

NO PLANETS

The later evening hours are devoid of these bright bodies, but look low in the southwest during the gathering twilight for Mercury and Venus.

when the two bodies are farthest, comes on the 17th, and then we shall be 252-, 500 miles away. New moon is on Feb. 3 at 11:27 a. m., E.S.T.; first quarter on Feb. 10 at 4:25 a. m.; full moon on Feb. 18 at 6:17 a. m., and last quarter on Feb. 26 at 5:14 a. m.

During the month of February, Orion and its brilliant neighbors are again the principal spectacle in the evening skies. Orion himself, the great warrior, is to the south, and is easily recognized from the three stars forming his belt, with the bright star Betelgeuse above and Rigel below, the former in his shoulder and the latter in a foot. To Orion's left are two very prominent stars, Sirius, the dog star in Canis Major, the greater dog, the nearer and lower, and Procyon, in Canis Minor. Sirius is the most brilliant star in the heavens, and the closest seen from the United States, unless one can look through a telescope at one of three other stars which are closer but not visible to the naked eye. Above Procyon is the group of Gemini, the twins, with the two stars Castor and Pollux, the latter the brighter and lower.

Six Pleiades Visible

In the zenith shines Capella, part of Auriga, the charioteer. Below, to the southwest, is Taurus, the bull. The brightest star in this group is Aldebaran, which marks the animal's eye, and is part of a V-shaped group of fainter stars, the Hyades, outlining his face. Farther west, in his shoulder, is a famous little cluster of stars, the Pleiades, of which six are usually visible to the unaided eye.

Directly east, Leo, the lion, is now coming into the sky. In this group is seen the "Sickle," a group of six stars

shaped like that implement, with the first magnitude star Regulus at the bottom, marking the end of the handle. To the northeast is the Great Bear, Ursa Major, in which is the familiar "Big Dipper," the handle hanging downwards. In a similar position to the northwest is Cassiopeia, the queen, the stars arranged in the shape of the Greek letter sigma, or a W on one side. Very low in the northwest Deneb may be glimpsed, part of Cygnus, the swan, but the rest of the constellation is only visible early in the evening, and is not shown on the maps.

No Planets to Watch

No planets are visible this month during the evening hours for which the maps represent the skies, but several are to be seen earlier or later. On February 1 Mercury is at its greatest distance east of the sun, and sets about an hour later, so for a day or two at that time it may be glimpsed in the gathering twilight in the southwest. When one looks for Mercury, Venus will also be observed. It is farther from the sun, setting about an hour and three quarters after sunset, and is much more brilliant than any of the other stars or planets. During the coming months it will become more and more conspicuous in the western early evening sky. It is in the constellation of Aquarius, the water carrier.

At about 10 p. m., the red planet Mars appears in the east, in the group of Virgo, the virgin. Its red color leaves little doubt as to its identity. Jupiter, now in Libra, the scales, rises about midnight, and is more brilliant than Mars. Saturn this month is close to the sun, and cannot be seen.

Science News Letter, January 26, 1935

AERONAUTICS

Stratosphere Balloon Ripped Because Fabric Stuck

BECAUSE the giant stratosphere balloon, Explorer, on its ill-fated flight in July had the lower part of its rubber-sticky fabric tucked up inside the balloon, great tears occurred which brought a precipitate ending to the flight.

This is the finding of a scientific inquiry as to the cause of the accident made by a board of review consisting of Dr. L. J. Briggs, Chairman, National Bureau of Standards; Dr. John O. La Gorce, National Geographic Society; Brig. Gen. O. Westover, U. S. Army Air Service; Dr. W. F. G. Swann, Bartol Research Foundation; and Dr. L. B. Tuckerman, National Bureau of Standards; as reported by Dr. Briggs and Dr. Tuckerman.

Rubberized Fabric Stuck

It is as though the Explorer were an agile young lady of the skies, who to be unencumbered for a great leap upwards had reefed up her skirts out of the way, only to find that when she needed them they tore asunder.

To avoid difficulty in inflation and launching, great folds of fabric that would not be expanded by gas until the balloon had risen about 60,000 feet in its 75,000 foot projected climb were accordion-folded inside, with the idea that as the bag increased in size in the rarefied atmosphere it would come loose neatly. But the designers did not realize that the new way of folding would not allow the adherent rubber-coated fabric to peel loose, as happens with the usual methods of folding. The inside layers became taut first, setting up shearing stresses that broke the fabric. So at 60,000 feet the tears began and forced a descent.

Hydrogen Exploded

An explosion of the lifting hydrogen gas mixed with air oxygen admitted by the torn balloon was the final act in the disaster and caused the disintegration of the balloon. The three Army officers scrambling for parachute jumps from the gondola below heard no explosion. Set off by a spark of static electricity, the explosion took from 5 to 6 seconds, Dr. Tuckerman estimated, and its low rumble was masked by the sound of the motor of an airplane flying nearby. This explosion disintegrated the up-

per portion of the balloon and allowed the remains to fall freely 3000 feet to the earth.

