BOTANY-AAAS

First Photosynthesis Step

Mysterious "Factor B", first material made by plants using sunlight, may hold the key to the artificial manufacture of food in the future.

➤ THE discovery of the first material that is manufactured by the living plant through the energy of the sunlight has been made.

This may be to the artificial manufacture of food of the future what discovery of the fission of uranium was to the atomic bomb.

A scientific team from the University of Chicago, Drs. Hans Gaffron, A. H. Brown and E. W. Fager, has determined just what is the primary product that is made out of carbon dioxide and water, energized by the light acting through chlorophyll, the green stuff of the plant.

It is a mysterious "Factor B," unidentifiable as any known chemical. Hidden in the composition of this unknown substance may be the key to duplicating the year round in factories what the farms and forests of the world work at only in the summer growing season.

Promising Development

Scientists of the American Association for the Advancement of Science, who spent two days on discussions of photosynthesis, as this process of sugar and starch manufacture in the living plant is called, rate this factor B as the most promising development so far made.

Tagged atoms of carbon, a byproduct of atomic bomb research, were used to track down just what is made out of the carbon dioxide, one of the waste gases of the air that every animal breathes out. In the experiments, a slimy green alga named scenedesmus was put in contact with carbon dioxide, all of the carbon atoms of which were artificially radioactive "carbon 14." Wherever this isotope or variety of carbon travels can be told by the clicks that its exploding atoms cause in a Geiger counter. The carbon dioxide raw material can be traced to any part of the growing plant by this method.

The Chicago scientists found that it takes only a very few seconds for the green algae to snatch up some of the tagged carbon dioxide and convert it by means of the light energy into the new mysterious factor B.

They used hundreds of quarts of the algae in getting enough of this first product of photosynthesis to analyze in various ways. All manner of tests failed to identify it. They know it is not sugar starch, a protein-like substance or the common organic acids. The one thing they do know is that it acts more like an acid than anything else, although it is much less active than most such substances.

Used by Plant for Building

The plant uses factor B material with great rapidity and ease to build up the many complex parts of the living plant. This is shown in other experiments by the speedy spread of the tagged carbon atoms to all parts of the plant.

The search for the secret of photosynthesis is getting hotter. Large vats of the convenient green algae are being grown at the University of Chicago to give more material on which to experiment.

At the University of California, radioactive carbon is being used in working with another simple green plant, the alga called chlorella. At Antioch College in Ohio, scientists are trying to discover the way chlorophyll is put together chemically, which may lead to reproducing or bettering the substance that captures light energy and puts it to work.

Scientists do not dare guess how long it will be before an artificial green plant can be built or whether a chemical process can be achieved to convert sunshine economically into sugar and starch for food or factory material. But that is the practical goal for these tedious experiments with the simplest of growing plants.

Upon these researches may depend whether the world continues to be hungry as future decades bring hundreds of millions more people to the earth. The scientists doing the work, unlike those who made the atomic bomb, have easy consciences as to what the future will bring forth. For they do not see how their discoveries can be fashioned into weapons for destruction.

Science News Letter, January 10, 1948

Stories from the meeting in Chicago of the American Association for the Advancement of Science are designated by AAAS in the line above the head. For other reports from the conference see SNL, Jan. 3.

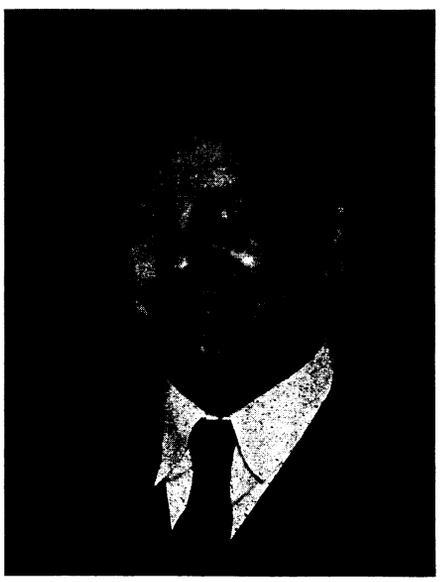
GENERAL SCIENCE-AAAS

AAAS Prize Awarded for Paper on Earth's Origin

➤ THE thousand-dollar prize of the American Association for the Advancement of Science was awarded to 30-year-old Dr. Harrison S. Brown, of the University of Chicago's Institute for Nuclear Studies, for his paper on elements in meteorites and the earth's origin. Dr. Brown is the youngest scientist ever to receive this prize, which was given for the 21st time at the meeting in Chicago.

The research which was the subject of Dr. Brown's prize-winning paper is expected to become the basis of further studies which may lead to a closer estimate of the age of the earth and of the known universe. Since the age of the cosmos is now variously estimated at from three to ten billion years there is plenty of room for closing the bracket.

Interviewed after receiving the prize, Dr. Brown mentioned that one of his colleagues has recently succeeded in isolating a few milligrams of lead from an iron meteorite. Since lead is the final



PRESIDENT-ELECT — Dr. Elvin Charles Stakman of University Farm, St. Paul, Minn., will head the AAAS in 1949.