

INFORMATION FOR EXPEDITIONS BASED ON BELIZE.

The information herein contained describes the local hence highly specialized conditions to be met by expeditions into Maya area when based on Belize, British Honduras. It is intended facilitate the preparations necessary before taking the field, and gives in great detail information as to supplies and equipment. It has been written from an archaeological view point, but broadly speaking, it applies to any scientific worker whose investigations take to the area under consideration. It is assumed that the expedition will be required to fulfill all governmental formalities, and that it is of necessity properly documented to cross frontiers. The information is divided under heads, arranged in chronological sequence, so that, at least in theory, the expedition may proceed fully supplied and equipped and without having omitted any detail necessary for the successful completion of its objective.

A. Before arrival in Belize.

The leader of an expedition who intends to travel beyond the frontiers of British Honduras must before his arrival in Belize attend to the following:

- 1.- Passport and proper visas, for every staff member.

The rules regarding visas for Guatemala and Mexico may vary from year to year; ascertain them from the nearest consulate and be sure the information is correctly given and understood.

- 2.- Official or certified copy of the permit from the proper authorities for the work planned.
- 3.- Arrangement for credit with the Royal Bank of Canada or some firm in Belize.
- 4.- Permit to carry fire-arms across frontiers of British Honduras i.e. into Mexico or Guatemala. Guatemala requires a permit from the Ministry of War for rifles, revolvers, and their ammunition; it also requires a permit for shot-gun shells, but not for guns.
- 5.- A bond to import labor into Guatemala, in the sum of \$200.00 each negro, Syrian, or Oriental to be imported.
- 6.- A vaccination certificate for every staff member is highly desirable if not mandatory.
- 7.- Letters to officials advising them of the expedition's arrival, citing the permit authorizing the work.
- 8.- Supplies and equipment not obtainable in Belize. Generally speaking the following are not obtainable or so inferior a grade as to be undesirable:
 - a.- Cameras, films and all photographic supplies. I have found "Agfa" products superior for tropical use.

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should be packed in sealed "tropical tins." On
posed, they will keep through the dry season if
in the coolest and driest place available.

- b.-Medecines other than the commonest staples
- c.-Saddlery, bits, bridles, spurs, and all leather goods
(except shoes).
- d.-Scientific equipment, special paper, or books, view
section paper, drawing paper, India ink, drawing
pencils, notebooks, scales, rulers, special repair
etc.
- e.-Camp equipment, such as folding tables and chairs,
nesting cook-outfits, saddle slickers, blankets and
goods (except socks), Army canteens.

9.- Permit to ship antiquities from Guatemala or Mexico if any are
exported etc.

B. In Belize.

Upon arrival in Belize, fire-arms must be declared and sur-
dered at the Customs; tobacco and liquors must be declared. After
obvious details as establishing credit, etc. the following papers
be obtained:

- 1.- A license for rifles and revolvers; from the District Commis-
Belize.
- 2.- Permit to contract laborers for work outside the Colony; from
Governor-in-Council, formal application being made through the
office of the Colonial Secretary.

a.-Upon receipt of the permit a bond signed by two
men (Belize property owners) in the sum of \$50.
laborer to be contracted must be obtained. This
must be presented and filed with the District Com-
in the District where the laborers will be con-

- 3.- Permit from the Government of British Honduras to excavate,
Crown Land; from the owner, if on private land.
- 4.- Permit to export antiquities after division with the Govern-
British Honduras.
- 5.- Passport visa from the proper consul to cross the British Hon-
frontier.

a.-It is extremely advisable to notify local officials
the expected arrival of the expedition. This should
done as far in advance as possible, (several weeks).

- 6.- Purchase small notebooks (laborers pass books, 5¢) two for
laborer; one of these is presented for stamping to the off-
before whom the laborer is contracted, and the other is re-
as a duplicate in case of loss of the original.
- 7.- Appoint an agent to act for the expedition or on ins-
agent is almost a necessity in order that mail may be
small accounts paid, purchases made on order. Instru-

be left for the handling of emergency cables, including the
and home addresses of all staff members. A deposit of money,
stamps and small purchases is usual. Written authority to
cute contracted laborers should also be left.

8.- A cook and the personal servants needed should be engaged in
Cook's wages \$30.- \$45, others \$25.- \$30. per month with rations.
They should understand that while in Belize they must assist
the packing, errands etc. Other laborers should be engaged in
Belize only with great caution - unused to the bush, they are
ally incompetent and useless, as well as afraid. Remember that
competent labor is the first engaged; therefore applicants for
positions generally are the unemployed incompetents, though not
always. Do not accept applicants who cannot be recommended either
by white men or by the servants of white men.

9.- All possible inquiries should be made as to the conditions for
year in the districts to be visited, such as rainfall, as affected
trails, water-supply, and availability of labor (recruited mostly
from chicleros or mahogany cutters) and the rental of pack-trail
or other transport, current prices etc. Information is difficult
to obtain, and the value of it will depend greatly on the source.

10.- Obtain a warehouse or loft for the proper packing of supplies,
less one of the larger stores agrees to pack them itself. In the
latter case, the store expects a large order and charges for the
packing materials; personal supervision is necessary in any case.
Goods for transport by mule must be well packed in burlap-covered
wooden cases not exceeding 100 lbs. in weight (75 lbs. if trails
are reported very bad or much traveling is to be done) and not
ceeding in bulk 30" x 20" x 14" (unless absolutely unavoidable).
Long objects (crowbars, tripod legs, etc) are difficult to handle
if they exceed 6' in length; they must be padded with burlap to
prevent injury to the mule from sharp points, and are packed in
"jornal" (between other cargos). No mule ever carries more than
200 lbs. gross weight of cargo. Flour, rice, beans, sugar,
and all supplies in sacking must first be placed in waterproof
sacks (to prevent wetting from rain or sweat) and then sewed up
heavy burlap (to prevent tearing against trees by which the
would be spilled on the road.). Supplies to be taken out of
Honduras must be accompanied by properly authenticated consular
invoices in triplicate and every package must be numbered to
pond with its number as given on the consular invoices. Duplicate
lists of numbers and contents of packages must be retained for
checking purposes and to find needed articles. Supplies for the
trip up river and for the road should be purchased separately.
The invoiced supplies and packed into "kyacks" in such a way that
all the goods required for meals while traveling may be easily
accessible. For this purpose it is best to have one "kitchen
kyack" from which meals are cooked. As the contents are used
they are replaced from the other kyacks at convenient intervals.
In this way it is necessary to open but one kyack upon arrival at
camp in order to prepare a meal and search for a single article.
many kyacks is obviated.

If laborers will accompany the expedition, food
for the journey must also be provided so packed as to

accessible. Special kyacks assigned for their food facilities.