Drs. Briggs and Tuckerman are sure that the cause of the ripping can be eliminated if future stratosphere balloons are built for another try under the auspices of the National Geographic Society and the U. S. Army. The lower portion of the balloon, for instance, might be folded outside instead of inside, as in older balloon practice, and the difficulties in inflating and launching overcome by a different method of handling.

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MEDICINE

Serious Heart Diseases Caused by External Nerves

VENTRICULAR fibrillation, a fatal heart condition, and auricular fibrillation, also a grave cardiac disorder, have been found to be caused by the external nerves of the heart, it is indicated by the researches of Drs. Louis H. Nahum and H. E. Hoff of the faculty of the Yale School of Medicine. Dr. Nahum reported on his work to the New Haven Medical Association, of which he is the retiring president.

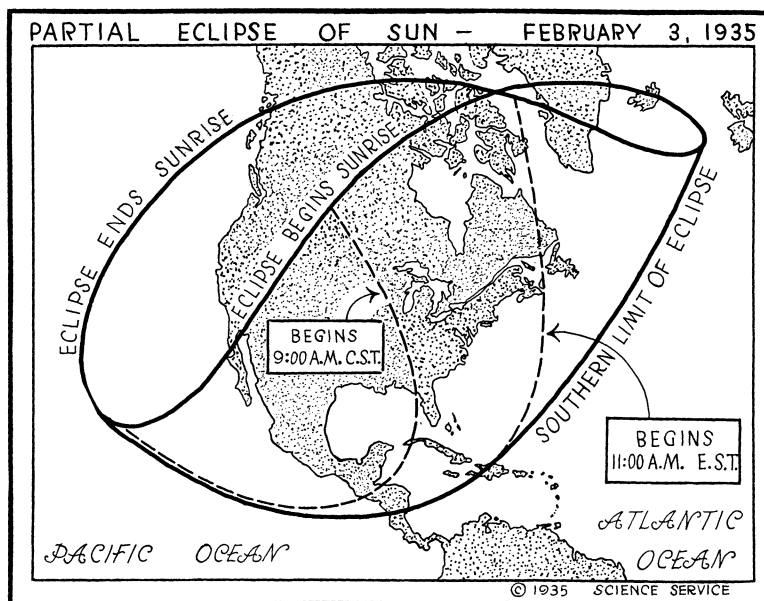
In normal hearts, Dr. Nahum explained, the external nerves, the vagus and accelerator, regulate the beat, but in abnormal hearts, it is these nerves acting with other agents that bring about fatal rhythms.

In cases of benzol or chloroform poisoning, and electric shock, it is the accelerator nerve, together with adrenalin liberated by the glands, that cause changes from the normal heart beat to the ventricular fibrillation, Dr. Nahum said. This fatal heart beat can be prevented by removing the accelerator nerve from the heart and excising the adrenal glands, Dr. Nahum found.

The vagus nerve, on the other hand, was found to promote auricular fibrillation. In the presence of an excess of thyroxin, from the thyroid gland, as in certain goiter patients, or in the case of electric shock, the vagus nerve, according to Dr. Nahum, becomes over-active and instead of following its usual role of slowing the heart, brings on the irregular auricular fibrillation.

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The Island of Jersey has systematically standardized its famous herds, prohibiting importation of any cattle since 1763, or about 40 generations of cattle.



FRONTIERS OF THE SHADOW

When the sun goes into partial eclipse on the first Sunday in February, it will be partly hidden by the moon within the limits and times as indicated on the map. You can figure the approximate time for your own location by interpolation.

ASTRONOMY

Study of Nova Hastened Before it Fades Again

FROM observatories throughout the world, astronomers are hurrying the study of Nova Herculis, the exploding star that shone so brightly just at Christmas time.

Their hurry is a race with stellar happenings on the distant star that blew up; a race which will be lost if the star fades to its former insignificance in the heavens. At Christmas time Nova Herculis was so bright that only sixteen stars in all the sky were more luminous. Now it has faded out somewhat and rapid work is necessary to obtain information about it before it dies out completely.

From the international clearing house for stellar data at the University of Copenhagen, Science Service has received reports obtained at observatories at Warsaw, Poland; Moscow, U.S.S.R.; and Stockholm, Sweden, which were interpreted by Dr. Donald H. Menzel, astrophysicist of Harvard College Observatory.

The Soviet measurements indicate Nova Herculis is still blowing itself apart. Material blown off from the star in its eruption is spreading out with a velocity of 625 miles a second.

From Stockholm observations on the brightness of Nova Herculis show the star went through a period of fluctuating luminosity. Recently the brightness magnitude was 2.5. Three days later its light was weaker, at 3.3 magnitude. And the following day its magnitude was back to 2.8.

The weakened intensity was attributed on this occasion to strong absorption of the star's light by cyanogen molecules composed of two atoms each of carbon and nitrogen. As the star regained brightness the absorption of these cyanogen molecules diminished.

The expansion velocities of 625 miles a second reported from the Moscow observatory need to be considered in comparison with observers elsewhere, Dr. Menzel pointed out.

"Emission lines of the star bordering the absorption lines showed velocities of approach of the order of only 150 miles a second," Dr. Menzel indicated. Velocities of approach are generally interpreted as the velocity with which the material blown off from the star is approaching the observer in the line of sight.

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