

Dr. Frans Blom beside one of the carved stones discovered at Uxmal by his expedition.



## Mayans Knew Tricks of Perspective

**S**URPRISING evidence that the prehistoric Mayan Indians knew tricks of perspective as clever as those practised by famous architects of ancient Greece has been obtained by the Tulane University expedition, led by Dr. Frans Blom, which has returned from Yucatan.

Dr. Blom, during his stop in Washington, said that some of the temple squares in the ruined city of Uxmal appear rectangular, but really are not so at all. Describing the buildings set on four sides of a court known as the Nunnery, Dr. Blom said that the south front end of the Nunnery court is wider than the north. At the same time, the north ends of the side buildings are slightly raised. To the onlooker the court appears square-cut, as it would not, paradoxically, if it were really built square and on the level.

This shows that the Mayas understood the false perspective, an architectural feature which has come to our knowledge only in recent times, Dr. Blom said.

Furthermore, the elaborately carved friezes on the facades of the buildings are tilted outward. This gives better opportunity for the onlooker to enjoy the exquisite carvings, and also produces deeper shadows which make the carvings stand out vividly.

Earlier archaeological expeditions had described how the Mayan artists used paint in connection with carved friezes in order to emphasize shadow and relief.

In examining the supposedly well-known buildings, the architect of the expedition, Prof. J. Herndon Thomson, of Tulane University, found a number of the unsuspected architectural devices which had been mastered by America's greatest prehistoric builders. Uxmal was one of the most beautifully built of all Mayan cities in Yucatan. Its large public structures, including its temples, its nunnery and headquarters of the priest-astronomers, are even today covered with carvings in exquisite design.

The experiments which these Indian architects conducted in their search for beautiful effects recall the skillful handling of perspective by the Greeks. Scholars long ago pointed out that some of the Parthenon's secrets of beauty lay in the slanting of the corner columns inward and the bulge of the columns.

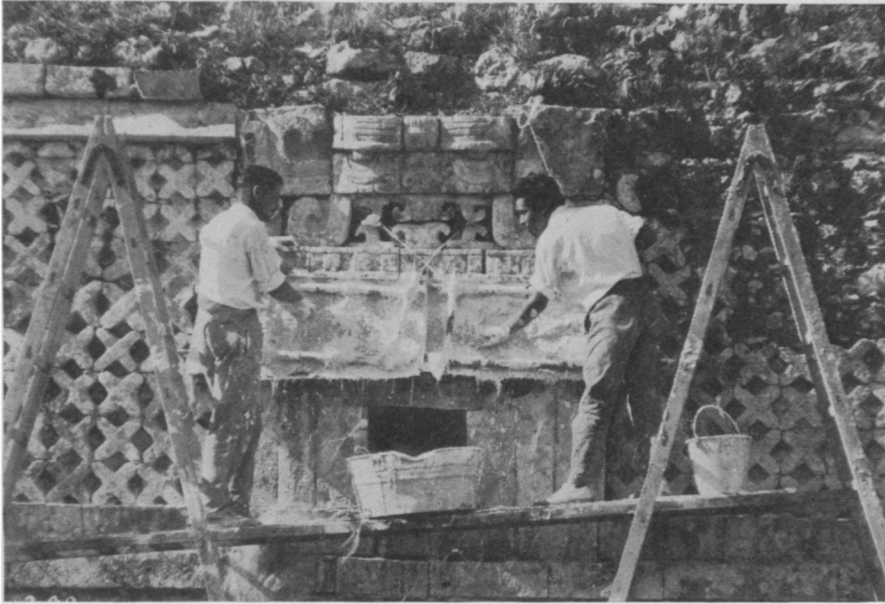
It has generally been supposed that the Mayan builders put up a scaffold when they set in place the stones of a slanting arch. They did not know how to complete a true arch with a keystone. They formed a vault by pushing stones closer together, as two piles of books might be slipped into arch form. To complete the arch they filled the gap by a capstone on top. It was found that the Indian way of holding the vault stones in place during the building process was to weigh the stones on the wall side of the arch with poured concrete. This, hardening, held the stones in place and made scaffolding unnecessary.

Dr. Blom reported the discovery of twenty-three groups of buildings not heretofore recognized even in the ruins of a city so frequently visited as Uxmal. These buildings lie off in the jungle growth, away from the cleared section which contains the well-known buildings. Mayan cities consisted of a civic center in which the stone and stucco public buildings were set up with much care and labor. Off from this heart of the community radiated the thatched huts of the people. The area of the public buildings in Uxmal shows the great size of the city, and fits in with its traditional importance in Mayan affairs.

