

ARCHAEOLOGY

Mysterious Maya Glyphs Are Deciphered for First Time

Pictures Accompanying Writings Aid Scientists in Making Translation of Passages from Hitherto Baffling Language

THE FIRST translations ever made from Maya hieroglyphic writing are tentatively offered by Dr. William Gates, research associate in Mayan history and language at the Johns Hopkins University.

One translation is a piece out of the "Dresden Codex," a Maya book found in Europe some years ago. The piece is a chant in honor of the four sacred "Chacs," who held up the four corners of the world in Maya myth, and whose Lord was Itzamna. Other passages are offered, too, although a key to decipherment of Maya glyphs is not specifically announced. The meanings of the passages were developed by aid of pictures accompanying the texts of the manuscript. But Dr. Gates has also succeeded in definitely translating various isolated glyphs, the first actually deciphered since scientists took up this study.

Treated as Code

Dr. Gates has treated Maya hieroglyphs as experts do code. He has tabulated all distinct glyphs found in the three ancient Maya books that survived the Spanish Conquest, grouping each symbol in all the combinations and modifications in which it appears in these ancient texts. He confined himself to these three "codices," one of which is now in Dresden, another in Paris, and the third in Madrid, because they have pictures accompanying the texts. The glyphs in these should be easier to translate than those carved on stone monuments and buildings of Maya cities in Middle America and which are not thus illustrated.

Some 2,500 distinct glyphs were found in these books, and about 100 minor glyphs. The Mayan language has a system, Dr. Gates says, and it was possible to determine that certain elements were affixes to major glyphs, modifying, classifying and describing them. It is in these affixes, Dr. Gates says, the true key to Maya writing lies.

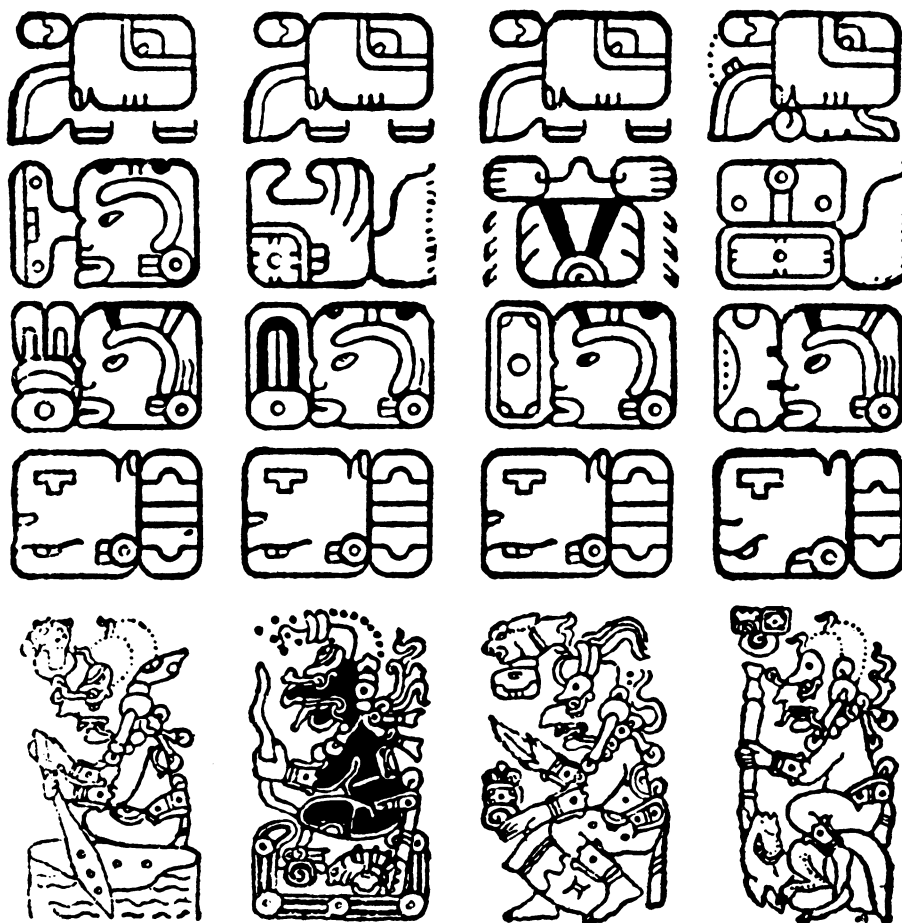
These tabulated symbols he has gathered in an "Outline Dictionary of Maya Glyphs," just published by the Maya