11.- If laborers are to be contracted, sufficient cash in small bills must be taken from Belize. Allow one month's wage for every laborer and \$200.- extra.

12.- Before leaving Belize, each member of the staff should have distributed to him the following articles:

- 1 hammock and pabillon
- 1 blanket
- 1 pair canvas saddle bags
- 1 electric torch
- 1 machete and scabbard
- 1 water canteen
- 1 cake Calvert's 20% carbolic soap, obtainable in Belize for 25¢

All objects, such as bedding and toilet articles, which are needed on the trip up the river, should not be packed, but carried on by the user so that there will be no need to search for them in the already stowed-away dunnage. The individual equips himself with his preferred brands of toilet articles sufficient to last him to his return to Belize. He should carry in his saddle-bags all indispensable or emergency supplies needed daily - viz: tooth brush, tooth paste, hair brush, soap, carbolic soap, nail brush, iodine, clean handkerchief, extra tobacco, electric torch, Turkish towel, nail scissors, 1 file for sharpening machetes, extra matches, slicker, canteen, 1 very light sweater (shetland wool preferred). A change of underwear and socks may also be carried, but it should be remembered that an overloaded saddle-bag is an encumbrance to the horse and rider, and under normal conditions the individual's kyack is always accessible when camp is made.

C. Transport out of Belize.

Boats and launches of many sorts may be chartered for riverwise trips. The interior is reached by ascending the Belize River in boats specially constructed for rapids. Freight rates vary with the condition of the river from 1¢ to 2-1/2¢ a pound; the weight carried from 6,000 to 8,000 lbs. depending on the size of the boat. During high water no freight can be carried in the boat itself but is towed by pitpans; these vary from 30 to 40 feet in size but are wide enough to take a gasoline drum (long axis). A lightly loaded boat under ideal conditions can go from Belize to El Cayo (the head of navigation, 160 miles by river, 57 miles air line) in 25 hours, no stops. At the height of the dry season, towing one to three pitpans, in from three to five days unless delayed by accident or breakdown. Enough freight to charter a whole boat entitles the charterer to a free passage; all other passengers accompanying him, \$5.- apiece. A "Special charter" with the river, no freight, runs from \$125.- to \$150.- Belize to Cayo. It is well to have a clear understanding with the boat captain as to excluding passengers and the elimination of all stops before closing any charter and promptness in leaving Belize at the hour set should be thoroughly stressed before agreeing to charter.

Supplies sufficient for passengers and servants for the trip. The crew feeds itself. Canteens with...

should be taken as the river water for the first 6 to 8 hours. Boats are equipped with small wood stoves on which canned goods warmed, eggs boiled, etc. Extremely hot water can be obtained from the petcocks to the water-jacket of the engine, and this can be used with George Washington coffee, Instant Cocoa, Malted Milk, etc. Food for the trip up river can be bought a day or two before and placed on board in a box or the kitchen kyack, easily accessible. This eliminates confusion and obviates opening the invoiced packages.

D. Upon arrival in El Cayo.

- 1.- A place to eat and sleep should be arranged for at once if one has not already been ascertained while in Belize.
- 2.- If mules are to be hired, attention should be given immediately at this point. Laborers cannot be contracted until a definite day of departure has been set; that date will mark the beginning of the contract and pay.
- 3.- To contract laborers: present the bond to the District Commissioner and ascertain on what day and hour the signing up of the men may be accomplished with the least interruption from other business. Assemble all hands at the time set; each man must sign (or mark with his mark) a statement that he has no obligation under a previous contract. Each man is then "signed" on a form (25¢ per signature chargeable to the laborer) which states the date the work starts and the amount of advance the laborer will receive and whether transportation to the work is provided. (It is not). The amount of the advance usually equals one month's wages; it may not exceed 1-1/2 month's wages. The advance is then payable in cash or by check (if the laborer agrees to take a check) but the usual procedure is to sign the men and proceed to any convenient place where the advances are paid them, the amounts being entered in their individual "Pass-books". These are submitted by the contractor in blank and are stamped on the first page by the District Commissioner's representative. Upon the termination of the laborer's contract the books must be balanced and the words "Contract terminated" written after the final accounting, and signed. It is recommended that the contractor read the Labor Laws. Remarks in regard to the system which permits irresponsible men to receive wages in advance of work to be performed are superfluous here. Advances are customary and must be made; they are often necessary for the purchase of clothes etc. but, generally speaking, the less cash advance the better, unless the contractor knows his laborer. Laborers may not be contracted; in large expeditions, however, it gives the contractor great authority, especially over men with families in El Cayo. Men will not jump their contract and exile themselves from Belize to Honduras. Duplicate laborer's "Pass-books" are kept by the contractor in case of loss of the original. Laborers sometimes demand that their maletas be carried upon leaving Cayo; the reply to this is that transportation is not furnished; pay starts the day they leave Cayo, and their first day's labor is to walk, carrying their maleta to the first camp etc.

WAGES: Cook \$35.- per month and no time off; laborers \$25.- per working day or \$25.- per month to be stated on the contract, including for Sundays off. Arrieros \$35.- per month and no time off (except to rest the mules or to repair outfit). Capataces \$25.-

\$45.- to \$60.- per month, depending on labor conditions and The best is not too good. Bell-mare boy, \$15.- to \$20.- per Where no protracted hard labor, as digging 6 days a week, is the laborer will accept less. Laborers unable to work on account of sickness are docked their wage while ill and may be charged a day for food. Contracts may be terminated by mutual agreement a contracted man is better released if his reasons for requesting release are valid and sincere; each such case must be judged on its own merits, bearing in mind justice to the laborer and to the contractor, and the undesireability of retaining in camp a man made sulky and unwilling who generally proves more troublesome than useful. Laborers incompetent to perform the duties for which they contracted may be summarily dismissed, but in all cases they receive wages until returned to El Cayo. Legally an incompetent laborer is supposed to be brought before a magistrate, the case heard, and judgment taken; but actually this seldom happens.

MEDECINE.

