

ASTRONOMY

Saturn Still Visible

New star groups, characteristic of the autumn skies, are coming into view. Among the planets that shone earlier, only Saturn is now visible.

By **JAMES STOKLEY**

SATURN is the only planet visible on September evenings. The others that shone brightly in the early part of the summer are gone from view.

Coming into prominence in the east are star groups which could not be seen earlier, and which are characteristic of the skies of autumn.

Brightest star or planet now visible is Vega, in the constellation of Lyra, the lyre. Its position is shown on the accompanying maps. These depict the sky at about 10:00 p.m., your own kind of standard time (or 11:00 p.m. daylight saving time) at the first of September, an hour earlier at the middle of the month and two hours earlier at the end.

Lyra is high in the west, alongside Cygnus, the swan, directly overhead, with the bright star Deneb. Altair, in Aquila, the eagle, is slightly to the south. Between the two birds, by the way, there are two interesting little constellations which contain no first magnitude stars, but are now in their best position for viewing. One is Sagitta, the arrow; the other is Delphinus, the dolphin, sometimes known as "Job's coffin."

Directly below Aquila, perhaps the source of the arrow, is Sagittarius, the archer.

Saturn in Sagittarius

It is in this constellation that Saturn now appears. About as high above the horizon, and farther left, is Piscis Austrinus, the southern fish, with the star called Fomalhaut. It appears much higher than this in our skies, but from more southerly countries it climbs well up into the heavens.

To the northwest, near the horizon, is the familiar figure of the great dipper, which is part of Ursa Major, the great bear. At the right of the dipper's bowl are the "pointers," whose direction indicates the pole star, Polaris, in Ursa Minor, the little bear, a little higher. And by following the curve of the dipper's handle to the left, you come to Arcturus, in Bootes, the bear-driver, close to the horizon and about to disappear from the evening skies until late next winter.

Low in the northeast, Capella, the bright star in Auriga, the charioteer, has come into view. During the coming months this will become more and more prominent in the evening, and will be joined by a group of brilliant stars that shine brightly in the winter sky.

Above it is Perseus, the champion, in which you can see the variable star Algol. This is a moderately bright star of the second magnitude, but every 2 days 20 hours 48 minutes it fades to about a third of its

normal brightness. Actually, it is a double star. One component is much fainter than the other, which is regularly eclipsed as they revolve around each other.

As for the other planets that are sometimes visible to the naked eye, Mercury is directly behind the sun on Sept. 17, and is hidden in the solar glare. On Sept. 1, Venus is in front of the sun, and similarly hidden. However, by the end of the month it will have moved far enough to the west of the sun that it will rise before that star and will shine brilliantly low in the east at dawn.

Mars also is coming very close to the sun, and will pass behind it at the end of October. Jupiter is visible in the early evening. At dusk it is low in the southwest, and sets about three hours after sunset, before the times for which our maps are drawn. It is in the constellation of Libra, the scales.

Sometimes it happens that a person who knows the skies well, and is familiar with the constellation figures, looks at one and finds a star there that shouldn't be! Apparently a "new star" has appeared. This happened, for example, in June, 1918, when one suddenly flashed out in the constellation of Aquila. For a little while it was brighter than any other star of the nighttime sky, but then it faded out. And late

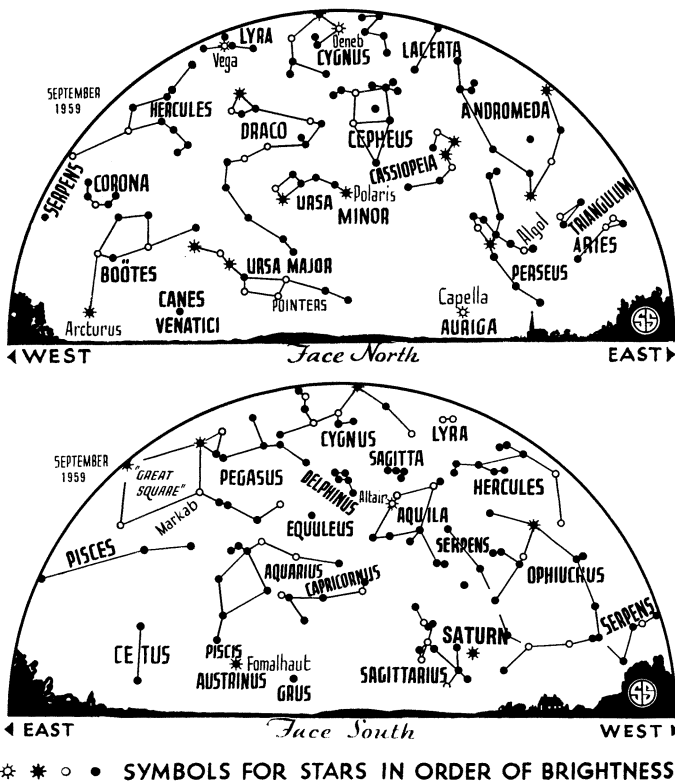
in 1934 another appeared in Hercules. It was about halfway between Vega and the star nearest to it, on the map of the northern sky, in Draco, the dragon. For a while this was one of the most brilliant stars in the sky; then it, too, faded to obscurity.

