

ASTRONOMY

Bright New Comet Seen in Northeast

► A BRIGHT new comet that can be seen with the unaided eye has been discovered in the northeastern sky.

Of fourth magnitude, the comet is visible in the constellation of Gemini, the twins, to the west of Castor and Pollux low on the northeastern horizon an hour or less before sunrise.

The object has a well defined nucleus and a tail covering about 25 degrees. It also has an anti-tail. The comet was discovered on July 23 by A. Stewart Wilson of Seattle, who reported it to Harvard College Observatory, Cambridge, Mass.

Its position on July 26 was six hours, 49 minutes in right ascension and plus 33 degrees, 27 minutes in declination, observations reported by Dr. G. Van Biesbroeck of Yerkes Observatory, Williams Bay, Wis., showed.

• Science News Letter, 80:88 August 5, 1961

MEDICINE

Q Fever May Cause U. S. Health Problem

► Q (QUERY) FEVER, formerly known principally in Australia, is likely to become an increasing health problem in the United States.

An infected cow or other ruminant can transmit the disease to persons who have contact with such animals, which harbor the causative agent, *Rickettsia burnetii*. Dr. William H. Gallaher of the University of Utah College of Medicine, Salt Lake City, reports in the Journal of the American Medical Association, 177:187, 1961, that the changeable symptoms of the disease make it hard to diagnose.

The first case of central nervous system disease caused by Q fever was reported by Dr. Gallaher, who treated the patient, a 46-year-old potato farmer, at the Veterans Administration Hospital in Salt Lake City. The disease may masquerade as viral infectious hepatitis.

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MEDICINE

Treating Mother Advised In Childhood Asthma

► TREATMENT of asthmatic children should include treating the mother and the family as a whole, a pilot study at the University of Texas Medical Branch, Galveston, Tex., indicates.

The project, which is still going on, centers around the interplay between mothers and their asthmatic children seen at the allergy clinic. The investigators focused on the special pressures under which the mothers are living and had been living when they became pregnant.

"We found that as far as the mother's subjective opinion was concerned the asthmatic child had often come too early, too late or otherwise at an 'inopportune time' in the mother's life," Drs. Hendrik Lindt

and Armond S. Goldman said in Texas Reports on Biology and Medicine, 19:300, 1961.

The doctors warned against being deceived by the calm front a mother presents at an interview. Such a facade often has deceived doctors for long periods of time into focusing all their attention on the sick child, tacitly assuming that the mother was in no particular need of help, they reported.

Among the illustrations of cases was one of six children, none of whom had asthma except the patient, born when the mother was 40 years old. The baby had to be left while his mother went away to care for a sick parent, and got off to a bad start. He first had skin rashes and then asthma, which has continued.

"Although hypersensitivity provides a basic mechanism for bronchial asthma," the investigators said, "asthma may be called a disease of dependency and like other psychosomatic disorders has its origin in the mother-child relationship."

The physicians said that asthma is a "devastating experience to the child." He sees the advantages that come to him after such an attack and is stimulated to a clinging behavior.

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GENERAL SCIENCE

Tool "Libraries" Seen Spur to Basic Research

► THREE UNIVERSITY professors have evolved a plan to increase the scope and quality of basic research in the United States by establishing "libraries of instruments" at colleges and universities.

The proposal comes from Drs. Charles W. Gehrke and Thomas D. Luckey of the University of Missouri and Dr. Robert E. McDermott of Pennsylvania State University.

The idea involves common use of expensive tools by researchers in different, but overlapping, science areas, through instrument libraries and related interdisciplinary research laboratories.

This is practical, the authors maintain, because it is "more and more evident that the problems in medicine, biology, physics, chemistry and agriculture are reducing to the same common denominator in their basic theoretical and experimental needs."

Equipment would be available to both faculty and students for teaching and research.

"There will be savings in duplication of instruments, manpower and space, combined with a broader and more continuous use of the common instruments," the professors claim.

They recommend a program of state and Federal aid to help maintain the libraries, since lack of funds for equipment has "made it impossible for the universities to keep pace" with rapidly expanding research programs.

"In many cases the liberal arts colleges, small universities, and experiment stations are doing research at the 1945 level in regard to methodology and techniques," Dr. Gehrke commented.