Buy a medical kit from Burrows, Wellcome & Co., New York. These kits are magnificently put up, even to having the labels affixed with shellac so that there is no danger of loss of labels from dampness. An unlabelled bottle of medicine is not only useless, but dangerous. Have a copy of "Useful Drugs" (Press of the American Medical Association, 535 North Dearborn St. Chicago) and Kephart's "Backwoods Surgery and Medicine", (Outing Publishing Co.). Besides Burroughs Wellcome Co.'s compressed bandage and absorbent cotton the following medicine is suggested for an expedition of 3 months:

Quinine bisalphate	5 gr. tablets	...50	tablets	per staff member
" Bihydrochloride.....	" " "	... 6	" " "	" " "
Aspirin (Empirin).....	" " "	...25	" " "	" " "
Boric Acid.....	6 " "	...50	tablets only.	" " "
Calomel	1 " "	...25	" " "	" " "
Quinine & Rhubarb.....	? " "	...50	" " "	" " "
(Livingston Rouser)				
Ginger	10 min.	...50	" " "	" " "
Soda Mint.....	5 gr. tablets	...50	" " "	" " "
Ipecacuanha.....	" " "	...50	" " "	" " "
Emetin Hydrochloride.....	1/2" " "	...25	" " "	" " "
Bismuth subnitrate.....	5 " " "	...25	" " "	" " "
Codeine.....	1/4" " "	...25	" " "	" " "
Morphin.....	on prescription only			
Bichloride of mercury.....	standard	...50	tablets only'	" " "
3- Bromides, Effervescent..	" " "	...25	" " "	" " "
Milk of Magnesia	1/2 bottle per staff member			
Castor Oil.....	2 fl. ozs. per " "			
Enos Fruit Salts	1/2 bottle per staff member			
Dovers powders	5 gr. tablets	...25	tablets only	
Picric Acid gauze pads.....	1/2 doz. per staff member			
Anti-Bothropic.....	2 outfits from H.K. Mulford Labs. Glen			
Mercurochrome.....	1/2 pt. bottle (or in tablet form)			
Iodin	1 "Success" Military flask per staff member			

In addition to the above, the expedition should have:

"Abloid" quinine injection case #45 (B. W. & Co.).

1 glass syringe, 1 small surgical kit, 1 tin of Anaesthol or ether, cup, vaseline, ammoniated mercury, hazeline cream, talcum powder,hesive plaster (varying widths), potassium iodide for the treatment of Leishmania (Poison. Consult a physician), hot water bag and fountain syringe combined, 1 elastic bandage, ordinary absorbent cotton and bandage, 1 bottle brandy, quart 95% alcohol, and such invalid supplies as malted milk, beef extract and chicken broth. Additional iodine, castor oil, aspirin and soda mints may be adviseable to the amounts above for the use of the laborers, but on the whole little sickness be met during the dry season except malaria, infected cuts or insect and digestive upsets. Ether or Anaesthol is included on account of its effectiveness in removing beef-worms rather than as a general anaesthetic. Where transportation is by pack-train Humphrey's Veterinary Cures and Epsom salts in pound packages are useful adjuncts. "Carbonegus" or a creolin compound is very useful for deodorizing purposes and a liberal use of it in water once a week around the sleeping quarters will eliminate fleas. It is indispensable for disinfecting mules.

PERSONAL SUPPLIES:

Remember that excessive perspiration and the treatment of corded linen in washing causes rapid disintegration; do not expect clothes already old to last the season.

Each individual of the staff is supplied with the following obtainable in the U. S. A.

1 "kyack" for personal use. These are cases of fibre, to be ready made at Abercrombie and Fitch, N.Y., but those made to order by Topham's, Inc., Washington D.C. are better and cheaper.

Dimensions: 23" x 20" x 11".

The corners should be iron bound, and the bottoms reinforced with slats on the outside. They open at the top (23" x 11") and are closed by a heavy strap over the lid; this serves also as a handle and should be amply strong to pick them up when loaded with 100 lbs. weight. The best leather should be used, and kept well oiled with neat's-foot oil. Leather deteriorates rapidly in a damp climate. Locks may be attached to both ends of the lid, if desired.

1 Aluminum army canteen, capacity 1 quart, with cloth cover and screw top attached by a chain.

1 Green (not yellow) saddle slicker obtainable from Abercrombie & Fitch (U.S. Cavalry standard. Price \$15.-)

1 Woollen blanket - Race horse "coolers" of the best wool, and light weight, are the most satisfactory. They measure 6' x 9' and should be in different patterns, easily recognized. Obtainable from harness supply houses, at about \$12.-.

Besides the above articles, each staff member is supplied with the following obtainable in Belize, or made to order there:

1 Hammock, 8' x 5', of hammock-cloth (not string) with 15 eyelets in either end through which the double strings of the hammock ("brazos") are attached. These arms are made to order of hard fish-line, 40" long and with as many double strings as there are eyelets in the hammock.

2 Manila hammock ropes (1/2 inch) to attach to the arms, not less than 5' long. These should be spliced to the arms to prevent breakage for other purposes, and consequent loss.

2 Cotton ropes (soft) to stretch across either end of the hammock, threaded through the strings of the arms (5' long).

1 pabillon (mosquito bar) 8' long x 5' high x 3' wide, with arms, of strong, close-meshed, light muslin through which small gnats cannot penetrate. It must be taped along the seams on the top and have loops at each of the four top corners by which it may be suspended. The sleeves must be taped and have two tape ends around the mouth by which to close the arms over the hammock ropes.

1 Collins Machete. Have the scabbard made in El Cayo, not Balboa.
1 painted canvas saddle bag made to order as shown in the diagram.

[See next page]

- a. Cut 2 pieces, one for the bottom and the other for the top, or flaps. The crescent-shaped hole is to fit over the cantle of a U. S. Army saddle; it should be fitted; approximately 2" x 13" with a 1" curve.
- b. Cut 2 pieces; these form the walls of the pockets. "d" is stitched to them on the sides labelled 1,2,3. "c" is sewn as shown by dotted line to form inside pockets (2).
- c. Sewn onto "b" as indicated. "c" forms small inside pockets. Two pieces needed, one for the two "b" pieces.
- d. Cut two pieces. These sewn - 1,2,3 "d" onto 1,2,3 "b" - form bellows portions of the main pockets. The tapered ends give a constricted opening to prevent articles from falling out.

Assembly: Stitch "c" to "b" as shown by dotted line. Stitch "d" to "b" so that seams and "c" are both inside. Stitch "d" to "a" (1,2,3 "d" to 1,2,3, "a") leaving the mouth open. Now stitch flap "a" onto the bottom "a" following dotted line shown.

Note: That portion which extends across the saddle is double the width. The seams should be smooth therefore, in order not to chafe the horse. (The measurements given here were made on a finished article and therefore allow for seams). Make of light canvas and paint the inside, top and bottom, to waterproof.

