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Science Service June 27, 1939

UNIVERSITY OF CHICAGO'S COSMIC RAY MEETING DRAWS BIG NAMES OF SCIENCE;
MUCH DISCUSSION OF MESOTRON IS HONOR FOR PROF. YUKAWA OF JAPAN, 6,500 MILES AWAY

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CHICAGO, June 30 --- While a hundred of the biggest names in the science of physics have gathered at the University of Chicago's cosmic ray symposium now ending, the meeting has been --- in many ways --- an honor for a little brown-skinned Japanese 6,500 miles away.

Through the score and more of profound, prepared addresses by five Nobel Prize winners and others --- summarizing the known knowledge about cosmic rays --- one word has appeared again and again. That word is mesotron and that is where Prof. Hideki Yukawa of Osaka University comes in.

It was he who first suggested, in 1935, a kind of then-undiscovered particle which has since come to be called the mesotron. Two years later the mesotron was discovered by Drs. Carl Anderson and Seth Neddermeyer of California Institute of Technology and almost simultaneously by Drs. J.C. Street and E.C. Stevenson of Harvard University.

Prof. Yukawa was not, and is not yet, an expert in experimental cosmic ray investigations. He is a theoretical physicist with a fertile mind who had an excellent idea.

What he started out to do, when he suggested mesotron particles --- then unnamed --- was to create a better explanation of the nuclear forces which bind atoms together. He conceived a kind of particle that would have the electrical charge of an electron, a mass about 100 to 200 times as great and --- most important --- the ability to disintegrate spontaneously.

In the interchange of energy between two elemental particles the mesotron was conceived to help in the transfer and then die spontaneously by disintegration.

At the time the "Yukawa particle" passed unnoticed among most physicists. It came into prominence only when "heavy electrons" were found as a new and important constituent of cosmic radiation. Then it turned out that the "Yukons" --- as they were sometimes called after Yukawa --- were virtually a blue print supplied in advance to interpret the new discovery.

For a year the terms Yukons, heavy electrons, X particles, and barytrons bottled for acceptance in the scientific literature until finally Dr. Anderson, Nobelist physicist, suggested the present name mesotrons that has found general acceptance by most scientists.

Mesotrons today appear to give a reasonable explanation for the extremely piercing component of cosmic rays which are detected deep down in mines. They appear to be generated within the earth's own atmosphere by the impact of cosmic rays coming at the earth from outer space.

Moreover, the ability of the mesotron to disintegrate (with a life time of about a millionth of a second) offers a reasonable explanation of queer observations that the most piercing part of cosmic rays seems to be absorbed less by very dense elements like lead than by an equivalent amount of light gas.

The answer, it now seems, is that it takes the mesotrons longer to travel the great distance through the necessary amount of gas than it does through the much smaller thickness of lead. During this longer period of time more of them disintegrate, disappear and hence appear to have been stopped by the gases.

It used to be the fashion for writers to add the adjective "mysterious" everytime they mentioned cosmic rays. To this may now be added, thanks to Prof. Yukawa, the euphonious term "mysterious mesotrons."

SCIENCE SERVICE



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2101 CONSTITUTION AVENUE

WASHINGTON, D. C.

CABLE ADDRESS: SCIESSERV.

June 29, 1939

Prof. Hideka Yukawa
Osaka University
Osaka, Japan

Dear Prof. Yukawa:

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Sincerely,

Watson Davis

Director

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- 4 -

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Science Service

2101 Constitution Avenue
Washington, D. C.

Watson Davis, Director

- 5 -

THE
Public's
Way
TO
Science

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-1-

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-2-

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-3-