

ASTRONOMY
Venus, Saturn, Jupiter

Three Planets Shine in Evening Sky, as September Brings Beginning of Autumn; Mars and Mercury in Morning

By JAMES STOKLEY

JOINING the stars of the late summer evening, we now have three planets. Like the earth, they revolve around the sun and form part of the solar system. Unlike the stars, which are glowing globes of gas, shining with their own light, the planets are visible only by the sunlight they reflect.

Soon after sunset Venus is visible in the southwest. More brilliant than any other star or planet, it is easily located. It does not, however, appear on the accompanying maps, for these show the heavens as at ten o'clock on September first, nine on the fifteenth and eight on the thirtieth. Venus sets about an hour and a half after the sun.

The other planets, Jupiter and Saturn, are easily visible through most of the night, and are indicated. Jupiter is much the brighter of the two, about 15 times the brilliance of its neighbor. It is seen high in the south in Aquarius, the water carrier. Saturn is in Pisces, the fishes, farther to the left.

Of the other planets that constitute the solar system, only two are visible to the naked eye, and these are now morning stars. That is, they appear in the east before sunrise. About the middle of the month Mercury will be visible in this way, in the constellation of Leo, the

lion. Mars is also in Leo, near Mercury on the fifteenth, but only about a sixth the brightness, so that it will be difficult to locate in the morning twilight.

Vega, of Lyra, the lyre, is the most prominent star this month in the evening. It is nearly overhead, a little west of the zenith. Of all the stars seen from most of the United States and Canada, only one exceeds Vega in magnitude. This is Sirius, the dog-star, conspicuous in the winter evenings, but now visible in the southeast about four o'clock in the morning.

Directly overhead, for the times of the maps, is Cygnus, the swan, frequently called the Northern Cross, because of its shape. The top of the cross, marked by the star Deneb, is to the northeast, and the bottom to the southwest. It is right in the heart of the Milky Way, which is now in a good position to view. To the south of the bottom of the cross is Aquila, the eagle, with first magnitude star Altair. With one fainter star just above, and another below, it is easily recognized.

The "Great Dipper," of Ursa Major, the great bear, is sinking low into the north on September evenings, with the "pointers," which show the direction of the pole star, at the right. To the left of the dipper's handle is Bootes, the

bear driver, with brilliant Arcturus. By next month this will be gone from the evening sky, but equally low in the northeast the maps show a star which will take its place, Capella, in Auriga, the charioteer.

This month Venus and Mercury are visible, the former as an evening, the latter as a morning star. Venus is more than two and a half times as far from the sun, in angular measure, as Mercury. Yet, around the 12th, Venus sets about an hour and a half after sunset, while Mercury rises approximately the same duration before sunrise.

Angle of Ecliptic

This is due to the angle made by the ecliptic, the imaginary line through the sky which marks the path of the sun and of the planets. Half of it goes through the southern hemisphere of the sky, and half through the northern. In the evenings this month, the southern half is in the visible sky and the angle that it makes with the western horizon is only about 27 degrees, in the central latitudes of the United States.

The elongation of a planet is always measured along the ecliptic. On September evenings, when the ecliptic is so nearly parallel with the horizon, the planet, even at its greatest distance from the sun, is only a little above the western horizon when the sun is setting, and hence it follows soon after. This happens this month with Venus.

But in the evenings of later winter and early spring, as well as just before sunrise at present, the northern half of the ecliptic is in the sky. The angle with the horizon is then around 67 degrees. Therefore, when the sun is just at the horizon, Mercury is quite high, because it is so nearly directly above the sun.

This month brings us, on the 23rd, the autumnal equinox, which is the beginning of autumn. At that time the sun is directly over the earth's equator, and day and night are approximately of equal length. In the southern hemisphere this is the beginning of spring.

Phases of the Moon

	E. S. T.
First quarter	Sept. 1 12:28 p.m.
Full moon	Sept. 9 3:08 p.m.
Last quarter	Sept. 16 10:12 p.m.
New moon	Sept. 23 3:34 p.m.

