SCIENCE NEWS

Science Service, Washington, D. C.

SHOOTING STARS

PUBLIC cooperation with astronomers in observing the shooting stars seen in the August night sky has been requested by Dr. Charles P. Olivier, professor of astronomy and director of the Flower Observatory of the University of Pennsylvania. Dr. Olivier spoke by radio under the auspices of *Science Service*, through a nation-wide network of stations associated with the Columbia Broadcasting System.

Explaining that the talk was given at this time because "the month of August is, of all months in the average year, the one during which most meteors or shooting stars are likely to be seen," Dr. Olivier gave the reason for their greater numbers.

"The explanation is that the Earth, in its annual path around the Sun, passes through some regions of space where it meets more meteors than elsewhere. August is the month when we run into the densest part of that meteor stream known as the Perseid. Some Perseids may be seen every clear night after July 20 and up to August 16. Their greatest numbers are seen on the nights of August 11 or 12, usually the former date. On this night, if the moon is not shining, and one watches from a place with unobstructed view, and the sky is perfectly clear, sometimes over 100 meteors per hour may be seen.

"However, nearness to the lights and smoke of a city, the least fog or haze, or moonlight, will any one of them cut down the numbers seen greatly, for naturally there are more fainter than brighter meteors, and the former are those not visible unless the sky is very clear.

"Persons desirous of seeing the Perseids should therefore try to observe from a favorable place in the country. This year, unfortunately, the moon will be full on August 9, hence it will still be very bright on August 11 and 12. Nevertheless, it will be in the far south, while the Perseid radiant arises in the northeast and will be on the meridian, overhead, by dawn. So all fairly bright Perseids in the northern half of the sky will be readily visible."

Chasing meteors is a sport that requires late hours, Dr. Olivier explained. Because of the relative motion of the Earth and the meteors, fewest shooting stars are seen at 6:00 P. M., while most are visible two hours before sunrise. In observing them, the work of the professional astronomers is supplemented by a group of amateurs, formed into the American Meteor Society. But Dr. Olivier requested the help of others, even those only temporarily interested. Any one who is willing to observe them during this month, especially on the nights of the eleventh and twelfth, can furnish real assistance.

"One should choose a favorable place and provide himself with a watch, notebook, flashlight and pencil. Then, watching as large an area of the sky as possible he should count every meteor certainly seen during each half hour. As each interval is up, the record should be made in the notebook, along with notes as to any changes in the sky like passing clouds, etc., or any especially fine meteors seen. The watching should be done toward one direction only, during each half hour. What direction it is should be recorded. If desired, other directions may be chosen for other half hours. No meteor should be counted unless seen with certainty. Full notes as to condition of the sky should always be made.

"Such records, conscientiously made by intelligent people, over periods of two or more hours near the dates of maximum of the Perseids, for instance, have a real value. When reported to us, they are published in due time, proper acknowledgments being made to each contributor, by name, in the publication. We also desire all observations of any very bright meteor, casually seen, no matter on what night.

"For those who would like to take part in more detailed observations than those briefly outlined, a request mailed to the Flower Observatory, Upper Darby, Pennsylvania, will bring a bulletin with further instructions and descriptions of the work of the American Meteor Society. The society is always glad to get new members, for as yet there are many of our states without a single active observer therein."

THE DETECTION OF GAS LEAKS

ENGINEERS of the U. S. Bureau of Mines have developed a warning chemical of terrible smell that they urge should be added to odorless illuminating and fuel gases by gas companies before the fuel is placed in city mains.

Ethyl mercaptan, an organic sulfur compound, is the smelly stuff that would be added to provide an unmistakable signal of escaped gas. It has such an intense, disagreeable odor that only one hundredth of a pound of it in a million cubic feet of air will warn. Gas companies could put about eight pounds of it in each million feet of gas and any slow leaks in houses would soon be detected, whereas about forty pounds per million cubic feet of gas would allow their inspectors to detect leaks in mains and service lines underground.

Most manufactured gas has an odor that can be detected when the gas escapes into a room, but natural gas is practically odorless. This is because natural gas is practically pure methane, CH_4. Artificial gas, however, in the process of its manufacture from coal accumulates oxygen and complicated compounds of methane, ethylene and acetylene which cause the odor.

Natural gas was until recent years allowed to escape from wells but is now piped to a distance of a thousand miles in many cases superseding coal as a fuel in industry. This has brought forward the problem of safe and economic distribution over vast gas systems and made necessary the evolution of a super-smell like ethyl mercaptan.

Possibilities of using ethyl mercaptan for a danger signal were first tested about 10 years ago in mines. A

little of it was put in the air supply lines and within 5 or 10 minutes the miners were beating a hasty exit.