Society through the Johns Hopkins Press. This glyph dictionary is in reality a skeleton form on which other glyphs as identified have a place. Thus placed in order, many characteristics of the language have become apparent. Calendric and astronomical glyphs, and others relating to crop and hunting activities and the like, came out. Pairs of opposites and likes, such as earth and sky, food and drink, could be distin-

guished. Repetitions and persistent associations helped to develop many meanings brought out also by the pictures underneath.

The American Indian languages are like no others, Dr. Gates says, and the hieroglyphs too are different from those found anywhere else. The languages spoken by seven main groups of Mayas in Middle America today are related to an ancient common mother tongue as modern Italian and French are related to ancient Latin. The "Mayance" languages, as he calls them, were split from the main Maya stem about the time the modern "Romance" languages were split from the mother Latin. A study of these Mayance languages revealed that their structure and syntax were reflected in the glyphs and in the arrangement of them.

Dr. Gates is now (Please turn page)



HYMN TO THE FOUR GODS

One of the Maya glyphic inscriptions which has been deciphered by Dr. William Gates, of Johns Hopkins University. His translation, used with permission of the Maya Society, is as follows: "Do honor and sacrifice (a turkey) in the North, to the White Lord, Wise Itzamna, (at his task); Do honor and sacrifice (an iguana) in the West, to the Black Lord, Wise Itzamna, (at his task); Do honor and sacrifice (a fish) in the South, to the Yellow Lord, Wise Itzamna, (at his task); Do honor and sacrifice (a deer) in the East, to the Red Lord, Wise Itzamna, (at his task)."

ready to say that Maya writing has symbols standing for things, like nouns, and others standing for names of actions, like verbs. These latter follow the Egyptian method of expressing action, as of a man walking, or striking, or doing something. Then there are minor symbols that accompany and modify these main ones in various ways. Some appear to be adjectival, expressing such things as color. Others seem to be determinators or classifiers. Glyphs are also sometimes joined, expressing compound ideas as our word "greenwood" might.

Not Rebus Writing

The Mayan language is not rebus writing, "like Aztec," as some have said. No instance of such rebus writing has ever been found in Mayan writing. In fact, Aztec was not rebus writing either, but picture writing, Dr. Gates explained, although some of the pictures were already partially abbreviated and conventionalized. The Mayan writing had gone further than Aztec. The original pictures had long been "worn out," and had become "ideographs." Probably before America had been discovered, the original meanings of these had been lost, and "ideas" had become attached to them by convention.

It is frequently stated that the Mayan writing had "already become partly phonetic," and that for that reason it would never be possible to decipher it without some written key which it was hoped some thoughtful Christian priest had hidden somewhere not yet discovered. But Dr. Gates has shown that Maya, like Egyptian and Chinese, had not yet reached a phonetic stage. That is a late stage in written language, although these other great races in the past have been able to develop a high degree of culture without feeling the necessity of a phonetic science.

"We can now read and calculate Maya dates," Dr. Gates says, "but not another single thing, aside from the several glyphs known since the sixteenth century and the few identified by myself. About one-third of the thousands of written and carved symbols in codices and inscriptions happen to be numerals, or time-period signs. This has led to the absurd statements that we can now read one-third of the Maya glyphs, and are approaching a decipherment."