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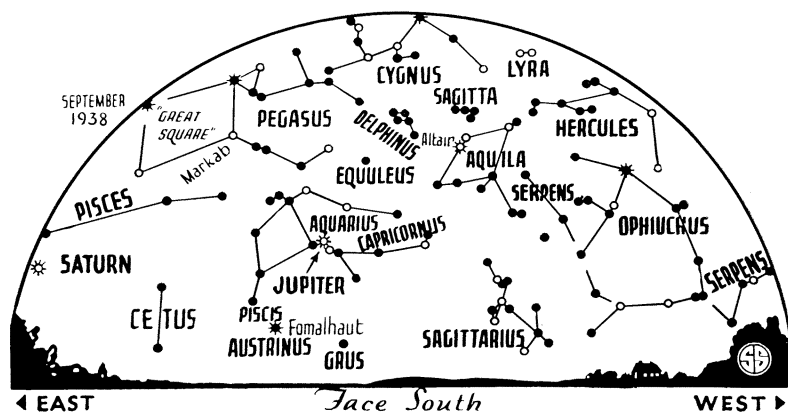
☼ * ○ • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS



THE SWAN FLIES HIGH

Cygnus, near the zenith, dominates the northern sky, with its great shining cross easily traceable. Lower down, the two bears keep up their endless circling around the Pole Star.





FIVE PLANETS SHINE

The sky of early autumn puts on an especially fine planetary show, with three planets visible at night and two just before dawn.

BACTERIOLOGY

Studies Germ-Killing Power of Toothpastes

IN THIS germ-conscious world of ours a good many persons have the idea that they would like to keep their mouths not only clean but free of germs. The idea is probably based on knowledge that germs of many diseases enter the body through the mouth and nose and is probably strengthened by antiseptic claims made for some toothpastes and mouthwashes.

Without going into the merits of the idea, it can safely be said that the job of keeping the mouth free of germs is herculean if not altogether impossible. Much has already been written on this subject and just recently Arthur H. Bryan, bacteriologist of Baltimore City College, published results of studies he made on antiseptic toothpastes.

He used ten different methods of studying these. An average of the number of germs or bacteria in the mouth of each of his student-volunteers was established, and the students then were given various tubes of commercial toothpastes or powders and asked to use them regularly three times a day for a period of three weeks to one month. During this time frequent checks were made on the bacteria in their mouths.

The antiseptic property of the toothpastes was compared with that of phenol (carbolic acid) and found to be somewhat lower. From this it appears that these antiseptic toothpastes are not

strong enough to harm gums, tooth enamel, or tongue and cheeks.

Recently extracted teeth were soaked in solutions of the toothpastes, and others were mounted in blocks and brushed with an electric dental machine continuously for one hour with the various toothpastes.

The significant conclusion of these and the other tests was that the use of the dental creams decreased the number of bacteria in the mouth for one hour after use, but at the end of this hour the number of bacteria increased and at the end of two hours was as high or higher than before.

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PSYCHOLOGY

Now a Clinic to Teach Pedestrians How to Live

A CLINIC where men and women are treated not for tuberculosis or heart trouble, but for automobile accidents, or "pedestrianitis" as a physician might term it, that is the strange outgrowth of traffic conditions in our twentieth century cities.

Automobiles, as everyone knows, are a bad enough hazard for drivers. But the driver is at least somewhat familiar with the workings of his and other cars.

Pedestrians, in a great many cases, know nothing whatever about cars. They may have been brought up in a day when speeding vehicles were confined to railroad tracks. They are completely unaware of the difficulties of quickly stopping a rapidly moving car. They have never tried to see through a clouded windshield or skidded on a glassy pavement. They may not even realize that in the blinding glare of headlights, they may walk unknowingly into the path of an oncoming car.

A clinic for testing and instructing pe-

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by Dr. E. F. Northrup

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