

RADIO ASTRONOMY

Radio Star's Noise Is Blocked by Sun

► ASTRONOMERS FOR the first time have actually recorded the dimming of the hisses of a noisy radio star as the sun passed between the star and the earth.

The volume of the star's static begins to decrease long before the sun actually passes in front of it, K. E. Machin and F. G. Smith of the Cavendish Laboratory, Cambridge University, report in *Nature* (Aug. 23).

The first reported "radio occultation," as it will probably be called, was of the radio star in the constellation of Taurus, the bull. This noisy star is believed to be the Crab nebula, the expanding remnants of a star which exploded almost a thousand years ago.

During June, the apparent intensity of microwave radiation from the noisy object was measured at noon on 17 days when the sun's southern limb passed close to it. Measurements of frequencies of 81.5 and 38 megacycles showed that the hisses became less loud as soon as the sun approached the radio star to within even ten times the sun's apparent radius. Refraction in the solar corona is responsible for this dimming of the star's hisses, the Cavendish astronomers believe.

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AERONAUTICS

Sprite Cold-Rocket Has Low Working Heat

► AMONG NEW developments in aviation to be shown in September at the British Flying Display and Exhibition, Farnborough, Eng., is the Sprite cold-rocket, a supplementary powerplant to assist airplanes at take-off.

It gets the name from its low working temperature, around 500 degrees Centigrade, in comparison with 2,000-degree temperatures of ordinary rockets.

The cold-rocket uses liquid fuels to make its own oxygen, its 5,000-pound thrust being derived from sodium or hydrogen peroxide. It is called the de Havilland Sprite rocket, and two of them will be used in the demonstration to assist a de Havilland jet-powered Comet into the air.

At the same exhibition, Britain's most powerful jet engine, the Bristol Olympus, will be flown for the first time in a twin-engine Canberra flying test bed. The two engines to be used give a combination of nearly 20,000 pounds thrust. They are not intended for permanent use in the Canberra, since this jet plane is not designed for such powerful thrusts.

A new faster-than-sound plane will also make its first public appearance at the flying exhibition. It is the de Havilland 110, a two-seat all-weather craft that has made several supersonic test flights. It is powered by two Rolls-Royce Avon axial flow turbo-jets.

British pilots will show at the display the

spectacular effects of flying jet planes with re-heat, similar to what is known in the United States as the after-burner. Fuel is sprayed into the tail pipe of the jet engine and burned there. Some 50% extra power can be provided for short periods by this re-heat, now standard on all the latest models of British jet aircraft.

Science News Letter, September 6, 1952

ENTOMOLOGY

Beetles Hitch-Hike Rides on Passing Bees

► BEETLES THAT hitch-hike rides on passing bees are reported by entomologists at the University of California's College of Agriculture.

The beetles are parasitic on wild bees, but lay their eggs on flower buds. As the buds develop into flowers, the beetle eggs hatch. The beetle larvæ then crawl up on the flower blooms and wait for a wild bee to come along hunting for nectar and pollen.

When the bee lands on the flower, a beetle larva hooks on to a hair on the bee's body. Then the bee, with the beetle firmly attached, flies back to her nest. Inside the egg cell, the beetle crawls off the bee and settles down in the cell. After the bee lays her egg and provides a generous pollen-ball for her developing offspring, she seals the cell. The beetle proceeds to eat the bee's egg and then start in on the pollen-ball.

When the beetle has eaten its fill, it changes into an adult, burrows out of the cell and flies to flowers. There it feeds on nectar, mates and lays more eggs on flower buds. Thus the cycle starts over again.

These hitch-hiking beetles are highly specialized for their way of life. As young larvæ, they use their strong jaws to grab onto the bee. They are the only known beetles, when adult, with mouthparts similar to those of butterflies. All other beetles chew their food, but these beetles, as adults, can eat only nectar from flowers.

Science News Letter, September 6, 1952

ASTRONOMY

New Exploding Star Spotted From Mexico

► A "NEW STAR" has been spotted in the southern sky. Still too faint to be seen without a telescope, this 11th magnitude nova is in the constellation of Orphiuchus, the serpent holder, visible in the south after sunset.

