

ASTRONOMY

Retort to Velikovsky

Dr. Payne-Gaposchkin, astronomer, in her refutation of Velikovsky's theories points out the discrepancies between scientific fact and his theories.

➤ WITH the title, "Nonsense, Dr. Velikovsky!", the first detailed scientific answer to Dr. Immanuel Velikovsky's theory that the earth stood still a couple of times around 1500 B.C. appears in the issue of THE REPORTER (March 14).

Dr. Velikovsky's theories, appearing in condensed form in articles in HARPER'S, COLLIER'S and READER'S DIGEST, will be explained in several forthcoming books to be published by Macmillan.

Drawing upon mythology, the Bible and other sources, Dr. Velikovsky maintains that the planet Venus was a comet at the time of the Exodus. He says that this "comet" passed so close to the earth that the tail of the comet rained down upon the earth and that an electromagnetic attraction was set up which stopped the earth from revolving.

Dr. Cecilia Payne-Gaposchkin, Phillips astronomer at Harvard, is the author of THE REPORTER article. She says: "The earth is a gigantic, massive flywheel. Its energy of rotation is immense. To stop its rotation the same amount of energy would have to be applied to it, and could be applied only by impact. A heavy body that merely passed by could not have more than a very small effect on the earth's rate of rotation though it might disturb its motion in space . . . What then would have been the impact of a body almost equal in mass and size to the earth, as Venus is? It would have pulverized the earth. But nothing short of impact would stop the earth's rotation."

Assuming, for a moment that the earth did stop rotating, Dr. Payne-Gaposchkin points out that all bodies not attached to the surface of the earth, including the atmosphere and the oceans, would have continued their motion, and would have flown off with a speed of 900 miles an hour in the latitude of Egypt.

If the earth did stop rotating, asks the Harvard astronomer, what started it again? She says that the same energy of rotation would have had to be reapplied. Dr. Velikovsky maintains that if the magnetic field of the sun were to govern the earth's motion, then the earth could resume its rotation. Dr. Payne-Gaposchkin points out that the magnetic fields of both the sun and the earth have been measured and that their interaction is not strong enough, in millions of years, to restart the earth's rotation.

Dr. Payne-Gaposchkin gives the scientific arguments against other of Dr. Velikovsky's theories on astronomy. She goes into detail about the chemical makeup of

the tail of a comet to show that the material in the tail could not have been the Biblical manna. She says that he has a "naive" picture of the atom. She disputes Dr. Velikovsky's statement that there was no record of Venus before 1500 B.C. by citing two such records—one back in 2000 B.C.

She concludes: "The road to fame and fortune for the 20th century scholar is clear. Never mind logic; never mind the precise meaning of words or the results of exact research. Employ the vocabulary of a dozen fields of learning. Use a liberal sprinkling of Biblical phrases."

Science News Letter, March 25, 1950

NUCLEAR PHYSICS

Germanium Radiation Counter Developed

➤ A GERMANIUM counter, using a positive-negative phenomenon produced by particle bombardment, has been developed by Dr. Karl Lark-Horovitz and collaborators at Purdue University, Lafayette, Ind.

The new counter, primarily a tool for

research in nuclear physics, can count radiations of alpha and beta particles and of gamma rays, and can measure the directions in which they are distributed. Made of germanium, a rare metal, it is, considering its small effective volume, more sensitive than any other kind of counter heretofore developed.

The scientists change the character of half the germanium by bombarding it with deuterons, hearts of heavy hydrogen atoms. After that, it is really the boundary between the two types of germanium that acts as a counter. This boundary is called the P-N boundary for positive negative.

Another advantage of the new counter over the scintillation type counters is its extremely small size and compact form.

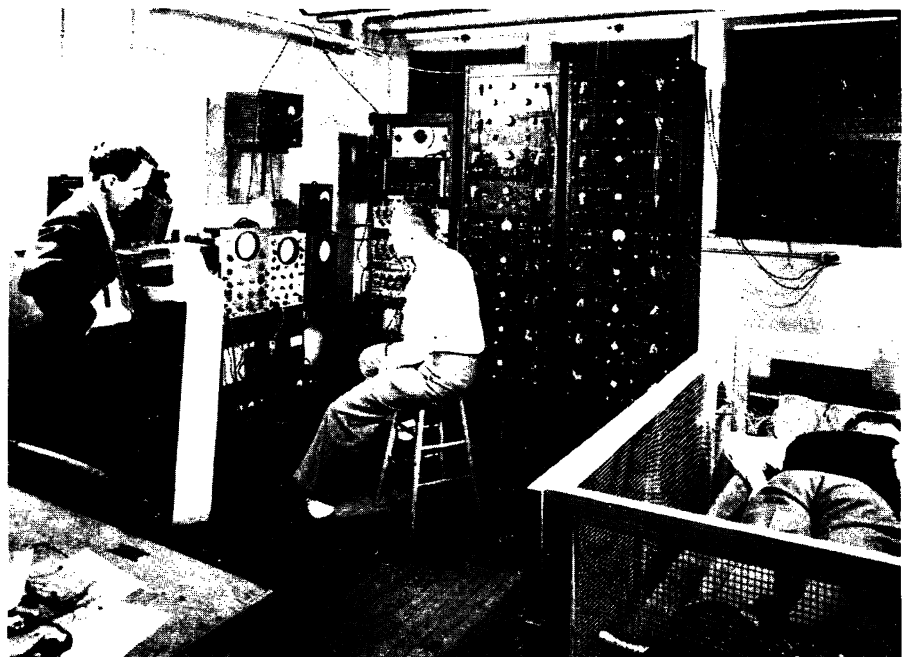
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ENGINEERING-PHYSIOLOGY

Radar Now Maps Human Heart and Brain

➤ THE human brain and heart are now being mapped by radar. As a result, scientists have discovered that the brain has actual waves of electrical energy with specific paths and very definite speeds. Some of these cover the entire brain and some are confined to one of its special areas.

Radar maps of the brain give a visible picture of overall brain activity. They differ from electroencephalograms heretofore used to measure electrical activity of the brain because the electroencephalograms show ac-



BRAIN MAPPING BY RADAR—Visual and printed records of electric waves in the human body are made by this equipment in the laboratory operated by Dr. Stanford Goldman and graduate student, W. F. Santelmann, Jr.