

PSYCHOLOGY

"Nature Consists of Waves Of Knowledge in Minds"

Sir James Jeans in B.A.A.S. Presidential Address Presents Philosophical Meanings of New Physics

"NATURE consists of the general quality of waves of knowledge, or of the absence of knowledge, in our own minds."

Sir James H. Jeans, noted mathematical physicist, using these words has condensed reality, the very existence of human beings, and all other manifestations of the world we sense, into happenings in our brains. Thus the "universe around us" becomes mental.

In his presidential address opening the annual British Association for the Advancement of Science at Aberdeen, he presented striking philosophical interpretations of the new physics.

As to whether the universe is so predestined and planned that individual free-will and initiative is ineffective, Sir James finds that the new physics of today is far more hopeful than the classical physics of a generation ago that gave rise to materialism.

"Can our minds change what is happening in reality, or can they only make it look different to us by changing our angle of vision?" Sir James asked. "We do not know, and as I do not see how we can ever find out, my own opinion is that the problem of free-will will continue to provide material for fruitless discussion until the end of eternity.

Reopened a Door

"The contribution of the new physics to this problem is not that it has given a decision on a long-debated question, but that it has reopened a door which the old physics had seemed to slam and bolt. We have an intuitive belief that we can choose our lunch from the menu or abstain from housebreaking or murder; and that by our own volition we can develop our freedom to choose. We may, of course, be wrong. The old physics seemed to tell us that we were, and that our imagined freedom was all an illusion; the new physics tells us it may not be."

Although Sir James did not use the word "God," he referred to what many might call God, "the problem which

would have commended itself to many philosophers, from Plato to Berkeley."

This question arose in his address in connection with his detailed illuminating contrasts of the old particle-picture of the universe of classical physics and the newer and more accurate wave-picture of the new physics.

"The old particle-picture which lay within the limits of space and time, broke matter up into a crowd of distinct particles, and radiation into a shower of distinct photons," he explained. "The newer and more accurate wave-picture, which transcends the framework of space and time, recombines the photons into a single beam of light, and the shower of parallel-moving electrons into a continuous electric current.

Division Disappears

"Atomicity and division into individual existences are fundamental in the restricted space-time picture, but disappears in the wider, and as far as we know more truthful, picture which transcends space and time. The photons are no longer distinct individuals each going its own way, but members of a single organization or whole—a beam of light. The same is true of the electrons of a parallel-moving shower.

"The biologists are beginning to tell us, although not very unanimously that the same may be true of the cells of our bodies. And it is not conceivable that what is true of the objects perceived may be true also of the perceiving minds? When we view ourselves in space and time we are quite obviously distinct individuals; when we pass beyond space and time we may perhaps form ingredients of a continuous stream of life."

From this idea of each of us as an indistinct part of the universal life stream, Sir James considers it but a step to the solution of the greater problem which lies at the foundation of religion and mysticism.

In this manner physics, as viewed by Sir James, provides "a possible although very conjectural clue" to why in a na-

ture made of our mental ideas our many minds all construct one and the same nature and we all see the same sun, moon and stars.

How Bohr, Einstein, Heisenberg, de Broglie and Schrödinger developed so successfully a universe of waves instead of particles, as in the classical physics, was recounted by Sir James. He finds the wave picture or analogy much more satisfactory, saying:

Just Storminess

"The universe is no longer a deluge of shot from a battery of machine-guns, but a stormy sea with the sea taken away and only the abstract quality of storminess left—or the grin of the Cheshire cat if we can think of a grin as undulatory."

Space and time can not be classified as realities of nature but are mere mental frameworks of our own construction, Sir James said. In the new wave-picture of modern physics, ordinary time and space are inadequate to show two currents of electricity moving independently. Six dimensions of space and one of time are necessary.

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FOUND 12,000-YEAR-OLD AMERICAN

Dr. Albert E. Jenks, University of Minnesota anthropologist, who has just announced "Brown's Valley Man," one of the oldest of authenticated Americans. Over a score of pieces of human skeleton were dug out of a Minnesota gravel pit by Dr. Jenks and William H. Jensen, amateur collector of Indian relics, who was the discoverer. In the photograph Dr. Jenks is examining an African skull, and not his most recent find. (See page 147.)