"This is the way an atom appears in ‘Time’ magazine," said the man at the blackboard; he then proceeded to draw a picture, commenting as he drew: "Here's the hard round ball called the nucleus, and, as we all know, the electrons travel around the nucleus in elliptical orbits like this."

The audience, MIT's chapter of the American Institute of Physics and guests, laughed, and the speaker went on in his relaxed, informal manner, speaking with a pleasant, conversational tone.

Just Another Instructor?

The speaker himself did not impress one at first glance as being particularly outstanding: he was rather young, and could have been just another of MIT's instructors, or assistant professors. He could have been, but he wasn't: he was Donald A. Glaser, the only Nobel Laureate on the MIT faculty.

He went on speaking, working his way briefly through the development of the modern theory of the atom. ("Full lecture of this type," he explained, "have to begin like this.") In discussing the study of the atom and the nucleus, he proceeded as follows:

Atoms vs. Avocado

"Let me make an analogy: suppose you've never seen an avocado before, and you're told to describe it without seeing it or touching it. Well, you ask that the lights be turned out, you tell your assistant to place the avocado on the end of a table, you ask for a b-b gun, and you pop away.

"When you are through, your assistant takes away what's left of the avocado and the lights are turned on. It's rather obvious that on the wall you'll see a large area with imbedded b-b's and pieces of green pulp, but right in the center, you'll find a blank space, indicating that the thing was a hard core, and a large, pulpy area surrounding it. Well, this is what Rutherford did.

Crack that Nucleus!

"The next problem is to investigate that core; you run the same experiment again, but this time you ask for a .22. Now you find little splinters of wood lying on the floor afterwards.

Again, this is what scientists do when they study the strange particle accelerators.

Dr. Glaser went on, describing: "Work on the ionic-meson with a proton, which seemed to produce a lambda-particle; unfortunately, there were certain observed discrepancies in the reaction which seemed to defy the laws of physics.

World Produces 160 Reactions

Here was a problem: a way must be provided so that physicists could observe this and other reactions in detail. The cloud chambers, then in common use, were inadequate because of the great length of time between reactions. The total production of observed reactions was 1 per year.

Dr. Glaser went on to work on the problem: first he considered the possibility of particles being used as catalysts in chemical reactions.

He explained, "This could be done in several ways. For instance, with the ionization coming out of the chamber, we have a polymer which is insuble in something; various nuclear reactions observe the related meson, and might be very soluble in this substance."

It Won't Work

"Now all we have to do is to pass those polymer produced and theoretically we can even push the whole thing out of the solution and measure the angle with a protractor. Unfortunately, this doesn't work.

Dr. Glaser's thinking next enters, the realm of superheated liquids, and it was at this point that the audience asked the de- vice for which he won the 1959 Nobel prize in Physics, was born.

Particles Leave Trail

The principle behind the bubble chamber is as follows: in the bubble chamber, high-energy particles are maintained in a superheated state; when the high-energy particles from accelerators are passed through a liquid, they bring the liquid along their track to a boil, leaving little trails of bubbles. These are photographed with high-speed photography equipment and can be studied later in detail.

The first bubble chamber was a one-kilogram tank of glass, but later, a larger, tougher bubble chamber was used. Making a large chamber only slightly less impractical; if other materials were used, however, tiny scratches or nicks might cause the liquid to boil. Heating and spreading the liquid, practically the whole world's supply of this.

The cost of obtaining the liquid was over a quarter of a million dollars.

Research with bubble chambers is currently being carried on all over the world. Dr. Glaser hopes that in the not-too-distant future scientists will be able to process data on the spot, signalling scientists whenever reactions occur with which they are not familiar.

Dr. Glaser has won the world-wide recognition and praise for his invention and development of the bubble chamber. He began his research at MIT, following the faculty of the University of Michigan in 1940. In 1959, he received the University's Rumsfeld Award, which is presented every five years to a distinguished young faculty member of the rank of instructor or assistant professor whose work holds great future promise.

Dr. Glaser was the co-author of a paper presented at the Royal Society of London in 1960 at the Prix de Science presented each year to an outstanding young man.

Book Is Dedicated To Professor Draper

Plans have been announced for publication of a commemorative book dedicated to Dr. Charles Stark Draper, professor and head of the Department of Aeronautics and Astronautics at MIT, on the occasion of his 61st birthday. The announcement of the commemorative volume was made at a surprise dinner for Dr. Draper held at the Algonquin Club, Boston, it is reported by the many of the scientists, engineers, and government officials—all former students or close friends of Dr. Draper—who have written paeans for inclusion in the book.

--THE END--