

ASTRONOMY

Supernova Discovered

Located in the constellation of Canes Venatici, or the Hunting Dogs, near the Big Dipper, the new star is the result of a chance observation.

► CHANCE PLAYED a role, as it often does in scientific research, in the discovery of a supernova in the constellation of Canes Venatici, or the Hunting Dogs, near the Big Dipper, at Mount Wilson Observatory in Pasadena, Calif.

Discovery of a supernova—a star which temporarily may become 100 million times as bright as the sun—is always news to astronomers. But in this case, the story behind the news is as interesting as the discovery itself.

On the evening of April 6, Milton L. Humason was preparing to photograph the spectrum of the spiral nebula Messier 51 with the 100-inch telescope of the Mt. Wilson Observatory. The spiral known as Messier 51 consists of two parts: a main spiral to which is attached a small satellite. It was this satellite spiral which Mr. Humason intended to photograph.

Although he had not observed this particular nebula for three years, his attention was immediately attracted to a faint star near the central nucleus which he could not recall having seen before. At first he was inclined to dismiss the object, believing his memory was at fault. Yet somehow he felt sure there was no star at that position three years ago. If so, it was probably a supernova. The conviction became so strong that he determined to make a check at the earliest opportunity. Sure enough—examination next morning of old photographs of Messier 51 failed to reveal a star near the center of the satellite spiral.

The surest way to decide if the star was really a supernova or not would be from its spectrum. Upon the following night therefore Mr. Humason secured a photograph which told the whole story. The star was found to have strong bands in the red region of its spectrum typical of supernovae about 65 days past their maximum brilliancy.

"It was certainly fortunate that I had Messier 51 down on my observing program for the night of April 6," Humason said. "For it was fading so rapidly that I would probably have overlooked it a few weeks later. The fact that a supernova appears in a spiral nebula only once in about every 400 years makes the

coincidence seem all the more remarkable. Also, if the star had not been so close to the central nucleus I feel sure I would never have noticed it."

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METALLURGY

Distillation Purifies Metals Easily and Safely

► A SAFER method for preparing the metals calcium, strontium and barium in pure form is the subject of a group of patents, Nos. 2,375,198 to 2,375,201, inclusive, issued to Dr. Peter P. Alexander of Marblehead, Mass., president of the firm of Metal Hydrides, Inc., to which he has assigned his rights.

Most frequent impurities in these light metals are the still lighter metals, sodium and potassium. These can be driven out by heating in a closed vessel, at a temperature high enough to evaporate sodium and potassium but not the other metals. The evaporated metals are then condensed and removed.

A difficulty has been that as soon as the processing vessel is opened, the highly inflammable sodium and potassium are apt to ignite on contact with the oxygen of the air. Dr. Alexander's new process obviates this by placing titanium oxide in the container where the two trouble-making metals condense. The sodium and potassium take up some of the oxygen from the titanium compound, so that by the time the air strikes them they are already oxidized and therefore safe against ignition.

Science News Letter, May 19, 1945

AERONAUTICS

One-Handed Flying Is Now Made Possible

► ONE-ARMED drivers who fly can now take to the sky, and safely too, with an electronic control stick that requires only one hand to manage a heavy four-engine bomber like a B-24 Liberator or B-29 Superfortress. With the aid of electronic amplification and the servo motors which control ailerons, rudder, and other movable airplane surfaces, the new con-



ONE-HAND CONTROL—This new control is used on all present heavy bombardment planes. The position of the stick and arm rest is readily seen to be arranged to give comfort to the pilot.

trol stick moves the airplane in the same direction as the stick itself is moved with little effort on the part of the pilot.

Actually less effort is required to control a heavy bomber with the new device than a boy uses in turning his bicycle. Called the formation stick, it was developed by the Air Technical Service Command and the Minneapolis-Honeywell Regulator Company. The control is a pistol-grip lever about 10 inches long, mounted with an arm rest beside the pilot. It is free to move in all directions in exactly the same manner as the "joy stick" of smaller planes.

Designed primarily to overcome pilot fatigue on long flights which are often tiring to pilots, the formation stick enables our flyers to be more alert during bombing missions, resulting in better bombing patterns and wing-tip to wing-tip flying formations, which enable our bombers to bring more guns to bear on attacking enemy aircraft. The new device also simplifies the movement of the plane in evasive action to avoid anti-aircraft fire, when pilots have to change the direction of their planes frequently.

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L-ascorbic acid, a chemical known as an anti-oxidant, will prevent the flesh of peaches from turning dark in drying or freezing for preservation.