

TRIBES AND TEMPLES

A RECORD OF THE EXPEDITION TO
MIDDLE AMERICA CONDUCTED

BY

THE TULANE UNIVERSITY
OF LOUISIANA

IN 1925.



VOL. I.

Published by

THE TULANE UNIVERSITY OF LOUISIANA

New Orleans, La.

1926

An edition of fifty numbered copies of
this book has been printed on
special paper.

This book is dedicated

to

ALFRED P. MAUDSLAY

*who was the first to explore the Maya ruins in a modern scientific way, and who in the section on archaeology of the *Biologia Centrali Americana* gave the world a monumental collection of material for future research.*

EXPEDITIONARY STAFF

FRANS BLOM, *Archaeologist, in Charge*

OLIVER LA FARGE, *Ethnologist, Assistant*

— o —

LAZARO HERNANDEZ GUILLERMO, *Guide*

CONTENTS OF VOLUME I

	PAGE
LIST OF ILLUSTRATIONS	I-V
PREFACE	1-2
CHAPTER I. PREPARATIONS AND EQUIPMENT . . .	3-8
CHAPTER II. THE START	9-28
CHAPTER III. AMONG THE INDIANS OF THE TUXTLA MOUNTAINS	29-48
CHAPTER IV. OBSERVATIONS ON THE INDIANS OF THE SAN MARTIN PAJAPAN REGION. . .	49-66
CHAPTER V. THE COATZACOALCOS BASIN	67-92
CHAPTER VI. THE MAYA COUNTRY	92-138
CHAPTER VII. ALONG THE FOOTHILLS OF CHIAPAS. .	139-166
CHAPTER VIII. PALENQUE.	167-198
CHAPTER IX. INTO THE BIG FOREST	199-210
CHAPTER X. ENCANTO	211-238

Copyright by
THE TULANE UNIVERSITY OF LOUISIANA

ILLUSTRATIONS IN VOLUME I.

MAPS

	PAGE
I. Key Map, showing route of expedition in relation to New Orleans ...on Cover	Cover
II. Southern part of the State of Veracruz, Mexico.....	14
III. The State of Tabasco, Mexico.....	92
IV. Rough map of the Ruins of Palenque.....	180

PLATES

I. Palenque. Example of fresco painting on exterior wall on House E.....	172
II. Palenque. Stucco ornament with original colors from Temple of the Foliated Cross	174
III. Yoxiha. Jar U-6	228
IV. Yoxiha. a. Bowl L-3	232
b. Bowl L-1	232
V. Yoxiha. Bowl L-4	232
VI. The Tuliha Valley	234

FIGURES

1. Tampico. Oil tankers entering Tamesi River.....	9
2. Tampico. Mounds by the Gorgas Hospital.....	10
3. Tampico. Clay figurine	11
4. Tampico. Public scribes on the principal square.....	11
5. Huexotla, D. F. End view of ancient wall.....	12
6. Huexotla, D. F. Section of mound showing various floor levels.....	13
7. Huexotla, D. F. Old Spanish bridge.....	13
8. Texcoco, D. F. Section of mound built of adobe brick.....	14
9. Coyoacan, D. F. The Avenue of Famous Men in the garden of Casa Alvarado	14
10. Mexico, D. F. Maya limestone stela in the yard of the National Museum	15
11. Mexico, D. F. Inscription from Maya stela in the yard of the National Museum	16
12. Cocuite, Ver. Spindle whorl painted with asphalt.....	16
13. Cocuite, Ver. Totonac clay idol of the laughing face type.....	17
14. Cocuite, Ver. Design on idol, Figure 13.....	18
15. San Andres Tuxtla, Ver. Stone idol representing frog.....	19
16. San Andres Tuxtla, Ver. Three rabbits' heads of stone.....	19
17. The Aztec hieroglyph of Tuxtla.....	20
18. Catemaco, Ver. View of Catemaco village, the lake, and the sacred island Agaltepec	21
19. Catemaco, Ver. Fragment of stone idol.....	22
20. Catemaco, Ver. Grotesque stone head.....	22
21. Catemaco, Ver. Egg-shaped idol from Tenaspi Island.....	22
22. Agaltepec Island. Rough plan of the eastern part of the island.....	23
23. Matacanela, Ver. Rabbit's head carved in stone.....	24

