

ASTRONOMY

Stellar Drama Changes

Mars is ready for entrance as Venus leaves evening sky in June. Year's second eclipse, a total solar eclipse, and summer solstice also occur.

By JAMES STOKLEY

► THE MONTH of June brings a change in the characters that present the celestial drama in the evening sky.

Venus, which has been so brilliant in the west after sunset since last fall, departs during the month, while Mars is about ready for his entrance.

Jupiter and Saturn remain visible in the evening and, at the end of June, Mercury may be glimpsed briefly in the east just before the sun rises.

The accompanying maps show the appearance of the sky about 10:00 p.m., your own kind of standard time, at the first of June; or about 9:00 p.m. at the middle of the month. (Add one hour for daylight saving time.)

Around the first of June Venus, which is not shown, will still be visible in the west, and so brilliant it is prominent long before the sky gets completely dark.

Jupiter, second in brilliance, will be visible a little later, in the west, in Leo, the lion, near the bright star Regulus. Saturn, considerably fainter, is in Libra, the scales, in the southeast.

Times for Seeing Planets

Venus, about June 1, sets at 9:30 p.m. EST; at 11 p.m., Saturn stands directly south; at midnight, approximately, Jupiter sets; and about 15 minutes later, Mars rises in the east.

However, Venus is rapidly drawing into the same direction as the sun, which it reaches on June 22. Then, of course, it will not be visible, but a few weeks later it will be in the morning sky before sunrise, as bright as it has recently been in the evening. Thus, at the end of June, only Jupiter and Saturn will be seen as the sky darkens.

Saturn will then cross the meridian about 9 p.m. EST, and Jupiter will set about 10:30. Mars will rise at 11:00 p.m. and at 1:30 a.m., Saturn will set. Then, after the morning twilight has begun, Mercury will rise about 3:15 a.m., and Venus about 4:00.

As for the stars that are visible these evenings, the brightest is Vega, in Lyra, the lyre, which is high in the northeast. Another brilliant star is Arcturus, high in the south in Bootes, the bear-driver. Below this group is Virgo, the virgin, with first-magnitude Spica.

To the northeast, below Lyra, we find Cygnus, the swan, in which Deneb shines.

Aquila, the eagle, is the the right, with the star Altair. In the south, near Saturn, is Antares, in Scorpius, the scorpion.

Very low in the northwest are two other first magnitude stars, but so low they are greatly dimmed. One is Pollux, in Gemini, the twins; the other Capella, in Auriga, the charioteer. Both of these were prominent during winter months.

A welcome astronomical event occurs on June 21 at 5:24 a.m. EST. At that moment the sun reaches its farthest north position—the summer solstice, which marks the beginning of the summer season. This is the day, in the Northern Hemisphere, in which the sun is above the horizon for the longest time. In the Southern Hemisphere, however, it is the beginning of winter, and the shortest day.

Total Solar Eclipse

June 8 brings the year's second eclipse, a total eclipse of the sun. The moon will hide that body for as much as 4 minutes, 44 seconds. This is unusually long, and undoubtedly many expeditions would have been sent to observe it, were it not for the fact that it is visible in one of the most inaccessible parts of the world, and that the path over which the total eclipse is visible completely misses any land!

This path begins, as the tip of the moon's shadow first touches earth at sunrise, southeast of New Zealand, at about 180 degrees longitude and 55 degrees south latitude.

The shadow will then move northeastward over the Pacific to 140 degrees west longitude, and 40 degrees south latitude. Then it goes southeastward and leaves, as the sun is setting, at 100 degrees west and 55 degrees south.

Over a much larger area the sun will be

partially eclipsed by the moon, but even this region, in the southern Pacific between Australia and South America, manages to miss land almost completely. Only New Zealand and some of the islands of the South Pacific, including Samoa, will see it.

An eclipse so completely visible only over the ocean is most unusual.

June 10 marks the 250th anniversary of the birth of John Dollond, an English optician who introduced the lenses for modern astronomical telescopes.

Chromatic Aberration Annoying

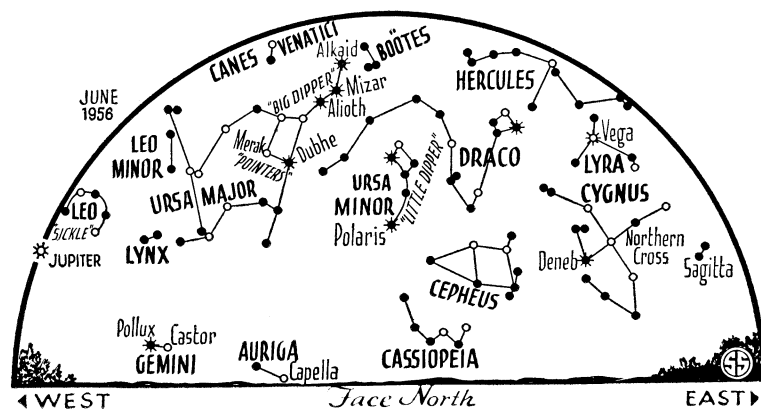
When Galileo used his first little telescope to observe the heavens in 1610, he employed a lens made of a single piece of glass, which suffers from "chromatic aberration," i.e., light rays of different colors are focused at different distances. Thus, if the blue rays are brought to a sharp focus, those of red are out of focus, and there is a red blur around the image. If one focuses the red, then the blur is blue.

