average length of the year is only 12 seconds in error, which will not amount to a day until 7200 years have passed.

New Year's Day Shifts

Under a Roman practice which was changed about a century before Caesar but which was revived for a time several centuries ago, the year began in March, at time of the vernal equinox, instead of in January. That is the reason for the names of such months as "November," which really means the ninth month, though it is the eleventh.

Under this old practice, therefore, we would be starting 1938 on March 21, at 1:43 a. m., eastern standard time, which is the equinox this year. At that moment the sun will be vertically over the equator. But for us it is not the beginning of the year, but only of spring, an event which is doubtless equally welcome to many.

Phases of Moon

		E.S.T.
New	Mar. 2	12:40 a. m.
First Quarter	Mar. 9	3:35 a. m.
Full	Mar. 16	12:15 a. m.
Last Quarter	Mar. 23	8:06 p.m.
New	Mar. 31	1:52 p.m.

Moon in perigee (nearest earth), March 11, 3:00 a. m., 229,500 miles away.

Moon in apogee (farthest away), March 23, 4:00 p. m., 251,100 miles away.

Science News Letter, February 26, 1938

ILLUMINATION

New Lamps Join Familiar Bulbs to Brighten Life

GLOWING vapors and gases are painting our night life with new splotches of colored light. And illuminating engineers in their laboratories are devising new kinds of electric lamps that may soon emerge to usefulness, just as sodium's yellow glow and neon's reddish luminosity have become familiar.

Familiar incandescent lamps remain the backbone of our artificial lighting. But glowing vapor is much more efficient than incandescent metal filament.

The mercury lamp with its greenish blue has long been familiar in shops where detailed work is done and color is no concern. The sodium lamp with its one yellow colored light is coming into use for highway and other outdoor illumination.

And this strange monochromatic illumination, under which most objects lose their colors and human faces take on a corpse-like pallor, has the greatest possibilities of high efficiency, just because the sodium vapor spends all the energy given it upon one wavelength of light. A sodium lamp of 180 watts gives as much light as a tungsten filament incandescent lamp of 500 watts, or nearly three times as much light per watt.

Science News Letter, February 26, 1938