	PAGE
24. Matacanela, Ver. Two stone boxes.....	24
25. Matacanela, Ver. Serpent's head of stone.....	25
26. Matacanela, Ver. Circular altar.....	25
27. Catemaco, Ver. Volcanic cone at the end of village street.....	26
28. Ocozotepec, Ver. Principal street with the Santa Marta mountains in the background.....	28
29. San Martin Mountain and oak forest.....	29
30. Mecayapan, Ver. The Tulane Expedition on the trail.....	30
31. Mecayapan, Ver. Church and steeple.....	13
32. Tatahuicapa, Ver. Hammock bridge made of vines.....	32
33. Tatahuicapa, Ver. View of the village with the San Martin Pajapa Volcano in the background.....	33
34. Tatahuicapa, Ver. Indian huts under mango tree.....	34
35. Tatahuicapa, Ver. Indian woman going to the river for water.....	35
36. Tatahuicapa, Ver. Indian child carrying clay pot on her head.....	36
37. Piedra Labrada, Ver. Ancient metate.....	38
38. Piedra Labrada, Ver. Stela No. 1.....	40
39. Piedra Labrada, Ver. Small grinding stone in form of animal.....	41
40. Piedra Labrada, Ver. Fragment of female idol.....	41
41. San Martin Pajapan, Ver. Drawing of idol from top of the volcano made by Ismael Loya in 1897.....	44
42. San Martin Pajapan, Ver. Drawing of same idol as fig. 51 as it now stands.....	45
43. San Martin Pajapan, Ver. Idol from the top of the mountain.....	46
44. Tatahuicapa, Ver. Trading for arrows with the Indians.....	52
45. Ocozotepec, Ver. The Municipal House.....	56
46. San Martin Pajapan, Ver. Bows and arrows.....	57
47. Ocozotepec, Ver. Popoluca man showing the use of bow and arrow.....	58
48. Tatahuicapa, Ver. Drawing of weave.....	59
49. Piedra Labrada, Ver. Popoluca Indian woman grinding corn, and girl baking tortillas.....	60
50. Piedra Labrada, Ver. Indian boy with bow and arrow.....	61
51. Tatahuicapa, Ver. Women preparing tortillas for the fiesta.....	62
52. Tatahuicapa, Ver. The village saint, San Isidro.....	63
53. Ocozotepec, Ver. Indians beating drums in honor of their saint.....	64
54. Puerto Mexico, Ver. The mouth of the Coatzacoalcos River.....	67
55. Puerto Mexico, Ver. Street.....	70
56. Jaltipan, Ver. Indians dressed for dancing.....	73
57. Jaltipan, Ver. Drum and masks used by the Indians when dancing.....	74
58. Sayula, Ver. Aztec clay bowl. (10 cm. high).....	75
59. Jaltipan, Ver. Drawing of Indian girl, made by Rodriguez.....	75
60. Ixhuatlan, Ver. The village.....	76
61. Ixhuatlan, Ver. Idol found near the village.....	77
62. Cascajal, Ver. Clay seal. (Half size).....	78
63. Coachapa, Ver. Clay figurine. (Half size).....	78
64. Sailing vessel on the Gulf Coast.....	80
65. Rio Blasillo, Tab. The sloop Lupata chartered by the expedition.....	81
66. Rio Blasillo, Tab. View of the river.....	82
67. La Venta, Tab. Stela No. 1.....	83
68. La Venta, Tab. Rough plan of the ruins.....	84
69. La Venta, Tab. Stela No. 2.....	85
70. La Venta, Tab. Detail of main figure Stela 2.....	85
71. La Venta, Tab. From Headdress of main figure Stela 2.....	85
72. La Venta, Tab. Small figure on Stela 2.....	85

