location of starch in the diseased area is to be explained by the abnormal activity of the oxidizing enzymes of these cells, and that the mode of this action is by retarding or weakening the activity of the translocation diastase. This would also help to explain the slower growth of the diseased cells.

ALBERT F. WOODS.
DIVISION OF VEGETABLE PHYSIOLOGY AND PATHOLOGY, U. S. DEPARTMENT OF AGRICULTURE.

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*THE MEXICAN HALL OF THE AMERICAN MUSEUM OF NATURAL HISTORY.**

WHEN the Europeans first set foot in Mexico, they were met by a numerous people who had become settled into nations, and had developed a civilization which was astounding and incomprehensible to the conquering adventurers. The antiquity of this American civilization was so great, and it was so widely spread over Mexico and Central America, that there still remains a vast accumulation of materials exemplifying the daily life of the people. Hundreds of temples and other large and elaborate structures and sculptures in stone, which were connected with the ceremonials of an all-pervading religion fostered and maintained by priests and rulers, stand as monuments of this ancient civilization.

Several distinct phases of this culture resulted from modifications by different tribes with distinct languages and customs. In Mexico proper the most powerful nation was that of the Nahuas, commonly known as the Aztecs. Their principal seat was in the Valley of Mexico, but by migrations and conquests they left their imprint in various parts of Mexico and Central America. The other prominent cultures of this ancient time in Mexico are attributed to the Tarascans in the States of Michoacan and Jalisco, the Zapotecans and the Mixtecans in the State of Oaxaca, and the Totonacans in the State of Vera Cruz. The great southern development, in many ways the highest phase of this American civilization, is attributed to the Mayas. It extended from the State of Chiapas on the north, through Yucatan and Guatemala, to northern Honduras, where in the Copan Valley it probably reached its highest development.

From the time of the conquest by Cortes this ancient civilization on the American Continent has been a wonder and a mystery. Some of the Spanish priests and native writers following the conquest left accounts of the people and their customs, from which the student of to-day is obtaining important information; but it is only during the present century that serious research has been directed to the study of this remarkable phase of American archæology. The publication, by Stephens in 1841, of the volumes containing illustrations by Catherwood of the ruins in Chiapas, Yucatan and Central America, first aroused attention among English-speaking peoples to the ruins of these ancient cities of America with their strange sculptures. From that time this interest has been increasing, and during the last decade systematic exploration and research have led to many important discoveries, the beginnings of definite knowledge concerning the origin and development of this past American civilization.

It was in furtherance of this research that the American Museum secured from the Government of Mexico the right to explore the ancient ruins in that country. It was for this object that Mr. Lorillard provided the means for Charnay's expedition to Yucatan and other parts of Mexico. It was this incentive that led Mr. Thompson to take up his abode in Yucatan, and that induced Dr. and Mrs. Le Plongeon to pass years of arduous labor in that country. For this purpose the Duke of Loubat sent

* Opened on December 12, 1899.

Dr. Seler on a special expedition to Mexico and Central America; and to this end Mr. Maudslay, of England, has devoted much of his time and private means. For the same purpose Messrs. Bowditch, Salisbury and others have for several years given their generous support to the Peabody Museum of Harvard University, that explorations might be carried on in Yucatan, Guatemala and Honduras.

All this research has made it possible to secure such an exhibit as is now installed in the Mexican Hall of the American Museum of Natural History; but it is due to the intelligent interest and liberality of the Duke of Loubat that the Museum has been able to bring together this large and important collection, which is soon to be exhibited for the instruction of the public.

The originals of the great sculptures in stone, of which facsimile casts are here presented, are, with the exception of a few specimens in other museums, still buried in tropical jungles or amid the ruins of ancient temples. The general labels on each of the larger specimens, and the illustrated labels in the frames near them, give information relating to each of these sculptures (known as monoliths, stelæ, idols and altars) from the prehistoric ruins of Quirigua in Guatemala and of Copan in Honduras. These are all monuments of the Maya culture, and on most of them will be seen groups or columns of hieroglyphs, the deciphering of which is one of the most important researches in American archæology. The sculptures at the farther part of the hall are from Mexico, and belong mostly to the Nahuatl culture. The dark color of the casts shows that the originals are of a different kind of stone from that used in Quirigua and Copan.

On entering the hall, the most conspicuous object on the left is the so-called 'Great Turtle of Quirigua.' To the right is a large 'idol' known as the 'Dwarf,' because it is the smallest of the stelæ standing amid the ruins of Quirigua. A cast of the largest of these monoliths, standing twenty-five feet above ground, is too high for this hall. It is exhibited in the hall below, where from the gallery a study can be made of the upper portions of the sculptures.

