

TRADE RELATIONS BETWEEN THE MAYA HIGHLANDS AND LOWLANDS*

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AREAS DEFINED

It is not easy to draw the boundary between highlands and lowlands. In this paper it is primarily based on linguistic grounds. The area inhabited in the sixteenth century by Yucatec, Palencano and Manche Chol, Chorti and Chontal as lowland; that of the Chiapan plateau occupied by the Tzotzil, the highland Tzeltal and the Tojolabal as intermediate; the rest as highland. This boundary line is shown in Thompson 1960, but allots a little too much territory to the lowlands on both banks of the Motagua and east and south of Copán. The point is contestable, but I would now consider the boundary as passing not far west of Quiriguá and thence south to Copán. Geologically and in its ecology the Quiriguá-Copán-Los Higos triangle is highland, and so highland Maya exports might have come also from that area. That must be borne in mind in the discussion of specific trade pieces.

There are also geological reasons for including the area inhabited by the Tzeltal, Tzotzil and the Tojolabal with the highlands; it is really neither one thing nor the other. Linguistically it goes with the lowlands and in its area are found stelae with lowland texts as well as buildings (as opposed to tombs) with corbeled vaulting, both typical of lowland culture. Neither, it is true, occurs in Tzotzil territory but one can hardly place the Tzeltal in the lowland culture area and their first cousins, the Tzotzil, in the highland group. The question is largely

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gratuitous, for there is little material in this part of Chiapas which bears on the problem of trade.

PAST AND PRESENT TRADE ROUTES

Water. The most dramatic case of prehispanic trade was that which Columbus and his sailors witnessed when they chanced upon a trading canoe near the Bay Islands. The story is too well known to need repeating in detail. The cargo consisted according to Las Casas (1877 bk. 2, ch. 20) of cotton mantles, huipils and loin cloths, all with multi-color designs, macanas (wooden swords with pieces of flint glued into slots down each side), little copper axes, bells, large quantities of cacao beans, plates (*patenas*) and crucibles (*crisoles*) to melt the copper. Peter Martyr (Dec. 3, ch. 4) adds razors and knives of latten (*read* copper) and hatchets of a sharp bright yellow stone with wooden handles. Unfortunately, there is no direct information as to whence the canoe came and whither it was bound. The copper implements point to a cargo from Central Mexico, but fine textiles were an export of Yucatán to Honduras, suggesting that they had been picked up there in transit. I know of no hatchets of bright yellow stone. If they were of yellow flint, an origin in the Peninsula of Yucatán is indicated. The cacao beans present a problem. They would not be taken to the north coasts of Guatemala or Honduras, a case of coals to Newcastle. However, if the canoe had traded on the way along the coast of British Honduras, its owners might have obtained cacao there for what they sold, for the Belize and other valleys to the south produced large quantities of cacao, and Chetumal Bay was an outlet for cacao of the Rio Hondo. The copper in that case would have been for the bottom of the Bay of Honduras and the cacao would have been disposed of in Yucatán on the return voyage.

One the whole, it seems most probable that the vessel had come around the peninsula of Yucatán, perhaps from the great trade center of Xicalango with the bottom of the Bay of Honduras as its terminus. If that is correct, it indicates a long voyage with active trading at many ports en route. One may guess that the merchants and crew were Chontal Maya, the Phoenicians of Middle America.

There is no lack of confirmation of this east coast trade route. Herrera (Dec. 4, bk. 8, ch. 3) states that the people of Yucatán were especially prominent in trade with Honduras, bringing mantles, feathers and other things and returning with cacao. Honduras was famed for its feathers but Yucatán raised muscovy ducks, probably unknown in Honduras, so the feathers may have been of ducks. Again, the *Relación de Tecauto* (*Relaciones de Yucatán*, 1:125) speaks of the exchange, stating that cotton mantles, wax, honey and salt were exported to Mexico, Honduras and other parts. According to the *Relación de Motul* (*ibid*, p. 87) cacao was brought from Tabasco and Honduras. Trade was so active that Yucatecan merchants stationed factors in Honduras to handle their interests (Scholes and Roys, 1948, p. 84).

That this sea route down the east coast of the peninsula was very busy is shown by indirect evidence. Cacao and feathers, being very valuable and, in the case of the latter, of light weight could have also been sent by land, but it is probable that large and not very valuable products would have been sent by water wherever feasible. Granite metates have been reported from San José, Uaxactún, Tikal (where they are particularly abundant) and Mayapán. The nearest source known to me is the Pine ridge and Maya Mountains area of British Honduras. To the first three places they were presumably taken by river and overland, but in the case of Mayapán one must conclude that they went down the Belize river and thence northward to a port in Yucatán near Mayapán. Similarly, the large number of tripod metates of lava at Lubaantún (huge numbers of fragments were found) must surely have traveled by sea and the Río Grande from the highlands for there are no lava deposits in the peninsula of Yucatán. Those of lava found at the lowland sites may have gone by either west coast or east coast routes, depending on accessibility. Those that reached Tikal and Uaxactún, for example, presumably traveled up the east coast and the Belize river.

The need for shipment by water is obvious when one realizes that the load of a present day highland Maya cargador comprises two metates and six manos (McBryde, 1947, p. 73); it would clearly be uneconomic to have porters carry them from the highland to Uaxactún or Mayapán. Flints for the same

reason must have been shipped by water, and, as we have just seen, there is a probability they were in the canoe Columbus met.

