



STAR GUIDES

In the north are the two dippers that serve as such good guides for locating other stars and the new comet. See page 69 for map showing its location.

seem to come, these are called the "Per-seid" meteors.

However, they do not really radiate from this point, but are moving around the sun in parallel paths, in a great swarm which the earth crosses every August. This swarm follows Tuttle's comet, last seen in 1862, so it is believed that the meteors are the comet's debris. Other showers of meteors, which appear at other times of year, also follow the orbits of comets of the past.

The darker the sky, the more meteors are seen and it sometimes happens that the moon is bright, and the brilliance of the shower is dimmed. This month the moon will not have reached first quarter. It will have set by midnight, providing a dark sky during the morning hours when the shooting stars are seen to best advantage.

Amateur Observers

Amateur observations of these meteors, particularly the numbers seen during half hourly periods, and the paths through the sky and times of unusually bright ones, are desired by astronomers. Such reports should be sent, in the United States, to Dr. Charles P. Olivier, Flower Observatory, Upper Darby, Pa., and, in Canada, to Dr. Peter M. Millman, Dunlap Observatory, Richmond Hill, Ontario.

With the coming of August, three bright planets appear among the stars of the evening sky. Their positions are shown on the accompanying maps, which depict the appearance of the heavens at 10:00 p. m., standard time, at the first of the month, 9:00 p. m. on Aug. 15, and 8:00 p. m. Aug. 31. Brightest of these is Jupiter, which exceeds in brilliance any of the stars. It shines in the

constellation of Sagittarius, a group seen directly south.

Next to this, farther west, is the scorpion, Scorpius, in which the first magnitude star Antares marks the animal's heart. But close to Antares is a somewhat brighter orb, its steadier light suggesting its non-stellar character. This is the planet Mars, now fainter than it has been in recent months, for it is drawing away from the earth.

For Early Risers

The month's third evening planet is Saturn, faintest of the trio, though exceeding all but two of the stars. It also is fainter than average this year, because the ring system is turned nearly directly on edge to us, and so we are only getting light from the inner ball. When the rings are spread out to a considerable angle, as they will be in a few years, the reflected sunlight from them makes the planet much more brilliant, even though the rings cannot be seen without a telescope. Saturn now stands in the constellation of Pisces, the fishes, low in the sky, a little north of the eastern point. Finally, in addition to the three mentioned, a fourth planet shows itself during the night. Venus appears in the southeast several hours before sunrise, and then it is considerably brighter than any other planet or star.

Four other first magnitude stars, besides Antares, are to be seen during August evenings. Brightest of all is Vega, in Lyra, the lyre, almost directly overhead. To the east is Cygnus, the swan, or the "northern cross." The vertical member of the cross runs north and south, and the star Deneb marks the northern end. Farther south is Altair, in Aquila, the eagle.

The fourth is in the west. This is Arcturus, in Boötes. A good way to find it is to look for the well-known figure of the "great dipper" in the northwest. Then follow the curve of the handle to the south, and you come to Arcturus.

The moon's phases are given in the table below. From about the 12th to the 23rd the evenings will be moonlit. On August 2 at 11:00 p. m., eastern standard time, it will be at perigee (closest the earth), with a distance of 227,740 miles. Then it will recede to its greatest distance (apogee) on the 15th, at 10:00 p. m., when all of 251,110 miles will separate us. After that it approaches and is again at perigee on the 28th, at 10:00 p. m., though it will be 229,840 miles away. After that it recedes once more.

Phases of the Moon

		E. S. T.
New Moon	Aug. 6	7:37 a.m.
First Quarter	13	9:28 p.m.
Full Moon	21	7:47 p.m.
Last quarter	28	6:54 p.m.

Science News Letter, July 31, 1937

PHYSIOLOGY

Whales Immune to Dreaded Compressed Air Illness

COMPRESSED air illness or caisson disease is the chief hazard of workers, such as divers and tunnel excavators, under high air pressure. The condition is caused by the release of bubbles of nitrogen which may form in any part of the body, or block any of the blood vessels. It can take many forms, but the cause is always the same, namely, change from a higher to a lower air pressure. The symptoms may arise from a long dive at a moderate depth or a short dive at a great depth.

It has been assumed hitherto that all mammals were susceptible to compressed air illness. However, Laurie of the "Discovery" Expedition of the British Colonial Office, concludes that the whale is immune, as a result of certain remarkable biological studies. The work was carried out in the vicinity of the island of South Georgia in the South Atlantic.

The whales in this region live mainly on lower animals which exist at great depths, and therefore have to make long and deep dives to secure their food. The whale can descend to a depth of about 300 feet, remain there for 15 minutes and return rapidly to the surface without developing symptoms of compressed air illness. The human diver, under similar conditions, would un-



doubtedly suffer a critical attack of compressed air illness. It would be necessary for him to ascend by gradual stages over a period of about an hour and forty minutes to assure his safety.