	PAGE
73. La Venta, Tab. Altar 2	86
74. La Venta, Tab. Altar 3	86
75. La Venta, Tab. Incised drawing on side of Altar 3.....	87
76. La Venta, Tab. Colossal head	87
77. La Venta, Tab. Altar 4	88
78. La Venta, Tab. Altar 4	88
79. La Venta, Tab. Large idol, now in Villahermosa.....	89
80. La Venta, Tab. Two idols now in Villahermosa.....	90
81. Frontera, Tab. Maya clay head from Las Cruces on the Usumacinta River	99
82. Jonuta, Tab. Maya clay figurines.....	100
83. Nacajuca, Tab. The village jail. The inscription on the wall reads: "Get out if you can".....	103
84. Map of Comalcalco Ruins.....	106
85. Comalcalco, Tab. Front of Temple 1.....	107
86. Comalcalco, Tab. Indian with poisonous snake killed at the ruins.....	108
87. Comalcalco, Tab. Ground plan and section of Temple 1. Scale 1:200.....	109
88. Comalcalco, Tab. Ground plan and section of Temple 2. Scale 1:200.....	110
89. Comalcalco, Tab. Remains of the Palace.....	111
90. Comalcalco, Tab. Potsherds on the wall of the Palace.....	111
91. Comalcalco, Tab. East wall of the standing portion of the Palace.....	112
92. Comalcalco, Tab. Cross section of the standing portion of the Palace. (Scale 3:500).....	112
93. Comalcalco, Tab. Main temple (N-1) on the Northern Plaza, showing its southern walls.....	113
94. Comalcalco, Tab. Stucco head on brick core found upon east side of Temple mound, N-1.....	113
95. Comalcalco, Tab. Professor Taracena with huge pot found by him in the North Plaza of the ruins. Circumference at bottom 3.40 m. Height 1 M.....	114
96. Comalcalco, Tab. Burnt bricks with incised drawing.....	115
97. Comalcalco, Tab. Tomb showing east wall and four pillars.....	116
98. Comalcalco, Tab. Necklace made of clam shells. Found in tomb.....	117
99. Comalcalco, Tab. Ground plan and section of tomb. Nos. 1-9 refer to position of stucco figures. (Fig. 100-103, 105-110) Letters a-j refer to hieroglyphic inscriptions (Fig. 104).....	118
100. Comalcalco, Tab. East wall of tomb showing figures 4, 5 and 6, and hieroglyphic inscriptions d, e, and f.....	119
101. Comalcalco, Tab. Tomb, fig. 5.....	120
102. Comalcalco, Tab. Tomb, fig. 4.....	121
103. Comalcalco, Tab. Tomb, fig. 6.....	122
104. Comalcalco, Tab. Hieroglyphic inscriptions on walls of tomb.....	123
105. Comalcalco, Tab. Tomb, fig. 1.....	124
106. Comalcalco, Tab. Tomb, fig. 2.....	125
107. Comalcalco, Tab. Tomb, fig. 3.....	126
108. Comalcalco, Tab. Tomb, fig. 7.....	127
109. Comalcalco, Tab. Tomb, fig. 8.....	128
110. Comalcalco, Tab. Tomb, fig. 9.....	129
111. Hun Ahau, the Maya God of death. (from the Dresden Codex).....	132
112. Comalcalco, Tab. Boy teachers and their pupils.....	134
113. Villahermosa, Tab. Front view of clay head in Instituto Juarez. (45 cm. high).....	135
114. Villahermosa, Tab. Side view of clay head in Instituto Juarez. (same as fig. 113).....	136

