SCIENCE NEWS

Science Service, Washington, D. C.

DISCOVERY OF A SUPERNOVA

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 at Pasadena.

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 Mount 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 supernova 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," Mr. Humason said. "For it was fading so rapidly that I should 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 should never have noticed it."—ROBERT S. RICHARDSON.

ITEMS

KOPFF'S periodic comet has been rediscovered by Henry L. Giclas, astronomer at Lowell Observatory, who recently located the famous Pons-Winnecke comet. The comet is of the 13th magnitude, far too faint to be seen with the naked eye. The object was quite diffuse, with a nucleus. Nothing was reported about its tail. Kopff's comet was located in the constellation of Libra. According to a telegram sent by Dr. V. M. Slipher, of the Lowell Observatory, Flagstaff, Ariz., to Harvard Observatory, its position on May 7 was at right ascension 15 hours, zero minutes, 11.9 seconds; declination minus 24 degrees, 27 minutes, 21 seconds. Its daily motion was found to be 36 seconds of time west and 8 minutes of arc north. Kopff's comet was first discovered in 1906, by a German whose name it bears. It was last seen in 1939, at which time it was also of the 13th magnitude. It was then located in the constellation of Aquarius, the water-carrier.

THE newest escape device for fighter pilots to be used in case of serious emergency is a catapault seat that drops the pilot through the floor of his plane when he presses a release lever and depresses a treadle bar with his feet. Designed for use with pusher-type planes where the propeller is located behind the cockpit instead of in front, the catapault seat throws a pilot clear of the airplane so that he will not be injured by the propeller. Developed by engineers of the Consolidated Vultee Aircraft Corporation, the catapault is also a miniature elevator, for non-emergency use. On the ground it can be extended beneath the fuselage or cockpit nacelle of the aircraft. When the pilot sits down and pulls a lever, it will rise smoothly into the airplane cockpit. This will make it possible to save space that is now needed to give the pilot an entrance to his plane. After a flight, the pilot adjusts the seat lever and lowers himself to the ground. This new development may lead to wider experimentation with pusher type airplanes. Aeronautical engineers have long known that pusher-type airplanes can be extremely efficient, due to the fact that the most vital wing contours are not disturbed when engines and propellers are situated behind the wing surfaces.

WITH a new self-sealing pipe coupling you can now disconnect pipes without the loss of liquid or gas contents, not even a drip gets out, and no air or dirt can get into the line. The secret is two automatic valves that seal off the ends of the line as they are uncoupled. It is particularly handy in preventing spilling of inflammable or corrosive liquids which may be carried in pipes. Developed by the Exactor Control Company, Ltd., London, and reported in *The Engineer*, the coupling can be used for systems carrying liquids or gases at pressures up to 200 pounds per square inch. The bore of the coupling ranges between one quarter inch to twelve inches. The metal of which the coupling is made varies, depending upon the use to which it is to be put. Light alloys are used for aircraft, heavier metals for ordinary use, and stainless steel for chemicals whose purity must be guarded, and for liquids to be used for human consumption. As the outer ring of the coupling is unscrewed, springs inside the unit gradually force synthetic rubber valves into valve seats, sealing off the two ends before they are uncoupled. In addition to normal screw couplings, bayonet fittings and other quick-release methods may be adapted to the self-sealing principle.