The exploding star is not far from the region where Nova Orphiuchi, also known as Kepler's star, blazed forth in 1604. This star, one of the most famous novæ in history, became brighter than Jupiter, then faded from naked-eye vision in a little more than a year.

The nova was discovered by Sr. Braulio Iriarte of the National Astrophysical Observatory, Tonanzintla, Puebla, Mexico, on Aug. 22.

Science News Letter, September 6, 1952

IN SCIENCE

METEOROLOGY

Hurricane Flyers May Be Replaced

► THE NAVY pilots keeping track of hurricanes in the Atlantic will one day be out of a job.

The difficult and dangerous job of flying into the center of a hurricane to get information about its strength, the direction in which it is traveling and its speed will be taken over by two instruments designed originally for other purposes. One is the seismograph, used in earthquake recording; the other is radar, used to track airplanes and other moving objects.

It is known that hurricanes develop microseisms, very tiny earthquakes. Recent Navy research with typhoons off Guam has shown that hurricanes can be tracked from hundreds of miles away through the recordings of these microseisms on seismographs. However, many details need to be worked out before hurricanes can be tracked accurately by this method.

For close-in work, radar can do the job quite well. Already a network of radar stations over the southeast is prepared to supplement the Navy and Air Force pilots who fly out to the hurricanes and their winds of more than 100 miles per hour.

Science News Letter, September 6, 1952

AGRICULTURE

Egypt Could Become Europe's "Fruit Basket"

► EGYPT COULD become the "fruit basket" of Europe, Dr. Robert W. Hodgson, dean of the College of Agriculture of the University of California at Los Angeles, has found during a seven months' study of Egypt's fruit industry under a Fulbright research grant.

Egypt's easy access to the Suez Canal and her low labor costs offer excellent opportunities for export of citrus fruits and dates to Europe.

The popular mango fruit, for example, grown only in tropical countries, is being shipped to Europe all the way from South Africa and India. Egypt's growing mango industry is thousands of miles closer to principal European markets.

Prof. Hodgson estimated that Egypt has about 150,000 acres devoted to fruit production. This includes dates, citrus fruits, grapes, mangos, bananas, guavas, figs, olives and such stone fruits as apricots.

He also reported that Egyptian graduates of American agricultural colleges are rapidly moving into positions of influence in the government's Ministry of Agriculture.

Science News Letter, September 6, 1952

FIELDS

PSYCHOLOGY

Darkness Not Needed To Test Night Vision

► TO TEST the night vision of Army recruits, it is no longer necessary to let them sit for 30 minutes adapting their eyes to the faint illumination and then make the test in darkness.

A group of scientists from the Army's Personnel Research Section told the American Psychological Association meeting in Washington that tests can be made after 10 minutes of adaptation. Standard charts and vision-testing equipment can be adapted for use in a half-light illumination equivalent to moonlight obscured by clouds.

These mesopic vision tests are much more practical to give than night vision tests, and scores on them have such a close relation to night vision scores that the mesopic vision tests can be substituted, Drs. Joseph Zeidner, Julius E. Uhlner and Donald A. Gordon reported.

After about a 10-minute adaptation period, testing is started at the lowest brightness level. Only 15 to 30 seconds is allowed for adaptation to each new brightness level.

One of the instruments used for mesopic vision testing is a modified Ortho-Rater. The person tested sits in a small booth, but the target he looks at appears to be at a distance of 26 feet. This saving of space is also a great convenience in tests conducted by the armed services.

In this dim light between daylight and darkness, either rod (night) or cone (daylight) vision may be in use. Different individuals vary in the extent to which they use either rods or cones.

Science News Letter, September 6, 1952

GENETICS

Breed Heat-Resistant Steers for Deserts

► FINDING A beef animal that can be bred in the 120-degree summer heat and below sea-level elevation of California's Imperial Valley is the goal of research workers of the University of California.

Ten calves from Braford (Brahma-Herford) crosses bred to a Charolais bull are being tested at the University's Imperial Valley Field Station, El Centro.

The fast-growing Charolais, a dual-purpose beef and milk breed in its native France, is being tried in combination with the British breeds to see how the animals will do in the intense Imperial Valley heat.

Imperial Valley ranchers, with the advantage of high-production irrigated pastures and grain fields, now feed around 120,000 head of cattle annually, but most of the

stock is purchased outside and fed in the Valley before marketing.