Salt also traveled the east coast route. The Morán Chol-Spanish vocabulary has an entry that *xoxom* is coarse salt. "They bring it from Cozumel." There were important salt works all along the north coast of Yucatán and on the nearby island of Mujeres, but none on Cozumel, so Cozumel was probably the point of transshipment, and thence perhaps via Nito near the mouth of the Río Dulce, and then up the sarstoon. The fact that it came from Cozumel apparently long after the conquest suggests that that ancient native route survived into colonial times. Cozumel did pay a small salt tribute (Roys, 1957, p. 155), but one may suppose that this was gathered elsewhere by natives of the island.

Ascension Bay also contributed to the coastal traffic for the lords of Chichén-Itzá embarked there on trading journeys to Honduras for cacao and plumage (Ciudad Real, 1873, 2: 408).

Chetumal must have had a considerable interest in this east coast trade for the province sent fifty war canoes to help defend its commercial interests on the Ulúa river from the Spaniards (Scholes and Roys, 1948, p. 317), and cacao was shipped up the Rio Hondo to Ucum and thence overland to the Xiu towns at the foot of the Puuc hills, a distance of 235 km by air (Roys, 1943, p. 52). Vessels of Yucatecan slate ware at San José (Thompson, 1939, p. 150) probably came by sea to Chetumal and thence up the New river at the very close of the Classic period and in the early post-Classic period. Vessels of the same ware, sherds of which occur at Uaxactún in both early and late Classic deposits (R. E. Smith, 1955, p. 35) may have come the same route or by the Hondo or Belize rivers. The famed marble vessels of the Ulúa, fragments of which occur in late deposits at both the above sites, presumably came by sea and thence by one of the three rivers mentioned.

Many of the accounts of trade with Honduras almost certainly refer also to the small coastal strip of northern Guatemala, through which must have passed a great part of the trade between the highlands and lowlands, for the west coast route involved much more travel by land. Nito, at the mouth of the Río Dulce and close to the present-day port of Livingston, was a most important entrepot, visited by Cortés. Here a special

quarter of the town was reserved for the Chontal merchants of Acalan, under the command of a brother of the ruler (Cortés, 1908, 2: 264). Through it passed the commerce which funneled through Lake Yzabal, and the great volume from the highlands, which followed the Motagua Valley route. Nito was certainly in Chol territory, as probably was Naco, the great commercial center for the Ulúa Valley. This is not on the Ulúa river, but near its great tributary, the Chamelecon river. Chol Maya are reported as far east as the country below Puerto Cortés —“a las faldas de la serranía de Esquipulas entre Puerto de Caballos y el de Santo Tomás”— (Ximénez, 1929-31, bk. 4, ch. 5.) This would carry them to the bank of the Chamelecon river.

Trade by sea along the west coast must have been equally brisk, for the imports from most of Mexico also passed through the Chontalpa territory which stretched across the deltas of the Grijalva and Usumacinta rivers to the north shore of the Bahía de Términos. Scholes and Roys (1948) have covered this commerce in detail, and it only remains to summarize their findings with a few additions.

Landa (1941, p. 5) refers obliquely to that water traffic in noting the signs placed on trees to mark the route through the maze of waterways which crisscross the deltas between “Tabasco and Yucatán”. As these would not have been needed by local watermen, they must have been for the benefit of trading canoes, for there were few other travelers and no Thomas Cook in pre-Columbian America. Pilgrims are mentioned, but Scholes and Roys (1948, pp. 33-34) make the very reasonable inference that pilgrims from distant points were in fact merchants who stopped to pay their respects at a shrine.

One of the greatest trade centers in ancient America was Xicalango, to which Aztec-Culhua merchants came. It was probably Chontal-Maya but with a quarter occupied by Mexican soldier-merchants (Ruz, 1944, p. 11; Scholes and Roys, 1948, pp. 35-36). I would suppose that Xicalango was a great entrepot, and all traffic north and east of it was in Chontal hands. Xicalango stood at the north end of the south arm of the Bahía de Términos. Ruz in minor excavations found evidence of a Formative occupation, much material of the period of Toltec domination of Chichén-Itzá, and on the surface, incensarios decorated with spikes and thumb marks (Ruz, 1945, p. 68).

The last perhaps equatable with early Mayapán. Ruz suggests that erosion may have carried Xicalango beneath the sea.

Cimatán on the Grijalva, was a náhuatl town on the land route of merchants from the Valley of Mexico and probably was a depot for merchandise brought down the Grijalva from Chiapas (Scholes and Roys, 1948, p. 32). Potonchán, at the mouth of the same river presumably controlled the water route down that river and thence by the coastal route to the Peninsula of Yucatán. Gage (1958, p. 148) mentions the commerce of the Zoque territory with Yucatán down the Grijalva to Puerto Real which stood at the south end of the north arm of Bahía de Términos and is listed as a port of call of canoes proceeding from Jonuta, on the Usumacinta, to Yucatán (*Relaciones de Yucatán*, 1: 347).