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IN SCIENCE

EDUCATION

Grant Supports Teaching Of Tot-Teaching Parents

► PARENTS WHO WANT to teach their pre-school children how to read soon may be able to take a course to learn how to do it.

The Denver, Colo., school system has received a \$61,900 grant from the Carnegie Corporation to support a program to educate parents to teach their young children.

Many parents insist on trying to teach reading skills to curious tots, although school authorities frown on the practice. Denver educators, deciding that correct teaching methods should be publicized, last year launched a parental instruction program through a televised series and sale of a guidebook.

The Carnegie grant is for production of a televised course and a revised guidebook. Both will be used nationally after trial runs in Denver.

Teaching methods used in Denver were developed by Dr. Paul G. McKee and Miss M. Lucile Harrison, elementary education professors at Colorado State College, Greeley.

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METEOROLOGY

Sea-Going Robot To Watch for Hurricanes

► A SEA-GOING ROBOT, Nomad I, will spend the next five months in the Gulf of Mexico watching for hurricanes. (See also p. 95.)

The artificial "weatherman" is a platform 10 by 20 feet with four airtight aluminum wells filled with weather gear. It will be lowered into the Gulf 300 miles south of New Orleans.

At regular six-hour intervals, and every hour during high winds, the robot station will send weather data already measured and coded by the enclosed gear. At each transmission Nomad gives air and water temperatures, barometric pressure, wind speed and direction, and the direction of ocean surface currents.

The station sends by short-wave radio, using partly variable-tone pulse signals and partly international Morse code. Anyone with a short-wave receiver can pick up the nighttime signals.

Nomad is the joint product of the National Bureau of Standards, the Department of Commerce and the Navy's Bureau of Weapons. When seven pilot models have been established and proved as Navy stations in storm-producing areas of the Atlantic and Pacific Oceans, Nomad will likely be used by the Air Force and the Weather Bureau. Both the military and private and commercial ships and aircraft will benefit from the advance storm warnings from Nomad.

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E FIELDS

GEOLOGY

Rocks May Be First From Lowest Crust Level

➤ ROCKS thought to be the first ever obtained from the deepest layer of the earth's crust are part of a new collection at the Woods Hole Oceanographic Institution, Woods Hole, Mass.

Using a new jam-proof dredging technique, the institution's research vessel CHAIN succeeded for the first time in taking samples from the north wall of the Puerto Rico trench. The trench is under three to four miles of water in an area north of Puerto Rico.

The haul included rusted specimens of rough-surfaced rock known as ultra basic rock to geologists. The rocks are believed part of a thick layer just above the Moho Discontinuity, a zone regarded by experts as the lower boundary of the earth's crust.

The full significance of the find will not be known until the rocks have been studied by specialists, said Dr. J. B. Hersey, chief scientist on the CHAIN cruise.

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MEDICINE

Medical Research Tool Found in Missile Device

➤ A VALUABLE medical research tool for studying blood has been unexpectedly discovered in a device used in connection with Navy Polaris missiles.

The device was invented by Philip J. Gilinson Jr. and Charles R. Dauwalter, both of Massachusetts Institute of Technology, as a testing tool to aid in developing gyroscopes used in Polaris missile guidance systems.

In medical work, the instrument is called the GDM Viscometer, after its developers, Mr. Gilinson, and Mr. Dauwalter and Dr. Edward W. Merrill, also of M.I.T.

Data has been obtained showing that blood plasma, the portion of blood that remains after red cells are removed, is thicker, or more viscous, at very slow rates of flow and is less viscous as flow speeds up.

Major advantages of the device as a viscometer, or instrument for measuring the viscosity of blood, are that a test requires only a teaspoon of blood (four cubic centimeters) and that tests can be performed in less than a minute.

The discovery that blood plasma is a non-Newtonian fluid, that is, a fluid in which viscosity changes with rate of flow, may help explain some of the curious mechanics of blood circulation in capillaries, the body's smallest blood vessels. It was previously believed that blood plasma was a Newtonian fluid, such as water, in which viscosity remains unchanged no matter how fast or how slow the blood flow is.