	PAGE
115. Chontal House	137
116. Tortuguero, Tab. Map of the ruins.....	152
117. Tortuguero, Tab. Stela 1	153
118. Tortuguero, Tab. Stela 2	154
119. Tortuguero, Tab. Stela 3	155
120. Tortuguero, Tab. Small clay heads found in ruins.....	155
121. Zopo Cave, Tab.	156
122. Zopo Cave, Tab. Clay cylinder No. 1. (80 cm. high).....	157
123. Zopo Cave, Tab. Clay cylinder No. 2. (76 cm. high).....	157
124. Zopo Cave, Tab. Clay cylinder No. 3. (80 cm. high).....	158
125. El Retiro, Chis. Map of the ruins.....	162
126. El Retiro, Chis. Ground plan and section of the temple. Scale 1:200.....	163
127. Palenque, Chis. Corridor of House A in Palace Group.....	169
128. Palenque, Chis. A corner of the main court in the Palace group.....	170
129. Palenque, Chis. Section of the north side of the Palace mound showing position of stucco masks.....	171
130. Palenque, Chis. Stucco mask on north side of Palace mound.....	171
131. Palenque, Chis. Stucco ornament on west side of House B. Palace.....	172
132. Palenque, Chis. Large limestone block carved to represent a crocodile.....	172
133. Palenque, Chis. Ground plan of the Temple of the Sun, after Maudslay	173
134. Palenque, Chis. Section of the temple of the Sun, after Holmes.....	173
135. Palenque, Chis. Stucco inscription from the back wall of building XVIII. Scale 1:10.....	175
136. Palenque, Chis. Burial vaults to the south of the Temple of the Beau Relief	177
137. Palenque, Chis. Details of Stairway to the Temple of Inscriptions.....	178
138. Palenque, Chis. Death head in stucco, from the temple west of the Temple of Inscriptions.....	179
139. Palenque, Chis. Hieroglyphic Inscription from Temple D, of the North Temples	179
140. Palenque, Chis. Section of a room in Temple E, of the North Temples.....	179
141. Palenque, Chis. Ground plan of "Templo del Conde". Scale 1:200.....	180
142. Palenque, Chis. Stucco hieroglyphs from "Templo del Conde".....	180
143. Palenque, Chis. Plan and section of Burial S-1.....	181
144. Palenque, Chis. Plan and section of Burial S-2.....	181
145. Palenque, Chis. Plans and sections of Burials S-3 and S-4.....	182
146. Palenque, Chis. Plan and section of Burial S-5.....	183
147. Palenque, Chis. Plan and section of Burial S-6.....	183
148. Palenque, Chis. Map of Group C and plan of House A in same group.....	184
149. Palenque, Chis. Standing stela, "La Picota".....	185
150. Palenque, Chis. Map of Group F showing position of "La Picota" and aqueduct. (Scale 1:1000).....	185
151. Palenque, Chis. Map of Group G.....	186
152. Palenque, Chis. Plan of burial north of Group E. Scale 1:100.....	186
153. Palenque, Chis. Map of Group H.....	187
154. Palenque, Chis. Plan of structure B in Group H.....	188
155. Palenque, Chis. Plan of burial in Mound A of Group H. (Scale 1:100)	188
156. Palenque, Chis. Structure XXVI. Scale 1:750.....	189
157. Palenque, Chis. Temple between Groups H and F.....	190
158. Palenque, Chis. Tablet No. 1.....	191
159. Palenque, Chis. Tablet No. 2 reconstructed.....	192
160. Palenque, Chis. Tablet No. 2.....	192

PREFACE

In March, 1924, an anonymous friend of Tulane University created an endowment, the income from which would be used for the study of the Middle American countries. It was then decided to conduct an archaeological and ethnological investigation through library research and expeditions to be sent into the fields formerly inhabited by the most notable of the ancient population of America, the Maya Indians.

Mr. Frans Blom was selected to take charge of the first expedition, assisted by Mr. Oliver La Farge. They started from New Orleans on the 19th of February, 1925. The object of the expedition was to study ancient remains, as well as the customs and languages of the Indians. At the same time notes were taken on various other subjects.

The work was so distributed that Mr. Blom made studies of everything pertaining to archaeology and he also collected geographic data. Mr. La Farge gathered material relating to the customs and languages of the present-day Indians.

