

super-radioactive atoms. Under this theory cosmic rays would contain both negative and positive rays just as the radiation from radium does, and the absence of negative rays, Dr. Johnson points out, would be a denial of theory.

"The existence of but one sign of charge in this radiation," Dr. Johnson says, "is just what would be expected if the cosmic rays were produced by an electric field surrounding the earth. The direction of this field would have to be such that the positive ions, which are produced in interstellar space by the action of starlight on the small residue of gas, would accelerate towards the earth. It is extremely difficult to see how such a field could be maintained against the discharging action of the cosmic rays and of the negative rays which would be swept away from the earth by it. There is, however, some independent evidence from atmospheric electric measurements that such a field may exist."

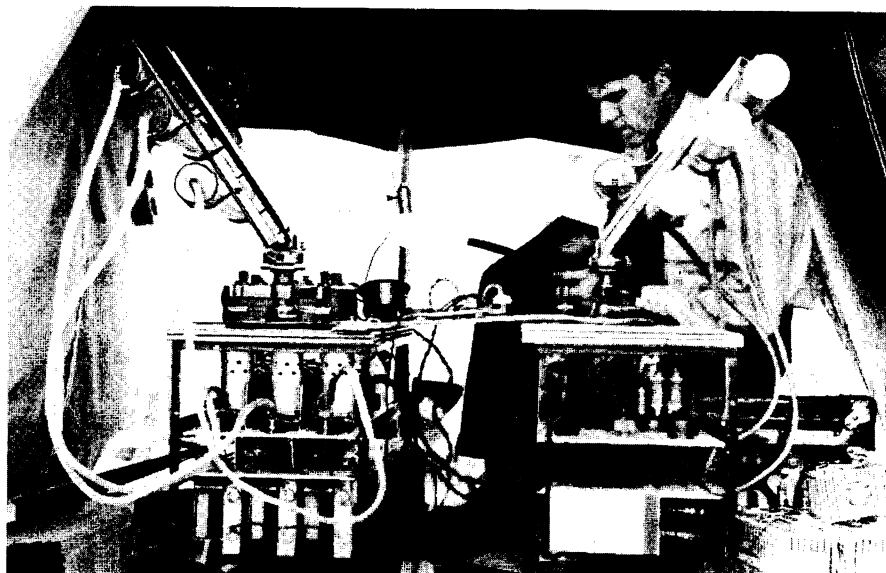
Dr. R. A. Millikan, California Institute of Technology physicist and Nobelist, recently concluded, on the basis of his theories, that a considerable portion of the total energy of the universe consists of cosmic radiation, but upon Dr. Johnson's theory the cosmic radiation would not be uniformly distributed throughout space and therefore the estimates of the total energy contained in cosmic radiation would need revision.

Counted 1,000,000 Rays

During his recent trip to Panama and Peru, Dr. Johnson with his automatic photographic instruments counted over a million cosmic rays. In Peru observations were taken upon mountains at elevations of 14,000 feet and 11,000 feet as well as sea level. Upon a previous trip this summer to Mexico, he made observations at 10,000 feet and 7,500 feet and sea level, while his colleague, Dr. E. C. Stevenson, made similar cosmic ray counts in Colorado at 9,500 feet elevation and at Swarthmore.

Clockwork and other automatic devices fitted to the cosmic ray counting device, given its try-out on Mt. Washington about a year ago, have allowed Dr. Johnson to gather large amounts of data and reduce markedly the probable error of his experiments which in many cases is now only about five per cent. Funds from the Carnegie Institution of Washington and the Carnegie Corporation of New York helped make possible the work and a preliminary report is published in *Physical Review*.

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COUNTING COSMIC RAYS

Dr. Thomas H. Johnson, Franklin Institute physicist, is shown with apparatus in his tent on a roof-top in Mexico during a recent expedition to measure cosmic rays.

ANTHROPOLOGY

Language Record Made Before "Last of Mohicans" Passed

THE LAST aged Indian who could speak the Mahican language died recently, in Milwaukee. So passed a man who might be called "the last of the Mohicans."

The novelist Cooper was a little premature in coining that phrase, the last of the Mohicans, for his Indian hero Mohicans, or Mahicans as scientists spell the name, have added many years to their history since Cooper wrote.

But William Dick, who could speak the old tongue, did represent the end of a phase in that history. The Mahican greetings that Cooper's Indian heroes would have exchanged so lustily will never again be spoken by an Indian. William Dick was the last person who knew them.

There is some comfort for science in the fact that several years ago, Dr. Truman Michelson of the Smithsonian Institution visited Mr. Dick and recorded carefully many words and sentences of his mother tongue. These records are now among the valued possessions of the Smithsonian. By the study of the Indian languages, it is possible to prove and check many events in America's Indian history; hence the importance of gathering data on these fast vanishing forms of speech.

Dr. Michelson, who reminisces about his work with Mr. Dick, admits one diplomatic error in dealing with the aged Mahican. He might have gathered more Mahican words and sentences, but for that unlucky tactical mistake.

The last of the Mahicans to speak the old language was no hard-fighting, sharp-shooting, befeathered redskin, but a dignified Presbyterian elder. The Mahican side of Mr. Dick clung to the memory of his native speech, but the Presbyterian side of him held grave fears that the old language was a relic of paganism, with which he should not be too much concerned—even for the worthy cause of science.

However, Dr. Michelson was persuasive and friendly, and the old Mahican gave his time to recalling the old speech. And then, one day, Dr. Michelson suggested that Mr. Dick excuse himself from teaching his Sunday School class to devote a Sunday to the language rescue work. And that upset the scientific apple cart. The Indian's worst suspicions were confirmed and he would work no longer.

Even William Dick does not represent the final passing of the Mahican tribe.

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