Dr. Merrill at M.I.T. and Dr. Roe E. Wells Jr. of Harvard Medical School and Peter Bent Brigham Hospital have collaborated for the past four years in an intermingling of engineering and medicine to study the fundamental chemical and physical properties of blood plasma and plasma containing such chemical additions as anti-coagulants.

In a series of experiments Drs. Merrill and Wells have found that the addition of anti-coagulant drugs, such as are given to victims of heart attacks to prevent recurrences, tend to make the plasma more Newtonian. Anti-coagulants, they discovered, tend to make plasma viscosity more constant and less dependent on flow rate.

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AEROMEDICINE

FAA Wants Upped Budget For Aeromedical Work

➤ A TRIPLING of the present annual million-dollar budget for civil aeromedical research during the next year has been urged by Federal Aviation Agency Administrator N. E. Halaby.

Mr. Halaby said the bulk of aeromedical research now is devoted to military pilots and airplanes, and space environment. He said much more should be known about such problems in civil aviation as the effects of environmental stress on air traffic controllers, the aging of airline pilots, and the effects of tranquilizers and antihistamines on pilots.

Mr. Halaby has asked Congress for a \$3,000,000 appropriation "to set up modern facilities." Research involving about 60 people now is conducted at Norman, Okla., "in the locker rooms of a World War II Navy gymnasium," he said.

As an example of why research is needed, Mr. Halaby noted that pressure groups are active in matters relating to the retirement age for civilian pilots. One group thinks the maximum age should be lowered from 60 to 55, and another thinks the maximum age should be extended even beyond 60.

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METEOROLOGY

Lack of Manpower Slows Weather Research

➤ MAN'S EFFORT to control the weather is hampered by lack of skilled manpower, the National Science Foundation said in its second annual report on weather modification.

New research opportunities "coupled with the great challenge and tremendous promise" of weather modification have begun to attract fresh, imaginative young scientists to work on the problem in United States graduate school laboratories, the report emphasized.

The NSF Weather Modification Program cost \$1,400,000 during the 1960 fiscal year, a \$250,000 boost from the previous year.

The Foundation now provides the largest measure of Federal support for research on weather modification.

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PHYSICS

Maser's Light Used For Photomicrograph

See Front Cover

➤ A RUBY MASER'S LIGHT has been used to take the photomicrograph of potassium titanate crystals shown on the cover of this week's SCIENCE NEWS LETTER. The needle-shaped crystals, which are one to two microns in diameter, are magnified 3,030 times.

The photomicrograph, believed the first ever made using a flash of light from an optical maser, was taken by J. S. Courtney-Pratt of Bell Telephone Laboratories. The burst of brilliant light from a ruby optical maser, which lasts less than one two-thousandths of a second, is particularly useful for photographing under the microscope rapidly growing crystals and other moving objects requiring intense light for short exposure periods.

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HORTICULTURE

Better Alder Produced By Irradiation of Seed

➤ AN ATOMIC TREE, grown from a seed exposed to nuclear radiation, is now thriving at the Holden Arboretum in Mentor, Ohio.

The tree is a variant of the European alder and is the sole survivor of several thousand seeds irradiated in reactors at Oak Ridge, Tenn.

The radiation, some 400 times the amount that kills a man, damaged all the seeds except the one that became *Alnus glutinosa* Holden, the Holden alder.

Within this one seed, a mutation, or change in heredity, occurred that made the tree more hardy than its parents. It is resistant to the leaf miner, which causes brown, blistered foliage. It has glossy deep green foliage, is much more ornamental than its ancestors and does not drop troublesome seeds as many other street trees do.

Lewis F. Lipp, the Holden horticulturist who planted the seeds in 1957 and produced the new tree, reported that the tree appears to be growing at normal alder pace and probably will reach 30 to 35 feet at maturity.

So far, it has had little opportunity to grow because many cuttings have been taken from it to propagate additional trees. A specimen has been given to the Morton Arboretum near Chicago and other arboreta will receive plants as they become available.

Studies of the new tree's chromosomes, the strands of basic heredity units, are now under way to determine just how irradiation changed the plant.

Regardless of the findings, the tree is living proof that irradiation occasionally can produce, within minutes, a beneficial change that otherwise would take years of selective breeding.

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