

BIOCHEMISTRY

High Temperature Plant

Find strain of green alga, operating at relatively high temperature, that converts sunshine into food at efficiency five times that of any previously known photosynthetic organism.

► A STRAIN of a one-celled green plant that can carry on the process of converting the energy of sunshine into food with five times the efficiency of any previously known has been discovered.

It is a strain of the green alga *Chlorella*. This efficient plant, which wastes less sunshine than any other, operates at the high temperature of 39 degrees Centigrade, or 102.2 degrees Fahrenheit. It produces 100 times its own cell volume of oxygen per hour instead of the 20 times produced by most photosynthetic organisms over sustained periods.

This *Chlorella* strain, known as Tx 71105, was isolated from warm surface waters by Drs. Constantine Sorokin and Jack Myers at the University of Texas, Austin, Tex., and the Carnegie Institution of Washington, Stanford, Calif. Its discovery is reported in *Science* (March 27).

The fact that this plant can survive and grow at this relatively high temperature

and operate so efficiently for sustained periods is considered significant for practical attempts at algae "farming" to capture the plentiful sunshine for energy or to increase the world's food supply.

Increasing the efficiency of the photosynthetic process has long been an aim of scientists. Some have thought that if this could be done and a sort of artificial green plant developed, the world might be freed of dependence for energy on coal, oil, gas, wood and other fuels. Synthetic food should then be just around the corner.

Heretofore scientists working on this problem have worked with *Chlorella* growing at the lower temperatures of 25 degrees Centigrade, 77 degrees Fahrenheit, because it was thought these one-celled plants would not thrive at higher temperatures. Keeping a dense mass of them at this temperature under bright sunlight has been difficult.

Science News Letter, April 11, 1953

CYTOLOGY

Stomach Cancer Detection

► EARLY DETECTION of stomach cancer probably can be achieved best by microscopic examination of cells taken from the stomach lining.

This is indicated by a report by a group of University of California School of Medicine doctors in *Surgery, Gynecology and Obstetrics* (Dec., 1952).

The detection technique, called cytological diagnosis, has been used successfully in cervical and lung cancer. Its application to stomach cancer has been difficult because of the trouble encountered in obtaining cells direct from the stomach wall.

The California scientists have overcome this problem by the use of papain to digest and remove the mucous layer overlying the stomach wall.

The papain technique has now been used on 400 patients, and a marked improvement is noted over results obtained in a study of 600 patients on whom conventional methods of getting stomach cells were used.

With papain, 30, or 71.4% of 42 proved malignancies were detected, an improvement over the 51.1% diagnosis by conventional methods. A review of the data on the 400 patients shows that improvements during the course of the papain study can raise the accuracy to about 85%.

The doctors pointed especially to the detection of five early cancers in which diagnosis by X-ray was either questionable or

in error. Before cytological diagnosis, cancers had been diagnosed in four of the patients, multiple polyps in a fifth. In all five cases, the cancers were detected and removed before they had a chance to spread.

"There is growing evidence that cytology is the most efficient means of diagnosing early lesions," said the scientists, Drs. Milton Rosenthal, Seymour M. Farber and Orville F. Grimes, and James T. Harrison.

If the tests are used in individuals over 35 years of age who complain of chronic indigestion, many early, operable cases of cancer would be uncovered, they added, thus reducing mortality from this source.

Science News Letter, April 11, 1953

VETERINARY MEDICINE

Brucellosis Threatened To Buffalo the Buffalo

► BRUCellosis THREATENED to buffalo the buffalo but modern veterinary science has saved the American bison from extinction. Vaccination has brought the disease, known also as Malta fever and undulant fever, under control at the Wichita Mountain Wildlife Refuge in Oklahoma, home of the world's largest bison herd. The vaccine was the same type used to protect cattle.

Science News Letter, April 11, 1953

• RADIO

Saturday, April 18, 1953, 3:15-3:30 p.m. EST.

"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS Station.

Dr. Samuel N. Stevens, president of Grinnell College, Grinnell, Iowa, discusses "Scientific Training in the Small College."

INVENTION

Grow Grass Under Bituminous Layer

► A LAYER of gravel topped with a layer of bituminous emulsion over the seed bed of a grass lawn gives remarkable results in the speeding up of the germination of the seed, according to a British inventor who patented this method.

The bituminous emulsion keeps out water from the atmosphere and also prevents evaporation of water in the soil. The inventor finds that the grass then draws up just the right amount of water from underneath and that the temperature is raised, thus giving a hothouse-like atmosphere.

The gravel is used because the young shoots of grass are, at first, too tender to push their way through the bituminous emulsion. However, once they grow through the gravel, it is claimed, they are tough enough to break through the top layer. Once the grass pushes through, more moisture from the atmosphere can get into the ground through the holes made by the blades. Inventor is Thomas F. N. Alexander, Bristol, England, and his patent number is 2,632,979.

Science News Letter, April 11, 1953

PSYCHIATRY

Do Not Count Sheep; Fix Eyes on Landscape

► NEXT TIME you cannot get to sleep because exciting or disturbing ideas keep flitting through your mind, try the following:

Imagine a beautiful, restful landscape in summer with which you are familiar. Go through all the details of the picture and at last concentrate your "field of vision" on a small part of it. Try to keep seeing this small part in your imagination. If outside thoughts interfere, which they always do to begin with, start all over again taking the same picture and concentrating on the same point in it.

This method is better than counting sheep, whether backwards or forwards, says the Danish psychiatrist, Dr. Gudmund Magnussen. The reason is that while counting sheep you can go right on being disturbed by other thoughts, but with the landscape method the interfering emotional thoughts are kept away. Dr. Magnussen gives this method in a report to the National Association for Mental Health in New York.

Science News Letter, April 11, 1953