

ASTRONOMY

Jupiter Joins Venus

The two brightest planets are visible at the same time in the evening sky during February; Saturn is seen high in the sky.

By JAMES STOKLEY

► WITH THE COMING of February, the two brightest planets are visible at the same time in the evening sky. For the past few months Venus has been drawing eastward from the sun, and on Feb. 2 is at her farthest east position, setting about four and a half hours after sunset. At the same time Jupiter has been moving in a westerly, or "retrograde," direction in the sky. Until recently he was visible only after midnight, but this month he appears in the east less than three hours after sunset. This means that there is now a period in the evening, between three and four hours after the sun has gone down, that both planets are above the horizon.

Venus Appears First

Venus, in the west, is so brilliant that it appears long before any other star or planet, and is not difficult to locate. Jupiter, which appears low in the east, in the constellation of Virgo, the virgin, is less than a sixth the brilliance of Venus, but that still makes it brighter than any star. And in addition to these two, there is a third planet high in the south. This is Saturn, which stands in Gemini, the twins. Its brightness is about as much below Jupiter as that orb is fainter than Venus. As you look at them in the sky, however, the difference will not seem as great. Both Venus and Jupiter, when you can see both at once, are low in the sky; their light has to pass through a greater thickness of the earth's atmosphere than does that of Saturn, which is higher. If Venus and Jupiter were equally high, they would look considerably brighter.

Even Saturn is brighter than any of the stars now visible, with one exception. This is Sirius, the dog star, in the constellation of Canis Major, the great dog. This group and others are shown on the accompanying maps, drawn for approximately 11:00 p.m., war time, on Feb. 1 and 10:00 p.m. on Feb. 15. Canis Major is in the south, directly below the figure of the Gemini, in which Saturn is found.

Gemini and Canis Major make up part of a group of constellations which

contain more bright stars than any other part of the sky of equal area. Orion, the warrior, is the most conspicuous of these, with first magnitude Betelgeuse and Rigel, between which are the three stars in a row that form Orion's belt. High in the southwest, the other side of Orion from Sirius, is Taurus, the bull, with first magnitude Aldebaran. Above and to the left of Canis Major is Canis Minor, the lesser dog, with Procyon. In Gemini is Pollux, another of the first magnitude, and directly overhead, in Auriga, the charioteer, is Capella, which also belongs to this class. And off to the east, directly above the group of Virgo in which Jupiter stands is Leo the lion with the bright star Regulus.

It is not unusual for Venus to appear brilliantly in the evening sky the way it does at present. Once in a period of a year and seven months it reaches such a position but when it gets so bright it is always a bit surprising to those not used to it. Indeed people sometimes find it hard to believe that it is really a celestial body. In eastern New York state, for example, when it became so brilliant, the report used to go around that it was the "Edison star," an artificial light that Thomas Edison hung over Schenectady!

Venus is now so bright that it can be seen in the daytime. On Feb. 15, for a person on the central meridian of his time belt, the planet is directly south at 4:02 p.m., war time. Then it is about half way from the horizon to the zenith

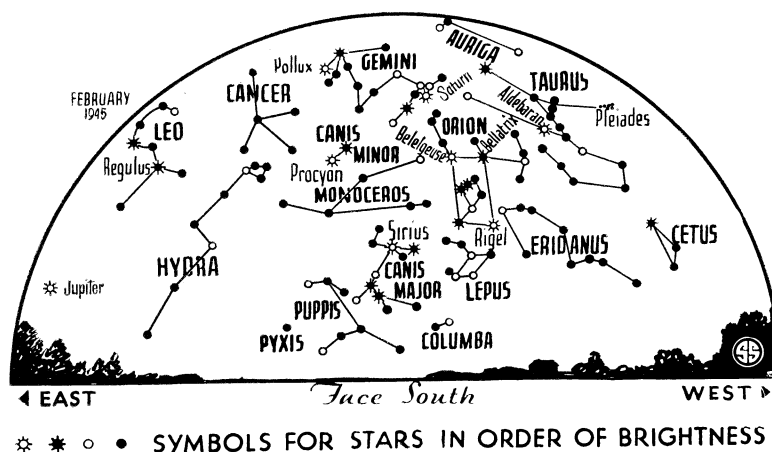
and should be located without great difficulty, if one is shielded from the direct glare of the sun. For points east of the central meridian, it will be south a little earlier, and for more westerly points a little later.

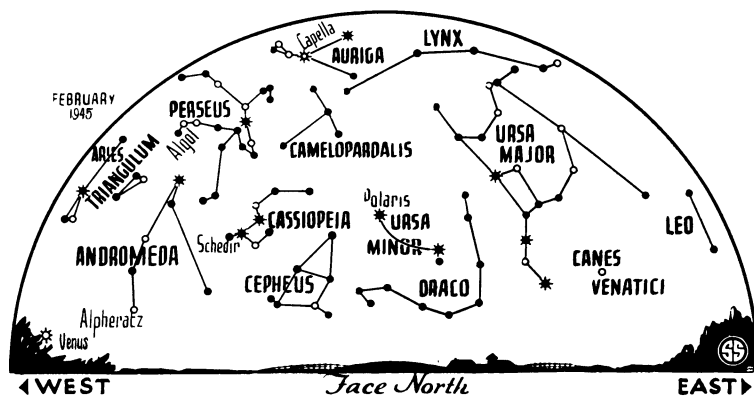
During the first part of the month, before the light of the moon interferes, one can even see shadows cast by Venus. This will be particularly noticeable out of doors, away from street lights, and where there is clean snow on the ground.