Penetrating the thick underbrush, the expedition also found three pools which solve the mystery of Uxmal's water supply. It has been a point for argument that the city seemed without water.

In the center of the city, Dr. Blom made his discovery of a large, terraced mound on which stand 19 monoliths. These stone markers of history are carved with human figures representing the type of people who lived in the Mayan metropolis, and some have bands of hieroglyphics recording dates in the laborious Mayan method of stringing together a series of picture symbols.

Some accident or dramatic happening occurred on this monument hill in the past. In the center of the terrace on which the monuments stood was a deep hole, like *(Turn to next page)*



Reproducing carvings at Uxmal. Plaster casts, drawings and photographs are all used to obtain an accurate record of ancient Maya art.

a shell hole, and the monuments were thrown on all sides. This led Dr. Blom to infer that a treasure hunter excavated there at some time with dynamite. If so, the vandal seeker for gold did not realize that the carved stones all about him were a find of great interest though not the financial haul he sought.

The important monuments, when deciphered, have proved that Uxmal dates back to 500 A. D., which adds some five hundred years to its sup-

posed career. The finding of these date stones adds weight to the evidence that Yucatan was discovered or settled by Mayan immigrants many centuries earlier than had been supposed. It is known that the Mayas established an Old Empire in the south, in Guatemala and Honduras, and then abandoned it, no one knows why, to move northward, and build a New Empire in Yucatan. The recent discoveries of date stones which are read as being of the fourth to the sixth

centuries in Yucatan show that the northern migration took place earlier and perhaps more slowly than archaeologists had thought.

Dr. Blom's study of the Uxmal ruins included the making of 70 detailed architectural drawings of the section called the Nunnery Quadrangle. Plans for the Chicago World's Fair of 1933 call for the reproduction of this bit of ancient America to be set down in a five acre space with as much of the atmosphere of a Mayan city of a thousand years ago as can be captured and reproduced.

The Nunnery is the one building in Uxmal which can be labeled with certainty. Other buildings have romantic names, as the House of the Magician, the House of the Governor, but the Nunnery is historically recorded as such in a Spanish document. The writer describes the court with its cells on each side and explains that these cells housed the maidens who served religion as the Vestal Virgins of Rome did.

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## Serum - Fed Calves Safe From Disease

*Veterinary Medicine*

THE control of bovine tuberculosis by immediate isolation of new-born calves from infected mothers is the latest victory of the Rockefeller Institute scientists, a victory equivalent to many million dollars of agricultural relief, it appears from a recent report of work done by Drs. Theobald Smith and Ralph R. Little, at the Institute's department of animal pathology at Princeton, N. J.

Calves born from tuberculous cows are at birth usually free from the disease. A large percentage of them soon acquire it, however, from contact with infected mothers. Attempts to prevent the spread of tuberculosis to the second generation in an infected herd by immediately separating the new-born calves from the diseased mothers have not been successful heretofore.

In spite of the most careful hygienic care, practically all the calves

thus isolated developed gastro-intestinal disease, joint disease, or blood-poisoning. Fully four-fifths of them died within the first few days.

Bacteriological examination of these calves has shown that death is usually not due to the common contagious diseases, but to invasion of the living tissues by the ordinary colon bacillus, dung bacillus or other presumably harmless environmental micro-organisms. Evidently the calf at birth is unprepared to resist invasion by ordinarily harmless bacteria, micro-organisms causing practically no disturbance in adult cows.

It has been found, however, that calves thus isolated will remain free from such infections if they are allowed one natural feeding before separation from the diseased mother. In this feeding they do not obtain the usual milk, but a specially secreted pre-milk, or colostrum. One colostrum feeding is usually sufficient to

immunize a new-born calf against the usual non-pathogenic environmental bacteria. Practically all calves thus fed may be successfully raised by artificial feeding.

Veterinarians have concluded from this that there is present in the pre-milk or colostrum some highly efficient natural antidote, specially designed to overcome the birth handicap. The nature of this colostrum antidote has been the subject of intensive research. Now the Rockefeller Institute scientists have found that the normal colostrum antidote is identical with, or at least similar to the normal biological antiseptic in adult cow's blood. Calves may be protected from the usual post-natal infections by one or more initial feedings with adult cow serum. They lost but one calf out of ten after such a preliminary serum meal.

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