



Vega shines overhead

By James Stokley

Although no planets are easily visible on August evenings, the brightest star is overhead, at the times for which our maps are made.

These show the skies as they look about 11:00 p.m., local daylight saving time, at the beginning of the month. They appear similarly at 10:00 p.m. in the middle and at 9:00 p.m. as September begins.

Vega, the brightest star, is at the zenith in Lyra, the lyre. Just to the east (shown partly on each map) is Cygnus, the swan, with the star called Deneb. It is about a third as bright as Vega. High in the south, in Aquila, the eagle, stands Altair. This star is between the other two in brilliance.

The constellation of Scorpius, the scorpion, is near the southern horizon. Its bright star is red Antares, so low that atmospheric absorption dims it.

In the west (shown on the northern sky map) stands Boötes, the herdsman, with Arcturus. This is just to the left of the familiar Big Dipper in the great bear, Ursa Major. A good way to find Arcturus is to follow the curve of the Dipper's handle to the left.

No planet appears on the maps, but

you can see Jupiter earlier in the evening, especially at the the beginning of August. Then it sets about an hour after the sun. It appears as a very bright star, near the western horizon, soon after sunset. Venus also is now in the evening sky, but it sets about half an hour after the sun. Thus, it is very hard to see, because the sky is still very bright.

You'll enjoy moonlit evenings for about the first 10 days of August and the last two. On Aug. 1 the moon will be at first quarter, setting about midnight. It will be full on the eighth, remaining visible all night. By the 10th, moonrise comes about 9:30 p.m., as twilight is ending. New moon comes on the 23rd. By the 28th it will be a large crescent, setting about 10:00 p.m. On the 30th first quarter comes again.

The principal changes that one can ordinarily see on the moon occur as sunlight strikes its surface at various angles. At new moon it's in the same direction as the sun. The illuminated half is turned away from us. A few days later it has moved east of the sun and remains above the horizon, low in the west, for an hour or more after

sunset. A narrow sliver of the bright half is turned to our view, so we see it as a narrow crescent.

Moving farther and farther from the sun toward the east, the crescent enlarges and become a half moon at the phase of first quarter, about a week after new moon.

Then another week passes. It is opposite the sun, so it rises about at sunset and sets at sunrise. The entire sun-



Nova Planetariums

Are Designed For Any School Anywhere In The World.



Union Hill Road, W. Conshohocken, Pa. 19428
215-825-0434

CELESTIAL TIMETABLE FOR AUGUST

August	E.D.T.	
1	2:35 p.m.	Moon in first quarter
4	11:00 p.m.	Moon nearest, distance 227,600 miles
7	7:00 a.m.	Mercury behind sun
8	7:33 a.m.	Full moon
13	6:00 p.m.	Moon passes north of Saturn
15	10:14 p.m.	Moon in last quarter
16	11:00 p.m.	Moon farthest, distance 251,200 miles
18	3:00 a.m.	Venus passes north of Jupiter
23	7:57 p.m.	New moon
25	6:00 a.m.	Moon passes north of Venus
30	7:35 p.m.	Moon in first quarter
	10:00 p.m.	Moon nearest, distance 229,800 miles

96/science news/vol. 94/27 July 1968

lit half is now toward us so we have full moon. Then the moon "waned." It goes through the phase of last quarter when it rises about midnight. After that it becomes a crescent, which narrows as the bright hemisphere turns away. About four weeks (actually 29.5 days) after it was new it is new again. The cycle starts over.

The dark areas that form the face of the "man in the moon" are called "seas." Early observers mistakenly thought them to be large bodies of water. With a telescope you can see other lunar features such as craters and mountain ranges. A good pair of binoculars will show some of the larger craters—100 miles or more in diameter.

Astronomers once thought that the lunar craters were similar to those of volcanoes on earth, but now many think they resulted from meteorites which hit the moon at high speed and exploded. This would produce a crater like that produced on earth by an aerial

Of course, meteorites contain no explosive, like the TNT of a bomb, but they don't need it. Falling at high speed, they have tremendous energy. When they hit, they penetrate only a short distance before they stop.