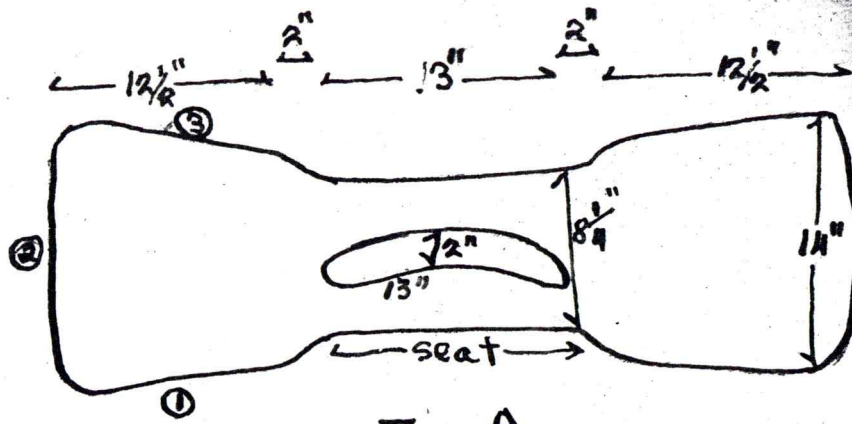


Fig. A

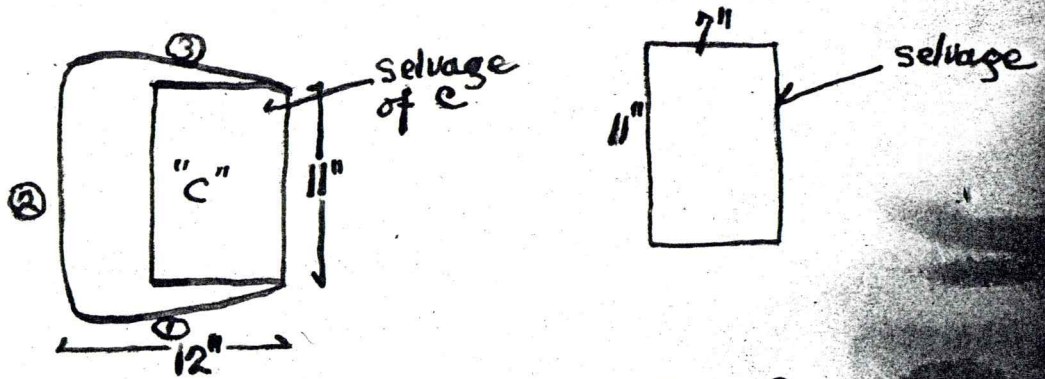


Fig. B

Fig. C

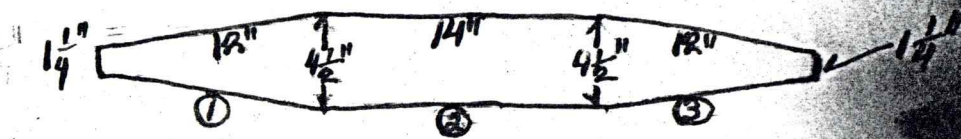


Fig. D

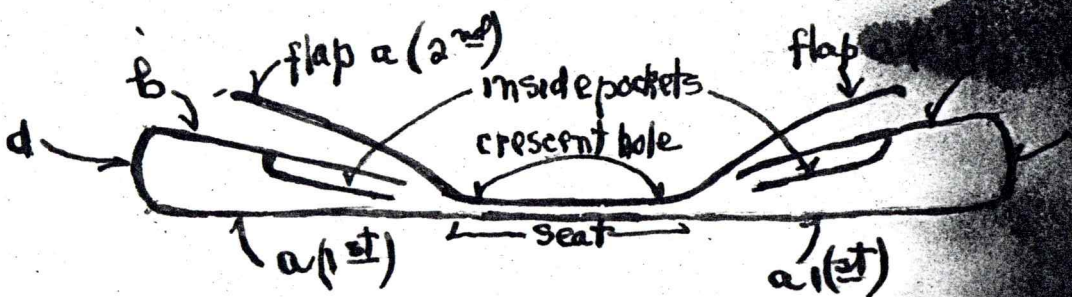


Fig. E

Excavations in the Maya area have so rarely covered a period of several seasons at the same site that no well-defined, conventional technique for attacking a large city had been developed when I undertook to excavate. Informal inquiries among Maya students did not seem to elucidate any specific details as to where to begin, or how. The first work done was Group E, and this site was chosen because the arrangement of buildings was such that Mr. Frans Blom noticed, when making a map of the ruins in 1924 for the Institution, a coincidence between the directions from the 20° and the three temples bounding the eastern side of the plaza, and the amplitudes of the sun on the equinoxes and the solstices.

Maya students rather generally admitted the following negative

1. The simple ground-plan of a typical temple was not, per se, of archaeological interest.
2. The great temple-plaza units, or "civic centers" were not lived in by the general population, and their excavation, consequently, would yield a great paucity of small objects.
3. Maya architecture as seen above ground, from stela to temple, had been the subject of extensive examination since the time of Stephens to the present day.
4. Anthropological details obtainable from burials, as well as the burials themselves and their accompanying funerary offerings, were lacking, especially in an area supposed to have once supported a dense population.
5. The total lack of any scientific evidence on which to base a estimate of the density of the population.
6. The desirability of developing some cultural chronology from architectural, whether in relation to the dated stela or not.

These suggestions or admissions were, obviously, all perfectly correct. They left me, metaphorically speaking, still standing with a machete in one hand and a shovel in the other, ready to begin, but not at all sure of what to do. Some specific suggestions were made, such as:

1. A search for caches beneath stelae.
2. An extensive series of pits and trenches in the environment of the "civic centers" but not in the centers themselves.
3. An intensive examination of chultuns.
4. An intensive examination of house-mounds.
5. An intensive search for burials.

Obviously the greatest objective of any protracted excavation should be the development of a chronological sequence at one site so that some indication might be obtained, however slight, of the origins of Maya civilization. Maya civilization pretty much bursts upon our view full-blown without known indigenous roots or previous foundations in the shallow Yucatecan soil from which to develop. This status is not a satisfactory one especially for a civilization so well developed as that of the Maya. The question never was "What information do we want from excavations?" but "What technique in excavating will reveal the information wanted?" The 'seasons' excavation at Uaxactun has shown the following facts, some of which are now quite obvious, which may possibly be of use to future investigators.

Once a site has been chosen for excavation, certain principles naturally suggest themselves for investigation. The first principle is clearing the forest. No tree on or very near the project should be left standing, for three reasons: jungle-forest

when isolated, offer very little resistance to up-rooting by wind appliers with extra emphasis to trees surrounding a permanent camp. It is extremely undesirable to halt extensive excavations while a mammoth tree is felled, possibly on the excavations themselves, sawn up into moveable logs; third, ruthless clearing followed by burn at the end of the dry season, will render the stump problem the following year. A conscious effort to burn out stumps at the end of the second year is well worth the trouble; stumps are a serious hindrance in excavating. A logging-chain, block-and-tackle, and hatchets are of assistance in removing them; extra axes and machetes must be carried to replace those broken against stone-embedded roots.