On the right of the hall is a restoration of the sanctuary of the 'Temple of the Cross,' showing the position of the bas-relief known as the 'Tablet of the Cross,' with the officiating priests and the hieroglyphic inscription. In a frame on the side of this reconstruction is an illustrated label explanatory of this temple at Palenque. In the table-case near by are several pieces showing hieroglyphics and figures made in stucco, which was widely used. The great 'Calendar Stone,' the most remarkable of Mexican sculptures, is shown on the south wall. On the walls and screens on the north side of the hall are many fine bas-reliefs from ruins in Guatemala, Honduras, Palenque and Yucatan. Over the northern case at the east end of the hall is a group of slabs from Palenque, upon which are many columns of hieroglyphs. Over the adjoining case, and on the south wall near by, are casts of slabs from the ruins of Chichen Itza in Yucatan. Here are also the sculptured stone posts of a doorway upon which rests a carved wooden lintel. To the right of this is shown the sculptured wall of a portion of a room in a temple at Chichen Itza, on which are many human figures and a feathered serpent. There is evidence that this and many of the other sculptures were formerly painted in several colors, of which red, yellow and blue predominated. The statue of Chac-Mool, found by Dr. and Mrs. Le Plongeon at Chichen Itza, is an instance where the colors were still preserved. The cast of this reclining statue was colored by Mrs. Le Plongeon in exact copy of the original when found.

In case A are the Tarascan terra-cotta figures and stone sculptures secured by the Lumholtz expedition.

In case B, on the east end of the hall, are original sculptures in stone from Copan and Yucatan.

In case N is a collection, also from the Lumholtz expedition of pottery from the ruins of Casas Grandes, illustrating a culture approaching that of the ancient Pueblo people of Arizona and New Mexico.

In three other cases at this end of the hall, and several cases at the opposite end, are various collections, including jadeite ornaments, copper implements and ornaments, carved stone yokes, a large terra-cotta human figure, and pottery vessels of many forms, all illustrative of the culture of several of the ancient Mexican peoples.

Cases C and D contain the collections made by Dr. Seler in Mexico and Guatemala, and presented by the Duke of Loubat. In another case are terra-cotta figures of great value found over a tomb in a mound at Xoxo by Mr. Saville of the Museum expedition. A cast of the inscribed stone lintel of the door, and many vessels found with skeletons in this tomb, are most interesting objects.

The ancient Mexicans and Mayas had many manuscripts or codices consisting of picture-writing and of hieroglyphs. These were on prepared deer-skin or on native paper made of maguey fiber and coated with a kind of white cement. Several of these codices were sent to Europe soon after the Conquest, and others have since been found. They are of the utmost importance; but, being few in number and widely scattered, they were of little use until reproduced in facsimile, so that every student could have access to them for comparative study. In the two cases in the center of the hall, and in the frame over them, are a number of copies of these important records. For these the Museum is indebted to the Duke of Loubat, at whose personal expense several of these manuscripts have been reproduced in facsimile.

There is thus brought together in this Mexican Hall of the Museum the most important collection in existence for the study of the ancient civilization of Mexico and Central America.

F. W. PUTNAM.

HARVARD UNIVERSITY.

CORRESPONDENCE RELATING TO COLLECTIONS OF VERTEBRATE FOSSILS MADE BY THE LATE PROFESSOR O. C. MARSH.

THE following copies of letters have been sent to the Editor of SCIENCE by Hon. Charles D. Walcott, Director of the United States Geological Survey.

DEPARTMENT OF THE INTERIOR,
UNITED STATES GEOLOGICAL SURVEY,
WASHINGTON, D. C., May 5, 1891.

THE DIRECTOR,
U. S. GEOLOGICAL SURVEY,
WASHINGTON, D. C.

SIR:

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The large collections of vertebrate remains in the charge of Professor O. C. Marsh, at New Haven, Connecticut, are kept in the fire-proof Peabody Museum building, and in a large storage shed adjoining. The method of recording is somewhat different from the other collections, but it is very thorough and complete.

In the field where the specimens are collected a label is placed inside of each box as it is packed. On this U. S. Geological Survey is printed in bold letters. On the outside of the box U. S. Geological Survey is plainly marked before the boxes are shipped. When received at Professor Marsh's laboratory in New Haven, a record is made of each box received and to each an entry number is assigned. This