"We want to see if it is economically feasible to keep a cow the year around on the high-priced land in the Valley, or if it is better economics to continue buying feeders," said N. R. Ittner, station superintendent.

Other breeding experiments will be conducted with a variety of crosses with the heat-resisting Brahma cattle from India, Brangus (Brahma-Aberdeen Angus) and Brahorn (Brahma-Shorthorn) as well as with Braforders.

Science News Letter, September 6, 1952

ENTOMOLOGY

Prolong DDT Power By Phosphate Spray

► THE INSECT-KILLING power of DDT when sprayed on walls may be prolonged by first spraying the walls with a normal solution of phosphate.

This discovery was made by Dr. H. Maes of Elisabethville in the Belgian Congo. He was trying to find why DDT lost its power rapidly when sprayed on the walls of certain African houses. Its usual long-lasting action when sprayed on walls is one of its great virtues in anti-mosquito campaigns.

If the walls of the houses are made of soils that contain iron in the ferric form or aluminum, DDT is quickly changed chemically and loses its insect-killing power, it has been found. The chemical change is a process of dehydrochlorination.

Phosphate, which neutralizes the ferric ions, stops this. Dr. Maes reports his findings in *Nature* (Aug. 23).

Science News Letter, September 6, 1952

MARINE BIOLOGY

Clam's "Beard" Woven Into "Sea Wool" Apparel

► GARMENTS WOVEN of so-called "sea wool," which is possibly the golden fleece of Jason, would be quite costly, but they could possibly be obtained today in Italy.

A "sea wool" glove of modern manufacture is among one of the exhibits of the Smithsonian Institution.

How the "beards" of the giant Mediterranean clams, *Pinna marina*, were woven into garments is described in a publication on Islamic art issued jointly by the University of Michigan and the Freer Gallery of Art of the Institution.

The giant clam's shell has been known to be as long as three feet, although the average is less than half of this. From a gland in its "foot," the clam secretes silklike strands with which it attaches itself to the sea bottom. These strands may reach a maximum length of about a foot.

The silklike strands are of exceptionally fine quality, or were so regarded by the Arabs. This "silk" was once used to weave cloth for highly-prized garments.

Science News Letter, September 6, 1952

MEDICINE

Polio Cripples Get Jobs More Easily

► INFANTILE PARALYSIS cripples are more likely to get jobs than other handicapped persons, Dr. Robert C. Darling of the Institute for the Crippled and Disabled, New York, reported at the American Congress of Physical Medicine meeting in New York.

His report was based on a survey made by himself and Marion S. Lesser of Columbia University College of Physicians and Surgeons of 267 patients discharged from the Institute in 1940-1941. The survey showed 82% of polio patients now gainfully employed, compared to 74% of bone, joint and muscle disease victims, 71% of amputees and 61% of cerebral palsy patients.

In getting a job, the following factors help to make up for disability: onset of a disability before 30 years but after birth; ability to achieve physical independence; average or above average intelligence; and at least some high school education.

Science News Letter, September 6, 1952

MEDICINE

Malaria Relapses Stopped by New Drug

► MOST OF our troops returning now from Korea will escape malaria relapses, thanks to the primaquine pill they take every day for 14 days during their return voyage. This is in contrast to experience last summer when large numbers of Korean veterans suffered malaria relapses.

Figures reported in the *Journal of the American Medical Association* (Aug. 23) show that the Korean malaria relapse rate has been reduced from almost 30% to less than one percent.

Unlike their elder brothers of World War II Pacific fighting, our troops in Korea now can escape entirely being sick with malaria. This is because the chloroquine they get during the malaria season suppresses the acute attacks and primaquine, given as soon as the chloroquine is stopped when the men start rotation home, prevents relapses.

Only ones now who may have relapses are those who miss getting the full 14 days of primaquine. This may be because they are flown home or because for some other reason, such as seasickness, they miss a noon meal when the primaquine pills are given.

Primaquine was synthesized at Columbia University during World War II. Extensive studies with animals and human volunteers followed. Four studies of the use of primaquine and chloroquine in controlling malaria are reported by civilian, Army and U. S. Public Health Service physicians.

"Moderate quantities" of the drug will shortly be available, although it has until now been limited because of short supplies to military installations and groups officially studying it.

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