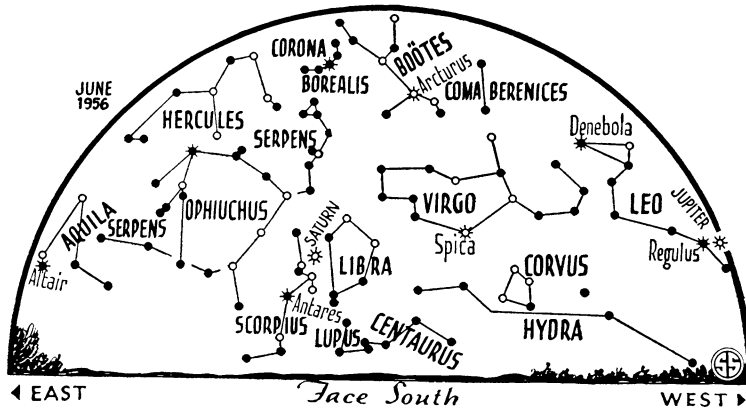
Even so great a scientist as Isaac Newton thought that this defect could not be overcome, and he invented the reflecting type of telescope, which gets around it, since the lens is replaced with a mirror, and all colors are reflected in the same way.

However, in 1758, Dollond patented, and made available commercially the achromatic lens. This makes use of two separate elements, each of a different kind of glass. In such a combination the blue and red rays are brought to a focus at the same distance. Nowadays all telescope lenses, like camera lenses, embody similar principles.

Actually, Dollond was not the first inventor of the achromatic lens. In 1733, an English barrister named Chester Moor Hall had made such a lens. Since it was considered undignified for a gentleman to engage in trade, Hall did nothing to give his invention to the public, nor to make it available for scientific use.

It seems likely that Dollond found out about Hall's work in 1775, but he may have





◊ * ◦ • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

had the same idea even earlier. However, he did appreciate its value, and made it public.

Later, when it proved very popular, some of his competitors tried to have his patent invalidated, on account of Hall's earlier work. When the case came to trial in 1766, the judge made a decision that is still cited when he said: "It was not the person who locked up his invention in his scrutoire who ought to profit by a patent for such invention, but he who brought it forth for the benefit of the public."

Accordingly, the validity of the Dollond patent was upheld.

CARDIOLOGY

Heart Disease Can Hit Day-Old Baby

► **YOUNG BABIES** as well as grown-ups and Presidents can have heart attacks, Col. Byron E. Pollock, chief of cardiology at Fitzsimons Army Hospital, Denver, told doctors attending the postgraduate course on diseases of the heart held at the Armed Forces Institute of Pathology, Washington.

Col. Pollock is the Army heart specialist who looked after President Eisenhower when he was a patient at Fitzsimons after his heart attack last September.

Coronary arteriosclerosis, or hardening of the heart's arteries, in layman's terms, is responsible for the great majority of cases of coronary artery disease, Col. Pollock said.

This produces, among other kinds of heart disease, the kind the President suffered, which is myocardial infarction.

The kind babies get is called medial coronary sclerosis. In this, the middle muscular coat of arteries and veins is hardened.

The condition attacks babies from one day to seven months old. In five cases the babies died suddenly without known symptoms.

Others of 20 cases Col. Pollock discussed showed varying evidence of heart failure, upper breathing tract infection, difficulty in feeding and recurring fever.

Science News Letter, May 26, 1956

Celestial Time Table for June

JUNE	EST	
1	2:13 p.m.	Moon in last quarter.
8	4:29 a.m.	New Moon; total eclipse of sun visible in southern Pacific Ocean.
9	10:00 p.m.	Moon nearest, distance 223,500 miles.
15	6:56 a.m.	Moon in first quarter.
20	3:00 a.m.	Mercury farthest west of sun, visible in east before sunrise in east before sunrise for a few days around this date.
21	5:24 a.m.	Sun farthest north, beginning of summer in Northern Hemisphere.
22	1:00 a.m.	Venus between earth and sun.
23	1:13 a.m.	Full moon.
25	3:00 a.m.	Moon farthest, distance 252,300 miles.
29	8:37 a.m.	Moon passes Mars.

Subtract one hour for CST, two hours for MST, and three for PST.

Science News Letter, May 26, 1956

MEDICINE

Sees Heart Medicine Acting Like Hormone

► **THE STANDARD HEART** medicines obtained from digitalis or foxglove leaf act in some ways like hormones from the outer part of the adrenal glands, Dr. Theodore Koppanyi of Georgetown University School of Medicine, Washington, told the post-graduate seminar on diseases of the heart held at the Armed Forces Institute of Pathology, Washington.

The digitalis medicines, called cardiac glycosides, can keep alive animals that have had all of their adrenal glands removed, much as adrenal gland hormones do, Dr. Koppanyi pointed out.

Pointing also to a hormone effect, he said, was another scientist's finding that male breasts enlarge during digitalis treatment.

Science News Letter, May 26, 1956

ORNITHOLOGY

African Bird Collection Received at Smithsonian

► **SPECIMENS** of nearly 700 birds from one of the world's wildest, least-known grassland areas have been received by the Smithsonian Institution.

The birds are from Northern Rhodesia in South Africa, a region that has not been extensively studied for birds. The collection contains species that have never appeared in the U.S. National Museum collections.

The birds, gathered by native collectors, were sent to the Smithsonian by Maj. E. L. Haydock, supervisor of the collecting.

Science News Letter, May 26, 1956

OPTICAL STAR FINDER



Stars—Planets—Constellations—their stories are recorded in the skies. There before your eyes are the eternal records of the birth of science and history.

Not a telescope but a brand new optical method of positioning the outlined figures of the constellations on the night sky and directly naming the stars.

A precision instrument not a gadget. Charts register accurately over the actual stars in the night sky. Complete sky coverage with 30 illuminated charts for your study and enjoyment.

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