

many generations.

"The food habits of the Hawaiians when the islands were discovered were probably what they had been for centuries, at least since about 1100 A.D., and, probably from 600 A.D. to the time of the great migration -- or perhaps even since soon after 1 A.D. or thereabouts which is considered to be somewhere near the year of the arrival of the first inhabitants.

"The Hawaiians ate 138 kinds of edible fish", Miss Miller said, "31 fowls, breadfruit, ferns, bananas, yams, taro, poi, pandanus, and various types of seaweeds. Their diet differed from that of other fine races in that they had no milk, no cod liver oil, and no whole grains."

HITTITES AMONG FIRST USERS OF IRON

The peoples of the near East were among the earliest manufacturers of iron, according to Dr. J. Newton Friend in an address before the members of the Royal Institution.

In 1300 B.C. the Hittites were using iron weapons in their numerous wars and among the treasures of early history preserved to posterity is a letter thought to have been addressed to Rameses II of Egypt from the Hittite king, saying that he is sending with the communication an iron dagger.

The Romans were skilled metallurgists with considerable knowledge of how to handle iron ores. Virgil's Aeneid written around 40 B. C. contains an account of a smithy in full blast, and Pliny in his Natural History, which was brought out in 77 A.D., shows an equal familiarity with the working of the metal. An iron ring recently unearthed from a Roman site was evidently made by soldering together the ends of a bent strip of iron with some sort of copper alloy.

Cast iron, said Dr. Friend, was first known in Sussex in 1350 and soon became fairly common.

ETHYLENE GAS USED TO RIPEN FRUITS

Ethylene gas which has seen recent favor in medical circles as an anesthetic has found quite a different use in the artificial ripening of green fruits and vegetables.

Experiments undertaken at the Agricultural College of the University of Minnesota in cooperation with two wholesale fruit houses demonstrated that green bananas and tomatoes exposed to small proportions of ethylene gas ripened in a shorter time and with much smaller loss than in the usual course of commercial ripening. The flavor was found to be a considerable improvement over that customarily found in fruits ripened off the tree or vine. This is ascribed by Dr. R. B. Harvey to the

fact that ethylene increases the sugar content of the fruits exposed to it.

Experiments are in progress to ascertain the possibilities of ethylene with other fruits such as melons, pineapples, and peaches that have to be picked green to stand shipping to northern countries. Certain varieties of apples and even rhubarb are said to be greatly improved by the treatment.

Since ethylene is simple to administer and comparatively inexpensive Dr. Harvey says that it has distinct commercial possibilities, particularly in the northern states that cannot hope to obtain a naturally ripened product.

WINTER SAP OF EVERGREENS TOO THICK TO BE FROZEN

Why do the leaves of evergreens hang on all winter long, when by rights they should be frozen and drop off? According to researches of Dr. Floyd W. Gail of the University of Idaho, they stick because in winter their sap becomes too thick to freeze.

Dr. Gail gathered leaves from pine trees and from broad-leaved evergreen shrubs once every month through three years, crushed out the sap and tested it for its freezing points. He found that during the summer when the weather is warm and the sap flows freely it is relatively thin and could be frozen easily if there were any frost to freeze it. But as fall comes the starch in the leaves is converted into sugars and oil, changing the sap from a thin and watery fluid into a sort of sirupy emulsion, very difficult to freeze. He found that the greatest density of the sap was reached during late January and February, when the most severe freezing weather occurs. Deciduous trees, that lose their leaves in autumn, show some thickening up of the sap, but apparently the sugars are transferred into the tree before the leaves drop off, for Dr. Gail found that the sap pressed from leaves that had just fallen was easily frozen, whereas sap from leaves not quite ready to fall resisted the effects of considerably lower temperatures.

ANCIENT PLANT REMAINS FOUND IN COAL WASTE

Coal balls, hard, unburnable lumps usually discarded as waste at the mines, are being made to tell new stories of the plant life of America many millions of years ago, when the great deposits of coal were in the making. Dr. A.C. Noe of the University of Chicago has gathered a large collection of these curious objects, from which thin sections are being ground for microscopic examination. Many plants heretofore known only from the prints they left in the mud when they fell and decayed ages ago can now be studied in fine detail.

In the forthcoming issue of the Botanical Gazette, Freda D. Reed of Earlham College, Indiana, tells of the microscopic examination of a single one of these coal balls, which yielded specimens of four different genera of plants. They included a sort of climbing fern now extinct, a plant with some primitive suggestions of the structure of modern evergreens, a relative of the horsetails or scouring-rushes, and what appears to be an ancestral form of the present-day club mosses.
