

PHYSICS

Mesotron Suggested As Name of New Particle

THE TERM mesotron is suggested as the name of the newest atomic particle—having a mass between that of the electron and the proton—by Nobelist Dr. Carl D. Anderson and Dr. Seth H. Neddermeyer of the California Institute of Technology.

In a letter to the editor of the British science journal *Nature*, the scientists urge the new name instead of the variety of terms now employed.

First known as the "X" particle, the new atomic building block has also been called a dynatron, penetron, barytron, heavy electron and yukon.

While much still needs to be learned about the new particle, Drs. Anderson and Neddermeyer suggest, it has been shown that it has the electrical charge of an electron or proton and a mass intermediate between them.

Therefore they suggest the word mesotron (intermediate particle) as the new name. They feel sure that no matter what will hereafter be learned about it the name will be descriptive of the in-between mass property.

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PHYSICS

Fire Produced From Sunlight and Water

MOSES, you will recall, amazed his followers by striking a rock and having water gush forth. More amazed would his followers have been if Moses had then snatched some light from a sunbeam and made it turn the water into a flame that would burn as long as there was water to feed it.

Substitute Mohr for Moses in this sequel to the Biblical tale and you can bring the story up to date for at Concord, California, Otto H. Mohr is really using sunlight and water to produce a flame.

No miracle or stunt is inventor Mohr's device. He passes electricity through water, decomposes it into hydrogen and oxygen gas and then burns the hydrogen. His electricity Mr. Mohr obtains by focussing sunlight on thermocouple junctions.

The "hot" junctions of the thermo elements are enclosed in a vacuum while the "cold" junctions have little vanes attached to them so that they can radiate heat to the air. Thus, no matter what the temperature is, there is always the necessary heat difference between the two

junctions to produce electricity by the thermoelectric effect.

Out of each gallon of water decomposed Mr. Mohr can obtain 175 cubic feet of hydrogen gas, according to the technical journal, *Refrigerating Engineering*. He now has in operation a small sun ray plant that can be carted in a wheelbarrow, which can decompose 1.5 gallons of water a day. A plant twice this size, Mr. Mohr estimates, would supply the needs of a family using gas for cooking, water heating and refrigeration. A water-sealed storage tank would supply hydrogen on sunless days.

Experts on solar energy see the Mohr device as one of small efficiency as compared with several methods which have been used to change solar energy into a more useful form. They agree however that the small flame produced would be sufficient to run a gas type of mechanical refrigerator.

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ARCHAEOLOGY

Ancient Byzantine Emperor Made Good Use of Eclipse

C. SULPITIUS GALLUS, quick-witted Roman general of ancient times who warned his men before they went into battle of an impending eclipse of the sun and thus calmed them while their foes were terrified, has plenty of company in ancient history.

The Byzantine emperor, Alexius I. Comnenus, who figures prominently in the First Crusade, also took advantage of superior astronomical knowledge of one of his advisers to outsmart a foe, according to W. A. Osborne of the University of Melbourne, (*Nature*, Nov. 5) He quotes a biography of the emperor:

"In the course of the discussion a certain Nicolas, one of the Emperor's secretaries, came up to him and whispered in his ear, 'You may expect an eclipse of the sun to take place today' . . . Then the Emperor, with his habitual quick-wittedness, turned to the Scythians and said, 'I appoint God as a Judge; and if a sign appears in the heavens this day, you will know for a surety that I have good reason for suspecting, and therefore not receiving, your embassy because your leaders are not sincere in their overtures for peace. If, however, no sign appears I shall stand convicted of having been wrong in my surmise.' Before two hours had passed the light of the sun failed and the whole disk was darkened by the moon's passing over it. At that sight the Scythians were terrified."

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IN SCIENCE

ENGINEERING

Ancient Mud Bricks Better Than Modern Baked Ones

MUD bricks mixed with straw, such as have been used for thousands of years in Egypt and Mesopotamia, have been proven superior to modern baked bricks as heat insulators, it is reported by M. K. Nahas and F. H. Constable of the Heat Transmission Research Laboratory at Giza, Egypt. (*Nature*, Nov. 5)

The experiments also showed that when the ancient Egyptian taskmasters oppressed the Children of Israel by forcing them to find their own straw, they were cheating themselves. For under those circumstances naturally the toilers would put in just enough straw to make the bricks stick together; and it was found in the tests that bricks with normal straw content transmitted less than half as much heat as did similar bricks with minimum straw.

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ARCHAEOLOGY

Prehistoric Fireplace Dates From About 1700 B.C.

BACK in the days when Joseph was Prime Minister of Egypt, a party of unknown savages beached their canoes on the gravelly shore of an island in Lake Huron and held a barbecue feast. After they had eaten their fill of meat and fish, they paddled on.

Evidence of that forgotten feast has been dug up by Dr. Emerson F. Greenman of the University of Michigan, working in cooperation with the Canadian National Museum at Ottawa. In the gravels of an old beach terrace on Grand Cloche island he has found a charred area three feet in diameter, the remains of an old Indian fireplace. Nearby were bones of fish, beaver, elk and deer, as well as flint chips.

Examination of all available recent geological evidence has convinced Dr. Greenman that the lake level stood at the height of this ancient beach, 28 feet above the present water line, at least 1100 years ago, and probably as early as 1700 B. C. Since that time the water has receded to its present level.