The encomendero of Cozumel (*Relaciones de Yucatán*, 2: 54) states that pilgrims used to come to the great shrine of Cozumel from Tabasco, Xicalango, Champotón and Campeche. Acceptance of the inference of Scholes and Roys that these pilgrims were in fact merchants points to sea trade around the peninsula. The copper tools in the trading canoe encountered by Columbus confirm this, for they were certainly not exports from Yucatán, but must have been brought from Central México.

A tripod metate of volcanic stone in the Museum of the American Indian, Heye Foundation, reportedly found at Quiriguá, has a lizard in relief on the underside, the head forming one leg. The same type of metate, also of volcanic stone, but with the head of a feline (?) forming one leg, was found in the Jalapa region (Strebel, 1885-89, pt. 2, pl. 14). These pieces suggest sea trade round the peninsula of Yucatán, with exportation presumably from Vera Cruz. A flat variant type with monkey in relief on the underside, also attributed to Quiriguá, is in Peabody Museum, Harvard.

We may also infer considerable trade around the peninsula from the fact that informants from Chontalpa told Cortés of the total disruption of the trade of Nito (Cortés wrongly writes Asuncion Bay) due to Spanish deprivations there (Cortés, 1908, 2: 160). For heavy goods a sea route was so much easier than by river, with the long portage from the Pasión to the Sarstoon, that one can assume that the merchants of Chontalpa did not make Cozumel their final port, but continued to Nito.

Lighter material may have gone by river, and doubtless much trade derived from buying and selling along the river route.

It has been assumed that Cortés followed the overland trade route of the Acalan merchants from Acalan to Nito, but I think the existence of such a through route is questionable. By the end of October Cortés' intentions to make for that region were known to the Chontal merchants, yet the people along his route were apparently quite unaware of his march until he was upon them. It was the height of the dry season when travel was easiest and although trade was disorganized because of Spanish occupation of Nito, it is most unlikely that news of his advance should not have reached the Itzá at Tayasal—they knew nothing about it six months later when Cortés arrived—had Itzá territory been on the merchants' route. Trouble at Nito would not affect trade with the Itzá. Cortés did meet Acalan merchants, but they were returning from a journey to the neighboring Cehachs. Furthermore, Canek, the Itzá ruler, advised Cortés to proceed from there to Nito by sea (i.e. down the Belize river and then southward along the coast). This would indicate his route of commerce and argues even more strongly against a land route from Itzamkanac, the Acalan capital. There is one last point. Between Tayasal and Nito Cortés came upon an Acalan trader, one of a group which had taken refuge there (Azuzulin) when Nito fell into Spanish hands. The trader lamented that the trade was completely disrupted. One might suppose that under those conditions he and his friends would have gone back to Acalan were there a regular trade route thither. Can it be that the Acalan ruler sent Cortés via Itzá country solely because it was the most direct route, but one which his countrymen did not use because it passed through the land of his enemies? At least the Cehachs were enemies of the warlike Itzá (Scholes and Roys, 1948, p. 462) and friends of the Acalan Chontals, so an Acalan-Itzá enmity is plausible. If the Itzá were enemies of the Acalan ruler, he was probably quite happy to send that swarm of Spanish locusts to their capital.

The need to present the view that travel by a circuitous water route was probably chosen before a shorter land route by coastal peoples is the justification for this somewhat lengthy digression.

The transport of salt must have contributed greatly to the traffic. The *Relación de Uexutla* (Papeles Nueva España, ser.

2, 6: 190) states that salt was then (1580) brought from Campeche by sea to the port of Amoyoc, 15 leagues distant. Huejutla is in the north east corner of Hidalgo. This could have been a post-conquest development, but I feel it more likely, in view of the unimportance of Amoyoc, that it was a colonial continuation of an early trade route. Traffic in feathers and gold ceased, but salt was an essential. The salt of Campeche came from farther up the coast in the Province of Ah Canul (Roys, 1957, p. 15).

The Chontals of Acalan exchanged salt for the products of the Cehachs in the interior of the peninsula. Scholes and Roys (1948, p. 59) note that this probably came from the same Ah Canul salt beds, and was brought down the coast and then up the Candelaria river. Cortés (1908, 2: 263) is the earliest source for the information that the Acalan carried on a considerable trade by water also with Xicalango and Tabasco.

Products which Sahagún (1950-61, bk. 9, ch. 4) lists as being taken by Aztec-Culhua merchants to Cimatán and Xicalango, such as objects of gold, obsidian ear plugs and points and obsidian knives with leather handles, rabbit fur, and medicinal herbs were undoubtedly carried thence by sea to all parts of the lowlands by the Chontal. The land-locked Aztec-Culhua had little experience of the sea and it is significant that Sahagún's informants, who went to great lengths to glorify the merchant class, give Xicalango as the terminal of their route.

A sea route for commerce from Tehuantepec and points beyond to the province of Soconusco, and thence one may suppose to Guatemala, existed, the canoes traversing the coastal lagoons sheltered from the sea by long spits of land (Ponce de León, 1882, p. 425). By this route probably were carried the huipils of Teotitlán del Camino to Soconusco and Suchitepequez for cacao (Papeles Nueva España, ser. 2, vol. 4, p. 215), and this was presumably the route followed by merchants who were still going from Cholula to Soconusco and Guatemala at the time (1580) Durán (1880, ch. 84) wrote.

