PHYSICS

Nobel Prizes Awarded To Leaders in Theoretical Physics

1932 Prize Goes to Heisenberg; Prize for 1933 Divided Between Dirac and Schroedinger

THREE European leaders in the new physics will receive the 1932 and 1933 Nobel prizes in physics, it was announced in Stockholm. Prof. Werner Heisenberg of Leipzig was awarded the 1932 Nobel prize in physics for his development of quantum mechanics and its resultant discovery of the allotropic forms of hydrogen. The 1933 Nobel physics prize is divided between Prof. E. Schroedinger of Berlin, now working at Oxford, and Prof. P. A. M. Dirac of Cambridge, England, for their new forms of atom theory.

The 1933 Nobel prize in chemistry will not be awarded this year, it was announced.

Three Youthful Europeans

These three relatively youthful European physicists are the creators of physical theory that has had great influence upon philosophical ideas as well as science.

Prof. Heisenberg is now only 32 years old. Still younger is Prof. Dirac who is 31 years old, while Prof. Schroedinger, formerly of Berlin and now of Oxford, who shares the 1933 physics Nobel award with Prof. Dirac, is the senior member of the group with an age of 46.

These three new Nobelists, two Germans and an Englishman with a French name, all have picturesque personalities and their erudite adventures in physics pursued in both European and American centers of research have been accompanied by happy companionship among the trio and with other researchers in physics.

Famous At Twenty-One

Prof. Heisenberg was the son of a professor of Greek philology. He studied with Prof. Arnold Sommerfeld and Prof. Niels Bohr. By the time he was 21 he was beginning to acquire an international reputation for his studies of atomic theory. His great achievement, the development of quantum mechanics, began in the fall of 1925. Then the young Heisenberg presented the scientific world with a new mathematical method adequate for describing how the electrons revolving about atomic hearts stick to their orbits.

The famous Heisenberg principle of indeterminance or uncertainty was a further development of his theory. This affirms that in picturing the physical world to ourselves we must consent to certain limitations; for instance, we should not try to imagine a flock of electrons all having nearly the same position and nearly the same velocity.

The citation of the Nobel award to Prof. Heisenberg states that it is for his development of quantum mechanics "and its resultant discovery of allotropic forms of hydrogen." One of Prof. Heisenberg's countrymen, then of the Kaiser Wilhelm Institute at Berlin, demonstrated ex- (*Turn to Page* 333)

EMBRYOLOGY

Unborn Gorilla Baby Offers Unique Study

A GORILLA baby that never lived because its mother was accidentally shot shortly before the baby's birth was due is affording a unique opportunity for study at the Western Reserve School of Medicine, Cleveland.

The gorilla fetus, to give it the scientific term for such unborn offspring, is the sixth known to scientists and in by far the best condition of all of them, according to Dr. W. M. Krogman, associate professor of anthropology, who will study it under the direction of Dr. T. Wingate Todd.

It was sent to Dr. Todd by a medical missionary, Dr. W. H. Lehman of Abong Mbong, French Cameroun, Africa. It is extremely valuable to scientists because the claim has always been made that there is an even closer resemblance between the fetuses of humans and apes than between adult humans and apes, Dr. Krogman explained.

Science News Letter, November 18, 1933

METEOROLOGY

Ball Lightning Apparently Connected With Dust

BALL LIGHTNING, one of the least understood of the electrical phenomena of the air, seems to be connected with the clouds of dust blown before a "line squall" wind or a tornado. Such at least has been the observation of Prof. J. C. Jensen of the physics department at Nebraska Wesleyan University as reported in *Physics*.

One ball lightning display observed by Prof. Jensen took place during an August thunderstorm while he was getting photographs and scientific records of ordinary lightning and the other phenomena accompanying it.

The cold air rushing ahead of the storm cloud was filled with a swirling mass of dust, he says. Brilliant lightning flashes were seen descending in rapid succession from the cloud to the earth. In the wake of one of these flashes there appeared a shapeless mass of lavender color which seemed to float slowly downwards. The mass seemed most brilliant near the ground, and gave the impression of a gigantic pyrotechnic display. Two or three glowing globular structures seemed to roll (*Turn Page*)

HEISENBERG

SCHROEDINGER

DIRAC