In the following pages will be found the report of this, the First Tulane University Expedition to Middle America. It is based on the journals kept day by day throughout the expedition. The sections on archaeology have been written by Mr. Blom and those parts relating to the present-day Indians, by Mr. La Farge. An attempt has been made to present the material in such a form that the general reader, unacquainted with the history of the ancient inhabitants of Central America, will find it interesting, and at the same time to uphold a standard satisfactory to the scientist. For this reason paragraphs describing the mythology, calendar, and customs of the pre-Columbian Maya have been woven into the text, forming a background to the discoveries made by the expedition.

The style used by the writers is distinct, as is also the material they present, but as many things of interest would be lost in splitting it into separate publications, it was decided to make this report in the form of a book of travel.

For the convenience of those searching for special information, a detailed index will be found at the end of the second volume.

EXPLANATIONS AND ABBREVIATIONS

Stela —A monolith, either plain or carved.

Plaza —A square enclosed by mounds or temples.

Finca —A large ranch.

Cabildo—A Municipal House.

Tams. —State of Tamaulipas, Mexico.

Ver. —State of Veracruz, Mexico.

Tab. —State of Tabasco, Mexico.

Chis. —State of Chiapas, Mexico.

1 km.—Kilometer, equals 3,280 feet 10 inches.

1 m. —Meter, equals 3.28 feet.

1 cm.—Centimeter, equals .3937 inches.

All maps and plans are made to the true north, using a magnetic declination of 7° east.

Where nothing else is indicated on the plans, north is always towards the top of the page.

CHAPTER I

PREPARATIONS AND EQUIPMENT

For centuries man has been interested in the deeds of his ancestors. Innumerable discoveries of prehistoric objects have served to rouse his interest and imagination and have made him draw hasty conclusions, and weave fascinating fabrics of fact interwoven with many threads of fancy. Giants, dwarfs, dragons, knights and fair maidens, inhabited planets and lost continents, were the designs in these richly-textured compositions.

Today archaeologists tell stories which resemble these gaudy fabrics, the newspapers give much space to discoveries in all parts of the world, the public reads and is thrilled. Rarely, though, is it known what goes before a discovery. The reader pictures the explorer stumbling on a ruined city, without realizing that training and careful research precede every expedition into the unknown. He does not see the scientist working late hours over old maps and documents. He does not see him selecting his equipment with the greatest care. He does not see the toilsome days when the expedition fights dense forests, bad trails, and millions of insects—not for a few days, but week after week, month after month.

Assyria, Babylonia, Egypt, Greece, and Rome have their historians. You learn about them in school. We can reconstruct the daily life of the Egypt of three thousand years ago to the minutest details. One has heard something about the North American Indians, but few are those who know that 1,500 to 2,000 years ago a civilization, the Maya, that can well be compared with those of the Old World, and on certain points even surpassed them, flourished on the American continent.

The Spanish Conquerors and their priests wrote about the people they met on their hunt for gold and souls. The first modern explorer to visit this territory was an American, John L. Stephens. After him came French, German, and British. The leadership in this field of research again passed to America when the Peabody Museum of Harvard University began its work, followed by the Carnegie Institution of Washington, and now quite lately Tulane University of Louisiana. Each expedition has brought home material that adds to our knowledge of the civilizations of Ancient America.

The general history of Egypt, Greece, and Rome has been written. The history of the foremost civilization of ancient America has

not yet been written, but the day will soon come when the story of an American race as artistic, as scientific, and as human as most of the races of the Old World will be opened to those who are fascinated by bygone days.

We will follow the Tulane expedition from its start to its end, and glean from its records a little of the history of the ancient Maya, the Maya country, the daily life of the Maya descendants, and the methods used in modern archaeological research.

The less equipment one intends to take on a long expedition, the more difficult it is to get it together. This sounds paradoxical, but none the less it is true. When one has a long journey ahead, and knows that it will cover difficult trails, every piece of equipment has to be selected with the greatest care. Far away from towns it is impossible to get many things needed on an expedition which has archaeology and ethnography for its main purpose; everything must therefore be carefully considered beforehand.