Land Routes. I have pointed out that the Acalan traders who dominated the commerce of the peninsula almost surely went by land only when they could not go by water. Indeed, it is reasonably certain that Acalan is a corruption of a nahuatl word *acatlilan*, "place of the canoes". The *t* in fact drops out in some

nahuatl dialects and we find the *lan* termination in some place names, e. g. Yoalan and Cempoalan.

References to terrestrial trade routes between highlands and lowlands at the time of the Spanish conquests are scant or non-existent, probably because the Spaniards were not interested in those based on products which they did not value highly. Material on such trade in colonial or modern times is very unsatisfactory, probably because of the general collapse of the native organization. What there is points to trade by individuals or small groups of merchants.

It is probable that the Manche-Chol of southeastern Petén and adjacent British Honduras made trading visits in the seventeenth and eighteenth centuries to Cajabón in the Alta Verapaz, for they seem to have had the custom of arriving there for the feast of the Nativity of the Blessed Virgin, who was the patron of the town. At least we have accounts of such visits in the years 1596 and 1697 (Remesal, 1932, bk. 11, ch. 18; Villagutierre Sotomayor, 1933, bk. 9, ch. 2). As is well known, such festivals are everywhere occasions also for commerce. Similarly, the Indians of Cajabón "*siempre solían entrar y comerciar con ellos*" (the Chols) (Ximénez, 1929, bk. 5, ch. 38). Gates (1935) has noted that one Manche Chol word for huipil in the Morán arte y diccionario is *pot*, the Kekchi term, which would indicate the nature of the trade. We are also told that salt was much desired by the Manche-Chol perhaps because of disruption of the Cozumel trade. Cacao seems to have been the principal item the Manche Chol offered in return, for on one occasion they left bundles of cacao in trees near Cajabón, to indicate they wished to make contact, and, one can infer, barter cacao for the products of Cajabón (Remesal, 1932, bk. 11, ch. 18).

Alta Verapaz trade with the former Manche-Chol territory continues to this day, or, at least until recently, and the same commodities are exchanged, Kekchi traders bringing huipils and mats to sell in Aguacate, San Pedro Colombia and other Kekchi-speaking villages in southern British Honduras, taking home cacao: whether they also trade with the Mopán villages I do not know.

The Kekchi now get their salt from the beds on the middle Chixoy near Salinas de los nueve cerros (Termer, 1957, p. 78),

but this was outside Kekch'i territory at the time of the conquest. Perhaps one may suppose that originally their salt came thence by trade, but when the land was abandoned they went there to help themselves. The Lacandón did the same thing for about 1630 they sent 140 men to extract salt from an unnamed locality which from the account seems to be these same salt beds in the Chixoy valley (Tovilla, 1960 bk. 2, chs. 8, 9).

The Ixil, who are great traders, at the turn of the century had routes extending from Cobán in the east to Chiapas in the west and to the lowlands of Tabasco. In the last place they sold garlic as well as onions perhaps from Sololá or Panajachel, and granadillos. They brought back cacao (Sapper, 1897, 305).

Tobacco from the Copán valley travels to the Motagua Valley and thence is carried to many parts of the highlands. Zacapa is an outlet for Chorti traders who carry there the products of Jocotán and Olopa. They share this commerce with Pokomán traders (Widsom, 1940, pp. 201-202).

There is, as is well known, an enormous amount of trading by land routes throughout the highlands, but this does not now concern us except to emphasize the highlander as one who travels on foot (some use now of horses and mules), and therefore unlikely to have been engaged in trade by water with the lowlands.

MERCHANTS AND THEIR DEALINGS

Accounts, unfortunately not detailed, have survived of the merchant class among the Chontal and the Yucatec Maya, but there are no such descriptions for the highlands. That may be accidental, but it is more probable that it is because long-distance travel, perhaps at times into hostile territory, calls for larger and more organized bodies than does land travel over shorter routes. As we have seen, water travel was in all probability in the hands of the Chontal and, to a less extent, the Yucatec.

Of the social status of the merchant class among the two groups in the 15th century there can be no doubts. The quarter of Nito occupied by the Acalan traders was governed by the brother of the Acalan ruler, Paxbolón (Cortés, 1908, 2: 264). At the time of the overthrow of Mayapán about A. D. 1450

one son escaped the massacre of the ruling Cocom family because he was away in the Ulúa Valley on a trading trip (Landa, 1941, p. 39). We also learn that the lords of Chichén-Itzá traded with the same area through the port of Ascension Bay, but whether they themselves went or sent their underlings is not clear. At least we have evidence that members of the nobility were not above active participation in commerce. Yucatec merchants, like those of México, had certain gods in special veneration. Among these was Ek Chuah (Landa, 1941, p. 107) a god intimately connected with cacao and, therefore, particularly close to the merchants who used cacao as their chief currency and transported it in huge quantities. In fact, Ek Chuah, the black god and without much doubt Schellhas' God M, was one of several merchant gods, who, like those of the Aztec, had pointed noses—one of the Aztec merchant gods was Nacapitzauac, 'he with the pointed nose', a term used to denote a good business man, rather like our "he has a nose for business"—. The same personage with long horizontal nose is represented in pottery and stone in the highlands of Guatemala and in pictured among traveler gods in Codex Fejervary-Mayer. The subject is discussed at some length by Thompson (1957, pp. 608-10) who concludes that there may have been six of these merchant gods and probably they were associated with the world colors, for incensarios represent portraits painted red, black and blue. Such a close resemblance between representations of these gods in Yucatán and those of Central México is indicative of close trade relationships. There is no direct evidence concerning the Chontal merchants' gods, but one Chontal god was named Ykchaua who is probably the same as the Yucatec Ek Chuah, and Chua (*Ek* means black) was an unspecified Lacandón deity.

