

BIOCHEMISTRY

Study Chloroplastin

The mysterious process of photosynthesis has been seen outside the living plant cell. Scientists now have visual indications of the steps that occur in the process.

► BASIC STEPS in photosynthesis—the mysterious process by which green plants convert sunlight, one kind of energy, to make food, another kind of energy—have been duplicated outside the living green plant.

“Chloroplastin,” a complicated extract of chloroplasts containing chlorophyll and other pigments as well as proteins and fats, was used to see if photosynthetic-like reactions were possible outside the plant cell.

The photochemical activity of chloroplastin was tested, the scientists report in *Science* (May 30), by reducing a dye in the presence of light, releasing oxygen, and converting inorganic phosphate to more complicated forms.

Drs. Russell A. Eversole, now of Vitamins, Inc., Chicago, and Jerome J. Wolken of the University of Pittsburgh Medical School, report that one-fifth of their chloroplastin preparations reduced the dye 2,6-dichlorobenzeneindophenol completely within two minutes. There was no reduction in the dark.

This gave the scientists a visual indication that steps in photosynthesis occurred.

Other yellow-orange pigments, the carotenoids, are involved in this process.

Further tests with the dye-reducing extracts showed that they caused photolysis, producing oxygen, another typical photosynthetic reaction.

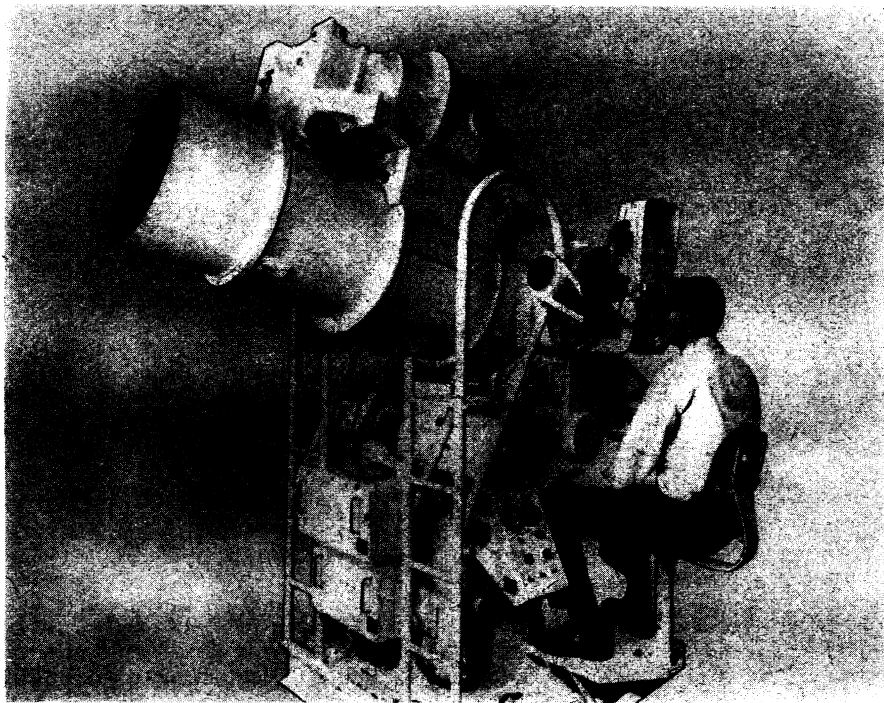
Inorganic phosphate was converted to organic phosphate. This indicates the extract was able, in the presence of light, to utilize simpler compounds to make more complicated compounds. Digitonin, a detergent used in experiments to make extracts, was used. Chloroplasts were isolated from *Euglena*, a one-celled plant.

Other photosynthetic reactions might have occurred if other plants had been used. A tree and a photosynthetic bacterium would react differently.

Although the scientists are not able to account for the variability in activity they found in various preparations of the extract, they have shown typical photosynthetic reactions produced by a plant extract in the test tube.

The research was conducted at the University of Pittsburgh's Eye and Ear Hospital.

Science News Letter, June 14, 1958



IGOR MARK II—Performance of America's ballistic missiles and satellite launchers are now being evaluated and improved with the aid of the IGOR MARK II, believed to be the nation's newest and most advanced missile tracking instrument. It records in clear, permanent form valuable data regarding attitude and condition of missiles in flight.

● RADIO

Saturday, June 21, 1958, 1:30-1:45 p.m., EDT.

“Adventures in Science” with Watson Davis, director of Science Service, over the CBS Radio network. Check your local CBS station.

Dr. J. C. Siegrist, director of veterinary research, Schering Corp., Bloomfield, N. J., will discuss “Tranquilizers for Animals.”

PHYSICS

First Liquid Helium Bubble Chamber Built

► THE WORLD'S FIRST and so far the only known liquid helium bubble chamber has been built by physicists at Duke University, Durham, N. C.

Drs. Martin M. Block and William M. Fairbank said the new chamber was developed as a research tool to study the strange new particles found when atomic cores, or nuclei, are broken apart by high-energy bombardment.

It operates at about 453 degrees below zero Fahrenheit, only a few degrees above absolute zero, the lowest obtainable temperature.

Bubble chambers are a recent development for studying the interactions of nuclear particles. The Duke University unit differs from other bubble chambers in using liquid helium instead of liquid hydrogen or other liquids.

Similar chambers are planned by scientists at Oxford University in England, the University of Rome in Italy and at Washington University, St. Louis, Mo. One will also be built in Moscow, according to unofficial reports.

To operate the chamber, liquid helium is suddenly expanded in volume. It is then in an unstable state, ready for boiling but lacking centers around which bubbles can form. Charged particles moving in the liquid cause ionization that acts as centers for bubble growth. A particle thus leaves in its wake a string of bubbles defining its path. This trail is photographed to give a picture of the track of nuclear particles.

Science News Letter, June 14, 1958

PHYSIOLOGY

Specialist to Study Heart of Kangaroos

► HEART SPECIALIST Dr. Paul Dudley White, who attended President Eisenhower, hopes to record the heart beats of emus and kangaroos at Taronga Zoo Park, Sydney, Australia.

He has tested the heart beat of whales and elephants as part of his research into the heart beat of large mammals.

Dr. White is in Sydney to advise on the establishment of a national heart foundation in Australia.

The cardiologist, president of the International Society of Cardiology, said the Australian foundation would gather funds, for teaching, research, education and travel.

He would suggest that the foundation be supported with both government and private funds, also that it should have laymen as well as doctors on its advisory panels.

Science News Letter, June 14, 1958