The whales in this area spend the majority of their lives submerged, their sojourns at the surface being momentary; ordinarily only for the time of a single breath. The result is that the usual surface phase lasts a few seconds and the underwater phase 10 to 20 minutes. Naturally the nitrogen gas from one breath would not supersaturate the blood, but the accumulative effect of successive breaths followed by submersion would lead to supersaturation of the body fluids.

Therefore, if the whale were subject to human physiological limitations, it would be hazardous for the animal to delay at the surface on the penalty of gas bubbles being liberated in the body with the liability to a severe attack of compressed air illness. Actually, a whale can linger with safety at the surface as, for example, when suckling a calf.

Laurie found that the blood of freshly killed whales was not supersaturated with nitrogen. Indeed, he directs attention to a remarkable phenomenon of nitrogen removal which takes place in whales' blood and not in land mammals. If the blood is saturated with nitrogen of the air, it is so absorbed that it cannot be recovered by evacuation. The nature of the reaction is not known, except that the presence of oxygen is essential. It is a striking fact that one of the mammals which might run the risk of compressed air illness is just the one to have a mechanism for protection against it.

Science News Letter, July 31, 1937

For over 2000 years, California Indians have eaten the same foods, traded the same materials, and in general lived in the same way, says an anthropologist.

Daffodils can be made to bloom at Thanksgiving and Christmas, if the bulbs are stored at 50 degrees Fahrenheit for a month or more before planting and hot-house forcing.

GENERAL SCIENCE

Important Inventions Listed As Having Social Influence

Government Science Committee Points to Thirteen Discoveries Which May Modify Future Living

KEEP your eye on thirteen very important inventions. These, in the opinion of the federal National Resources Committee's Science Committee, "may soon be widely used with resultant social influences of significance."

These inventions, as listed in a voluminous report just issued treating technological trends and national policy, are:

1. Mechanical cotton picker, which may displace millions of southern cotton-field workers.
2. Air conditioning equipment.
3. Plastics, which are chemically made materials substituting for wood, steel, and other substances.
4. Photo-electric cell, the "electric eye", that can substitute for human routine operations.
5. Artificial cotton and woolen-like fibers made from cellulose.
6. Synthetic rubber.
7. Prefabricated houses.
8. Television.
9. Facsimile transmission, by which pictures and messages are sent by wire and radio.
10. Automobile trailers.
11. Gasoline produced from coal, now commercially practised in Europe.
12. Steep-flight aircraft planes, such as autogyros and helicopters.
13. Tray agriculture, or raising crops not upon soil but in tanks of nutrient solutions.

An immediate study of these inventions and their effects on our national economy is urgently recommended. This would be undertaken by experts in science, technology, economics and other fields.

Technological unemployment would be investigated by a special committee from government agencies. The federal planners also want science committees set up in the federal departments to investigate regularly the progress, trends and economic effects of science and invention. They also argue the necessity of a national resources board to plan for the whole nation.

The whole patent system would be reviewed by a group of social scientists and economists with a view to better

adaption of the system to changing conditions.

The report was prepared by experts under the guidance of a subcommittee on technology with Dr. William F. Ogburn of the University of Chicago as chairman and research director, and President John C. Merriam of the Carnegie Institution of Washington and President Edward C. Elliott of Purdue University, as members.

Among the findings are:

The large number of inventions made every year shows no tendency to diminish.

Inventions create jobs as well as take them away.

Because of increased productivity per worker, production of the nation this year would have to be increased 20 per cent. over that of 1929 to have as little unemployment as existed then.

Advance of many aspects of industry and the correlated technologies is dependent upon scientific research and discovery. If the contribution of research were reduced, the industries would tend to freeze in a particular pattern.

From the early origins of an invention to its social effects the time interval averages about 30 years.

Science News Letter, July 31, 1937

Nearly half the food eaten in the United States comes out of cans or jars.

Sign language was often useful to Indians in hunting, because they could communicate without alarming the game.

SEASICKNESS

Why Bring That Up?

By Dr. Joseph Franklin Montague

What to do about Seasickness

142 Pages ● Helpful ● Humorous
\$2 Illustrated ● and AUTHORITY

Home Health Library, Inc.
516 Fifth Avenue, New York City

SEASICKNESS

Books

SCIENCE NEWS LETTER will obtain for you any American book or magazine in print. Send check or money order to cover regular retail price (\$5 if price is unknown, change to be remitted) and we will pay postage in the United States. When publications are free, send 10c for handling.

Address Book Department

SCIENCE NEWS LETTER
2101 Constitution Ave. Washington, D. C.