

ASTRONOMY

Mars Unusually Bright

This planet, named after the Roman god of war, makes a close visit to the earth in November. Vega is brightest of the disappearing stars of summer.

By JAMES STOKLEY

► TO THE BRIGHT STARS of winter that are now beginning to appear in the eastern evening sky are added two planets—Mars and Saturn. The former is unusually bright because this month it makes an approach to the earth closer than any it has made for the past two years, or than any it will make for many years to come. As a result Mars reaches the magnitude of minus 1.5, which is brighter than any other planet or star seen in the evening sky. The position of Mars is shown on one of the accompanying maps (depicting the heavens for 11:00 p. m. wartime on Nov. 1, and for 10 p. m. on Nov. 15). It is in the constellation of Taurus, the bull, in the east just to the left of the star Aldebaran.

On Nov. 28, when Mars makes its closest approach of this visit, it will be 50,120,000 miles away, which is relatively very near. Under very rare conditions, which last occurred in 1924, it comes to within 35,000,000 miles. When Mars makes such a close approach, it is always far to the south, which means that for us northern observers it is low in the sky. Just now, on the other hand, it is close to the place where the sun is at the beginning of summer, and so, during these nights, it rises as high in our sky as it possibly can. Thus, at many astronomical observatories telescopes are trained on this red planet to add new data that may help answer many problems as to its nature.

Two Groups of Bright Stars

The brightest stars to be seen on November evenings may be divided roughly into two groups. Toward the west are those of last summer and early autumn, now disappearing from view, while in the east the wintertime groups are beginning to appear. Vega is the brightest of the first class; it is in Lyra, the lyre, in the northwest. Above this is Cygnus, in the northwest, with bright Deneb. To the left is Altair, in Aquila, the eagle.

To the east we can see Aldebaran, in Taurus, near which Mars stands. Far-

ther toward the north is bright Capella, in Auriga, the charioteer. Below Auriga are Gemini, the twins, of which Pollux is the brighter. Below Aldebaran is Orion, with two stars of the first magnitude, Betelgeuse to the north and Rigel to the south. Between them are the three stars, now in a vertical row, that mark Orion's belt.

The Winged Horse

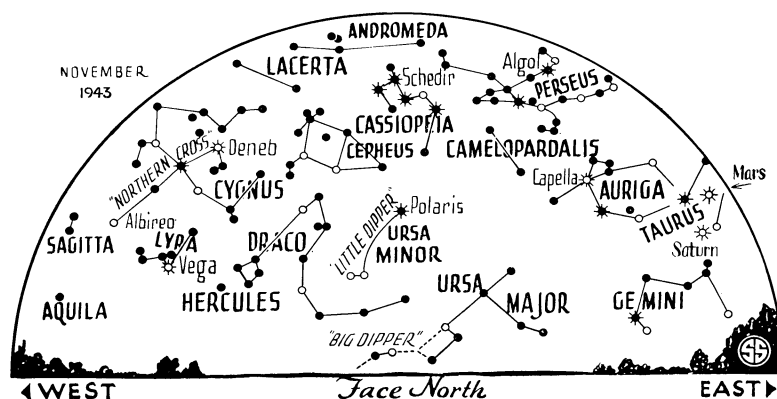
High in the southern sky is the "great square" of Pegasus, the winged horse. These stars are not of the first magnitude, but their arrangement makes them easy to find. Extending a line from the right hand side of the square down to the horizon, we come to Fomalhaut, in Piscis Austrinus, the southern fish, another first magnitude star. This is not the only fish in the sky, for below and alongside the square is the constellation of Pisces, the fishes. There are supposed to be two of them, tied together with a string. The little ring of stars directly below the square is the "circlet of the western fish." The eastern one is not as well defined.

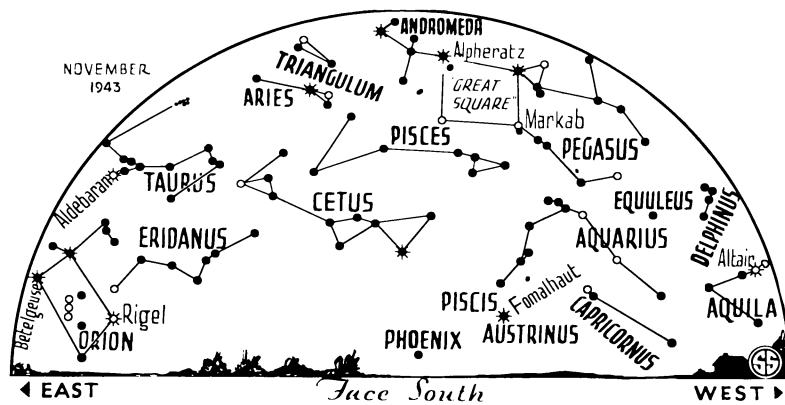
Of all the planets, except for the earth, probably none has been better publicized than Mars. It has been a favorite subject for writers both of science and pseudo-science, largely as a result of speculations about it as the possible abode of life. Back in 1877, when it made an unusually close visit, two important discoveries were made in con-

nection with Mars. At the U. S. Naval Observatory in Washington, Asaph Hall discovered its two curious little moons, Deimos and Phobos; the latter goes around faster than the planet rotates so that, from the surface of Mars it would be seen to rise in the west and set in the east. The other discovery took place at Milan, when the Italian astronomer, Giovanni Schiaparelli, discovered on its surface curious markings which he called "canali" or "channels," though the word has been mistranslated into English as "canals."