While the clearing is in progress, test pits and trenches should be sunk in plazas and mounds to determine the underlying conditions. Most of these test operations will reveal only a shallow surface-covering striking basic limestone, but in every case it should be certain that an undisturbed stratum has been reached. Plaster floors cut through by pits should have an edge or lip left protruding, otherwise it will be extremely difficult to recover them later when the pit walls have completely disappeared. In the preliminary examination of a unit--- say a plaza surrounded by five pits in the plaza would be the minimum in my opinion; one central and four peripheral, the latter preferably near the midpoints of the sides. From the peripheral pits short trenches may be run into the bases of buildings to determine the relationships between floors and buildings, floor platforms, and especially to determine if earlier structures underlie the outer. At this point it may be determined whether trenches connecting various pits are desirable, or further information may be obtained by digging additional intermediate pits. Wherever there is evident difference in the number or relationships of floors, intermediate connecting trenches will be necessary to determine the causes. Tests sunk in different portions of the city may indicate certain areas worthy of investigation than others--- i.e. several floors overlying rock beds offer more promise than one floor over a shallow marl or rock void of rubbish.

In plazas with several floors, it should be carefully noted whether floors turn up against previous constructions (that is, constructions ready in place when the floor was laid) or run under later constructions (that is, constructions built over floors already laid). In this case a confusing factor may enter, viz: a late re-flooring of a plaza made for the levelling or the extending of the plaza; this floor may be so as to meet exactly the low platform or step extending around the building with an earlier building, so that looking down on where the floor meets the step the two appear as one homogenous plaster paving. But if a hole is dug into the base of the building it will be seen immediately that the plaza pavement is not synchronous with the erection of the building. This levelling process, though it cannot be well-noted from above, is evident in cross-section.

Similarly, the relation of floors to dated stelae may be of interest. Where the floor is at all preserved, it is an easy matter to ascertain whether a given floor was laid with the stela already in place or if the floor was laid previously and pierced by the hole dug to receive the stela. In the former case the plaster turns up against the monument. In the latter, it presents a broken or cut edge several inches from the stela, the intervening space showing fill (gravel, stone, or earth). Examination of stela-to-floor relations at Uaxactun has shown results as expected. Stela 19 (97 AD) and Stela 20 (100 AD)

erected on the opposite sides of the same plaza, both related with the most floor. If both were cut and erected synchronously, Stela 19 to a date in past time, or Stela 20 to one in future time; if the each stela were carved thereon at the date expressed, then Stela 19 have been moved from its original place and re-erected in 235 AD. In both stelae may have been re-erected in their present locations. In connection we should remember that one stela at Uaxactun (Stela B 5) is absolute proof that it had been re-used by the Maya; above ground it presented a plain surface, uncarved and very smooth, but for six inches below the floor the surface very plainly showed the remains of carving. The carving on this stela had, therefore, been deliberately effaced over that portion which remained visible above the floor while the stela stood in position. This case differs from that more commonly found--- the re-carving of fragments from broken stelae for altars etc. Although the re-carving of Stela B 5 may have been intended and never executed, it would also seem reasonable to suppose that its surface was once painted and its re-carving never intended.

For the attack on a Maya mound of any proportion greater than a house mound, the following procedure has the advantage of discovering the most characteristics with the least effort. Dig a pit well away - eight to ten feet - from where the mound first starts to slope up, and having reached an undisturbed strata, trench towards the mound without losing any of the floors. If possible follow the top floor, but where this is difficult to do, follow the first well-defined floor leaving an edge to indicate the floor above it. Upon striking the first step or terrace-wall of the mound the outline of the base may be obtained by following this wall. A cut into the apparent face of a mound should strike a stairway; by obtaining the width of this stairway, and connecting it with one adjacent corner of the mound, and by trenching around the corner to the back of the mound it would be legitimate to draw an assumed symmetrical base-line ground-plan (barring evidence to the contrary). This ground-plan should be made once. The stairway, or one edge, may now be uncovered, the dirt being allowed to cover the excavations already made. By following up the stairway the doorway at the top may be found and the interior ground-plan may be obtained very quickly. Upon the evidence thus obtained a decision may be made as to whether complete excavation is desirable, and the interior of the mound, altars may be sounded or examined for cavities indicating burials. In the case of temples where pits reveal floors underlying the base of the mound, or less complete removal of the superimposed structure will be necessary to reveal the structure beneath; such a mound would be immediately marked as the site of a possible major operation.

In the examination of stela at Uaxactun, caches were found under the bases of the monuments. In no case were any of the monuments set up on foundations and in one case the stela stood only 6" in the ground. The procedure consisted in sinking a pit beside the short axis of the monument and from thence trenching to the monument and to the building behind it, if any. The caches - almost always flint, obsidian, or shell - were first found by carefully digging under the stela, but this so nearly resulted in a fatal accident in the case of Stela 4 that thereafter the stelae were pulled over with a block and tackle after their relation to the floor or floors had been determined. A limestone monument 3' x 4' x 2' weighs about 10,700 pounds. Monuments should be kept covered to prevent weathering.

Nothing but an accurate map would be entirely satisfactory under such conditions in the environs of a large ruin; as this

a prolonged and an expensive operation, an attempt was made to do as much as possible by mapping a large cross, with arms each one long and four hundred yards wide, extending from a center in the In order to locate house-mounds, it was necessary to divide the into separate squares, each 100 yards on a side. This was done by five parallel lines of sight, 100 yards apart, from the center to the cardinal points, and transecting these with other lines at right angles every 100 yards. In this way each square could be numbered and searched. It was felt that such a sample would yield results more acceptable on average than a solid square chosen at random which might coincide with local conditions of terrain that would render the survey valueless. In this survey leaves much to be desired, the results showed the following:

- 1.- House-mounds do not occur in swampy land except in one case, where artificial platforms had been erected with house-mounds on top. If this was not a defensive structure, then we must infer that the population was sufficiently dense to force some of the inhabitants into an extremely undesirable location in order to find room for building.
- 2.- Allowing 7 persons for each house-mound, it gave 1,187 inhabitants per square mile of habitable land (exclusive of swamp.)
- 3.- It gave indication, as is also borne out by common experience, that house-mounds extend over indefinable limits, so that it would seem safe to assume that the ancient Maya never lived in an urban community but rather as a densely populated agricultural people who gathered at great centers for markets and festivals as do the Indians in the Highlands of Guatemala at the present day.

