

ASTRONOMY

Nova Puppis

Brightest "new star" in quarter century bursts forth to shine more brilliantly than all but ten stars in heavens. Easily seen in early morning hours.

➤ A NEW STAR or nova brighter than all but ten stars in all the heavens has burst forth and may be seen in the early morning sky. It is somewhat brighter than first magnitude. This is the brightest nova since 1918 and is the most striking and unexpected of astronomical events.

Discovered by an American astronomer in Argentina, the brilliant new star will be known as Nova Puppis, because it is located in the constellation of Puppis, meaning the stern of the ship.

It may become known as this year's Christmas star because one of the explanations of the star of Bethlehem is that it was such a nova.

The new star was discovered on the weekend of Nov. 7-8 by Bernhard H. Dawson, of the University Observatory at La Plata, Argentina. He is an American astronomer, born and educated in Michigan. News of the discovery was received at Harvard Observatory in the form of a brief telegram signed by Enrique Gaviola, director of the Argentine National Observatory at Cordoba, Argentina.

The constellation Puppis, in which the nova is located, is in the southern sky, rising about 2:00 A.M. during November and crossing the meridian about 5:00 in the morning. The nova is situated near the second magnitude star, Zeta Puppis, sometimes called Naos.

But the nova, according to Leon Campbell, recorder of the American Association of Variable Star Observers, outshines all stars in its vicinity, for on the morning of Armistice Day it was of magnitude -0.8 (minus zero point eight) which makes it brighter at present than the star Altair in the eagle.

Those who can find Sirius can easily find the new star. Sirius, brightest star in the sky, rises after midnight in the southeast. An hour and a half later nova Puppis rises, but much farther to the south. Sirius is in Canis Major, the constellation of the big dog, the southern part of which is a triangle of three second magnitude stars. A line from Sirius through the triangle prolonged about its own length will end near the nova.

Not since 1918 has a star of the first magnitude blazed forth. In that year it

was during the eclipse of the sun in June that a nova was discovered in the daytime sky.

The nova now in the skies may remain at its peak brightness for several weeks, or it may decline rapidly. Its behavior cannot be predicted exactly. Meanwhile, it alters the appearance of the sky in its vicinity greatly.

Only 20 stars in the whole sky are of the first magnitude. Thus, this star takes its place among the first 20; in fact, it is now the eleventh brightest star in the entire sky and the seventh brightest to be seen from Washington's latitude. It may even get brighter, but usually novae are not seen much before their maximum brightness.

Astronomers will check the position of the nova with those of stars on earlier photographs of the same region to determine which of the faint stars in this part of the milky way suddenly flared

up so bright. Novae are not really new at all, but old stars which suddenly increase in brightness hundreds of thousands of times.

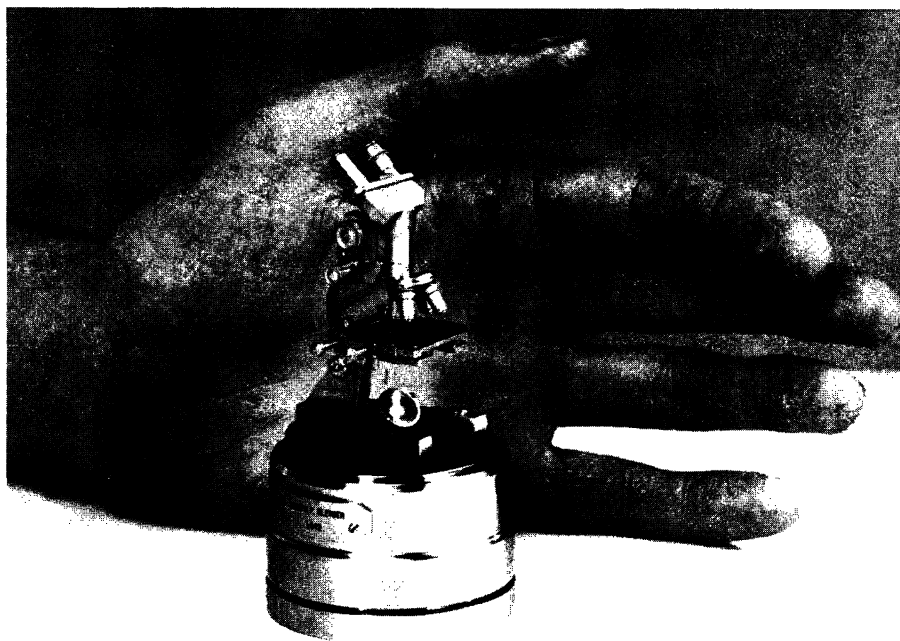
Nova Cygni, reported earlier by *Science Service* this year, reached only the eighth magnitude. Nova Puppis is about six hundred times as bright as this was, and Nova Cygni has now faded to the 15th magnitude.

Science News Letter, November 21, 1942

Seen by Accident

➤ FIRST GLIMPSE of Nova Puppis, obtained by Dr. Edison Pettit of the Mount Wilson Observatory staff was on the morning of Tuesday, Nov. 10. This was an independent discovery of the nova.

Dr. Pettit, who specializes in observations of the sun and not the stars, sighted the nova by accident and not during the course of regular astronomical work. Going out to get the morning paper in front of his home in Pasadena he happened to notice a brilliant star in the constellation of Puppis where no star that bright should be. It is remarkable even that a professional astronomer should notice a new star in this region of the sky since it is very seldom seen by astronomers in the United States. He immediately checked its position with a



MICROSCOPIC MICROSCOPE—Working with watchmaker's lathe, taps, and dies, Joseph P. Kleiber, Bausch and Lomb microscope worker made this tiny model of a standard instrument. It is only two and three-quarters inches high and is a binocular type microscope with revolving eyepiece carrying three objectives.

