



# Galaxy at its best

by James Stokley

November evenings bring the year's best opportunity to see the most distant object visible to the unaided eye. This is the spiral galaxy in Andromeda, more than two million light years away. Its light (traveling 186,000 miles every second) takes more than two million years to reach the earth.

The Andromeda galaxy is another star system like our galaxy, which contains about 100 billion stars, including the sun. Its location is approximately at the letter O in Andromeda on the map. It is visible only in dark sky, which may be hard to get from a large city, but a pair of binoculars may help to locate it. It appears as a hazy patch of light, about as long as the moon's apparent diameter and half as wide.

Astronomers have long observed many other hazy spots of light around the sky. Some suspected that they, too, were galaxies beyond the borders of our own. About 40 years ago astronomers at the Mt. Wilson Observatory proved this theory. The Androm-

eda galaxy is the brightest, and one of the two nearest.

Photographs made with a very big telescope show the separate stars. But even smaller instruments reveal two arms that wind out spirally from the nucleus, a structure that is a common characteristic of such objects.

Originally they were called spiral nebulae. Astronomers first supposed them to be like other nebulae—masses of glowing gas—within our own system, that happened to have a spiral shape. But now they realize they're quite different and outside our system completely.

High in the southeast on November evenings is the planet Saturn, brightest star or planet now visible. The brightest star visible these evenings is Vega, low in the northwest in Lyra.

All the bright stars and planets of November are shown on the maps. They appear this way about 10:00 p.m. local standard time, on Nov. 1, at 9:00 p.m. on the 15th and 8:00 p.m. as the month ends. □

## CELESTIAL TIMETABLE

Nov.	EST	
1	1:00 a.m.	Moon farthest, distance 251,300 miles.
2	2:14 a.m.	Moon in last quarter.
3	7:00 p.m.	Venus passes north of Jupiter.
8	1:00 a.m.	Moon passes south of Jupiter.
	10:00 a.m.	Moon passes south of Venus.
9	2:40 a.m.	Algol at minimum brightness.
11	11:30 p.m.	Algol at minimum.
12	9:00 p.m.	Moon nearest, distance 227,600 miles.
14	8:20 p.m.	Algol at minimum.
15	6:00 p.m.	Moon passes south of Mars.
16	3:00 a.m.	Mercury behind sun.
	10:46 a.m.	Moon in first quarter.
17	early a.m.	Meteors visible, apparently radiating from constellation of Leo.
21	7:00 p.m.	Moon passes north of Saturn.
23	6:54 p.m.	Full moon.
28	8:00 p.m.	Moon farthest, distance 251,800 miles.

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