Perhaps a dozen or more times each year such a "nova" shines out in our stellar system, the Milky Way galaxy. Most of them are so far away that they cannot be seen without a telescope. Actually, however, they are not really new stars; they are old ones that suddenly explode and becomes a hundred thousand or more times as bright as they were.

Rare Supernovae

Much rarer than an ordinary nova is a supernova, such as the one that suddenly shone out in Cassiopeia (in the northeast, to the right of Polaris) in 1572. On the average, these appear in the Milky Way galaxy about once in several hundred years. Despite this, another occurred in Ophiuchus (shown in the southwestern sky) in 1604. Not since then has there been one in our galaxy, although astronomers can often observe them in others of the millions of galaxies beyond the limits of ours. These, of course, can only be observed through large telescopes, but that is because they are so far away. When it happens, the supernova is often more brilliant than the rest of the billion or so stars in that galaxy.

An ordinary nova is apparently caused by some sort of upset in the equilibrium of the interior of a star. A nuclear explosion, something like that of a hydrogen bomb, but on



a far larger scale, then occurs. The whole star brightens and some of its outer layers are shot off. However, the loss is not more than about a ten-thousandth of the total mass, which is not too serious, and after the outburst the star seems to return to its previous state.

Supernovae are of two kinds.

One is simply a very large nova, but the other is a far more violent affair, with as much as a tenth of the star's mass being ejected and, when it is over, the star is radically changed. Astronomers have not yet found out just what happens. Fortunately, there does not appear to be any danger that the sun may become a nova. If it did, all life on earth would be wiped out, far more effectively than from the most widespread nuclear war.

Celestial Timetable for September

Sept.	EST	
1	1:00 a.m.	Venus in front of sun.
2	8:55 p.m.	New moon.
4	7:12 a.m.	Moon passes Mars.
7	12:54 a.m.	Algol (variable star in Perseus) at minimum brightness.
	12:00 noon	Moon nearest, distance 229,100 miles.
8	4:40 a.m.	Moon passes Jupiter.
9	5:07 p.m.	Moon in first quarter.
	9:42 p.m.	Algol at minimum.
10	4:56 p.m.	Moon passes Saturn.
12	6:31 p.m.	Algol at minimum.
16	7:51 p.m.	Full moon.
17	4:00 p.m.	Mercury behind sun.
22	8:00 p.m.	Moon farthest, distance 251,500 miles.
23	2:09 p.m.	Sun over equator, autumn commences in Northern Hemisphere.
24	9:22 p.m.	Moon in last quarter.
29	1:03 p.m.	Moon passes Venus.
	11:23 p.m.	Algol at minimum.

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

Science News Letter, August 22, 1959

Do You Know

The *poison ivy fruit* is white, waxy looking, and resembles mistletoe.

Tuberculosis of bovine origin is now quite uncommon in the U.S.

In the U.S. more than one-fourth of the *diseases* reported nationally may be transmitted from animals to man.

The death rate from *ulcerative colitis* has been cut from every second patient 50 years ago to one in 10 or 20 today in the U.S.

Cosmic ray intensity at high altitudes is over four times more intense in the Arctic and Antarctic than at the equator.

All of the major causes of *infant mortality*, except post-natal asphyxia, showed a decline in the U.S. during the decade ending in 1955-56.

The *Japanese beetle* lives as a white grub in soil for most of its life, plant and grass roots making up the main portion of its diet during this period.

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