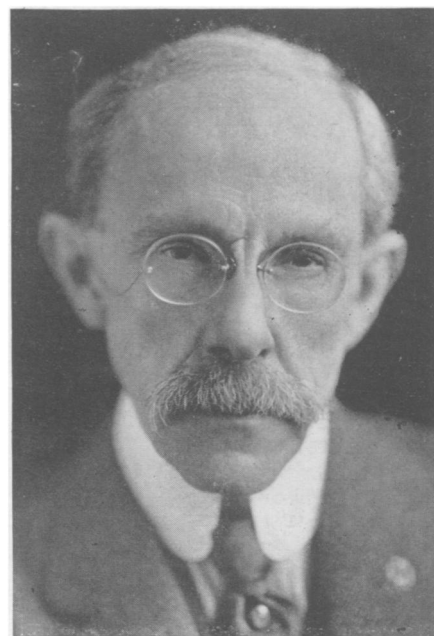
"The truth is that we cannot even read the date glyphs," Dr. Gates asserts. "We can only calculate with them, and that merely because of accompanying dots and bars whose value was told to us by early Christian missionaries. We have no idea what the actual glyphs

themselves really mean, and we know nothing of the symbolism in which they are wrapped."

The glyph "dictionary," he states, is the beginning of a systematic study of the elements of Maya writing, by which a final decipherment of Maya texts may be hoped for. Maya glyphs have never been systematically collected and classified before. The present "dictionary" is a skeleton form to which other glyphs must be added as found and classified.

By this systematic study of the three Maya codices, Dr. Gates has been able to divide these books into "chapters," according to subject matter. He has found what he claims as the proper order of reading these ancient manuscripts, and their "book make-up."

"In seeking to solve Maya writing," Dr. Gates says, "the student must keep before him a mental picture of the Indian as he looks out on the world. His world is not a world of books. His language is not one of spellings and letters, but of words as wholes with meanings and not with letters. In the old days in the big cities the Mayan spoken languages sometimes rose to exalted literary heights and the language had many delicate shades of thought and suggestion. But it was always a vivid language, and had a straight-eye view of



DR. WILLIAM GATES

The American Scientist who has made a beginning on the translation of Maya glyphs, more enigmatic even than the old Egyptian picture-writing.

things and actions. It was not lost in meaningless forms of the dictionary and grammar."

Science News Letter, September 5, 1931

INVENTION

New Boiler May Bring Return Of Steam-Driven Automobile

STEAM-DRIVEN motor vehicles, fairly numerous on the roads a couple of decades ago, may again come into their own, and possibly even be joined by steam-driven planes and dirigibles in the air, if a new type of light-steam boiler invented by C. E. Bishop of Mitchellville, Iowa, meets future tests as successfully as it has met those encountered in the past.

A difficulty which steam-driven vehicles have always had to face, Mr. Bishop says, arose from the fact that most of the types of boiler were built of a single long coil of tubing, and this tube heated to redness in one or more spots, necessitating frequent and expensive replacements.

The new boiler makes use of a number of shorter coils, each of which opens at top and bottom into a surrounding water-cage made of larger tubing, which serves as the main water

reservoir. The boiling of the water keeps it in active circulation, entering the water-cage at the top and returning to the coils at the bottom. The steam is given off from the heated water at the top of the water cage, and passes into a series of larger tubes which serve as steam collectors and also bring it again into contact with the fire, super-heating it and making it thoroughly dry. Before reaching the engine, the steam is subjected twice to this re-heating process.

The inventor states that his system has aroused interest on the part of interests outside the vehicle field, which have need for a light boiler capable of raising a supply of dry steam in a hurry. He is not yet ready, however, to undertake its commercial exploitation. Before he offers it to the vehicle and transportation industries he wants to develop a steam motor suitable for use with it.

Science News Letter, September 5, 1931