

Here the green plants receive aid from a host of unseen fellow-prisoners in their bulbs - the bacteria in the soil. These work only one way, eating up the decaying plant material around them with the aid of oxygen from the air, and returning carbon dioxide, which the green plants capture again and once more feed into the unbroken circle of vegetative life.

ANCIENT HEBREWS A MIXED RACE

The Hittites, against whose tribes the Children of Israel warred for the conquest of Palestine, were probably descendants of the same ancestors with the Hebrews according to Dr. George A. Barton of the University of Pennsylvania, who addressed the recent annual meeting of the American Philosophical Society. A branch of the original Hittite stock, a people with high cheekbones and prominent noses, mingled with a Semite foundation to produce the tribe who later became the Chosen People, late evidence indicates.

The riddles of origin and language of the Hittites, long the despair of archeologists, are now rapidly being untangled, Dr. Barton stated.

"Until about forty years ago the Hittites were believed to have been simply a small Palestinian clan like the Hivites and Jebusites;" he said. "Then it was recognized that the Khatti of Assyrian inscriptions and the Kheta of Egyptian inscriptions were Hittites, that certain pictures on rocks in Asia Minor portrayed Hittites, and that certain curious hieroglyphic inscriptions accompanying these were Hittite."

"Two generations of scholars have sought in vain to read this writing. In 1906 the late Professor Winckler discovered in the ruins of a Hittite Palace at Beghazkoi an archive of 2500 or more fragments of tablets, representing between 500 and 1000 tablets written in the Babylonian Cuneiform script, most of which were in the Hittite language. Because Winckler was soon attacked by a lingering illness from which he died, these tablets did not begin to be published until within the last ten years. Now, by the combined efforts of several scholars the language in which the tablets are written is being rapidly mastered and their contents given to the world.

"The majority of the texts are in what is popularly called Hittite, but which the tablets call Kanish. Counting Sumerian and Akkadian, the language of Babylonia, seven other dialects are represented in the collection. Kanish is a language Indo-European in its structure, but largely non-Indo-European in its vocabulary. The other dialects are all non-Indo-European. What the tablets call Hittite (scholars call it Proto-Hittite to distinguish it from Kanish) is a non-Indo-European language. These non-Indo-European languages are apparently related to Elamite and to dialects which will survive in the Caucasus.

"Probably hieroglyphic Hittite, which is still undeciphered, contains material in these non-Indo European languages. In Mesopotamia Aryans mingled with this early population and gave them such Aryan deities as Mitra, Varuna, Indra, and Nashatya, but were not able to plant among them an Indo-European speech. In Asia Minor, they imposed an Indo-European language (Kanish or later Hittite), but apparently did not plant the worship of Indo-European deities.

"One of these peoples, the Hurri, appears to have spread over Syria and Palestine, where they mingled with Semites to form the Hebrew people. It seems that they gave to the Jews their characteristic features. Another dialect, the Azarva, spoken over western Asia Minor, is revealed to us. It included the Lycian city of Myra, mentioned in Acts, 27:5 from which St. Paul took ship to Rome."

MOSAIC DISEASE GERMS FOUND IN TOMATO PLANT

The mosaic disease of tomatoes, and probably of other plants as well, which annually causes damage aggregating tens of millions of dollars, is caused not by an ultramicroscopic organism, too small to be seen with the most powerful of optical aids, as has hitherto been supposed, but by a germ which though exceedingly tiny can yet be seen if the right technique is used.

This discovery, made by Dr. Sophia Eckerson of the Boyce Thompson Institute for Plant Research, is described in a recent issue of the Botanical Gazette. In the same journal is a discussion of the efforts of Helen A. Purdy, an associate of Dr. Eckerson, to cultivate the organism outside the plant tissues, which failed to sustain the claims made by an earlier worker that this virus could be grown in a test tube.

Dr. Eckerson found in the tissues of diseased tomato leaves swarming little organisms near the lower limit of visibility for even a high-power microscope. Their diameters ranged from two to four twenty-five thousandths of an inch. Later on, larger organisms, about twice the size of those that appeared first, were detected. These creatures were always found in the diseased areas of the leaves, and most of them possessed the power of rapid motion, swimming through the sap with rapid lashes of a whip-like "tail".

Mosaic diseases afflict a wide variety of plants and cause very serious economic losses. They are so called because leaves of the diseased plants lose their green color in angular patches, giving the tissue a pattern suggestive of a mosaic pavement. Many workers have spent years searching for the cause or causes of the disease, as a first step in the development of means for prevention or cure.

STUDIES UNEXPLORED REGION OF SPECTRUM

One of the least known sections of the spectrum has been investigated by Prof. K. T. Compton, well known physicist, and C. H. Thomas of Princeton University.

In a talk before the American Philosophical Society Prof. Compton described the methods they have used to make more accurate measurements of the spectral region that lies between ordinary X-rays and the extreme ultra-violet than have hitherto been possible. Except for a small region between radio and heat waves this is the only part of the spectrum that has not been capable of receiving close and accurate study. Prof. Compton and Mr. Thomas have shown that in this region of very soft X-rays