

ASTRONOMY

# Total moon eclipse coming

by James Stokley

A total eclipse of the moon in the early morning of Oct. 6, best seen in the western part of the United States and Canada; the planet Saturn, and Venus in the early evening: these are some of the astronomical features that the month offers.

In addition the evening sky presents six first magnitude stars although some are rather low. Hence absorption of their light by the earth's atmosphere reduces their apparent brightness.

Look at the two semicircular maps to see the general appearance of the heavens. They look this way at the beginning of October about 11:00 p.m., local time. At 10:00 p.m. in the middle and at 8:00 p.m. (standard time) as the month ends they have a similar appearance.

Saturn is high in the southeast, in the constellation of Pisces, the fishes. Venus

isn't shown, but you'll be able to see it earlier in the evening, low in the southwest. About 30 times as brilliant as Saturn, it will become visible while the sky is still bright with the sunset glow.

Three more planets appear shortly before sunrise. Mars, in Leo, the lion, rises about three hours ahead of the sun. Jupiter, some 20 times as bright, follows about an hour later. During the last few days of October, Mercury rises shortly before sunrise. You may see it very low in the east, as the sky brightens.

The night of October fifth brings the second total lunar eclipse of the year but it's not as well timed as its predecessor on April 12. That was visible in the evening in the U.S. and Canada, but this time it's well after midnight. The East Coast will see only the beginning.

There the moon will have set and the sun risen by the time the total phase occurs. That's when the moon is completely immersed in the earth's shadow.

Farther west more will be visible but only in the northwestern part of North America will people be able to see it to the end.

Diagram shows the progress of the

### CELESTIAL TIMETABLE FOR OCTOBER

Oct.	EDT	
6	7:42 a.m.	Full moon, total eclipse of moon
7	5:00 a.m.	Moon passes north of Saturn
11	1:00 p.m.	Moon farthest, distance 251,700 miles
14	11:06 p.m.	Moon in last quarter
15	5:00 a.m.	Saturn in opposite direction from sun, 774,600,000 miles from earth
	noon	Mercury between earth and sun
18	1:30 a.m.	Algol (variable star in Perseus) at minimum brightness
20	10:20 p.m.	Algol at minimum
21	5:45 p.m.	New moon
23	11:00 a.m.	Moon nearest, distance 224,500 miles
	7:10 p.m.	Algol at minimum
24	4:00 a.m.	Moon passes south of Venus
27	2:00 a.m.	Daylight savings time ends
	EST	
28	7:40 a.m.	Moon in first quarter
31	3:00 a.m.	Mercury farthest west of sun, visible for a few days around this date low in east just before sunrise



**Nova Planetariums**  
 Are Designed  
 For Any School  
 Anywhere In The World.

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

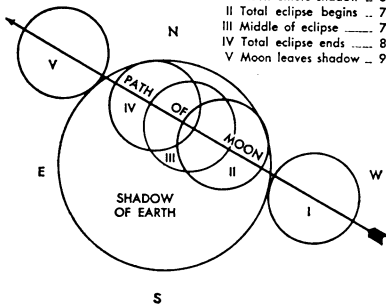
moon through the shadow, represented by the large circle. North (the direction toward the pole star) is to the top. At I the eastern edge of the full moon begins to enter the shadow. An hour and a quarter later, at II, the moon is completely shaded; the total eclipse begins. During this preliminary partial eclipse you can watch the curved edge of the shadow slowly creeping across the face of the moon.

Mid-eclipse comes at III and at IV the total eclipse ends, an hour and four minutes after it started. Another hour and a quarter goes by as the edge of the shadow slowly leaves the lunar disk. The times for these stages are shown above diagram.