Their energy does not just disappear; it is converted to heat. There's enough heat to vaporize the meteorite itself as well as much of the ground around it. This sudden generation of large volumes of expanding gas make the explosion. Much solid matter is thrown upwards and some falls back into the crater. The rest forms a wall around it. A number of craters on earth were similarly formed.

However, there may be some volcanic activity on the moon. Many astronomers have reported on bright spots that appeared briefly on the dark part of the moon during the past four centuries. But such reports were seriously questioned, for the moon was supposedly a dead world, where nothing ever happens.

In 1958 a Russian astronomer, N. A. Kozyrev, reported such spots and he was followed by others. Two astronomers at the Lowell Observatory in Arizona said they saw such spots in the fall of 1963. Later they saw them again, and so did other astronomers.

In the United States astronomers have started the "Moon Blink" program to watch the moon carefully, with special equipment, to detect such events.

Not enough is yet known to explain these effects, even though their reality seems clearly demonstrated. Probably a discharge of hot gases from beneath the lunar surface is involved. This is something else that astronauts will have to investigate when they get to the moon.

MAIL ORDER

SHOPPING MART

UNUSUAL BARGAINS

A selection of products available by mail for readers of SCIENCE NEWS
All merchandise sold on a money-back guarantee. Order direct by Stock No. Send check or M. O.



WOODEN SOLID PUZZLES
Here's a fascinating assortment of 12 different puzzles to provide hours of pleasure and stimulate ability to think and reason. Animals and geometric forms. Take them apart and reassemble them. Lots of fun for the whole family— young and old. Will test skill, patience and ability to solve problems. Order yours now.
Stock No. 70,205Q.....\$3.50 Ppd.



AMERICAN-MADE 7x50 BINOCULARS
Big savings! Brand new! Crystal-clear viewing—7 power. Every optical element is coated. An excellent night glass—the size recommended for satellite viewing. Individual eye focus. Exit pupil 7 mm. Approx. field at 1,000 yds. is 376 ft. Carrying Case included. American 7x50's normally cost \$274.50. Terrific bargain.
Stock No. 1544Q.....\$74.80 Ppd.
AMERICAN-MADE 6x30's
Stock No. 963Q.....\$40.00 Ppd.



NEW! AMAZING DRY COPIER—\$29.95
Copies half-tones, all colors, even book pages. No liquids, chemicals or sprays needed. 2 easy steps make sharp black-on-white permanent copies up to 8"x10" in a minute. Automatic timer eliminates guess work. Perfect for home, school, office, clubs, assoc., etc.—1000's of uses. Does practically everything machines costing 100's of dollars can do. Made in USA under 3M Co. license—really amazing bargain. Weighs only 8 lbs. Uses reg. 110-120 V.A.—2 150 W. bulbs. 20 1/2"x 15 1/2"x6". Handsome, tough brown case. Paper avail. separately.
Stock No. 80,117Q
\$29.95 Plus \$2 postage & handling
8"x10" PAPER
(Pack of 33 Sheets)
Stock No. 80,118Q.....\$3.25

ASTRONOMICAL HEADQUARTERS
Keep Pace With The Space Age

Be ready for the moon shots. See the incredible wonders of the universe. Choose from the world's largest selection of telescopes and related equipment. Complete range of reflectors, refractors, panoramic, terrestrial, spotting, and other scopes. Every accessory imaginable. Drives, mounts, finders, mirrors, eyepieces, lenses, filters, equipment for astrophotography, charts, maps, models, slides, study aids, and classroom helps. Write for FREE giant catalog Q.



PLASTIC MODEL V-8 ENGINE
Hours of fun! Get thrill of building your own easily assembled engine from over 350 parts. Then push starter and watch it run. Crankshaft revolves, pistons move, valves open and close in sequence with spark plugs. Does everything but burn oil. 1/4 scale, molded in 4 colors. Same motor used in many auto-mechanic courses. Excellent, easy-to-understand "tech manual."
Stock No. 70,448Q.....\$12.95 Ppd.



