

PHYSICS

Ray Origin in Crab Nebula

Some of the high energy cosmic rays bombarding the earth appear to come from the Crab nebula, an old supernova, Japanese physicists find.

► THE ORIGIN of at least some of the very high energy cosmic rays that bombard the earth continuously seems to be the famous Crab nebula, an old supernova or exploding star which is one of the most curious of heavenly sights.

Specialists on cosmic rays have been set to wondering by a report that has come out of Japan. It tells of a recent study of cosmic ray observations made before Pearl Harbor. In those pre-war days, a group of Japanese physicists took cosmic ray detecting apparatus deep underground into the Shimizu tunnel where only the radiation of highest energy would reach. There it was protected by an equivalent of seven-eighths of a mile of water. This strong radiation could not be scattered by the magnetic field of the earth or in outer space like weaker radiation.

When it was determined by continuous observation from just what part of the heavens the radiation came, the cosmic ray "telescope" pointed directly in the direction of the Crab nebula, which is not too far away as astronomical bodies go.

The Crab nebula is a remarkable source of cosmic noise, radio waves that can be tuned in with a special kind of sensitive receiver. Drs. Y. Sekido, T. Masuda and S. Yoshida of Nagoya University and Dr. M. Wada of Tokyo's Scientific Research Institute, who made the analysis, do not suggest that cosmic noise and cosmic ray production are necessarily related because some noise sources do not show cosmic ray intensity.

But they do suspect the Crab nebula, with its explosive expansion that astronomers can still trace, is involved in producing one kind of cosmic rays.

The exploding star that gave birth to the Crab nebula in 1054 A.D. was seen by the Chinese and the Japanese as brighter than Jupiter. The nebula has been known since 1730 when it received its name because as seen through the telescope it seems to have spreading tentacles. Its light takes about 4,000 years to reach us. The nebula is expanding at a rate of about 800 miles per second.

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BIOCHEMISTRY

Benadryl Treats Paralysis

► BENADRYL, ONE of the first of the anti-histamine drugs, can help toward rehabilitation of some patients with a paralytic stroke affecting one side of their bodies.

This new use for the drug was discovered accidentally by Dr. Ralph W. Barris of the School of Medicine, University of California, at Los Angeles, and the Wadsworth Veterans Administration Hospital in Los Angeles.

Dr. Barris was testing Benadryl and other drugs for their ability to reduce a spastic state of muscles when he happened to give it to a victim of paralytic stroke who had a condition called "thalamic syndrome." In this condition, the patients experience very unpleasant skin sensations in the paralyzed side of the body. They describe the sensations as "hot," "stinging," "icy," "tickling," "stabbing," "tearing the skin," and by other words expressing an unpleasant feeling.

Lying on the affected side in bed, being moved into a wheelchair, being bathed or dressed, or the pressure of the bedclothes are all apt to cause the patient excessive discomfort. He may also suffer unbearable

and agonizing pain described as "boring," "aching," or "crushing" which is not brought on by the skin being touched but may be exaggerated if an arm or leg is moved by the nurse or physical therapist.

Aspirin, codeine and even morphine have been of little value in relieving this pain. The patient will lie in bed protecting the affected arm by covering the hand and wrist with his normal hand or arm. Nursing, massage and more active measures for rehabilitating the patient are extremely difficult to carry out.

Benadryl, Dr. Barris found, relieves these symptoms. After the accidental discovery of this in one patient, he gave it to 17, in large doses four times a day. In five cases the results were "excellent," in 10 they were "good" and in two they were "fair."

Five patients who had resisted all forms of physiotherapy, preferring to lie undisturbed in bed, within two or three days were able to sit in a wheel chair and could stand massage. Eventually they were able to complete an active course of rehabilitation and were walking and relatively self-sufficient within the course of several weeks.

Dr. Barris' report to the American Academy of Neurology is available to other doctors through the Academy's official journal *NEUROLOGY* (Dec., 1951).

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PSYCHOLOGY

Judgment Influenced By Likes and Dislikes

► WHETHER YOU like something influences your judgment as to its weight and size. A jar of candy seemed heavier to a child than a jar of sand, even when the candy jar weighed less, Miss Ruth Lynch, psychology student from Larchmont, N. Y., found in studies at Emory University, Ga.

Real coins seemed larger than gray disks of the same size, Miss Lynch found in her studies with 30 boys and girls aged six to 10 years. And poor children saw the real coins as much larger than did children of the rich.

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BIOCHEMISTRY

Two Lamb Crops Yearly Through Sex Hormone Use

► TWICE AS many lamb chops the year around, and spring lamb in the fall, not to mention more wool for winter clothing, seem promised through development of a new sex hormone by chemists of Upjohn Company, Kalamazoo, Mich.

The hormone is known technically as estradiol cyclopentylpropionate, or ECP for short. It will be widely available by March 1, Dr. J. L. Davidson, head of the company's veterinary medicine department, promises.

ECP is a female hormone. It has been used successfully to treat sterility in cattle, swine and other domestic animals.

Tests at agricultural colleges, state experiment stations and by veterinary practitioners show that ECP will bring ewes, normally fertile only in late fall and winter, into heat twice a year. This makes possible a double lamb crop.

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PLANT PATHOLOGY

Antibiotic Treatment Keeps Wheat Seed Free from Smut

► "MIRACLE" DRUGS or antibiotics such as now cure so many human diseases are being used to keep crops healthy.

From the University of Alberta in Edmonton, Can., comes a report sent to the journal *SCIENCE* (Jan. 25) that treatment of seed wheat with the antibiotic, actidione, in dust or liquid form in very low concentrations completely prevented the wheat disease known as covered smut.

The research was done by A. W. Henry, R. L. Miller and E. A. Peterson.

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