A mirror back, found in Yucatán (R. H. Thompson, 1962), shows two merchants or porters with packs on their backs. In one case a bird is above the man's back, a feature of representations of merchants in codices from eastern México. The appearance of this bird is confirmatory evidence of the close association in ritual and religion between the two areas.

It is quite probable that the famous Ratinlixul vase (Gordon and Mason, 1925-43, pt. 3, pls. 1, 2) depicts merchants on a journey. The chief personage, in a litter, holds a fan, symbol of the merchant class, and behind him is a porter with a heavy

load. There follow three individuals with elaborate headdresses holding what may be the ceremonial staves, also badges of merchants and of great ritualistic importance among Aztec merchants. The staves are partly covered with plaited straw or leather and at the top are painted with circles (made with rubber?). The tops have u-shaped nicks. They do not closely resemble the merchant staves Sahagún illustrates or those depicted in *Codices Borgia*, *Fejervary-Mayer* or *Madrid*, but there seems to be no standard form and we are dealing with great geographical and temporal spans. Dr. Satterthwaite has suggested to me that they represent paddles, but the elaborate headdresses of their bearers hardly indicate paddlers, nor would one expect plaited coverings or painted designs on paddles. Moreover, paddles, are not normally carried on land; they are usually kept hidden near the canoes. On the other hand, as Dr. Satterthwaite remarks, paddles on the *Usumacinta* have nicked ends to prevent slipping on rocks when used as poles. He also makes the point that paddlers are either three or five in number, the odd man being in the stern. Whether these objects are paddles or staves, the scene in all probability represents a trading trip.

There is one other feature which supports this identification. This is the only life scene on pottery of which I know in which a dog is shown. Moreover, the dog is extremely prominent. Landa remarks that in the month *Muan* the owners of cacao plantations made a feast to *Ek Chuah*, *Chac* and *Hobnil*, sacrificing a dog with markings of the color of cacao. *Ek Chuah* was the principal god of Yucatec merchants, who were, of course, vitally associated with cacao. It is, therefore, not unreasonable to assume that such specially marked dogs were intimately connected with merchants and their specialized rituals. The dog in the *Ratinlixul* scene has a very prominent black patch on his back, so he may well be the dog associated with the cacao ritual and thereby with merchants.

The matter is of some importance, for if this scene does, indeed, represent merchants on a trading expedition, it supplies evidence that the paraphernalia of the merchant class—the fan and perhaps the staves—were fully developed in the Classic period and that merchants were persons of importance then as later, as the gorgeous quetzal feather and the litter demonstrate.

Beyond occasional references to the existence of markets in both highlands and lowlands, early sources have very little information on their nature. We can suppose that every fair-sized town had one and, in earlier times, they were probably a feature of every important ceremonial center. Presumably they did not differ, except in importance, essentially from the great markets of Central México, notably that of Tlatelolco, about which there is ample information. The present-day markets of the Guatemala highlands probably mirror the general picture and bustle of old times, but the pagan ceremonial which accompanied the holding of markets has gone. On the other hand, the holding of a great market to coincide with a religious festival or the situation of markets at important religious shrines, such as Esquipulas, probably reflect pre-Columbian practice, as well as European custom. Perhaps the Nebaj vase (Joyce, 1920, pl. 24) illustrates a merchant showing his goods to a chief. For further information on markets and their relation to distant commerce, see Cardós de Méndez (1959) and Chapman (1959); for modern markets in Guatemala see Mc Bryde (1947).

The principal currency throughout the area was the cacao bean. Thompson (1956) has dealt at length with cacao as a currency and its fluctuations in terms of the peso in colonial times. Cacao survived as a currency in remoter parts until the mid-nineteenth century. Other forms of currency—copper celts, red shells (probably from *Spondylus*), shell beads, stone axes, feathers, and possibly stone beads—are listed by early writers, but they were probably used more as barter, having values in direct terms of cacao, just as miners used gold dust as currency in the western United States because it had a fixed value in dollars.

TRADE GOODS

Indian markets in present-day Central America are vibrant with life and redolent with strange odors, which no report can convey. In an attempt to bring a slight reminder of that atmosphere I have included two or three items—live iguanas, for instance—which cannot have been of much commercial importance.

At the same time I have not gone deeply into some categories, notably pottery, which are well known or highly complex. They require either a few lines or ten thousand words.

HIGHLAND EXPORTS

Jade. This, the most valued of all Maya products, is very scarce or does not occur in the Yucatán peninsula. Foshag (1955, p. 11), in listing seven varieties of jade found in archaeological collections from Middle America, notes the intimate association of jade *in situ* with serpentine deposits and points out that normally they have an enveloping skin of albite in process of conversion into jade. He observes that where there are deposits of serpentine, there is a good possibility of finding jade and lists the following known deposits: the Sierra de las Minas north of the Middle Motagua, with an outlying spur south of San Agustín Acasaguastlán, the Sierra de Santa Cruz northwest of Lake Yzabal, the Sierra de Chuacus in northern El Quiché north of the Rio Negro and extending into adjacent Baja Vera Paz, and a small area north of Huehuetenango. More recently, jade has actually been found *in situ* near Manzanal in the Sierra de las Minas (Foshag and Leslie, 1955). Small deposits of serpentine are situated according to Sapper near Chimalapa, in southern Chiapas, close to the Guatemala border.