Ordinarily the moon, even at a total eclipse, doesn't disappear. No direct

**TOTAL ECLIPSE OF MOON**  
1968 Oct. 6

- EDT  
 I Moon enters shadow .. 5:55 a.m.  
 II Total eclipse begins .. 7:10 a.m.  
 III Middle of eclipse .. 7:42 a.m.  
 IV Total eclipse ends .. 8:14 a.m.  
 V Moon leaves shadow .. 9:29 a.m.



light from the sun reaches it, but the earth's atmosphere acts as a prism to bend some rays of sunlight into the shadow and on the moon. As white sunlight passes through our atmosphere, high above the ground, some of the blue rays are scattered. These give the clear daytime sky its characteristic blueness.

With blue light removed the rays that curve into the shadow are reddened. Thus the eclipsed moon usually appears a coppery red. The redness of the setting sun has a similar cause.

If you want moonlit evenings during October—perhaps for a hayride or something of the sort—you'll have them during the first week or so and in the last few days of the month. On Oct. 1 the moon rises before sunset and sets after 2:00 a.m. in our latitudes. On the 6th, full as it must be for a lunar eclipse, it is visible all night. By Oct. 9 it rises about 8:00 p.m., as twilight ends.

On the 28th it is at first quarter and sets about midnight. By the 31st it sets about 3:00 a.m., standard time.

The full moon on the 6th is the "harvest moon," so called because it supposedly gives farmers light at night to work on their harvest. The delay in moonrise from one night to the next is then only about 26 minutes, the smallest of the year. This means bright moonlight in the evening, for several successive days.

MAIL ORDER

**SHOPPING MART**

UNUSUAL VALUES

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.

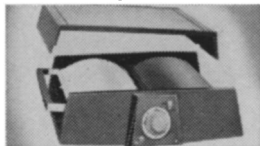
**SEE YOUR MUSIC IN DAZZLING ACTION with**



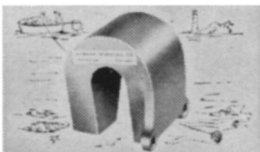
**Dramatic Breakthrough  
 In Audio-Visual Enjoyment**

Now you can actually see your favorite musical selection translated into fantastic patterns of beautiful color—each individual note creating its own unique, twisting, radiating shape... each shape dancing and prancing, whirling and swirling in perfect time with the music. Science, art and electronics combined with dramatic results. Attaches in seconds to your radio, tape recorder, hi-fi or stereo with two alligator clips. Can be used on small screens, large walls, stages and whole auditoriums. Loads of fun! Wonderful for parties! Practical, too! Unlimited special effects for bands, dances, clubs, sales meetings, trade shows—put zip into classroom or private music instruction and appreciation. Available in Cabinet Model, Tube Unit, 8" and 12" sets or build your own MusicVision® with our low-cost Do-It-Yourself Kit—all you'll need is a light source. If you don't have one, the versatile Edmund 35mm 500 W. projector is a terrific bargain. Order by stock numbers listed below. Money-back guarantee. Complete information in new catalog. Send 25c in coin for fully illustrated, 16-page Booklet No. 9096Q "Introduction to MusicVision."

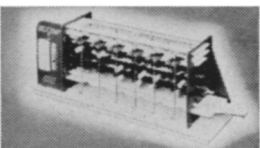
- WALNUT VENEERED CABINET MODEL—Stock No. 85,181Q \$99.50 F.O.B.  
 8" DO-IT-YOURSELF KIT—Stock No. 71,009Q.....\$22.50 Ppd.  
 8" SET (Motionizer, color wheel, apertures)—Stock No. 71,030Q \$45.00 Ppd.  
 12" SET (same as above w/larger Motionizer)—Stock No. 71,032Q \$57.50 Ppd.  
 500 Watt 35mm PROJECTOR (for above sets)—Stock No. 71,057Q \$24.50 Ppd.  
 \*Patent Pending.