The 1925 Tulane Expedition to Middle America was carefully planned months ahead. A multitude of maps was consulted and compiled into a main expedition map. There are maps of most of the Middle American countries, and the greater number of them look well, but are remarkably inaccurate in their details. None the less, it is of value to compile all available data before starting.

Books on the region were consulted, and extracts made so that we would have a handbook of condensed information to be used when far from libraries.

After the route had been carefully considered, the next step was the selection of the equipment. We knew that, for the greater part of our journey, we should have to depend on horse or mule transportation, and that we should have to cross tropical forests where there is an abundance of trees, but no grass on which to feed the animals. We also knew that there would be steep mountains to cross. Furthermore, as the expedition was planned to be a reconnaissance trip more than an excavation expedition, light equipment would be necessary. Light fibre boxes specially made for transportation on pack animals were secured. They are called "kayaks," and measure 58 cm. long x 23 cm. broad x 49 cm. high. They will hold about 100 pounds each, two boxes being a convenient cargo for one animal, and one box the usual weight carried by an Indian.

Though there were only two white men on the expedition, an aluminum cooking set for four persons was bought. It is always best to have a cooking outfit for two or three more than the party

numbers, to take care of guides, and visitors. Knives and forks go with the set, but extra knives for skinning game, etc., have to be provided.

No camp cots were taken, but hammocks with specially made mosquito nets. These nets have a sleeve at either end through which the ropes of the hammock run. Indian huts are built of poles and the forest is full of trees, so there is always a place to hang the hammock. We found sheets both cool and comfortable when our bodies were itching with tick bites, and they can be used as bandages in an emergency. A rubber wash basin also proved very convenient.

A folding table was carried for use not so much as a dining table, as for a place on which to complete our field notes and water colour sketches. It is comparatively rare to find tables in Indian houses. For chairs we used our kayaks.

No complete tent was taken along, only a fly-sheet, this proving sufficient for general use in covering ourselves and the cargo. There are usually elephant-ear leaves, or small palm leaves in the forest, so that in a short time one can build a shelter sufficient for a couple of days, even if it should rain quite hard. As it happened, the expedition was fortunate enough not to encounter a full day's rain as long as it was on the road. The trip was so planned that we would be well up in the mountains before the rains started in the lowlands along the Gulf Coast. Furthermore, this year proved very favourable in that the rains were late in the highlands.

No member of such an expedition should ever be without a compass, a snake-bite pencil, and an army emergency ration. All three things are carried for obvious reasons. The compass serves to find one's bearings. The snake-bite pencil, which looks like a small fountain pen, contains in one end a small lancet with which to enlarge the wound inflicted by the snake, in the other, permanganate crystals, which, when smeared into the incision made with the lancet, have proven a potent antidote against snake bites. The army emergency ration contains three cakes mainly composed of chocolate, each representing a meal.

For geographic reconnaissance work a Brunton pocket transit was used. This is a remarkable instrument, light and compact. It serves both as compass and clinometer. Mounted on a small camera tripod it gives quite accurate readings, and the person trained to use it can make very good traverses. As it contains a mirror, it can even be used when shaving.

It is a well known fact that the ancient inhabitants of the region which we proposed to explore oriented the greater part of their buildings to the cardinal points. They knew the true north, but not

the magnetic north. Our compasses were, therefore, corrected to true north, using a declination of 7° E. This declination is an average of declinations ascertained by surveyors of several oil companies who have been and in some instances still are, working in the region.

A French barometer compensated for temperature was used for taking altitudes over sea level.

We carried three watches, which were checked with each other, and used in combination with the barometer when observing altitudes.

All measurements were done in the metric system. For the convenience of those not conversant with this system, a table giving the equivalent in feet is found in Appendix X.

In measuring buildings a 25-meter steel tape was employed, and larger distances were paced. All plans of ruins were drawn to scale on the spot. Long descriptions of arrangements and dimensions of buildings are tiresome, and do not give a picture of their plan to the reader. Those who wish to study the drawings in more detail can easily ascertain the dimensions with the help of a graduated ruler.