Of these areas —and it must be remembered that except for Manzanal jade has not been found anywhere: the rest are only potential sources— only the Sierra de Santa Cruz and perhaps the northeastern end of the Sierra de las Minas are in lowland territory. Whether there is jade in these two areas and whether the Manche Chol who inhabited the area (they were called Toqueguas there but were of Chol speech) worked it if it exists there are uncertainties. Pusilhá and Lubaantún which were in Chol territory at the time of the Spanish conquest have not shown much evidence of jade wealth, and the same is true of Quiriguá which lies in territory probably occupied by the Chol in the sixteenth century. On the other hand the insignificant sites of Pomona, Kendall, Camp 6, and the not very important Mountain Cow to the east and west of the Maya Mountains in British Honduras, have yielded some very fine worked

jades in the course of quite minor excavations. One is led to speculate whether there could be jade in that range.

Herbert T. Grant, of Belize, and R. S. Sears, of the Phillips Petroleum Company, have called my attention to a rare pamphlet by the geologist C. H. Wilson (1886) giving the results of a survey of the Monkey River, which originates in the Maya mountains and flows through the south of the Stann Creek District. His published notes contain the following significant entries:

Monkey River, Trio Branch. Mile $43\frac{1}{4}$ (from mouth) 'North Bend' crossing the river heads north. Block of hard, green rock, apparently from the serpentine bed above, with specks of grey sulphide, millerite?

West Fork. Mile $47\frac{3}{4}$. Black slates disappear, replaced by massive green rock, serpentine?

Mile $48\frac{1}{2}$ Green banded rock resembling serpentine, occupying channel for $\frac{1}{4}$ mile to mouth of a branch heading south. Falls a little way up branch, over ledge of massive felsite: boulders of a flinty green rock resembling nephrite.

Unfortunately, Wilson died shortly after this trip, and I have been unable to locate his collection which was sent to England for exhibition at the Colonial and Indian Exhibition. Here however, we have good grounds for supposing that serpentine occurs in the Maya Mountains, and a reasonable possibility that there are also jade deposits there.

A fragmentary small flat metate of serpentine was found at San José. (Thompson, 1939, p. 173). This is a rare but widely distributed type which Kidder believed to have had some special use. So far as I know, this is the only example of serpentine, and it is without supports. It is slight confirmation of probable serpentine deposits in the Maya Mountains, for granite metates, presumably from the Maya Mountain region, are common at San José.

The Maya Mountains appear to be a continuation of the Sierra de Minas range, where jade deposits exist, so deposits there would not be startling. The matter is, of course, far from settled, but does suggest a possible lowland source for jade.

All in all it is probable that the lowlands, except perhaps those of Copán, received all or most of their jade in trade with

the highlands, for whom it must have been an extremely lucrative trade.

There is evidence, particularly in the hieroglyphic texts engraved on them that the lowlanders worked jades after receiving them; there are texts which definitely originated in Piedras Negras and Palenque.

There seems to have been a certain re-export of jade from the lowlands after it had been carved. The famous Nebaj jade (Smith and Kidder, 1951, fig. 59b) is a case in point. The Gann jade, now in the British Museum, is said to have been found at Teotihuacán, but there is some doubt as to that. I was informed a number of years ago that the piece was given no locality when it was first offered for sale. A fine jade with part of a lowland Maya ceremonial bar, now in the Museo Nacional, has Tarango D. F. as its provenience.

Albite, which occurs around jade and has, in non-technical terms, not gone the whole way to become jade, is found sparingly at a few lowland sites and in all probability came from the same sources as the jades.

Worked Lava. Metates and manos of lava and other stone of volcanic origin are found throughout the Petén peninsula and can safely be regarded as having originated in the volcanic areas of the highlands (here considering Copán as geologically a highland site for the local andesite was the source of its stone). Certain unusual tripod metates with animal head in relief at one end and made of volcanic stone occur sporadically in the lowlands (e. g. Jacinto Creek and Santa Ana, British Honduras, and a fine example in a Tulum fresco). Eventually, their distribution should reveal interesting trade patterns. They are finer than those found at Zaculeu and other highland sites. As noted above, metates from near Quiriguá appear to have come from Veracruz.

Of interest are the small flat metates found both in the highlands and lowlands, which Kidder (in Wauchope, 1948, p. 160) discusses, making the cogent suggestion that they had some special function. Can it have been to grind chile pepper? They are often of sandstone or schist, but one from Chichén-Itzá (Stromsvik, 1931, fig. 11) and another from Mayapán (Smith and Ruppert, 1956, fig. 9r) are of volcanic stone and presumably derive from the highlands. As already noted, metates and

manos being very heavy but not particularly valuable, almost certainly were sent by canoe wherever possible.