Through a telescope Venus is most interesting. At the beginning of this month it has the shape of a half moon, that is, it appears as a semicircle of light. But after this it becomes a crescent which gradually narrows. These changing phases of Venus are similar to those of the moon, and are caused in the same way. A few months ago, when Venus was well on the opposite side of the sun from us, its entire sunlit half was presented to our view and we saw a complete circle. Now the line from the planet to us is at right angles to that from Venus to the sun, which means that half the sunlit hemisphere is turned away from us, or that the half which is toward the earth is only partially illuminated. Consequently we see a semicircle of light.

Becomes a Crescent

As Venus comes more and more between the sun and earth, we see still less of the illuminated side, and it becomes a crescent. There is, of course, one important difference between the phases of Venus and of the moon. The latter remains at approximately the same distance, no matter whether full or new. Venus, on the other hand, is much closer





when it is a crescent, and hence appears larger. Also, on account of its approach to us, it continues to become brighter, until the crescent becomes extremely narrow. On the tenth of March it will reach maximum brightness, but then will be only about a third brighter than it is now.

5	5:55 a.m.	Moon in last quarter
10	5:38 p.m.	Moon passes Mars
12	1:33 p.m.	New moon
13	4:48 a.m.	Algol at minimum
14	8:00 a.m.	Moon nearest, 224,700 miles
15	4:07 p.m.	Moon passes Venus
16	1:38 a.m.	Algol at minimum
18	10:27 p.m.	Algol at minimum
19	4:38 a.m.	Moon in first quarter
21	5:03 p.m.	Moon passes Saturn
	7:16 p.m.	Algol at minimum
24	4:06 p.m.	Algol at minimum
26	8:07 p.m.	Full moon
28	1:43 a.m.	Moon passes Jupiter

Celestial Time Table for February

Feb. 2	EWT Noon	Moon farthest, 251,700 miles
	6:00 p.m.	Venus farthest east of sun

Subtract one hour for CWT, two hours for MWT, and three for PWT.

Science News Letter, January 27, 1945

MEDICINE

Sleeping Sickness Weapon

A new chemical for treatment of the African disease may be able to cure patients in the early stages in less than two weeks.

➤ A NEW CHEMICAL weapon against African sleeping sickness is announced by Dr. Harry Eagle, of the U. S. Public Health Service and Johns Hopkins University (*Science*, Jan. 19).

The chemical is gamma-(p-arsenosphenyl)-butyric acid. Large-scale field trials, planned to include over 1,000 patients, were started last summer with the collaboration of the Sleeping Sickness Services of the Gold Coast, Nigeria, the Belgian Congo and the British Forces in West Africa.

Results of treatment of more than 200 patients so far show that with this drug it may be possible to cure patients in the early stages of the disease in less than two weeks. Treatment with other drugs may have to continue for as long as 12 or 15 weeks, according to some published reports. Results with the new drug in treatment of late stages of the disease are not encouraging, however.

The new drug is given by injection into a vein. In the field trials it was given twice weekly, three times weekly and daily, the variation being planned

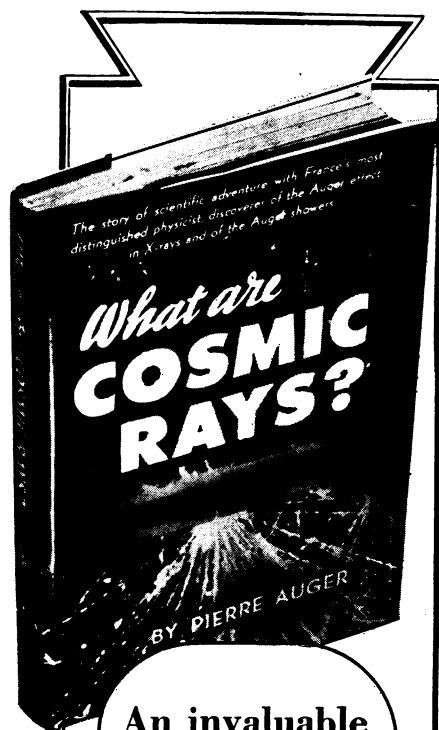
to determine the best schedule. More than 800 injections of it were given to over 100 patients, with no toxic reactions except for occasional nausea and vomiting after about 2% of the injections.

The drug seems to be active against strains of trypanosomes, the germs of African sleeping sickness, which are resistant to the widely used sleeping sickness remedy, tryparsamide, and other arsenicals. It may be effective against some, though not all, forms of the disease in animals.

Mass treatment of this widespread scourge of tropical Africa may be greatly simplified, Dr. Eagle suggests, and considerable time and money saved by this new drug.

Science News Letter, January 27, 1945

Baby minks, which finally produce fur for ladies' coats, weigh only about one-eighth of an ounce at birth; in six weeks they are the size of red squirrels and at six months of age are some 20 inches long.



An invaluable addition to the literature of physics

BY PIERRE AUGER

A comprehensive, authoritative, and accurate explanation of one of the most important discoveries of modern physics.

France's most distinguished physicist, discoverer of the Auger effect in X-rays and of the Auger showers, traces the story of cosmic rays from their discovery to the most recent experiments in the field . . . A story of adventurous research, in the laboratory and at the ends of the earth, that has opened new worlds to the mind and skills of man.

ARTHUR H. COMPTON (Winner of the Nobel Prize for Physics, 1927): "Distinctly the best book that has yet appeared for . . . the educated scientific public without technical knowledge of physics, and physicists who want to get a quick view of what has been done in the new field of specialization."



Illustrated with many photographs of cosmic-ray cloud-chamber tracks. \$2.00

UNIVERSITY OF CHICAGO PRESS
5750 Ellis Ave., Chicago 37, Ill.