

PHYSICS

Pictures of Spinning Model Demonstrate Atom Structure

California Scientist Photographs Unique Mechanism To Show How Electricity is Spread Out in Simplest Atom

PICTURES of what an atom looks like inside, according to the new theory of wave mechanics, have been made by Dr. H. E. White of the University of California, Berkeley. Recently scientists have used only a mathematical formula for this purpose, as a visible picture was supposed not to give a true representation of the atom.

Dr. White has made a rotating mechanical model, which, when set in motion and photographed, gives a good idea of how electricity is spread out inside the simplest known atom, that of hydrogen. These photographs show beautiful designs which differ according to the amount of energy the atom has.

Formerly Like Solar System

Before the now-accepted theories of Heisenberg, Schroedinger and Dirac, the atom was thought to be somewhat like the solar system: the electrons were imagined as particles whirling around the positive nucleus in the center of the atom like the planets around the sun. Now the atom is thought of as being more like a swarm of bees around a hive, when the observer is too far away to see the individual bees. The thickness of the cloud represents the average density of electricity at any point.

The electron has thus been replaced by a cloud of electricity of variable density, which is more difficult to imagine than the path of the particle-like electron.

A mathematical formula, according to the newer physics, gives a much better representation of how an atom is built than a model or picture. Since the formulation of the famous new quantum theory, it has been considered rather a step backward to make a picture of the atom. However, Dr. White has ignored this belief and made pictures which are both beautiful and interesting.

Dr. White's model consists of a spindle which can rotate at any angle to the horizontal. One of the ends of the spindle vanes is connected by a string to a little ball which moves steadily back and forth in a groove of curious shape.

The string controls the angle that the rotating spindle makes with the horizontal. Thus an accurate representation of the electron density in the atom can be obtained by photographing the rotating spindle.

Science News Letter, July 4, 1931

ENTOMOLOGY

7,000,000 Acres of Locusts Hatching in East Africa

THE KENYA Agricultural Department reports that locusts are hatching over an area of seven million acres in the Kenya district of East Africa. In addition to this the laying of locust eggs is proceeding over hundreds of miles of dense tropical vegetation in Uganda. The town of Masindi was recently inundated by locusts, forcing all shops to close.

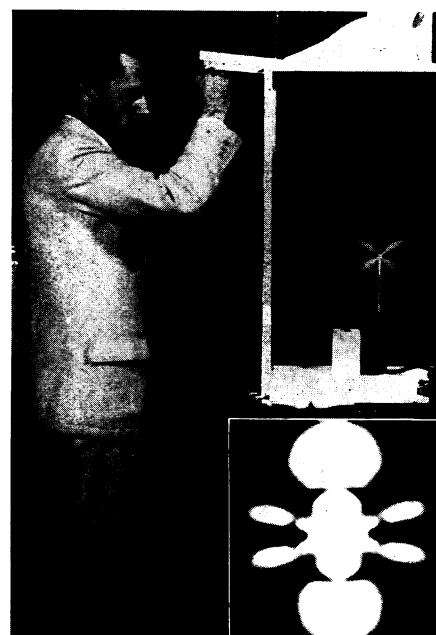
In the Kenya district the Agricultural Department is effectively combating the locusts, twelve hundred bags of poisoned bait being issued daily, while there is also spraying and trench trapping. In the Uganda district there

ARCHAEOLOGY

Seven Times Rebuilt Pyramid Explored at Tenayuca, Mexico

SEVEN SEPARATE TIMES enlarged or reconstructed, and perhaps as many different times the center of distinct occupations—this is the story the Aztec pyramid at Tenayuca has unfolded. Mexican archaeologists under the direction of Jose Reygadas Vertiz have continued to open up structure within structure until they at last feel they have reached the core.

While tunnelling last year through the older of two superposed pyramids, a third pyramid within the second was discovered. This new structure was



LOOKS LIKE AN ATOM

Dr. White is spinning his mechanical model of the hydrogen atom to get the flat "X" shape which represents the distribution of electricity of the simplest atom for one of its energy states. For the various states, many interesting figures are obtained. Another is shown in the lower right insert.

is no adequate policy of destruction and great fears are expressed by the neighboring districts regarding the damages anticipated when the eggs mature. Fortunately for Kenya, the crop damage will be comparatively small, since a greater part of the infested seven million acres is not under cultivation.

Science News Letter, July 4, 1931

different from all other Mexican pyramids previously known, for it was formed of practically vertical stepped-back bodies instead of the usual inclined ones. Now within pyramid three, remains of a number four have come to light.

Study of the architectural features reveals that in addition to the four structures, one within the other, some of these in their time had been enlarged. So that in this pyramid that was once the capitol building of an Indian city of unknown history but which was Aztec at the time of the Conquest, seven