Ethyl mercaptan is a liquid closely related to the alcohols, and is sometimes called thio-alcohol.

THE SUFFOCATION OF FISH

FISH dying in an abundance of water, because they were not getting enough of air that is traditionally supposed to be fatal to them, have been the subjects of study in two German laboratories during the past few months. The researches were prompted by the fact that great numbers of fish died of suffocation under the thick ice produced by last winter, which was unusually severe in Europe; and scientists wanted to know, for both practical and theoretical purposes, just how much oxygen has to be dissolved in water in order to sustain fish life.

Goldfish and carp became distressed and finally died when the oxygen in the water fell to a concentration of from four one hundredths to one tenth of one per cent. Whiting, perch and several other species of fish showed signs of distress at one tenth of a per cent., and died when the concentration fell below eight one hundredths of one per cent.

The requirements of trout, earlier experiments showed, are higher. This active fish can get along on water containing from five tenths to eight tenths of one per cent. of oxygen, finds one third that much insufficient, and dies if the oxygen falls below that. Carp can live easily where trout find it suffocating, can endure what kills a trout, but finally die at the low figure of five one hundredths of one per cent.

Tenacity of life under ordinary hardships does not seem to have anything to do with ability to withstand low oxygen rations. Observers noted last winter that eels, one of the hardest to kill of all fish, were the first to suffocate when thick ice cut off the air supply from their water.

IMMUNIZATION AGAINST CHOLERA

PLANS for wholesale immunization against cholera, by which whole towns may be protected from the dread disease of the Orient, are now being considered. These plans are based on recent investigations with the bacteriophage, or germ-killer, taken from patients getting over an attack of cholera. If the plans prove practical, there may soon be a time when entire communities can be immunized against Asiatic cholera and epidemics of that disease may cease.

The Indian Government has invited Professor F. d'Herelle, of Yale University, discoverer of the bacteriophage, Major R. H. Malone, officiating director of the Pasteur Institute at Kasauli, and Dr. M. N. Lahiri to investigate the new discovery that bacteriophage, which is virulent for the cholera germ when taken from a convalescent cholera patient, acts as a prophylactic when administered to the uninfected and as a remedy for those who have already contracted the disease.

Bacteriophage, it is thought, is a normal inhabitant of the intestine and is a parasite on the microorganisms found there. It was discovered after an epidemic of cholera that as soon as the bacteriophage from convalescent patients became diffused through natural means into the water used by the community, the epidemic ceased. This is the fact that the scientists are using as a basis for their investigations. Their suggestion is that potent strains of bacteriophage be grown deliberately and these cultures be introduced directly into the wells, thus immunizing whole communities at one time.

As a remedy when the individual has contracted the disease the bacteriophage has been found very efficacious. If it was given within six hours of the first symptoms, there were no deaths; if administered between six and twenty-four hours the mortality rate was 10.2 per cent., but after twenty-four hours the rate rose to 14.3 per cent.

The bacteriophage is said to be entirely harmless when given by mouth. There is a special warning that it should never be administered by infection under the skin.

ASTHMA TRACED TO MOLD

A COMMON form of mold which flourishes in American soil and finds its way into damp houses to thrive there in the dirt is now accused of being a cause of asthma. A case of asthma which persisted for nine years and which has finally been traced to sensitiveness to this type of mold has been reported to the American Medical Association by Dr. Harry S. Bernton, of the Georgetown University School of Medicine.

This is the second case of asthma traced to mold in this country, and is the first traced to this kind of mold. Dr. Bernton, who has been testing asthmatic patients for sensitiveness to molds since 1923, believes that molds may prove to be inportant as causative factors in this disease. Many cases of asthma are now classed as "non-reactors," because no specific irritant has yet been found which is the cause of their distress. The new work with molds makes it likely that some of these cases may be cleared up.

Dr. Charles Thom, specialist in molds of the U. S. Department of Agriculture, has cooperated with Dr. Bernton by supplying him with sixteen kinds of molds, which have been used in tests upon patients, in the search for their particular irritant.

The young woman whose asthma proved due to a mold had lived in a damp and musty house for six years, and it was apparently in this house that her nose and throat linings became sensitized to mold-laden air.

While molds are a recently discovered cause of asthma, and only two cases have been found in America, European physicians have been finding a considerable proportion of asthmatic patients sensitive to molds. Living conditions in the Old World would bring people who might be sensitive to molds more often into close contact with them, Dr. Bernton points out.

"Thatched roofs, the close proximity of domestic and food animals to human domiciles, animal food and excrement, offer fertile sites for development of molds."

