

ASTROPHYSICS

"Heavy-Weight" Stars May Be Composed of Neutrons

THE SUPER "heavy-weight" stars of the universe, some of which are 50,000 times as dense as water, may be composed of neutrons. Neutrons are the newly-discovered non-electrical particles of matter which are far smaller than the tiniest atoms—hydrogen—and yet have about the same mass. This is the new theory advanced by Dr. W. Baade of the Carnegie Institution's Mt. Wilson Observatory and Dr. F. Zwicky of the California Institute of Technology in a report to the National Academy of Sciences.

The hitherto baffling fact about the heavy-weight stars, like the white dwarf companion of Sirius, is that they are only about as large as a planet but weigh as much as the sun. They have an almost incredible amount of matter packed into a small space.

The suggestion that the very dense stars are composed of the heavy but small neutrons is put forward by the Pasadena scientists because the tiny neutron specks would pack tightly and allow much more than the normal amount of matter to be pressed into a given volume. Electrical repulsion between normal atoms places a limit on this packing capacity in the usual stars.

The time when an ordinary star changes into a "neutron star," declare Drs. Baade and Zwicky, may be during the rare transition of the stellar

objects into what scientists call a super-nova.

About once in a thousand years in any given system of stars like our Milky Way some one star will "go wild," so to speak, and flare up so that its brightness increases tremendously. On occasions super-novae outside our own star system have been as bright as Venus. Then after a year or two the super-novae fade back into their former obscurity.

It is during this final eruption of the super-nova that the change may be occurring from an atom to a neutron star. The phenomenon might be likened to a man who has one final fling at life before settling down to a stable, sedentary old age.

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PSYCHOLOGY

Personality Measured On Seven-Point Scale

PERSONALITY is not the vague, mysterious "gift from the fairies," that many suppose it, but is a tangible, measurable aspect of character made up of seven factors, Dr. William S. Casselberry, director of the Psychological Service Center, Los Angeles, told members of the American Association for the Advancement of Science. Personality is not a spell cast over others, Dr.



RECENT ARCHAEOLOGICAL WORK IN THE UNITED STATES

an address by

Frank N. Setzler

Assistant Curator of the Division of Archeology, U. S. National Museum

Wednesday, July 11, at 3:30 p. m., Eastern Standard Time, over Stations of the Columbia Broadcasting System. Each week a prominent scientist speaks over the Columbia System under the auspices of Science Service.

Casselberry said.

"What influences you to like or to dislike another person is everything about that person which you can see, feel, hear, taste, or smell. Personality is the way we look, the big and little things we do, the odors we disperse, and everything else another person notices."

The seven factors of personality, as defined by Dr. Casselberry are: vitality; appearance, including clothing, face and hair, carriage and figure; voice; poise; conversation, including fluency and interest; success in vocation; presence or absence of personal problems.

Measurements of seventy patients on these seven points showed a similarity between the results obtained and their scores on a psychiatric measure of personality, which takes into account the individual's self-sufficiency, his tendency to dominate, and his self-centeredness or lack of it. This similarity indicates that the people who make a good impression tend to have good mental and emotional characteristics.

To determine whether the converse is also true, Dr. Casselberry studied the persons who had written letters to him asking for assistance with personal problems. He wanted to know whether those who are in trouble, facing divorce, unemployed, unable to enjoy social life, unhappy and maladjusted, would make a poor impression on others and have low personality ratings.

Results indicated that those with low standing on the personality test have many personal and social problems. Dr. Casselberry concludes that personality can be measured with sufficient accuracy to provide a sound basis for psychological treatment.

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