



#### LOW IN THE NORTH

The familiar dipper and bright Vega are now seen close to the horizon.

Orion is the most conspicuous constellation of December evenings. It is seen in the southeast, and the three stars in a row, forming the warrior's belt, make it easy to find. Betelgeuse, in one of his shoulders, stands to the north, and Rigel, in his foot, about an equal distance to the south. Below him is one of his dogs, Canis Major, marked by brilliant Sirius, brightest star of the sky. About as high above the horizon, almost directly east, is the other dog, Canis Minor, with Procyon. Higher, and still farther north, are the twins, Gemini, with Castor above, and the brighter Pollux below.

Directly above Orion is the bull, Taurus, which he is supposed to be striking with an upraised club. The ruddy Aldebaran marks the animal's eye, the V-shaped group of which it is part—the Hyades—his face, and the Pleiades, a little cluster of stars over them, the shoulder. Above the twins is Auriga, the charioteer, in which is found the first magnitude Capella, a star that very closely resembles the sun. Low in the northeast is Ursa Major, the great bear, of which the big dipper is part.

#### Taurus, the Bull

Turning to the western sky again, Vega, in Lyra, can be seen just above the northwestern horizon. Next to it, on the left, is the swan, Cygnus, otherwise known as the northern cross. The cross is now vertical, and the bright Deneb marks its top. High in the west is a group of four stars that makes an excellent guide from which to locate other constellations. This is the Great Square of Pegasus, standing on one corner. The three lower stars are part of Pegasus, the winged horse, but the uppermost one is Alpheratz, in the neighboring figure of Andromeda, the princess who was chained to the rock. Just

north of Andromeda, very appropriately, is her mother, Cassiopeia, a group shaped like the letter W. Between Cassiopeia, and the Pleiades, is Perseus, the hero who rescued Andromeda, according to the mythological story.

Another planet decorates the eastern morning sky just before sunrise. This is Venus, now the "morning star," which rises about four hours before the sun. It is in the constellation of Virgo, and on the first of December is just north of the star Spica, so that the two will make an interesting pair, though the star is much fainter. The magnitude of Venus is minus 3.8, and on the 15th it is 81,582,000 miles from the earth.

Towards the end of the month, Jupiter will also become a morning star, rising in the constellation of Scorpius, as the twilight gives way to the sunrise itself. On the 15th this planet will be 585,440,000 miles distant. The remaining naked eye planet, Mercury, is now so close to the sun that it will not appear at all during the month.

The moon is at first quarter on Dec. 3, 2:28 a. m.; full on Dec. 9, 10:10 p. m.; at last quarter on Dec. 17, 4:57 p. m.; and new again on Christmas at 12:49 p. m.

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## ● RADIO

Tuesday, Dec. 3, 4:30 p. m., E.S.T.  
**AMERICA 8,000 B.C.**, by Edgar B. Howard, University Museum of the University of Pennsylvania.

Tuesday, December 10, 4:30 p. m., E.S.T.  
**PURE WATER**, by Dr. Henry B. Ward, Permanent Secretary, American Association for the Advancement of Science.

In the Science Service series of radio addresses given by eminent scientists over the Columbia Broadcasting System.

#### ARCHAEOLOGY

## City Built Over Caves To be Explored in Mexico

ONE OF Mexico's strangest Indian cities—a city that stood on a mountain-top and used caves underfoot for its mysterious subterranean halls—is to be explored by Mexican archaeologists, beginning this month.

The ruined city is called Xochicalco, meaning Flower-House Place. Although only 60 miles south of Mexico City, it has eluded scientific study because of its isolation, which a new road to the summit now ends.

Brush-clearing activities on the flat top have already brought out ancient streets, house foundations, rooms, and other suggestions of city plan. The ruins have long been distinguished by a handsome sculptured pyramid of great undulating feathered serpents.

In the heart of a grottoed limestone region, Xochicalco has under its foundations eerie caves which the ancient inhabitants made into vast interior halls. The entrances were left at crawling height, supposedly for easy defense. Xochicalco also had man-made subterranean chambers, stone-lined, and resembling big narrow-necked bottles. Some archaeologists believe these were underground astronomical observatories for watching star movements and for calculating time.

Much interest attends the excavations, because the city is recognized a key spot in Mexico's unknown ancient history. On walls of the bird-snake pyramid, sculptured priests sit precisely like gods on Mayan Indian temples far to the south. Hieroglyphic writing on this pyramid closely resembles that found at Monte Alban, ancient city half-way south to the Mayan zone. The meaning of these relationships will be sought.

The excavations are part of a long-time research plan of Mexican government archaeologists. By thoroughly studying representative sites, they aim to determine the exact nature of the Mayan and Toltec civilizations of ancient Mexico, and to trace their relationship by excavating ruins that lie between, such as Monte Alban and Xochicalco.

As part of this project, excavations have been resumed at El Tajin, where ruins of an advanced culture lie in the lowland jungle of Vera Cruz. A more primitive site in the north-central state of Zacatecas, called La Quemada, will be worked at in the hope of finding out how far north the Toltec nation spreads.

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