

Shining with dazzling brilliance low in the western sky, the planet Venus will quickly attract your attention early on December evenings. Brighter than any other planet, or any star, it sets behind the western horizon soon after 7 p.m. on Dec. 1, and about an hour later when the month ends.

Jupiter, high in the east, is about a third as bright as Venus, but well exceeds any star in brilliance. It's moving from Taurus into Aries, the next constellation to the west, and remains visible nearly until dawn.

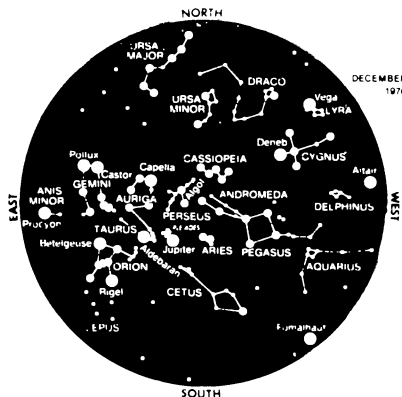
Its splendor adds to the array of bright stars of the winter evening now on view in the western sky. The brightest is Sirius in Canis Major, low in the southwest and less than half Jupiter's brilliance. It's also dimmed by atmospheric absorption of its light, enhanced for a star so near the horizon.

Directly above Sirius stands the conspicuous constellation Orion, unique in having two first-magnitude stars. Rigel, the brighter, is toward the south and Betelgeuse, about half as bright, is to the north. Between them a vertical row of three stars forms the belt of the warrior this group supposedly pictures. Still higher is Taurus, where Jupiter stands early in the month. Its most prominent star is Aldebaran, which has a distinct reddish hue.

Aldebaran is in the eastern arm of a V-shaped loose cluster of stars called the Hyades. A little higher, north of Jupiter, is another well-known star cluster, called the Pleiades, which is somewhat more concentrated than the Hyades. A common name is the "seven sisters," even though

DECEMBER STARS

BY JAMES STOKLEY



To use star map hold over head with directions oriented as indicated.

Dec. 2	5:20 pm EST	Algol (variable star in Perseus) at minimum brightness
3	1:00 pm	Moon farthest
4	7:00 pm	Moon south of Jupiter
6	1:15 pm	Full Moon
11	4:00 pm	Moon south of Saturn
14	5:14 am	Moon in last quarter
17	1:20 am	Algol at minimum
19	7:00 am	Moon nearest
20	9:08 pm	New Moon
21	12:36 pm	Beginning of winter (in Northern Hemisphere)
22	7:00 pm	Algol at minimum
24	10:00 am	Moon north of Venus
28	2:48 am	Moon in first quarter
31	4:00 am	Moon farthest

only six stars can ordinarily be seen with the naked eye. However, if you look with a pair of binoculars, you'll see more.

To the left of Sirius and near the horizon in the east is Procyon in Canis Major. Directly above is Gemini (the twins) with Castor and Pollux as the brightest stars. Pollux, the lower, is first magnitude, while Castor, higher and a little fainter, is second magnitude. And above this group is Auriga, with Capella, almost as bright as Rigel.

Low in the northwest look for Cygnus, with Deneb. To the right and still lower is Lyra, with Vega, another star greatly dimmed by low altitude. Actually, it's the third brightest star generally visible from most of the United States.

To the west of Auriga is Perseus, containing the variable star Algol, and west of this stands Andromeda. If you look closely at this group on a dark, clear night, especially if aided by a pair of binoculars, you may see a hazy spot of light called the Andromeda galaxy. This is the most distant object visible to the naked eye. Its light takes more than two million years to reach us.

On Dec. 21 at 12:36 p.m., EST, the sun is farthest south for the year. Then it will stand directly over the Tropic of Capricorn at a point in the Pacific Ocean about 900 miles west of Antofagasta, Chile. This is called the solstice. In the Northern Hemisphere the sun's noon-day height is lowest, and the time from sunrise to sunset, the shortest. Its heating effect is least, so this marks the start of our winter. But south of the equator it reaches greatest altitude and daylight is longest of the year, so Dec. 21 is the start of summer. □

BOOKS

BOOKS is an editorial service for readers information. To order any book listed or any U.S. book in print please remit retail price, plus 25¢ handling charge for each book to **BOOK ORDER SERVICE**, Science News, 1719 N Street, N.W., Washington, D.C. 20036. All books sent postpaid.

NATURE, MOTHER OF INVENTION: The Engineering of Plant Life—Felix R. Paturi, transl. from German by Margaret Clarke—Har-Row, 1976, 208 p., 100 plates, drawings, \$10.95. Discusses plants as chemists, architects and precision-engineers, and examines their achievement in energy-utilization, hydraulics, thermodynamics, transport and communication.

NONFERROUS METAL SORTING AT VANDERBILT UNIVERSITY: Final Report—Charles E. Roos et al.—Physics Dept., Vanderbilt U., 1976, 280 p., photographs, diagrams, tables, paper, \$18.95. Describes design and operation of eight types of sorters of zinc, aluminum, copper and brass from solid-waste materials. Includes theoretical studies of magnetic sorting, glossary, cost and profitability studies.

POISONS AND TOXINS—Joan Arehart-Treichel—Holiday, 1976, 160 p., photographs, drawings, \$6.95. Examines the dangers to humans of toxins derived from microbes, garden plants, venomous animals, household and garden chemicals, suicide poisons, and poisons in warfare.

POTENTIAL ENERGY: An Analysis of World Energy Technology—Michael Kenward—Cambridge U Pr, 1976, 237 p., photographs, drawings, tables, \$14.95; paper, \$5.95. An assessment of the technical possibilities of present energy research and development with projections into the future.

STONE AGE PAINTING IN INDIA—Robert R. Brooks and Vishnu S. Wakankar—Yale U Pr, 1976, 9x11, 136 p., color and b&w photographs by R.R.R. Brooks, drawings, charts, \$15. Profusely illustrated work deals with the many styles of newly explored rock-shelter art in the sandstone country of central India, dating from early Mesolithic through Neolithic/Chalcolithic to early Historic and Medieval period.

FREE INFORMATION!

WRITE TODAY to find out how you can receive a different, interesting and valuable Mineral Specimen each month, with detailed "come-alive" fact sheet. Get started today in this fascinating and educational hobby. **FREE** Natural Ituby Crystal when you join. Write today.

MINERAL OF THE MONTH CLUB
YUCAIPA, CALIF. 92399

Box 487-A20

Circle No. 128 on Reader Service Card

ing from early Mesolithic through Neolithic/Chalcolithic to early Historic and Medieval period.

FREE CATALOG

HARD-TO-FIND PRECISION TOOLS

Lists more than 2800 items: pliers, tweezers, wire strippers, vacuum systems, relay tools, optical equipment, tool kits and cases. Also includes ten pages of useful "Tool Tips" to aid in tool selection.

JENSEN TOOLS AND ALLOYS
4117 N. 44th Street, Phoenix, Ariz. 85018

Circle No. 125 on Reader Service Card

Thermocouple THERMOMETERS

We make 14 thermometers, with digital or meter readout. All read in 2 secs, are extremely easy to use. Simply apply probe — read temperature.

Unbreakable probes are steel sheathed including

Models: BAT-4 BIOLOGICAL World's Smallest
BAT-5 CRYOGENIC Microprobe, 0.01" dia.
BAT-7 INDUSTRIAL
BAT-8 DIGITAL °C or °F
TH-2 CLINICAL

The Modern Way to Measure

BAILEY INSTRUMENTS INC.
Saddle Brook, N.J. 07662 • (201) 845-7252

Circle No. 122 on Reader Service Card