Volcanic ash (tuff) is very widely used as temper in pottery making throughout the lowlands because it can stand higher firing temperatures than calcite. The possibility of wind blown and water borne deposits in the Petén and Yucatán must be considered.¹

We are probably safe in supposing that much volcanic ash was imported, but some may have come from local deposits. That volcanic ash was prized is, I think, established by the fact that at San José and Benque Viejo almost all unslipped culinary ware lacked tuff temper, and the same is probably true of the neighboring sites in the Petén and British Honduras.

Specular Hematite was used rather sparingly in the lowlands, but frequently in parts of the highlands, as the basis of an easily recognizable red paint. It commonly forms, Miss Shepard tells me, as a sublimate around volcanoes. It is particularly common in the "Copador" pottery of western Honduras and contiguous parts of Guatemala and El Salvador, notably at Copán. It is also common at La Victoria, El Baúl and other Pacific coast sites and in the Middle Motagua but occurs sparingly at Kaminaljuyú. In the lowlands it has been reported from Uaxactún, Tikal, San José and Benque Viejo. In Yucatán the only probable examples reported by Brainerd (1958) are on Fine Orange ware, not a local ware, but almost surely originating near the bottom of the Bay of Campeche. For that reason the specular hematite paint might have been traded from farther west, not from the highlands. This paint was not found in Quintana Roo by Sanders (1960). Dr. Rands informs me it occurs but very rarely at Palenque and Piedras Negras.

Miss Shepard has pointed out that two examples found at San José were calcite tempered, good evidence that the paint

¹ Miss Anna Shepard informs me that she discussed this with oil geologist who had worked in the Petén. Some thought deposits possible, others were doubtful. In his survey notes, Wilson (1886) notes along the Rio Trio "ledges of blue diorite or whinstone with intermixed ashy layers "and" channel occupied, wherever seen by ashy volcanics and porphyry." No geologist has visited the area to amplify these brief notes. Vulcanologists told her that ash could be carried that far, but the prevailing winds are in the wrong direction. Some ash temper, Miss Shepard adds, is too coarse to have been carried by the wind, but she found some ash temper impregnated with calcite which, she suggests, could best be explained as coming from deposits in the local limestone.

ingredient, not the complete pots, was imported, as I had then supposed (Shepard in Kidder, Shook and Jennings, 1946, p. 271).

Crystalline hematite occurs at several Petén sites, notably Uaxactún, Tikal, Piedras Negras, and San José. Miss Shepard tells me that first one would have to be quite sure of the identification. She rules out lowland limestone as a source, but feels uncertain whether the Maya Mountains might not have been a source.

Cinnabar, found in volcanic areas, occurs in many lowland sites. The Maya were fond of covering their jades with it.

Obsidian is universal in the lowlands. Cores are frequent, indicating that many of the finished products came from lowland workshops. There are extensive beds around Zacapa whence the material could have been taken by water to much of the peninsula of Yucatán. There are doubtless sources on which the west coast trade depended. From deposits north of Cobán some supplies may have gone overland to sites of the upper Usumacinta drainage. It is generally believed that green obsidian came from Central Mexico. Strangely, in view of the links of the Usumacinta delta with Yucatán at the time of the conquest, it is extremely scarce at Mayapán.

Small Polished celts of diorite and other igneous rocks superficially resembling diorite, but for the most part unidentified, appear rather sparsely in most lowland sites. The materials of which they are made and the fact that they are nowhere common suggest that they are imports, some of which presumably originated in the Guatemalan highlands. Occasionally these celts are of greenstone, perhaps in some cases, jade. Occasionally long celts, obviously imports, occur, e.g. at Mountain Cow (Thompson, 1931: Pl. 33).

Pottery. Full information on the movement of pottery depends on more extensive studies of the constituent clays and their tempers. For instance, nothing definite is known as to where the cylindrical vessels of early Classic period found at Kaminaljuyú and in the Petén were made or decorated. By and large the highlands did not produce much pottery sufficiently attractive to overcome the disadvantage of high cost of trans-

portation to the lowlands. A ware with the novelty of an unusual surface finish which had a wide appeal was the well-known plumbate which was traded far and wide. It almost certainly originated on the Pacific slope near the Guatemala-México border. Some early (San Juan) plumbate was exported toward the close of the Classic period (a piece is reported at Palenque by Ruz), but the great expansion in pieces exported and distances covered was in the post-Classic period; this great commerce ceased about A. D. 1200. The route plumbate followed to the Peninsula of Yucatán is not easy to guess, but across the plateau of Chiapas and then down the Grijalva river is a possibility, and that route would have also served Veracruz, with the coastal route to Tehuantepec as an alternative.

Thin orange ware, so widely distributed in early Classic times from its supposed center of manufacture in what is today the State of Puebla, appears both at Kaminaljuyú and in the Petén. Its distant range was doubtlessly due to its light weight which made it an attractive novelty to customers and, at the same time, by reducing transportation costs, kept the price competitive.

One or two pieces of early lowland pottery resemble Usulután ware of El Salvador (e.g. Anderson and Cook, 1944, fig. 21). Whether these are imports or, as is more probable, local copies, is uncertain. Even copies suggest the presence of originals to copy. Since the above was written vessels of Usulután ware have been found in a late Formative (Chicanel) tomb at Tikal. Such exports might have been taken down the Ulúa river or the Motagua.