**NEW! DRY COPIER—\$29.95**  
 Makes sharp black on white permanent copies up to 8"x10" in a minute, in two easy steps. Copies halftones, all colors, even book pages. Perfect for home, schools, office, clubs, associations. 1000's of uses. Made in U.S.A. under 3M Co. license. An amazing bargain. Wt. 8 lbs. Uses 110-120 V A.C., two 150 W. bulbs. 20 1/2"x15 1/2"x6". Handsome, durable brown case. Paper available separately.  
 Stock No. 80,117Q.....\$29.95 plus \$2 postage and handling  
 8"x10" PAPER (Pack of 33 sheets) Stock No. 80,118Q.....\$3.25



**"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 outdoor 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.



**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.

**BIG, NEW DIGICOMP III!**  
 Stock No. 70,946Q...\$16.00 Ppd.



**BUILD ATOMIC ENERGY LAB**  
 Create cosmic ray showers in the cloud chamber—see atoms explode with the spinthariscopes—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, spinthariscopes, 22 page instruction booklet with suggested experiment.  
 Stock No. 70,899Q...\$9.95 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.



**MAGIC JUMPING FUN DISCS**  
 Put one of these quarter-sized crazy buttons down and stand back. In a matter of seconds it'll jump almost 6 feet high. Just like magic... but it's really scientific. Actually, the warmth of your hand holding these metal discs makes the trick. After palming a disc, place it on any cool surface and in moments it'll take-off. Loads of fun for kids of all ages. Terrific conversation piece. Package of twelve only \$2.  
 Stock No. P-41,150Q...\$2.00 Ppd.



**LOW-COST OVERHEAD PROJECTOR**

If you've always wanted one but couldn't afford to pay \$150 here's your opportunity to get a 5"x5" model ideal for school, home and small audience use. Comes without light source—use your own 35mm projector (or buy ours). Ideal for transparencies, lantern slides, negatives, drawings, unusual lighting effects. 3 1/2 lb. 9 1/4"x6 1/2"x5-9/16". Top-and-bottom mirrors, F/3.5, 16mm F.L. lens, double Fresnel condenser. Easy friction-focusing. Keystone adjustment. Easily portable.  
 Stock No. 71,011Q.....\$29.50 Ppd.  
 VERSATILE EDMUND 500 Watt 35mm PROJECTOR  
 Stock No. 71,057Q.....\$24.50 Ppd.



**FLY 9-FT. HOT AIR BALLOON**  
 9 Ft. tall. Rises to amazing heights on just hot air. Supplied with tether attached, so can be used over and over. Easy to make, launch, fly. Loads of fun. Great for celebrations, science fairs, plain fun. Will lift model gliders, parachutes, instruments, etc.—anything up to 1 1/2 lb. Approx. 5 ft. diam. when fully inflated. Kit contains 10 pre-cut red & white gores (No. 1 model paper), 6 ft. 14-gage wire for bottom ring, top, "tie off" cord, complete instructions.  
 Stock No. 60,691Q.....\$2.00 Ppd.



**GIANT WEATHER BALLOONS**  
 "Balls of fun" for kids, traffic stoppers for stores, terrific for amateur meteorologists. Create a neighborhood sensation. Great backyard fun. Exciting beach attraction. Amateur meteorologists use to measure cloud heights, wind speed, and temp. Made of heavy duty neoprene. Inflate with vacuum cleaner or auto air hose; or locally available helium for high rise.  
 Stock No. 60,568Q. 8'...\$2.00 Ppd.  
 Stock No. 60,632Q. 16'...\$7.00 Ppd.

**GIANT FREE CATALOG**

148 Pages! More than 4,000 UNUSUAL BARGAINS!  
 Packed with huge selection of telescopes, microscopes, binoculars, magnets, magnifiers, prisms, photo components, parts, kits, accessories—many hard-to-get surplus bargains. 100's of charts, illustrations. For hobbyists, experimenters, schools, industry. Mail coupon for FREE Catalog "Q." EDMUND SCIENTIFIC CO., 300 EDSCORP Building, 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