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FIELDS

GEOLOGY

Geological Research Continues In China

WAR and invasion have caused severe disturbances in the work of the National Geological Survey of China, but in spite of all handicaps the scientists are carrying on. (*Science*, Nov. 11)

Despite the tremendous losses of books, specimens and apparatus necessitated by several changes of headquarters, the working staff has actually been increased and the work expanded. Intensive study is being given to the economic geology and mineral resources of the southeastern provinces.

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ARCHAEOLOGY

Trace Strange Career Of Hercules Myth

HERCULES, world-famous strong man, is being investigated, scientifically.

Familiar to school children as the mythical hero who performed twelve wonder tasks, Hercules intrigues scholars because he has had such a long and varied career in the minds of men.

Far from being an invention of Greek story-tellers, Hercules can be traced back to about 2500 B.C. He may have been talked of long before that. But in Tell Asmar, Mesopotamia, at any rate, people of 2500 B.C. whispered the story of a hero who slew a seven-headed dragon. Archaeologists have proof: a clay seal bearing a picture of the hero ticking off heads from the dragon at perilously close range, while an assistant obligingly holds the beast down at the rear. Another picture found at Tell Asmar shows the same hero equipped with lion-skin, club, and bow, which traditionally belong to Hercules.

Later, Dorian and Lydian kings claimed Hercules as an ancestor, and several Roman emperors sought to identify themselves with the glamorous hero-god. Not knowing that Hercules was nearly two thousand years old, the Greek world accepted him as the son of the god Zeus and the mortal woman Alcmena, wife of Amphitryon.

A British scientist traces the strong and simple hero in Britain, where, it seems, the Romans introduced Hercules along with their other hero-gods. Hercules can be identified on altars in Roman Britain, and bronze figures of him were popular. A 180-foot giant carved on a cliff in Dorset is pronounced a Hercules with club, and possibly a lion-skin.

This British scientist, Stuart Piggott, writing in *Antiquity*, points out that Hercules lost dignity and became a stock comic figure in classic drama, and in sixteenth century Italian comedy is found capering as Harlequin. Meanwhile, in European folk legend, Herlechinus became a grim and eery giant, armed with the inevitable club, leading ghostly and demonic bands.

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BOTANY

Acenaphthene Found To Double Plant Chromosomes

PLANT cells can be induced to double their chromosome numbers and thereby produce giant offspring and other sudden evolutionary changes by another chemical besides colchicine, with which these changes were first induced by scientists of the Carnegie Institution of Washington. The new compound is known as acenaphthene, and it has been used in Russia by Dr. Dontcho Kostoff of the Academy of Sciences of the USSR.

The compound is not applied in solution, like colchicine, Dr. Kostoff reports. (*Nature*, Oct. 22) The plants are exposed in closed spaces to the effects of its vapor as it comes off from crystals by the process of sublimation or dry evaporation.

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ASTRONOMY

Second Largest Telescope Has Reached Completion

COMPLETION of the world's second largest telescope, an 82-inch reflector for the MacDonald Observatory of the University of Texas, was announced by Prof. Otto Struve, astrophysicist of the University of Chicago. Final tests on the giant disk, second only to the 100-inch mirror at Mt. Wilson Observatory, at present still the largest in the world, have been finished, he declared.

Two years were required to grind and polish the mirror. A month was required to cool the glass casting from which the mirror was made to room temperature.

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BOTANY

Tobacco Mosaic Virus Localized in Protoplasm

VIRUS of tobacco mosaic is localized in the cytoplasm, or general cell protoplasm, of the plants it afflicts, Dr. Lawrence F. Martin and H. H. McKinney of the U. S. Department of Agriculture state. (*Science*, Nov. 11) They squeezed the watery sap out of cells of tobacco leaves under powerful pressure, and then extracted the cytoplasm separately after chemical treatment. Tests of the two extracts showed the virus to be present in the cytoplasm and not in the cell sap.

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PSYCHIATRY

Imaginary Voices May Have Basis In Ear Infection

VOICES heard by the mentally ill may have a real basis in a diseased condition of the ear, examination of 100 persons suffering from auditory hallucinations revealed.

Nearly one out of five of the patients when examined by Dr. Elvin V. Semrad at the Boston Psychopathic Hospital was found to have a toxic type of deafness. These people had very little loss of hearing for the spoken voice and usually did not complain at all of deafness, but audiometer tests showed loss of hearing of high notes at about the top range of the piccolo, one of the first signs of a degenerative process in the ears. In no case was the hearing abnormally acute.

The voices or noises seem very real and external to the patient with this toxic deafness, Dr. Semrad said (*American Journal of Psychiatry*). He will reply to the voice or turn to see where it is coming from. He may even seek protection from the police.

Although most patients are frightened by the experience, some actually enjoy it. One patient heard the voices singing tavern songs very vividly and thoroughly enjoyed them.

Some hear a buzzing which they attribute to motors rather than human voices.

For the patient who is free from toxic deafness, the auditory hallucination is described differently. For him the sound is more personal and more intimately tied up with his own preoccupations. He may not be sure it is a voice and often describes it as possibly a thought rather than a voice.

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