It may not be amiss to mention in closing that the following greatly facilitate investigation - small Army trench picks and shovels, ordinary whist-brooms, and especially a heavy kitchen knife with a strong blade. If the blade is ground down to a blunt point and is sharp only on one side, it will slip over the floor surfaces without cutting into them. Trowels are too flexible for hard-laid Maya masonry. Each digger should be supplied with the above articles, and extra whist-brooms will be needed to replace those worn out by constant use. Brushes made on the spot of palm or twigs are not satisfactory. A few heavy-duty axes are a great asset; their use before photography makes for a better picture.

Hatchets are of great assistance for cutting roots of tree stumps. A bolt of unbleached muslin should be purchased and about half of it made up in Belize into bags, about 12" wide by 20" long, for sherds; the rest can be made up in the field into larger or smaller bags on occasion demands, or used for wrapping fragile articles. A good supply of paper nail bags, for collecting sherds in the field, will be found very useful.

FOOD FOR STAFF.

When travelling by river, or by mule in country from which supplies can be obtained from day to day, and it is desirable or necessary to carry tinned foods to the ration allowed for the laborers (q.v.) the following ration will be found ample per person per week.

Coffee	.....	1/2 lb., or 1 tin George Washington;
tea	.....	1/8 lb.
(cocoa)	.....	1/8 lb.
milk	.....	5 tins Milkmaid, and 2 tins Pet
Biscuit	.....	2-1/2 lbs.
butter	.....	1/2 lb.
jam	.....	2 tins
sugar	.....	4 lbs.
tinned meat	.....	12 tins: corned beef, lunch tongue, sausages, salmon, sardines,
soup	.....	3 tins
vegetables	.....	7 tins
fruit	.....	3 tins
baked beans	.....	6 tins
spaghetti	.....	3 tins
(cereal)	.....	1 package

If the expedition consists of one person, small tins should be purchased as they can be more easily packed and there is less waste. If it consists of two or more persons, things such as meat, fish, vegetables, fruit, beans, etc., should be purchased in larger tins.

An average menu, for four persons, is given herewith:

Breakfast: coffee, about 3 pints;
sugar, " 3/4 lb.
milk " 1 tin Pet, 1 tin Milkmaid
cereal " 1/2 package
biscuit " 1/2 lb.
butter " 1/10 lb., jam, about 1/3 tin
baked beans, or sausages, 2 tins.

Lunch: meat, 2 tins corned beef, 1 tin soup, 1 tin peas
cooked together;
2 tins spaghetti
biscuit, about 1/2 lb.
butter, about 1/10 lb.
jam, about 1/3 tin
fruit, 1 large or 2 small tins
tea, about 1/14 lb.
sugar
milk

Supper: fish, 2 tins salmon, 1 tin macedoine cooked together
vegetable, 2 tins asparagus
cocoa, about 1/14 lb.
(milk)
sugar,
biscuit
butter
jam.

Food for staff of 4 persons for 15 weeks.

- Soups ✓ 17 dozen tins of Soup (also Bovril and Steero, in case)
- Milk 25 dozen tins Natural Milk
- ✓ 8 dozen tins Pet Milk
- ✓ 2 5-lb. jars Horlick's Malted Milk
- ✓ 2 5-lb. jars Kilm

- Meat ✓ 7 sides Bacon
- ✓ 7 Hans
- ? 2 dozen tins frankfurters
- ? 5 dozen tins pork and beans
- ? 1 dozen tins tuna fish
- ? 1 dozen tins codfish balls
- ✓ 3 dozen tins salmon
- ✓ 6 dozen tins sardines
- ✓ 5 dozen tins corned beef hash
- 3 dozen tins Beef a la Deutsch.... College Inn
- 1 dozen Oxford sausages
- 1 dozen curried sausages
- 1 dozen mutton and vegetables
- 1 dozen Beef a la Mode
- ✓ 1 dozen Irish stew *dark*
- 1 dozen Ox tongue
- ✓ 1 dozen Armours Luncheon beef
- 1 dozen Chicken a la Creole... College Inn
- 1 dozen Chicken a la King

- Vegetables ✓ 4 dozen tins green peas
- ✓ 6 dozen tins tomatoes
- 4 dozen tins corn
- ✓ 2 dozen tins beets
- ? 3 dozen tins asparagus
- ✓ ~~2~~ dozen tins green beans
- 1 dozen tins okra
- 2 dozen tins carrots
- ✓ 1 dozen tins golden wax beans
- 2 dozen tins lima beans
- 1/2 dozen tins sauerkraut
- ✓ 1/2 dozen tins spinach
- 1 dozen tins succotash
- ✓ 2 dozen tins mixed vegetables
(artichokes, brussels sprouts, pumpkin and squash may also taken if desired)

- Fruit 2 dozen tins apricots
- 2 dozen tins figs
- 3 dozen tins pineapple
- ✓ 3 dozen tins peaches
- 2 dozen tins plums
- ✓ 3 dozen tins pears
- 3 dozen tins Queen Anne cherries
- 1 dozen tins blackberries
- 1 dozen tins blueberries or loganberries
- ✓ 2 5-lb. tins prunes
- 1 dozen tins fruit salad
- 1 dozen tins grapefruit
- 1 dozen tins raspberries
- 1 dozen tins strawberries

Cereals

- ✓ 1 dozen tins Grapenuts
- ✓ 1 dozen tins Oatmeal
- ✓ 1 dozen pkgs. Puffed Rice
- ✓ 1 dozen " Puffed Wheat
- ✓ 1/2 dozen " Cream of Wheat
- ✓ 1/2 dozen " Wheatena
- ✓ 1/2 dozen " Corn Meal
- ✓ 1 dozen " Shredded Wheat

Biscuit and Cake

- ✓ 1 dozen tins Oaten biscuit
- ✓ 1 dozen tins Pilot Wafers or El Sol biscuits
- ✓ 1 dozen tins Shortbread
- 1/2 dozen tins Petit Beurre
- 1/2 dozen tins Fig Pudding
- ✓ 1/2 dozen tins Fruit Cake

Jam

- 5 dozen tins Jam, as follows:
- ✓ 1/2 dozen apricot
- ✓ 1/2 dozen blackberry
- ✓ 1/2 dozen damson plum
- ✓ 1/2 dozen peach
- ✓ 1 dozen strawberry
- ✓ 1 dozen raspberry
- ✓ 1 dozen orange marmalade

Butter

- ✓ 4 tins Syrup
- ✓ 5 lbs. Milk Chocolate bars
- ✓ 5 dozen tins butter *no butter*
- ✓ 1 dozen tins cheese

Relishes

- ✓ 1/2 dozen bottles olives
- ✓ 1/2 dozen bottles mixed pickles
- ✓ 1 dozen bottles Ketchup
- ✓ 3 bottles vinegar
- ✓ 1 quart olive oil
- ✓ 1 bottle vanilla extract
- ✓ 1 bottle lemon extract
- ✓ 3 bottles Lea and Perrins sauce
- ✓ 1 bottle Tabasco sauce
- ✓ 1 dozen bottles Rose's lime juice
- ✓ 2 bottles white pepper
- ✓ 2 tins table salt
- ✓ 2 tins curry powder
- ✓ 1 tin mustard powder

Misc

- ✓ 2 dozen tins Royal Baking powder
- ✓ 1/2 dozen pkgs. baking soda
- ✓ 6 gal. tins Wesson oil
- ✓ 1 dozen cakes Ivory soap
- ✓ 2 cakes Sapolie
- ✓ 1 dozen rolls toilet paper
- ✓ 6 jars chocolate syrup
- ✓ 1 dozen pkgs macaroni
- Tam* ✓ 15 lbs. coffee
- ✓ 5 lbs. tea
- Tam?* ✓ 5 tins cocoa.

