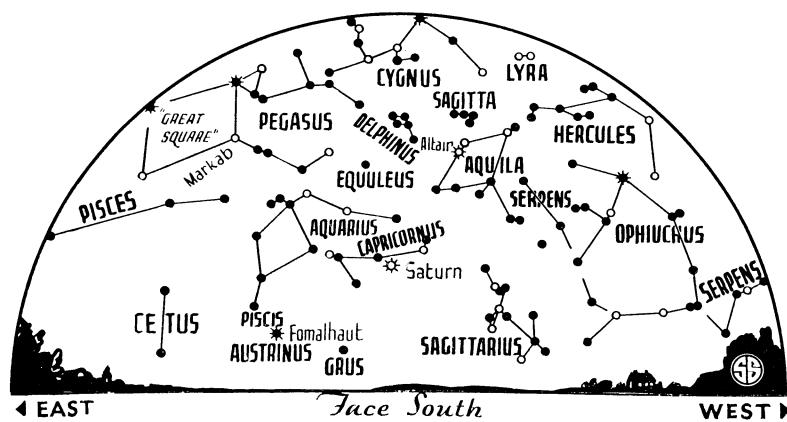


☼ \* ○ ● SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS



In addition to Saturn, two other planets can be seen this month, low in the southwest just after sunset. They are not given on this map, however, because by the time for which the map is adjusted, the planets, Venus and Mars, will have descended below the horizon.

The huge telescopes of modern observatories, especially the 100-inch reflector at Mount Wilson, greatest in the world, have shown previously unsuspected glories of the constellation of Cygnus. A little to the east of Deneb is the largest of these, a cloud of nebulosity that covers an area in the sky many times that of the full moon, though it is so faint that a time exposure photograph of many hours is required with a great telescope to bring out its details. This is called the North America nebula, because it corresponds closely in shape to our own continent. Two clouds of dark nebulae, that may once have been luminous themselves, but are now apparent only because they are silhouetted against a bright background, form the "Gulf of Mexico," and "Hudson Bay." Around it are lanes of similar dark nebulosity, which sharply outline its edges.

#### The Pelican Nebula

Just to the west of the North America nebula is another that has been christened the Pelican nebula, also from its shape. The bird is shown in considerable detail even to its huge beak which can hold more than its—stomach can! A very beautiful photograph of this object, made with the 100-inch Mount Wilson telescope by Prof. J. C. Duncan, reveals that it is crossed by curious dark lines, which are also, without doubt, dark nebulae. In fact the whole constellation of Cygnus is famous for these dark nebulae, many of which look, as Sir William Herschel, the great English astronomer, exclaimed when he saw one, like "holes in the sky."

With some it is hard to believe that we are not looking down a tube devoid of stars, but with the stars of the sky continually in motion it is hard to imagine that there would be so many of these starless tubes pointed to the earth. The late Prof. Edward Emerson Barnard, of the Yerkes Observatory, and one of the greatest of modern observers, catalogued a number of these dark markings, and showed that they are undoubtedly clouds of dark matter. Perhaps they are scattered all over the sky, but we can only observe them when in front of a background of bright stars. Consequently, it is not surprising that they should be conspicuous in Cygnus, where there are plenty of bright stars to serve as a background.

Still another beautiful nebula is found in Cygnus, surrounding the star Sadr, at the intersection of the cross. This is so faint that even through the largest telescope it is not apparent to the eye, but a photograph with an exposure of six or seven hours, perhaps made on two successive nights, portrays its delicate form. It is called the network, or veil, nebula, and is in two parts, which are connected to form a wreath. A few years ago Dr. Edwin P. Hubble at the Mount Wilson Observatory compared some photographs that he had just made with others made many years previously by Prof. George W. Ritchey, and found that the nebula is moving outwards from the center of the wreath.

Dr. Hubble has offered a reasonable explanation of this movement. He suggests that the wreath is the result of a celestial explosion many thousands of years ago, when something happened

to a previously inconspicuous star, causing it suddenly to flare up and shoot out a cloud of stellar material which ever since has been travelling away in a widening circle.

One of the astronomical events that we use to divide our calendar into seasons occurs on September 23. On that date, at 7:01 a. m., eastern standard time, the sun, which has been moving southward in the sky since last June, crosses the Equator, and this is taken as the beginning of autumn. On that date the sun is above the horizon just as long as it is below, the night and day are therefore equal, and so this event is called the autumnal equinox. After that, the nights will continue to lengthen until the beginning of winter, next December.

The moon is full on September 4, at last quarter on the 11th, new on the 19th and at first quarter on the 26th. This means that the evenings will be moonlit for the first week of September, and again during the last week. On the 22nd the crescent moon passes close to the planet Venus. During the night of the 29th, it passes within a little more than its own diameter of the planet Saturn. Both of these events will make interesting spectacles.

*Science News Letter, September 2, 1933*

#### CHEMISTRY

### Tastiest Liquids Come Out of Green Bottles

**E**XPOSURE to light is bad for all liquids from beer to kraut juice, but green light has been found to be the least harmful.

Experiments on apple and kraut juices made by D. C. Carpenter at the New York Agricultural Experimental Station and reported to the American Chemical Society show that blue bottles will ruin the taste of these juices and fade their color to a marked extent. Storage in red bottles may enhance the color of the liquid but it will make kraut juice taste like decaying cabbage.

The best treatment is to keep the juice in the dark until it is necessary to open it. If it has to be exposed for advertising, green bottles will afford the best protection. Manufacturers object to the use of green containers because they mask the clarity and the color of the product, but this might be overcome by wrapping the bottle in green cellophane until it is necessary to demonstrate it to the customer.

*Science News Letter, September 2, 1933*