

## PHYSICS

# Physicists Win Prize

The Nobel Prize in Physics for 1957 has been awarded to two scientists who suggested that one of physics' basic laws, conservation of parity, did not always hold good.

► THE REMARKABLE discovery last year for which the Chinese-born American physicists, Drs. T. D. Lee and C. N. Yang, were awarded this year's Nobel Prize in Physics is still being confirmed by scientists around the world. A year's interval is believed the shortest known time lapse between a discovery and the award of a Nobel Prize in Physics.

Drs. Lee and Yang proposed that the principle of "conservation of parity," held as one of the basic ideas of physics for nearly 30 years, did not hold good in certain types of radioactive disintegrations of atoms. Now scientists are finding the principle is also not true in other cases.

Dr. Yang is professor of physics at the Institute for Advanced Study, Princeton, N.J. Dr. Lee, a Columbia University physics professor, is on leave and also at the Institute, where he and Dr. Yang are doing further mathematical work directed at a better understanding of what goes on in atomic cores, or nuclei.

Drs. Lee and Yang suggested discarding the theory of "conservation of parity" in the *Physical Review* (Oct. 1956). Within four months after this report, scientists at the National Bureau of Standards, Columbia University and the University of Chicago confirmed with experimental evidence the fact the law did not work in the break-up of certain sub-atomic particles known as pi and mu mesons. (See SNL, Jan. 26, p. 51 and April 27, p. 258.)

Now there is evidence the law also does not apply in the disintegration of hyperons, heavy atomic particles.

Parity expresses the idea that the mirror image of a physical system follows exactly the same laws as the system itself. It is connected with the relationship between the direction of spin and the direction of motion of atomic particles.

The relationship can be either right-handed or left-handed, scientists now known. An example of right-handedness in this connection is the ordinary corkscrew that, when turned clockwise advances into a cork. However, some corkscrews are made so they advance into the cork only when turned in a counter-clockwise direction, illustrating left-handedness.

Science News Letter, November 9, 1957

## CHEMISTRY

## Nobelist Studied Life Particles

► THE AWARD of the 1957 Nobel Prize in Chemistry to Sir Alexander R. Todd, Scottish-born professor of organic chemistry at the University of Cambridge, England, for "his work on nucleotides and nucleotide coenzymes" raises the question, "What are nucleotides?"

Sir Alexander himself explains the role of these fundamental life particles as follows:

When the complex nucleic acids found in all cells and tissues are broken down by the addition of water, "relatively simple compounds" called nucleotides are formed. They are phosphates of the "ribosides or 2-deoxyribosides of certain purine and pyrimidine derivatives."

Both nucleotides and nucleotide coenzymes have a structure consisting of one or more units. Each of these units is composed of a combination of sugar, phosphoric acid and a base.

The laboratory production of living matter is believed to be hinged on finding the specific structure of nucleic acids, the basic life substance.

It is known that the nucleic acids consist of many nucleoside residues linked together by phosphate groups. However, the positions of linkage, the sequence of residues and whether or not the acids have straight or branched chains are all problems that need to be solved.

Sir Alexander, in the annual Harvey Lectures delivered in 1951 under the auspices of the Harvey Society of New York said nucleic acids were so named because they were originally found in cell nuclei. They are now known to be normal constituents of all cells and tissues, and are associated with proteins as nucleoproteins.

The nucleotides have been much less extensively studied than either proteins or carbohydrates.

The plan that Sir Alexander used to learn about them involved attempting to synthesize the complex molecules.

Science News Letter, November 9, 1957



**NOBELIST IN CHEMISTRY**—Sir Alexander R. Todd, professor of organic chemistry at the University of Cambridge, England, received the Nobel Prize for his work with nucleotides and nucleotide coenzymes.



**PHYSICS PRIZE WINNERS**—Drs. T. D. Lee and C. N. Yang, both now at the Institute for Advanced Study, Princeton, N. J., were awarded the Nobel Prize in Physics for their work in disproving the principle of "conservation of parity."

## ● RADIO

November 16 and 23, 1957

"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network will not be broadcast November 16 and 23, due to scheduled football game.

"Adventures in Science" will resume at its regular time Saturday, November 30. Check your local CBS station.