Pedometers are not reliable, so when pacing, every fifth step was punched on a tally.

The smaller impedimenta used in this section of the work included drawing boards, rulers, protractors, water colours, and coloured crayons.

Next came the choice of photographic equipment, which should not be too bulky. For rough work a No. 1-A Autographic Kodak, Jr., with roll film and anastigmat F 7.7 130 mm. lens was used, to this we also had a portrait attachment. This small camera gave very good results, though roll film is always difficult in moist tropical countries, as it is apt to stick to the covering paper when rolled tight.

For more special work, such as photographing monuments and buildings, we used a Graphix camera with a Kodak anastigmat lens, F .4.5, $1\frac{1}{2}$ inches, size $3\frac{1}{4} \times 5\frac{1}{2}$ (post card size). Very good results were produced with this machine. The speed of the camera was of no account; all the exposures save two were made on time, with the use of a tripod. It was of great value to be able to focus the camera exactly with the help of the ground glass, and this camera is not so heavy and bulky as a Graflex. Pack film was used exclusively with this machine. The individual films in the pack lie loose between sheets of black paper, so that the tropical moisture is not so apt to damage them as with roll film.

It is a great help to carry an instrument, put out by the Kodak people, with which you can tilt your camera to any desired angle. This is specially helpful when photographing monuments which are lying flat on the ground and are difficult to raise.

Though we were able to secure a very good collection of photographs with the two mentioned instruments, we have come to the conclusion that small cameras with exceptionally good lenses really are more serviceable than large ones. It is just as easy to make an enlargement from a small, sharp negative as from a larger negative. A small camera is much easier to handle both when on foot and on horseback.

Before leaving for the field we were given a medical examination, and this same was repeated upon our return. The first investigation was to ascertain that we were in fit condition for a long, strenuous journey, and the second to find out if we had succeeded in collecting some interesting germs in our blood which might be of importance to medical students.

A small medical kit from Burroughs, Wellcome & Co., served us very well. The products of this company are wonderfully compact and of high grade. We carried a large stock of quinine, which was chiefly used to help the Indians.

For work in the ruins we had folding shovels, trench picks, a 1½ ton jack for lifting and turning fallen monuments, stiff brushes to scrub moss and lichens off the monuments, and some sheets of tin for use as reflectors when photographing monuments and hieroglyphics. These sheets of tin were cut so that they would fit inside the kayaks.

When selecting saddles and pack saddles it is advisable to get the kind commonly used in the country to be visited. The North American horse is larger and broader than his Central American brother, and the McClellan and Texas saddles are generally too broad for the Central American animals and are apt to damage their backs. We, therefore, bought saddles of the usual Mexican type. Muleteers are accustomed to particular types of pack saddles, and much annoyance and delay is avoided when the traveler buys the kind of pack saddle his servants are acquainted with.

Our personal equipment was very small, consisting chiefly of riding breeches, flannel and linen shirts, heavy boots, and broad brimmed Stetson hats. For protection against rain we had native ponchos made of cloth covered with native rubber. These are very practical, as they cover the entire saddle and saddle bags.

Only a small supply of canned goods was carried for emergency purposes. For the greater part of the journey we lived off the

country, buying our supplies of sugar, salt, coffee, beans, and rice in the villages we passed through. No firearms were carried on the first half of the trip, but in Palenque we purchased a small Winchester .22-calibre rifle which proved to be sufficiently powerful to kill such food game as curasaw, wild turkey, and monkey.

A stock of glass beads, bandanna handkerchiefs, and a collection of chromo prints of saints were carried for bartering with the Indians, or as gifts to the more important members of the tribes with which we came in contact.

Leafax notebooks were used for our field notes, and all notes were made with a carbon copy. Original and copy were kept in separate places and whenever we had a safe opportunity of sending out mail, the carbons were shipped home, so that if we should have the bad luck to lose our equipment, our field notes at least would be safe.