

## PHYSICS

# Quantum Theory Not Final

**Dr. Albert Einstein views idea that light and other radiation has a dual nature as ingenious but only a "temporary way out."**

► DR. ALBERT EINSTEIN views the current idea that light and other radiation have a dual nature, consisting of both waves and particles at the same time, as "only a temporary way out" in describing the nature of the universe.

The great physicist discusses the German physicist Max Planck's quantum theory, now a half century old, in a special issue of the American Association for the Advancement of Science journal, *SCIENCE* (Jan. 26). Agreeing that the consequences of quantum theory that radiation possesses a kind of molecular structure in energy is "ingenious and amazingly successful," Dr. Einstein does not agree that it is a final solution. It is a temporary solution, in his opinion, even though, as he says "the double nature of radiation and of material particles is a major property of reality, interpreted by quantum mechanics in an ingenious and amazingly successful fashion, and looked upon as essentially final by almost all contemporary physicists."

Just as Dr. Einstein is striving by his own efforts and encouragement of others

to unify the theories that control both gravitation and electricity and magnetism, so he now looks forward to reconciling the idea that waves and gobs of matter and radiation can exist simultaneously.

The possibility that the physical laws of the universe are different in the extreme distances of the cosmos among the remote galaxies is suggested by Dr. Linus Pauling of the California Institute of Technology.

The discovery of a "megascopic quantum theory of the universe" should not be ruled out of consideration, Dr. Pauling states.

In the field of elementary particles, down in the range of the nuclei or hearts of atoms concerned in the release of atomic energy, significant changes in the present quantum theory remain to be made, Dr. Pauling predicts.

For the dimensions of the genes that control heredity, the present system of chemical and physical theory is sufficient, in his opinion, and no fundamental new principles need to be applied.

*Science News Letter, February 3, 1951*

## PSYCHIATRY

# Diet Aids Mentally Ill

**Rigid fare of fats and proteins producing acidosis, followed by electric shock treatment, is effective in bringing improvement to patients.**

► ACIDOSIS is helping some patients recover from serious mental illness. Too new to be called a cure, it may point to new ideas on the cause of mental disease from which a cure might be developed.

The acidosis treatment is reported by Dr. Julius I. Steinfeld, owner and medical director of the Forest Park Sanitarium, Des Plaines, Ill., (*JOURNAL, AMERICAN MEDICAL ASSOCIATION*, Jan. 27).

A "rigid diet" of fats and proteins, such as milk, meat and eggs, is given to produce the acid condition of the blood which is what doctors call acidosis. Sugars and starches were eliminated from the patients' diet.

Toward the end of a 12- to 14-day period on this diet, patients showed improvement. Electric shock treatments were given following the diet and brought still greater improvement in patients who had not previously been helped by shock or any other treatment.

One 44-year-old man with schizophrenia

had had fantastic ideas of persecution for two to three years and was constantly having hallucinations. A series of eight electric shock treatments, each consisting of two to three shocks, brought no improvement. But when three electric shock treatments were given after two weeks of the acidosis diet, he recognized that his strange ideas had been delusions. He returned to work and has been doing well for the four months since treatment.

He is one of four patients helped by the combined diet and electric shock treatment. The same results might be gotten by diet alone. But this would mean keeping the patient on the diet for four or six weeks, and two weeks is as long as patients will take this diet. Dr. Steinfeld plans instead to try the diet with acidifying chemicals.

The idea of bringing on acidosis to help mental patients came from findings of Dr. Steinfeld and a colleague, Dr. L. Gerber, in 1938. At that time they noticed that following shock treatment the blood and

spinal fluid of the patients became temporarily acid. The acidity was very marked in many instances.

The findings were surprising, because life cannot go on if the blood gets too acid or alkaline and the limits are rather narrow.

The temporary but marked shift toward the acid side might, Dr. Steinfeld reasoned, be an important factor in the good results obtained with shock treatment. The studies reported now seem to bear this out.

*Science News Letter, February 3, 1951*

## PSYCHOLOGY

# Automatic Machine Output Influenced by Operator

► TWO NYLON stockings may not be perfect mates even if they were made from the same lot of yarn on the same automatic machine with the same settings.

If two different operators were running the machine, one stocking might even turn out a 9½ for a short girl and the other a 10½ for a girl with long legs.

The influence that the operator can have on the output of a supposedly completely automatic, push-button machine is revealed by Dr. John D. Coakley, of Dunlap and Associates, Inc., New York City.

On modern automatic machines, the operator does not add to or subtract from the number of stitches or from the number of courses knit into a stocking, once the initial setting has been made. Therefore, variations in the length of the foot or leg have previously been attributed to variations in the nylon yarn or to machine performance. They were considered a problem for the engineer, not the psychologist.

Dr. Coakley had three operators work on the same machine, one after the other. The same adjustments of the machine and the same lot of yarn were used throughout the run.

As each stocking came from the machine, it was weighed on a specially-designed electronic scale. Not only was the average weight of each man's stockings different from that of the others, but the stockings made by the same man differed from each other.

Although the machine used produces 24 stockings simultaneously, even these did not turn out identical. Some were heavier, contained more yarn and were larger than others.

Careful watching of the men at work showed that the operator can influence the weight of the stockings he puts out in at least 20 ways. Among these are the order in which he uses the controls and the way he stretches and inspects the stockings during knitting.

Details of the study are reported in *PERSONNEL PSYCHOLOGY*.

*Science News Letter, February 3, 1951*