Even today the exact nature of these so-called canals is not known. Many years ago an eminent American astronomer, Percival Lowell, founder of the Lowell Observatory at Flagstaff, Arizona, speculated that they were real canals, dug by intelligent beings as an irrigation project to carry Martian waters from the melting snows around the poles to regions where it would be used. Later studies have failed to confirm Lowell's intriguing suggestion, and today his Martian theories are not widely accepted. Since observations with the spectroscope have shown that there is no appreciable oxygen or water vapor on Mars, the possibility of life seems very unlikely.

However, there are dark greenish areas visible on the planet which come and go with their seasons, changing to brown in the autumn and back to green in the spring. This behavior strongly suggests that of vegetation, so it may be that there is vegetable life on Mars. If so, it is likely to be of a very different nature from any that we know, as it must be adapted to the conditions of that planet's atmosphere.





☼ * ○ ● SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

CELESTIAL TIME TABLE
November, 1943

Nov.	EWT	PHENOMENON		
3	7:44 p. m.	Algol (variable star in Perseus) at minimum.	19	6:00 a. m. Moon farthest; distance 251,200 miles.
4	11:22 p. m.	Moon at first quarter.	21	5:03 p. m. Moon passes Jupiter.
6	6:00 a. m.	Moon nearest; distance 229,800 miles.	23	6:43 p. m. Moon in last quarter.
11	9:26 p. m.	Full moon.	27	11:23 p. m. New moon.
14	5:50 a. m.	Moon passes Mars.	28	9:00 a. m. Mars nearest; distance 50,120,000 miles.
14	4:36 p. m.	Moon passes Saturn.	29	6:00 p. m. Uranus nearest; distance 1,707,000,000 miles.
16	early a. m.	Leonid meteors visible.		Subtract one hour for CWT, two hours for MWT, and three for PWT.
18	12:00 a. m.	Venus farthest west of sun.		<i>Science News Letter, October 30, 1943</i>
18	3:49 a. m.	Algol at minimum.		

ORDNANCE

Nazi Rocket Weapon

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► GERMAN USE of high-explosive rockets launched from fighters at a respectful distance from the deadly defensive gun armament of American heavy bombers is in itself a confession of the inadequacy of their own fighter planes and their machine guns and cannon. To this extent, Gen. H. H. Arnold's newest gibe about the tactic's birth from the brains of "long-haired scientists" is justified.

General Arnold, however, may have been giving long-haired German theorists credit for more originality than they exercised. The business of launching rockets from tubes under the wings of fighter planes seems rather to have been an invention of short-haired Soviet soldiers; though in their case the attack was against targets on the ground rather than in the air, when they fired rockets from specially equipped Stormovik low-altitude strafing planes against Nazi tanks. The main difference is that the anti-tank rockets were fired by contact fuses, like ordinary naval shells, whereas the anti-bomber rockets of the Luftwaffe

are of necessity fired by time fuses like the projectiles sent up by ack-ack guns on the ground. The burst of such a shell within 20 or 30 yards of a plane will damage it, and may destroy it, depending where the flying fragments strike.

Neither German, Italian nor Japanese fighters have been able to solve the problem of Fortresses or Liberators flying in close formation, and able to bring overwhelming numbers of .50-caliber machine guns to bear against any oncoming attacker. Although enemy fighters usually include light cannon of materially greater than half-inch caliber in their armaments, most of these bigger weapons have shorter effective ranges than that of the heavy American machine guns. Hence the attempts to find a longer-range weapon that will not expose the fighters of the defense forces to such great risks. First, time bombs were tried, intended to burst in the midst of the compact American bomber formations; they were not particularly successful. So now the rockets are having their day.

This is not the first time that German planes are reported to have used rockets as a means of attack. During the period of Axis ascendancy in the Mediterranean, Nazi bombers were said to be dropping heavy, armor-piercing bombs with rocket charges in their tails, in attacks on British battleships.

The theory of this was that no dropped bomb ever gets up enough velocity from the force of gravity alone to pierce thick deck armor, but that the rocket charge might give the bombs a sufficient added downward push to make them the equivalent, in penetration, of shells hurled from big-caliber guns. This kind of rocket attack, if it actually took place, seems not to have had much success, for little has been heard of it for well over a year.

The Germans, like the Russians, have paid a good deal of attention to the possibilities of rockets during the present war. Both Russians and Germans have used multiple rocket launchers on the ground, the Russians in straight rows, the Germans in their now well-known six-barreled "Nebelwerfer," or fog thrower. The latter, a weapon that looks like an exaggerated version of the old-fashioned "pepperbox" revolver, launches projectiles of ordinary field-gun caliber. Its name indicates that it is intended primarily for the laying of concealing smoke screens, though the Russians state that it sometimes throws high-explosive shell as well.

Two other rocket weapons which the Germans darkly hint about in their propaganda broadcasts, a super-long-range, super-big-caliber rocket for cross-channel bombardments, and a radio-directed robot plane claimed to have been responsible for the destruction of the escaping Italian battleship Roma, are both still so thoroughly veiled in the "Nebel" of rumor that any discussion of them would of necessity be more speculative than factual.

Science News Letter, October 30, 1943

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