

## ASTRONOMY

# Densest Star Found Brighter Than Formerly Supposed

## New Determination Shows Companion of Sirius To Be Almost As Brilliant as Naked-Eye Stars

THE strange companion of Sirius, the dog-star, which is so dense that a cubic inch of stuff of which it is made would weigh 25 tons if a piece could be transported to the earth's surface, is about three times as bright as astronomers have previously supposed.

Dr. A. N. Vyssotsky, of the Leander McCormick Observatory of the University of Virginia, has recently completed a new determination of the brightness of this remarkable little star. A full account of his researches appears in the *Astrophysical Journal*, published by the University of Chicago Press.

Though Sirius B, as the companion is called, is not very much fainter than stars that can be seen with the naked eye, it is very difficult to observe because of its proximity to Sirius, brightest of all the stars in the sky. Even with telescopes powerful enough to reveal it easily, measurements of its brightness are complicated by Sirius' overpowering glare.

The new method employed by Dr. Vyssotsky makes use of the fact that when a grafting of fine parallel wires is placed over the lens of a telescope, and a star photograph taken, the image of the star is accompanied on either side by a series of images of its spectrum. The closer the wires, the more spread out are the spectral images.

Dr. Vyssotsky placed such a grafting over the 26-inch lens of the McCormick Observatory's telescope and photographed Sirius and the companion. The arrangement of the wires was chosen so that the first spectral images were just as far from Sirius as the companion's image. On the resulting plate appears the main star image spread out into a small disc because of the star's brilliance. On either side are the images of the spectrum, looking very much like the image of the companion, just below.

The brightness of such a spectrum image, in relation to the star itself, can be calculated, and thus Dr. Vyssotsky found how bright the images should

appear. But they, like the image of Sirius B, are affected by proximity to the bright star. In this way he found how much of an effect the glare of Sirius produced, and when this correction was applied to the measured brightness of the image of the companion, he found its magnitude to be 7.25, instead of 8.44, which has previously been accepted.

This determination was checked in another way, by making double exposures, in the same way that a movie camera man can photograph an actor talking to himself. The plate was first exposed on a very bright star, and then exposed again on a cluster of faint stars, one of which came close to the bright one, and thus played the part of the companion. The brightness of the faint star was then determined separately, and the effect of the glare measured. This method gave a value for the magnitude of Sirius B as 6.91. The mean of the two determinations is 7.1, which Dr. Vyssotsky adopts as the best value for the brightness of Sirius B. With the naked eye, under good conditions, stars as faint as the sixth magnitude can be seen.

*Science News Letter, July 15, 1933*

## ARCHAEOLOGY

## Alabama Expedition Finds 40 Unknown Indian Sites

FORTY heretofore unknown sites where Indians once had their homes and villages have been discovered in Alabama by a party of scientists headed by Dr. Walter B. Jones, director of the Alabama Museum of Natural History and state geologist.

The expedition, which has returned to the University of Alabama, spent two weeks traveling by water through counties of northwestern Alabama. One bluff shelter, previously known and partly explored by the owner of the land, David Barger, was further investigated and some of the bones of the ancient

occupants were found. The shelter had been used by two young adults, a child, and an infant.

Several thousand specimens of beetles, some already recognized as new to science, were obtained by naturalists of the expedition.

*Science News Letter, July 15, 1933*

## SEISMOLOGY

## Earthquake Shakes Aleutian Islands

THE ALEUTIAN Islands in the vicinity of Unalaska Island felt the force of the earthquake of Wednesday (June 28, 6:35 p. m. E.S.T.) that was recorded on seismographs. Telegraphic reports to Science Service from seismological observatories were used by the U. S. Coast and Geodetic Survey to locate the epicenter as 53 degrees north latitude 167 degrees west longitude. The Jesuit Seismological Association at St. Louis located the epicenter's longitude three degrees farther west. Honolulu, Georgetown University, Fordham University, St. Louis University, were the seismological stations reporting.

*Science News Letter, July 15, 1933*

## The History of Staining

A series of papers on the History of Staining which has been appearing in *Stain Technology* from 1928 to 1933 is to be published in book form about October 1, 1933. This book also includes full-page portraits and biographical sketches of nine men prominent in the development of staining technic.

The price of the book is to be \$2.00, but a special pre-publication price of \$1.50 is offered until the fifteenth of October, provided orders are accompanied by cash or by official orders from educational or scientific institutions.

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