

Committee, revealed in a phonographically recorded message sent to the "Science and the New World Order" conference of the British Association for the Advancement of Science in London.

Approximately 1,000 scientists are at work for the NDRC in universities and 700 in industrial laboratories, Dr. Conant said. Three-quarters of the most distinguished research physicists of the nation are now at work on war prob-

lems, he added, and the remaining 25% will be at work in a few months.

"We have found that the nature of the problems in this present war are such that physicists and certain types of engineers are in greater demand than chemists."

Dr. Conant gave no hint as to just what secret weapon was developed by the large group of scientists working at M.I.T.

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exclusively in the light. They found that some phases of the process may be independent of light, for plants continued to assimilate charged carbon dioxide in total darkness.

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pressed the "practical hope" that intellectual peaks may in future be reached and maintained on a less opportunistic basis through a systematic program of research by biological and social scientists of the factors that tend to maintain and restore mental vigor.

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Find Cancer-Causing Rays

IDENTIFICATION of rays from the sun that cause skin cancer was announced by Dr. H. P. Rusch and Dr. B. E. Kline, of the University of Wisconsin, to the National Academy of Sciences.

The rays are 2,900 to 3,341 Angstrom units in length and lie in the ultraviolet part of the sun's spectrum from which also come skin tanning and rickets healing rays.

White mice exposed to these rays developed within two and one-half months tumors which were "true malignant cancers of the same type found in humans," the Wisconsin scientists reported.

Very little radiant energy was needed to start the changes which ended in cancer.

The sun's rays have long been suspected of playing a part in causing cancer. The high incidence of skin cancer in sailors has long been known, and nearly 50 years ago, Dr. Rusch pointed out, "seaman's skin" was described as a precancerous condition due to continued exposure to sunlight.

Strong experimental support for the theory that sunlight is a direct cause of cancer has, however, only come within the past decade.

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Better Cancer Treatment

HOPE that practical methods may be developed for making healthy tissues resist X-rays that fight cancer cells is raised by experiments reported to the Academy by Dr. Titus C. Evans of the University of Iowa.

A great problem in cancer therapy is to give a large enough dose of the roentgen rays to have effect upon the cancer and leave the tissues around it unharmed.

BOTANY

Radioactive Carbon Reveals Secrets of Photosynthesis

New and As Yet Unidentified Substance Discovered That Does What Formaldehyde Was Supposed To Do

TEXTBOOK theories of photosynthesis have been upset by the use of radioactive carbon, a product of the atom-smashing cyclotron, in tracer studies at the University of California. This product was used by Dr. S. Ruben of the Department of Chemistry, and Dr. M. D. Kamen of the Radiation Laboratory, to test former theories of plant chemistry.

A new and as yet unidentified compound that does what formaldehyde was supposed to do has been discovered.

All animal life depends on the ability of plants to convert inorganic elements into organic forms that can be assimilated by animal organisms. Any animal, from man to microbe, would starve if soil, water and air, primary storehouses of nature's supplies, were his only source of food. But plants can use elements in the raw and by a mysterious chemical process involving chlorophyll, a green coloring matter, change basic elements

into sugars, starches, proteins, vitamins and other organic foods according to their kind. This process is known as photosynthesis.

The mystery of photosynthesis has long baffled and intrigued scientists, and though theories on the process have been offered, none could be proved because chemical methods of proof were inadequate.

The most widely accepted theory of photosynthesis was that plants take carbon dioxide, light and water and produce formaldehyde. This process, common to all plants, was supposed to be an intermediary step, preceding the chlorophyll action that produces carbohydrates and other nutritive substances.

Dr. Ruben and Dr. Kamen placed algae plants in chambers containing radio-active carbon in a carbon dioxide compound. Leaves of the plants literally pulled the charged element from the air and its course through the plant could then be followed. If the old theory were true, the tagged carbon should appear in the formaldehyde formed by the plants, but this substance extracted from the test plants contained none of the active carbon.

An unsuspected compound was discovered, however, that contained most of the charged carbon the plant "breathed"—the true intermediary step in photosynthesis. The chemical formula of this important compound has not yet been determined, but scientists are hard at work on this problem.

Dr. Ruben, Dr. Kamen and their associates also disproved the theory that photosynthesis is a process carried on

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