- 5 -

Kitchen Utensils, etc.

Cooking utensils for the staff's use on the road, include the following:

- 1 nested aluminum cooking outfit for six persons,
(This may be purchased at Abercrombie and Fitch, N.Y. and includes several sizes kettles, each with lid and handle, one kettle with lip for pouring liquids, two skillets, six plates, six bowls, six cups, six knives, forks, teaspoons and soup spoons, the whole enclosed in a fibre case)
- 2 large cooking spoons,
- 1 cooking fork,
- 1 butcher knife
- 2 can openers
- 1 hurricane lantern
- 1 container (a quart bottle will do) for kerosene at least two dish cloths, 1 bar of soap, matches, etc.

The laborers will need the following:

- 1 kettle for rice,
- 1 kettle for beans,
- 1 kettle for coffee
- 1 kneading pan)
- 1 comal,) for making tortillas,
- 1 hurricane lantern,
- 1 container for kerosene,
- matches

Each laborer is accustomed to provide his own plate, cup, knife, spoon.

For a permanent camp, other kitchen utensils and supplies will be such as:

- meat grinder (also used by laborers to grind corn)
- egg beater
- flour sifter
- 2 paring knives
- tea kettle
- coffee pot
- dish pans (also used for washing clothes, if no laundry)
- at least 2 skillets
- " " 4 sauce pans (different sizes)
- 2 double boilers
- 2 pie tins
- 2 or 3 large cooking spoons
- water filter
- kitchen scales, to weigh pounds and ounces only
- measuring cup
- 4 or 6 enamel serving dishes
- enamel plates and cups and soup plates
- 6 tablespoons
- 6 can openers
- wire grid for grilling meat or toasting bread
- alarm clock for cook
- 1 comal

3 enamel pots
3 wire mesh Strainers, different sizes
1 tea strainer
1 Soup ladle

Laborers' Rations.

The legal ration for a contracted laborer in British Honduras seven quarts of flour and four pounds of salt pork per man per week. As this is obviously too meagre and too monotonous fare for men doing hard physical work, we have worked out the following ration for laborers at Uaxactun:

Per man, per week.....8 lbs. flour
4 lbs. beans, preferably pink, if for negroes
" black, if for Mexicans
2 lbs. rice
4 lbs. sugar (brown for laborers, white for others)
1/2 lb. salt
1 lb. coffee
3 lbs. lard
1/6 pckg. baking soda
1/3 tin baking powder (Monkey and Panda brands)
1/8 gal. kerosene (for lanterns)
1/2 bar blue mottle soap (laborers buy from Commissary)

The following articles are also taken, and may be purchased from the Commissary for laborers, at cost price.

(This list is based on 20 men, 15 wks.)

2 large boxes matches (720 pckgs. each)
10,000 cigarettes
1 dz. prs. moccasins (for negroes, size 5,6,7; smaller for Indians)
20 dz. tins Eagle brand Condensed milk
4 dz. tins fruit (peaches, pears, apricots)
2 dz. tins jam
2 dz. tins salmon
2 dz. tins sardines
2 dz. tins bully beef
30 lbs. black leaf tobacco (keep damp)

Other articles frequently asked for by the laborers are:
hammock rope, flashlights and flashlight batteries, wrapping paper (ruled) and envelopes, pen and ink.

CARNEGIE INSTITUTION OF WASHINGTON

UAXACTUN PROJECT

DEPARTMENT OF HISTORICAL RESEARCH

Guatemala, April 21st. 1932

Mr. J. Alden Mason,
University Museum of Pennsylvania,
Philadelphia, Pennsylvania.

Dear Mr. Mason:

I have seen some eccentric flints from Piedras Negras in the Museum at Guatemala, and I am very anxious to know under what conditions they were found.

If you have published this material, will you please send me a re-print of the publication. If this material is not published, would you be so kind as to write me the following information:

- 1.- Were the flints found in sub-stela caches? If so, under which stela and the dates of the stelae?
- 2.- Were eccentric flints found in or on mounds. If so, in connection with what type of pottery?
- 3.- Were the flints found associated with shell and jade figurines?

I would appreciate very much having this information at your earliest convenience.

Yours very truly,

E. B. Ricketson.

Edith Bayles Ricketson.

Mrs. Oliver Ricketson Jr.

Pasaje Conzo, #3

Guatemala, C.A.

ER/gsv

Piedras Negras, Peten,
May 17, 1932.

Mrs Edith B. Ricketson,
Pasaje Corzo, #5,
Guatemala, C. A.

My dear Mrs Ricketson:

Your letter of April 21st was received a few days ago, forwarded from Philadelphia. Of course I intend to write you and Oliver more often, but you probably realize how little time is left for any correspondence except the most urgent, when one is directing a field project. Your letter gave me the first assurance that our shipment of archeological objects to Guatemala last July had actually arrived and been placed in the Museum, also my first intimation that there is a Museum in the city. When I left there they were talking about establishing a museum in Antigua, and I read that Yela Gunther had been appointed Director. I am interested to hear if there is a real museum there now, where it is, etc. Or is the material merely in the care of the Sociedad Historica, and not on exhibition?

... your questions. We have found a very

~~collected -- some of them. One was found under ...~~

~~In July after I had back: I had been to Guatemala more definite in
the matter of the ... If you will let me know ...
... of the ... of course in ...
... more of ...
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... essential ...~~

May 17, 1932.
Piedras Negras, Peten,

Mrs Edith B. Rickerson,
Pasaje Gorno, No. 15,
Guatemala, C. A.