CENTENARIANS

THE old Turk, Zaro Agha, with his birth certificate showing 156 years of age, who is now being proclaimed to credulous New York as the oldest human being in the world, will have a hard time convincing scientific skeptics that he has lived that many years. Old he is, without a doubt, but those who have looked into such claims in the past are laying their scientific wagers that he is not much more than a hundred or so.

In fact, the most extreme case of longevity that medical records show fully authenticated was not quite 111 years. That record was substantiated by the English investigator, Dr. T. E. Young, who in the early part of this century considered many cases of supposed centenarians and found only 30 persons who from other outside evidence could be shown to have lived a hundred years or more. Of the thirty, 21 were women and 9 were men.

Medical statisticians hold to their idea that extreme old age is a rare phenomenon although in the million or more deaths annually in the United States at least several hundred death certificates show ages of over a hundred and occasional ones will show such startling records as 120 years.

When such cases are looked into it is often found that mistaken identity confers upon the supposed centenarian his remarkable record. Repeatedly instances like this are uncovered: John Jones was born and his baptism duly recorded, but he died at the age of 15 years and his death was not registered through an oversight. In the same year that he died another male child was born to the same parents and named John Jones, perhaps in commemoration of his deceased brother. The second John Jones was never baptized. When he reaches the age of 85 or 90 his appearance of extreme senility attracts attention and the baptismal records apparently show that he is a hundred or over. The aged gentleman basks in his seemingly well-authenticated record of extreme age.

America has had its claimants to age records. Uncle John Shell, of Kentucky, who was exhibited as "the oldest living human being" with a claimed age of 131 years, was pronounced after a careful investigation of his case to be "about one hundred years old, possibly a year younger or older."

Despite the fact that authenticated cases of human longevity to over a hundred years are few, man is nearly the longest lived of all mammals. The common idea that whales and elephants attain many more years than man is not credited in scientific circles. But some species of fish may live to over 260 years according to the best evidence and reptiles are reported to have lived 175 years. Birds may have a life span of a few years longer than man in some instances.

ITEMS

A BABY orang-utan, the third born in captivity, arrived recently at the Philadelphia Zoological Gardens. The first infant orang was born in the Zoo in Nuremberg, Germany, and lived about a week. The second was born of the present mother in the Philadelphia Zoo and lived about a year. This baby was five pounds in weight at birth and is thriving. There has been a theory that the orangs seek seclusion for the birth of their young, but this mother made her nest right up against the bars of her cage in full sight of the crowds.

FOR some years it has been known that celery contains vitamins A and B. Recent research has shown that it also contains a comparatively large amount of vitamin C, the "fresh fruit" anti-scorbutic vitamin. This result has been obtained by Dr. Tomiji Matsuoka, who carried out his experiments at the Kyoto Imperial University, Japan. Guinea-pigs were used as the experimental animals. A basal diet was given on which the guinea-pigs all got scurvy. This could be cured or prevented by a small daily ration of celery stalk or leaf.

THE most important factor affecting the vitamin C content of apples is the variety of the apple. The character of the soil, age of the tree and season of picking have practically no effect. These are preliminary results of an investigation on the vitamin contents of different kinds of fruits and different varieties of one fruit which is being conducted by Mary F. Bracewell, Edward Hoyle and Dr. S. S. Zilva at the Lister Institute in London. The English cooking apple, Bramley's Seedlings, was much more active in anti-scorbutic properties than any other cooking or dessert apple which was tested.

A SUCCESSFUL, non-poisonous food-preservative may be obtained from cow's milk as a result of recent investigations reported by Drs. F. S. Jones and H. S. Simms, of the Rockefeller Institute for Medical Research at Princeton, New Jersey. The natural agent in milk which prevents the growth of micro-organisms was isolated. It is found in the whey after the routine separation of the butter-fat and casein. It can be obtained in pure form in a powder which keeps for several months. It is reported that one grain of this powder added to a gallon of the ordinary medium on which germs grow will prevent their growth.

NEW evidence that the Sahara Desert was once a well-watered, fertile region is presented by a small fossil found by an African expedition of the Logan Museum of Beloit College now being studied at the University of Chicago. The specimen is the skeleton of a cane-rat, a beast about the size of a woodchuck, which in present times is found only in thickets along the banks of streams in the more fertile parts of Central Africa. The new fossil, to be known as "Logan's cane-rat," appears to be extinct, but the conditions of the find indicate that it is not to be assigned to any remote geological period. The fossil comes from a region known as the Tanezrouft, now one of the dryest and most inhospitable parts of the central Sahara, 500 miles from the nearest flowing stream. The presence there of such an animal indicates that at the time at which it lived (probably only a few thousand years ago) the center of the Sahara was a well-watered country, and that its climate has since changed remarkably to form the present desert.