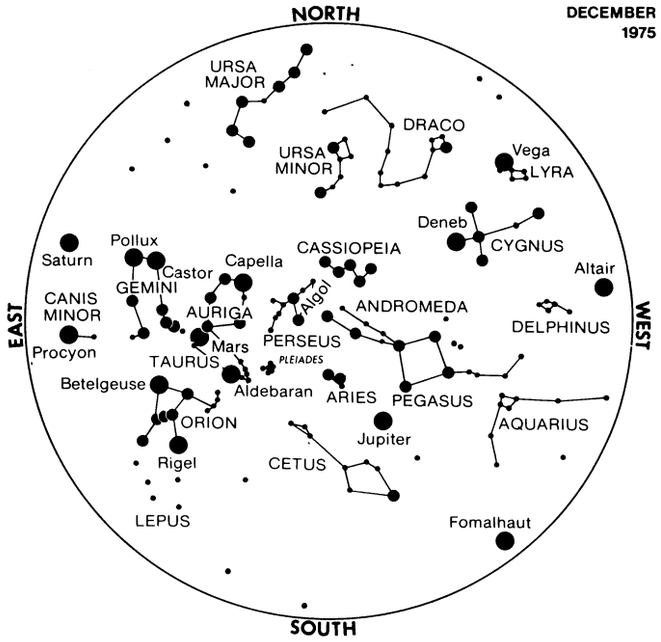
STARS OF DECEMBER

CELESTIAL TIME TABLE

Dec.	2	7:50 pm EST	New Moon
	8	7:00 pm	Mars nearest, distance 52,566,-000 miles
	10	9:39 am	Moon in first quarter
	11	2:00 pm	Moon farthest, distance 251,300 miles
	12	8:00 pm	Moon passes north of Jupiter
	15	9:00 am	Mars opposite Sun
	16	1:00 am	Algol (variable star in Perseus) at minimum brightness
	18	2:00 am	Moon passes south of Mars
		9:40 am	Full Moon
		9:50 pm	Algol at minimum
	21	3:00 am	Moon passes south of Saturn
		6:30 pm	Algol at minimum
	25	9:52 am	Moon in last quarter
		11:00 pm	Moon nearest, distance 230,000 miles
	29	5:00 am	Moon passes south of Venus



BY JAMES STOKLEY

Red Mars, making its closest approach to earth since 1973, will be one of two conspicuous planets in the December sky. On the fifteenth it will be opposite the sun and visible all night. Look for it in the evening toward the east, in the constellation Taurus. It's in a region of prominent stars but will be brighter than any of them.

On Dec. 8 it will be closest, some 53 million miles away. This is considerably farther than it was in August 1971, when its distance was 35 million miles, about as close as it can ever come. In October 1973, it came to within 40.5 million miles. It was quite low in the south in 1971 but now it rises much higher. This, to some extent, makes up for its greater distance and reduced brightness.

Mars makes one orbital trip around the sun every 687 days (1 year 10.5 months). We catch up to it every 780 days (nearly 2 years 2 months). If its orbit were as nearly circular as ours, there would not be such a great variation in its distance at these successive "oppositions."

Its orbit, however, is quite eccentric; it can come within 129 million miles of the sun or recede as far as 155 million. Thus, Mars's distance from earth depends on its orbital position when we pass it. At the next two oppositions (in January 1978 and February 1980) it will be even farther and fainter than now. Then the oppositions will start improving and in September 1988, Mars will be less than 37 million miles away.

The other bright December planet is Jupiter, toward the southwest in Pisces. About three fourths again as bright as Mars, its variation in brightness is much less than that planet's. Whenever visible, it's a prominent object. Jupiter sets about 2:30 a.m. Dec. 1 and 12:30 a.m. on Dec. 31.

Saturn appears later on December evenings. It comes up in the east, in the constellation Cancer, about 8:30 p.m. at the start of the month and about 6:30 p.m. at the end. Although only about a fifth as bright as Mars it will exceed most of the stars in brilliance.

In the northern hemisphere, Dec. 22 has the shortest duration of daylight of any day of the year. At 40 degrees north latitude only 9 hours 20 minutes elapse between sunrise and sunset, compared with 15 hours on June 21. □

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