6-inch telescope in his backyard observatory. What was more important, a photometer happened to be attached to the instrument so that he was able to make an accurate measurement of the nova's brightness. It was then about as bright as Rigel, the brightest in the constellation of Orion, just north of the nova.

Science News Letter, November 21, 1942

Gases Ejected Violently

➤ NOVA PUPPIS is now in the midst of its most violent phase of ejection of gas, it is indicated by observations of its spectrum by Dr. A. D. Maxwell and Dr. Dean B. McLaughlin of the University of Michigan Observatory.

The Michigan spectra show strong interstellar calcium lines and allow estimates that the distance of the nova is such that it took light 1,600 years (traveling 186,000 miles per second) to reach earth and that the actual brilliance of the star is 150,000 times that of our sun.

Dr. Maxwell discovered the new star independently on Armistice Day morning before news of its discovery in Argentina had been received.

The star's spectrum shows strong hazy bright hydrogen bands, conspicuous bright ionized iron and a neutral oxygen band at 6155, with their centers undisplaced. These are bordered on the edges of shorter wavelength by diffuse absorption lines. Absorptions of ionized titanium, magnesium and silicon are also present. No traces are seen of helium or other "hot star" lines. Displacements of absorption lines are discordant. Hydrogen is shifted the equivalent of a motion of 1,100 kilometers (700 miles) per second toward the earth, iron and titanium about 900 kilometers (550 miles) per second, and magnesium somewhat less.

Science News Letter, November 21, 1942

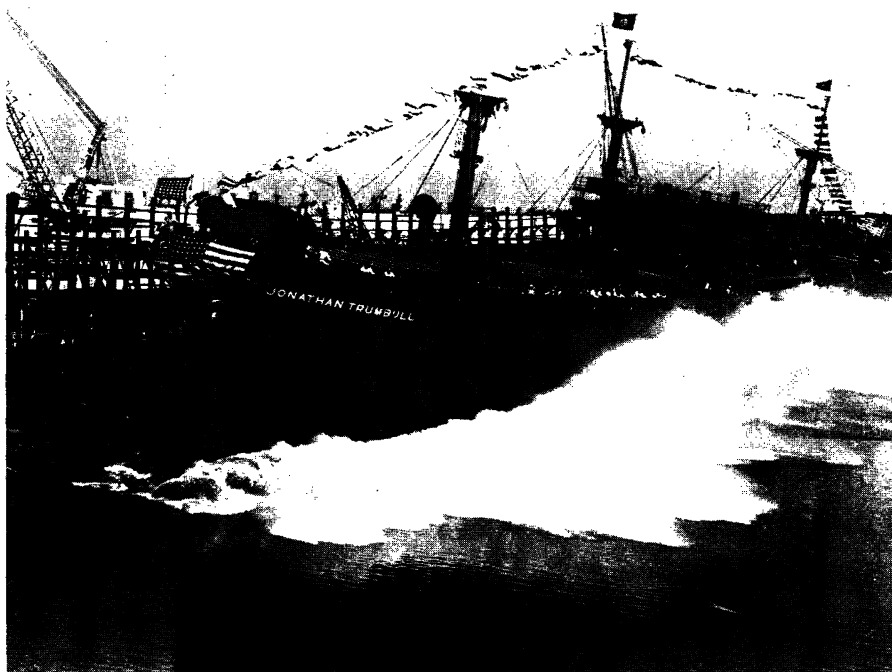
Past Peak Brilliance

➤ PEAK BRILLIANCE of Nova Puppis was apparently reached on November 12 although it is still one of the brightest objects in the night sky.

Cables from Lund, Sweden, report the discovery of the star by Prof. P. Finsler of Zurich Observatory, Switzerland. It was also discovered by George Baird, Oakland, Calif., amateur.

Spectrum photographs at Yerkes Observatory and Michigan indicate that a gaseous shell appears to be expanding around Nova Puppis at the rate of 400 to 700 miles per second.

Science News Letter, November 21, 1942



SIDE-LAUNCHING of a Liberty ship which occurred recently, is shown at an undisclosed shipyard. This method is being improved and widely used as it permits construction work in narrow waters. This picture is from the official collection of the U. S. Maritime Commission.

ENGINEERING

Side-Launching Improved

➤ SHIPS are tumbling off groundways, side-launched by an improved technique announced to the Society of Naval Architects and Marine Engineers by James H. Fahey of Manitowoc, Wis.

These were the first experiments ever conducted, as far as could be determined, using a model submarine for side-launching. The miniature undersea craft was about the size of a rowboat.

Studies included tests for the best angle of tilt for the ship, amount of roll as it strikes the water, velocity of the launching and other factors which affect the safe birth of Uncle Sam's "tin fish."

Instead of the usual wooden cradles, which are used only once, it was first planned to adopt steel cradles which could be used again and again. But experiments showed that there was danger of their edges striking the bottom, so the old method has been continued.

Side launching permits construction of ships in rivers and narrow waters where

it would be impossible to obtain the run that is necessary when ships are launched endwise. However, this creates the problem of requiring much water frontage.

Assembly-line methods have now solved this problem, Mr. Fahey reported. A whole row of ships are built parallel to each other, extending back from the water's edge. Starting farthest from the shore, each ship is moved a step closer with each operation, finally tumbling sideways into the water at the end of the line as it nears completion.

Science News Letter, November 21, 1942

New Steel for Ships

➤ USE of high elastic steel will reduce weight and improve durability of Uncle Sam's seagoing vessels if tests confirm present indications, declared Edgar P. Trask of New York City, at the meeting.

The proposed steel would be easily flame cut and welded, and have high