My dear Mrs Rickerson:

Your letter of April 21st was received a few days ago forwarded from Philadelphia. Of course I intend to write you and Oliver more often, but you probably realize how little time is left for any correspondence except the most urgent, when one is directing a field project. Your letter gave me the first assurance that our shipment of archeological objects to Guatemala last July had actually arrived and been placed in the Museum, also my first intimation that there is a Museum in the city. When I left there they were talking about establishing a museum in Antigua, and I read that Yela Gunther had been appointed Director. I am interested to hear if there is a real museum there now, where it is, etc. Or is the material merely in the care of the Sociedad Historica, and not on exhibition?

We have found a very

only a few stelae have been excavated, and caches found under some of them. One was found under #7, if I remember correctly -- it was #6; Morley will have to give you the

formation. In July after I get back; I'll be able to give more definite information. If you will jog my memory by a reminder, but at present I can't give you full data, and much that I later. Duplicates of last year's work are, of course in Philadelphia which destroyed practically all our records -- more of this to include all shapes. Unfortunately we had a fire here a month ago and asymmetric flints; there should be a more comprehensive term and asymmetric flints; there should be a more comprehensive term concentric ones are found in the same caches as purely eccentric the other hand a large number of symmetrical flints and even some better one. I think asymmetrical preferable to eccentric, but on Personally I don't like the term, but I haven't decided upon a large number of so-called "eccentric flints" in our excavations.

type was frequently painted with blue, and has a pottery disk cover also frequently painted blue. In this rear room was found little but flints and obsidians. A few broken polychrome vessels were also found in this room.

In the rooms further front the caches seem to be of superior type. Most of them were found in, or associated with fragments of, wide-mouth bowls of hard-baked, brick-like reddish ware. Many had cover bowls of practically the same shape and ware. In these caches were found "eccentric" flints and obsidians, carved and insised figurines and other objects of shell, white or pink; jades, generally of poor quality and generally natural lumps with one flat face often rudely incised, spines of sting-ray, bones of small animals or birds, and black earth, probably from decomposed animal remains. Very frequently they contained the two halves of a large spiny pink and white marine bivalve with the best piece of jade inside. These are my recollections, but I will ask Miss Mary Butler, who is studying the specimens, and especially the pottery, to read this over and add comments on the pottery ware and add sketches of the shapes of the vessels.

As for work here, we are nearing the close and expect to quit about the end of this month. A month ago we had a bad fire which began in the kitchen, probably from our stove-pipe (I guess you were wiser not to use a stove at Uaxactun). It consumed my little house, the house of the engineer, Mr. Parris, the kitchen, the draughting studio, and the main house. Most of our equipment except that in actual use burnt, but we hastily got the most essential things in, and are carrying on, having rebuilt the principal houses. Most of our field notes were saved, and the greatest loss was probably the photographs taken to date this year.

We are sending out the big monuments, as many as our budget will permit. To Guatemala are going stelae 36, 6, 15 and 33, lintel 4, and 3 legs of altar #4; to Philadelphia 12, 14, 40 and 13, lintel 3, a leg of altar #4, a new lintel, and a new throne and screen. Stela 12 got to Frontera in January, and is probably there yet, awaiting permission to ship; 36, 6, 40 and 15 are at the end of our road where they are to be put on a lumber raft to be taken to Frontera; the balance were to be loaded on the wagons today and leave tonight, but a heavy thunderstorm, the second of the season, is holding this work up and keeping me in camp, hence this letter to you.

This year Satterthwaite is getting all the spectacular results. He has spent most of his time on the "Acropolis" of which he has beautiful notes and plans. In the central part, in a spectacular position, he found the remains of a beautiful carved stone throne and screen, so similar to the throne and background screen shown in the scene on altar #5 which we found last year, that it is obvious that this scene represents an actual ceremony performed here, if not on this very throne; the two pieces supplement each other perfectly. Then he found a burial vault in a very prominent place, with an interment of one who must have been a personage of great importance, with a great pyrite mirror about 10 inches in diameter, mosaic, a good quantity of fine jade, shell plaques, etc. One of the jade ornaments, a jaguar head, has incised glyphs on the back, and three of the shell plaques have the same. He has also completely excavated the southern ball-court and made details plans and notes of it. Our engineer is making a very detailed map of the whole city.

Piedras Negras, Guatemala
May 17, 1932

My dear Mrs. Ricketson,

The cache vessels from Temple 27 fall into two main groups:- Orange Ware dishes and bowls, and unslipped Porous Gray jars.

The Orange Ware paste is hard, sand-tempered, firing to a salmon color, and the slip is well-polished but on most pieces fired unevenly. One large bowl and one small dish have a red slip. Bowls have lids shaped like a convex plate, unslipped inside; straight-sided dishes are covered with similar dishes. I am sorry to say that my notes on last year's material as well as this year's notes and specimens went up in the fire, but as I remember the range in size would be about 15 to 30 cms. diameter for dishes, averaging 20cms for bowls.

The unslipped vessels were almost all of the pear-shaped, disk-lidded type described by Dr. Mason as occurring in the rear room. The paste is well-worked and fired to a reddish color; a few have jar and lid edged with a band of blue paint. A few jars with slightly everted lip and no lid were higher-fired and had a float, but I cannot be sure until returning to Philadelphia whether or not they contained caches.

The cylinder jar was large, diameter about 21 cms., and of a hard paste, fired to a brownish gray. It was marked by incised lines into horizontal stripes, alternate stripes, starting with the top one, being painted brown.

Shell figurines are of reddish thorny oyster shell, and seem practically identical with those found by Thompson in the Mountain Cow district. A few plaques of the same shell, roughly trimmed on the back, are incised on the white inner surface with a standing figure with hands on chest. Actual figurines of jade occur in only one cache and consist of one or two pairs of the type referred to, and four very small kneeling figures; all crudely worked and unpolished.

Do you find either of these types of figurine at Uaxactun? May I ask you, too, whether any photographs of your stelae have been published, and if not, whether they are available, and how. Is there much carving or painting on details or monuments other than the stelae? I should remember from the Carnegie Year-book Reports, but can think of nothing more than the masks on Temple E sub VIII. I am anxious to know about subject matter and style of Uaxactun art.

Sincerely yours,

MB

All this information is, of course, for you and Oliver, not for general knowledge and especially not for los periodicos guatemaltecos. We have published nothing on it yet. Of course half of all the small finds, like half of the monuments, are to be sent to Guatemala where you will see them ere long.

I understand that Oliver has made another remarkable find of pottery at Uaxactun. And we have also had word of Morley's great discovery at Calakmul.

I presume that you will be up in the states during the summer; you must look us up and see our share of the results of the two season's work.

Do let me know some of the news from Guatemala City and from Uaxactun.

With my cordial regards to you and to Oliver and to all my friends in Guatemala, and with congratulations on your latest discovery, from us all, believe me

Sincerely yours,