BUILD ATOMIC ENERGY LAB
Create cosmic ray showers in the cloud chamber—see atoms explode with the spintharoscope—check ionization and radioactivity of every day materials... these are just a few of the fascinating projects possible with this amazing 43 part kit. Contains everything needed to construct your personal atomic energy laboratory. Absolutely safe. Includes atomic cloud chamber, projector, illuminator, electroscope, spintharoscope, 22 page instruction booklet with suggested experiment.
Stock No. 70,899Q.....\$8.75 Ppd.



"FISH" WITH A MAGNET
Go treasure hunting on the bottom! Fascinating fun & sometimes profitable. Tie a line to our 5-lb. Magnet—drop it overboard in bay, river, lake or ocean. Troll it along bottom—your "treasure" haul can be outboard motors, anchors, other metal valuables. 5-lb Magnet is war surplus—Alnico V Type—Gov't cost \$50. Lifts over 150 lbs.
Stock No. 70,571Q.....\$12.50 Ppd.
3 1/2-lb. MAGNET
Stock No. 70,570Q.....\$8.75 Ppd.



NOW! WATER CLIMBS UP HILL
Amaze your friends—loads of fun—perfect for Science Fair. Water actually flows up side of glass & siphons freely into other container. To stop flow—cut with scissors—watch it snap back. Secret's in special additive with long molecular structure—req. only 1/2 tsp. to glass. Friction reducing additive has all kinds of industrial, agricultural, experimental uses—a pinch even makes gold fish slide thru water faster. 3 oz. can enough for 84 pints of water. Instr.
Stock No. 41,086Q.....\$2.00 Ppd.



NEW WORKING MODEL DIGITAL COMPUTER
Solve problems, teach logic, play games with miniature version of giant electronic brain! Adds, subtracts, multiplies, shifts, complements, carries, memorizes. Colored plastic parts easily assembled. 12" x 3 1/2" x 4 3/4". Incl. step-by-step assembly diagrams, 32-p. instruction book covering operation, computer language programming problems & 15 experiments.
Stock No. 70,683Q.....\$5.98 Ppd.



3" ASTRONOMICAL TELESCOPE
See the stars, moon, phases of Venus, planets close up. 60 to 180 power. Aluminized and over-coated 3" diameter 1/10 primary mirror, ventilated cell. Equatorial mount with locks on both axes. Equipped with 60x eyepiece and mounted Barlow lens. 3x finder telescope, hardwood tripod. Included FREE: "STAR CHART"—272-page "HANDBOOK OF HEAVENS"; "HOW TO USE YOUR TELESCOPE."
Stock No. 85,050Q.....\$29.95 Ppd.
4 1/4" REFLECTOR TELESCOPE
Stock No. 85,105Q \$84.50 FOB
6" REFLECTOR TELESCOPE
Stock No. 85,086Q.....\$199.50 FOB

GIANT FREE CATALOG

148 Pages! More than 4,000 UNUSUAL BARGAINS!



Completely new. Packed with huge selection of lenses, prisms, optical instruments, parts and accessories, 100's of charts, illustrations. Many hard-to-get surplus bargains. Enormous variety of telescopes, microscopes, binoculars, magnets, magnifiers, photo components, etc. America's #1 source for research labs, engineers, scientists, inventors, experimenters, hobbyists. Write for Free Catalog "Q." Edmund Scientific Co., 300 Edscorp Bldg., Barrington, N.J. 08007.

Name _____
Address _____
City _____
State _____ Zip _____

ORDER BY STOCK NUMBER • SEND CHECK OR MONEY ORDER • MONEY-BACK GUARANTEE

EDMUND SCIENTIFIC CO. 300 EDSCORP BUILDING

BARRINGTON, NEW JERSEY 08007

27 July 1968/vol. 94/science news/97