

Einstein Dominates Scientific Meeting

Refugee Mathematician Believes That the Transmutation of Matter Into Energy Is Not a Practical Possibility at Present



Prof. Einstein explains his theories to reporters at Pittsburgh

A small, sensitive, and slightly naive refugee from Germany stole the show at the winter meeting of the American Association for the Advancement of Science, which closed at Pittsburgh last week. Not only the general public and newspaper men, but even the staid scientists forgot their dignity in a scramble to see and hear the little man, Albert Einstein, whose ideas have worked the greatest revolution in modern scientific thought.

The mathematician's day began with a mass interview with reporters, at the home of Nathaniel Spear, Pittsburgh furniture-dealer. The reporters had agreed in advance upon three questions, presumed to be of sufficient importance to coax significant answers. The queries, and Einstein's replies, were as follows:

1. Will science be able to transmute matter into energy for practical purposes?

"I am not a prophet, but I feel absolutely (or at least nearly) sure that it will not be possible to convert matter into energy for practical purposes. You must employ a lot of energy to get any energy out of the molecule, and the rest is lost. It is something like shooting birds in the dark, in a country where there are only a few birds."

2. What new progress have you made in connection with the "unified field theory"? What has been done to unite quantum mechanics with relativity?

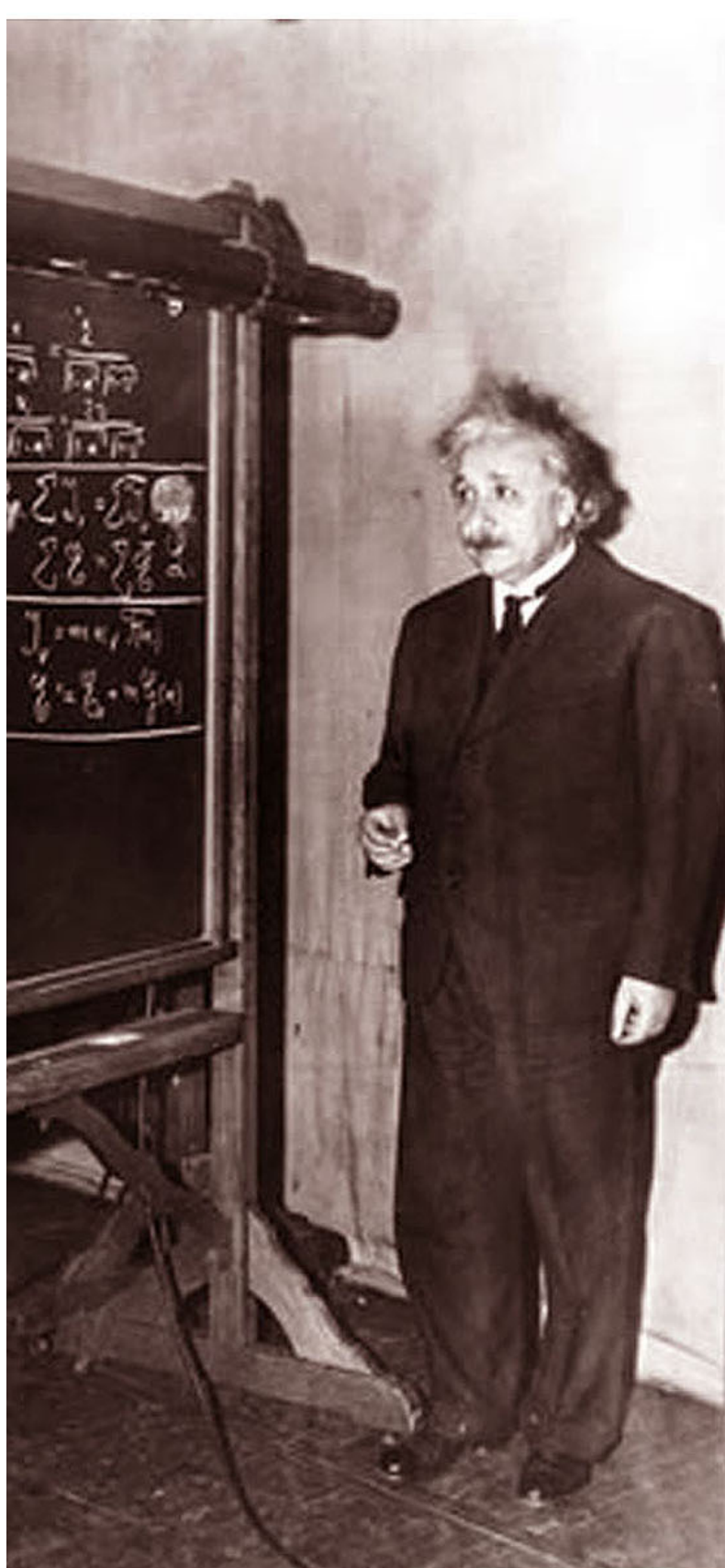
"I have worked many years to solve these two problems, and I have certain hopes—but nothing sure—only hope. If you try to solve a deep, scientific problem, you must realize that the probability of finding an answer is very small. But you must always work and never despair."

3. Will science finally restore the principle of strict causality to its former status?

"This is a question that can not at present be answered. In former days it was the

² *EINSTEIN*

belief of scientists that you could verify the principle of causality: that, if you are given the initial state of a system, and observe it, and if you know the laws of



nature, then you could predict the state of the system in future time. But Heisenberg has shown that this is not the case, for we can not observe the initial state without influencing the system in a way unknown to us. That makes it impossible to know the initial state, and also the final state.

"We can not know now whether the final state of our knowledge shall have a deterministic

or a statistical form. Most physicists to-day believe that the final form will be of a probability nature, but I believe the opposite; I believe that it will be of a deterministic form."

Einstein's formal contribution to the program was a highly technical paper in which he presented a simpler method of determining the relation between the energy and mass of material particles. He had requested that only 450 be permitted to hear it. Two hundred tickets were handed to members of the American Mathematical Society. Others went to persons having an especially good claim to them, and the balance, approximately 100, were distributed by lot among the hundreds of applicants. More than 3,000 tried to get into the lecture by various devices. It was reported that as much as \$50 had been bid for tickets.

The mathematician's recent public appearances have been few. He passes most of his time at the Institute for Advanced Study, which is located on the Princeton University campus, but is a separate institution. The mathematician is known as a fine violinist, but it is not so well-known that he also plays the piano, and is fond of sailing. Last summer he had a twenty-two-foot sloop at Watch Hill, Rhode Island, where he went sailing nearly every day while working on mathematical problems.

Einstein is not an experimental scientist; his function is to draw upon the experimental results of many scientists, and provide a theory which explains their data, and points the way to other research. His original "special theory" of relativity was announced in 1905, while he was examiner of patents in Switzerland.