

HOW TINY AREA'S CROPS COULD FEED WORLD

By FRANCIS DROUET

CURATOR OF THE CRYPTOGAMIC HERBARIUM

IN THESE DAYS when vegetables are grown in vats of water and dissolved chemicals, scientists are dreaming of providing more and more food in less and less space for the expanding population of the world. Their dreams include two projects involving algae. One of these is to harvest and prepare for consumption the great fields of seaweeds that inhabit the shallower waters of the ocean. The other (as was mentioned in the BULLETIN for September, 1953) is to produce marketable quantities of edible unicellular algae in a manner similar to that in which vegetables are often grown today.

Seaweeds, along with rice and fish, have always constituted the national diet of the Japanese. Species of *Porphyra*, *Gelidium*, *Laminaria*, and many other genera—six or more different kinds during the course of a single meal—are eaten fresh or dried or cooked in various ways. Cultivation of these algae in sea-gardens is one of the major industries of Japan. To a lesser extent the Chinese use seaweeds in their cuisine. These same algae, largely from Japan, are offered under trade names at the so-called "health-food" stores in Chicago. Several companies in the United States process and market these products and maintain laboratories for developing further uses for them as food for humans and livestock. The seaweeds consist principally of carbohydrates and proteins; they are claimed to be rich sources of assimilable iodine and vitamins.

IRISH MOSS WIDELY USED

The chief seaweed used as food in Europe and the United States is the Irish moss, *Chondrus crispus*, harvested on the coasts of northeastern North America, the British Isles, and northern Europe. It is a constituent of many jellies and puddings; but it is more familiar to us as a common ingredient of soaps, hand lotions, and paints and as sizing for cloth and paper. In some parts of Europe, *Porphyra* (laver) is used for making soups, and at least formerly this and *Ulva Lactuca* (sea lettuce) were used as salads. The dried fronds of *Rhodomenia palmata* are still eaten raw or cooked in many parts of Europe and in eastern North America—here they are known by the Scottish name *dulse*.

Agar, a purified jelly-like substance prepared by boiling various species of *Gelidium*, *Gracilaria*, *Eucheuma*, etc., is an ingredient of soups and desserts in Japan. In this country and Europe it has wide use in the manufacture of ice cream, candy, and pastry and in the canning of soft fish. Formerly the preparation of agar was almost a monopoly of the Japanese; but during and since World War II, because of its extensive employment in bacteriological laboratories, con-

siderable agar has been manufactured in this country from local species.

In several parts of the world, fresh-water algae are eaten by man. Two species of *Nostoc* are used by the Chinese in cooking, and *Gloeocystis Grevillei* is mixed and drunk with coconut milk by the Gilbert islanders. It is probable that many species of fresh-water algae are edible, although those that form water-blooms are said to be toxic to livestock.

MARINE TRUCK GARDENS

Undoubtedly the thousands of tons of seaweeds now going to waste (or used only in small quantities as agricultural fertilizers) along rocky coasts throughout the world could be counted upon in the future as a source of staple food for man and beast as is now the case in Japan. Even as there, the more desirable species could be cultivated in marine truck-gardens. Estimates have been made that more than 400 species can be eaten.

The idea of growing unicellular fresh-water algae in quantities suitable for food is of recent development. Among more than a hundred species of green algae now being studied, strains that contain protein up to one-half of their dry weight have been discovered. With these could be produced in an infinitesimal space the quantities of food now requiring acres of ground for the production of vegetables and livestock. It is claimed that a quantity of *Chlorella pyrenoidosa* sufficient to feed half the human race could be grown in a space equivalent to the state of Rhode Island. *Chlorella* can be cultivated in solutions of flowing chemical nutrients in glass or plastic tubes or tanks that require little care after the apparatus has been set up. At the present stage of development, the process is slightly more expensive than is economically feasible, but industrial engineers can perhaps reduce these costs. Dried *Chlorella* is said to taste very much like raw lima beans or pumpkin, and culinary artists should have no difficulty in transforming it into palatable dishes. For livestock, it should readily take the place of alfalfa.

Various seaweeds and microscopic algae are on exhibition in the northeast corner of Martin A. and Carrie Ryerson Hall (Plant Life—Hall 29).

Library Serves More People

The Museum Library, although primarily organized to serve the needs of the staff, reports ever-increasing use for reference by outsiders. The public is always welcome, and last year 2,585 of the 130,000 volumes on the Library shelves were consulted by nonmembers of the staff.

The story of American Indians over a period of some 20,000 years is unfolded by exhibits in Raymond Hall (Hall 4).

MUSEUM STAFF WELCOMES 4-H BOYS AND GIRLS

Boys and girls of the nation's farms—more than 1,300 of them, selected for merit and achievement—will visit the Museum on December 1. Their visit, a custom of many years' standing, is arranged by the National Congress of 4-H Clubs, which brings them to Chicago at the time of the annual International Livestock Exposition. There will be delegates from nearly every state and from the provinces of Canada. All of the young visitors will be conducted on tours of exhibits. Some groups will be guided by staff lecturers of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures, others by members of the scientific staff from the four departments of the Museum.

STAFF NOTES

Dr. Karl P. Schmidt, Chief Curator of Zoology, has been elected president for 1954 of the Society for the Study of Evolution and **Dr. Theodor Just**, Chief Curator of Botany, has been elected vice-president. Dr. Schmidt had served as first treasurer and business manager of the society for over five years. Dr. Just recently attended a meeting of the Divisional Committee for Biological and Medical Sciences of the National Science Foundation in Washington, D.C. . . . **Dr. Sharat K. Roy**, Chief Curator of Geology, **Dr. Rainer Zangerl**, Curator of Fossil Reptiles, **Bryan Patterson**, Curator of Fossil Mammals, and **Robert K. Wyant**, Curator of Economic Geology, attended the meetings last month in Toronto of the Geological Society of America . . . **Donald Collier**, Curator of South American Ethnology and Archaeology, gave an illustrated lecture on Peruvian archaeology before last month's meeting in Downers Grove of the Earth Science Club of Northern Illinois . . . **Lawrence Kaplan** has been appointed Chicago Natural History Museum Fellow in Botany by the University of Chicago . . . **Rupert L. Wenzel**, Curator of Insects, is engaged in studies on typical material of beetles of the family Histeridae, on which he specializes, in the collections of the United States National Museum, Washington, D.C., and the Museum of Comparative Zoology at Harvard University.

North American Trees

A number of reproductions of leafy tree branches have been added to the exhibits in Charles F. Millsbaugh Hall of North American Trees (Hall 26). Among them are blue ash, black locust, sycamore, American holly, bitternut, red maple, dogwood, and paper birch.



Drouet, Francis. 1953. "How Tiny Area's Crops Could Feed World." *Bulletin* 24(12), 7-7.

View This Item Online: <https://www.biodiversitylibrary.org/item/25709>

Permalink: <https://www.biodiversitylibrary.org/partpdf/371017>

Holding Institution

University Library, University of Illinois Urbana Champaign

Sponsored by

University of Illinois Urbana-Champaign

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the Chicago Field Museum.
For information contact dcc@library.uiuc.edu.

Rights Holder: Field Museum of Natural History

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.