

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-

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.

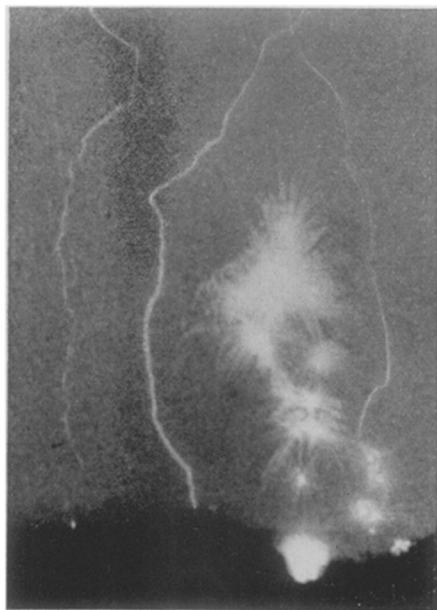
The cold air rushing ahead of the storm cloud was filled with a swirling mass of dust, he says. Brilliant lightning flashes were seen descending in rapid succession from the cloud to the earth. In the wake of one of these flashes there appeared a shapeless mass of lavender color which seemed to float 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



BALL LIGHTNING "LOOKS PLEASANT"

along a pair of high voltage power lines for a hundred feet or more, then bounced down on the ground and disappeared with a loud report.

Prof. Jensen's photographs showed these strange and weirdly beautiful objects plainly. Knowing the lens-angles of his cameras and the distance to the power line, he was able to calculate their size. One of them had a diameter of about 28 feet, and the other was some 42 feet across. These figures are much larger than those usually given for ball lightning.

A second ball-lightning display reported by Prof. Jensen was seen during a tornado in Iowa by George Raveling, a U. S. Weather Bureau observer. As he described it:

"From the sides of the boiling, dust-laden cloud a fiery stream poured out like water through a sieve, breaking into spheres of irregular shape as they descended. No streak lightning of the usual type was observed and no noise attended the fire-balls other than the usual roar of the storm."

Science News Letter, November 18, 1933

The Pan American Scientific Congress, which was to be held in Mexico City this month has been postponed until 1935.

A cave-city on the Crimean peninsula is to be scientifically explored by a Russian institution and the University of Pennsylvania Museum.

MEDICINE

Tropical Climate Benefits Heart and Rheumatic Diseases

Society For Tropical Medicine Also Hears That Southern Immigrants in North Succumb To Hardening of Arteries

A TROPICAL climate may be used in the conquest of some diseases. Weather of the north weakens southern immigrants to certain types of infection. These curious disease-climate relations were reported to the American Society for Tropical Medicine meeting in Richmond this week.

Patients suffering from inflammatory rheumatism and heart disease may be benefitted by a tropical climate, it appears from a discussion of the advantages of cure resorts in the tropics presented at the meeting by Drs. Louis Faugeres Bishop and Louis Faugeres Bishop, Jr., of New York City.

"We know that climate has a profound influence on the lives of those who enjoy its advantages, but one of the most striking facts in connection with climate is that it is not only the climate itself we look to for benefit, but equally important is change of climate at the right time," Dr. Bishop said.

He suggested that a tropical climate should be available for physicians to order for their patients and that eventually it may be possible to determine by experiment the climate best suited to each person.

The absence of inflammatory rheumatism in the tropics, testified to by many observers, prompted Dr. Bishop's interest in the health advantages of a tropical climate. He thinks it should be tested for young people with progressive rheumatic heart disease and for elderly people with disease of the heart of the degenerative type. Many of the drawbacks of the tropics can be mitigated with modern air conditioning.

"The climate of the tropics promotes all those things which are needed in heart disease," said Dr. Bishop. "It promotes distaste for physical exercise. It is a notable fact that many heart patients who go to the tropics to pass their remaining days find those days very much longer than anybody expected."

He advised that the health resort established in the tropics should be properly equipped with a medical per-

sonnel and technical facilities for the diagnosis and treatment of disease.

Southerners who migrate to the North are more susceptible than northerners to arteriosclerosis, familiarly known as hardening of the arteries, in the opinion of Dr. Clarence A. Mills of the University of Cincinnati.

Dr. Mills presented figures which he said proved this point. Calling arteriosclerosis the "greatest of our degenerative diseases," Dr. Mills said that "these southern migrants die at a much earlier age from this cause than do native northerners and also earlier than their fellowmen who remain in the South."

"The great influx of southerners, both white and colored, into the manufacturing cities of the North during the last fifteen years has presented us some important health problems quite aside from those of sanitation and personal hygiene," he stated.

"Not only are these migrants found more susceptible to acute respiratory diseases such as pneumonia, sinusitis and colds, but they also show frequent metabolic disturbances. Toxic goiter and diabetes seem to attack them even more than they do native northerners. Various types of asthenia (weakness) with nervous exhaustion are also particularly common among them."

Science News Letter, November 18, 1933

▼ **TULAREMIA**

R an address by

A **Dr. Edward Francis**

D —of the National Institute of Health

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Wednesday, November 22, at 4:35 p. m., Eastern Standard Time, over Stations of the Columbia Broadcasting System. Each week a prominent scientist speaks over the Columbia System under the auspices of Science Service.