The record for long-distance trade in pottery is probably held by the pottery pipe found beneath a floor in the Temple of the Warriors complex at Chichén-Itzá (Morris, Charlott and Morris, 1931, Pl. 21) which probably originated in northern Michoacán, some 1,500 km. by direct overland route, much farther by road and coastal canoe (Porter, 1948, Table 1. Miss Porter supposes this came from Tula, but the Michoacán type is closer).

Shells. A number of shells from the Pacific have been reported from lowland sites. They are:

Arca pacifica (Uaxactún)

Cerithium adustum Kiener (Tikal)

- Chama echinata* Broderio (Tikal. Numerous)
Crucibulum spinosa (Piedras Negras)
Lambidium tuberculosa morum (San José)
Morum tuberculatum (Piedras Negras)
Oliva porphyria (Copán, Quiriguá, Tikal. Represented on stelae)
Oliva spicata (Copán)
Pecten subnodosus (Uaxactún and Tikal)
Spondylus crassisquama (various lowland sites).

Worked Shell. Ekholm (1961) has established that the so-called horse-collar shell pendants which have been reported from various sites in Middle America are, in fact, cut from *Patella mexicana*, a native of the Pacific. The irregular shape of the sections makes the identification of examples reasonably certain. They occur at Uaxactún, San José (shaped as a snake) and probably Holmul (Merwin and Vaillant, fig. 28b).

Shell-fish dye. One can reasonably suppose that the purple dye obtained from *Purpura patula* on the Pacific coast (Nuttall, 1909) was traded to the lowlands in pre-Columbian times.

Quetzal Feathers. The chief habitats of the quetzal are the cloudy damp ranges of Alta Verapaz, Spanish Honduras and Chiapas preferably 5,000 to 10,000 feet high. According to a sixteenth century source quoted by McBryde (1947, p. 72) 10,000 feathers were obtained annually in the Alta Verapaz alone. This figure seems excessive since each bird yielded only 3 or 4 long (tail) feathers. Tovilla (1960, bk. 1, ch. 23) tells us that trapping rights at the special places where the quetzal were caught when they came to drink were inherited. In view of the great value of the commodity, control of the trapping areas must have been a source of huge wealth.

Agricultural Products. Trade in foodstuffs must have been largely from lowlands to highlands, but no doubt at times, when crops failed in the lowlands, maize and other produce were attracted by famine prices. It is possible that maguey products were shipped from the highlands. *Ocote* (pitch pine) sticks, much used for outdoor illumination, are more plentiful in the highlands than in parts of the lowlands, notably much of the Usumacinta drainage, to which they may have been shipped, but the central Petén probably drew on supplies from the Pine

ridge land of British Honduras and the savanna lands south of Lake Petén.

LOWLAND EXPORTS

Worked Flint. Points and knives delicately worked with secondary pressure flaking are quite rare in the Maya highlands and on the Pacific slope. The two principal reports on the work at Kaminaljuyú (Kidder, Jennings and Shook, 1946 and Shook and Kidder, 1953) list between them exactly one piece of worked flint, an eccentric flint which, most surprisingly, was in a Formative deposit; Nebaj yielded one flint implement, an extremely fine point; Zacualpa produced two pieces of worked flint, one of which was a small white arrowhead (?), an almost exact duplicate of a type found at Chichén-Itzá. Zaculeu, on the other hand, produced 18 points of flint, but there is no standard type—all the main shapes—leaf-shaped, triangular, tapering stemmed and expanding stemmed are represented. Most of them come from burials or caches, suggesting that they were valued.

Blom found flint deposits which had been worked near Moxviquil, above San Cristóbal Las Casas, Chiapas. I examined points from there in his museum. They were of crude workmanship and seemed to resemble those from Zaculeu, but I did not have Zaculeu illustrations at hand. The two sites are not too far apart and stand on an ancient route, so the flints excavated at Zaculeu may well have come from Moxvivil beds.

At Tajumulco excavations produced no flint implements, but there were six complete or fragmentary projectile points of chalcedony including one small point with expanding stem. El Baúl yielded a rich votive cache comprising 36 leaf-shaped points or knives of flint, two fine eccentric flints and two obsidian points or knives with straight sides. Apart from that haul, only one flint point was found. La Victoria, on the Pacific coast, yielded no flint and precious little pressure-flaked obsidian.

The two eccentric flints, of the trident type, are almost unquestionably imports from the lowlands. Precisely similar pieces have not been reported from lowland sites to the best of my knowledge, but they are represented in sculpture and paint-

ings of the late Classic period (Thompson, 1948, p. 40). A poorer version comes from Piedras Negras (W. Coe, 1959, fig. 6*n*), and one with the same grip but with only one prong is in the Museum in Campeche labeled as from Jaina, but perhaps from the Usumacinta Valley since it was previously in a private museum at Carmen.

Eccentric flints in the Guatemalan highland are scarce. Apart from those two at El Baúl and the one at Kaminaljuyú, I know of only two others. One, said to be from Chimaltenango, is in the Museum of the American Indian Heye Foundation; the other, over 30 cm. long, was found at Salcajá and is in the Robles collection, Quezaltenango. There is a large (about 40 cm. long) obsidian eccentric, shaped like a Stiltson wrench, in the National Museum, Mexico, and labeled as from Guerrero. A three-pronged eccentric flint, but without provenience, is in the Museum at Tuxtla Gutiérrez; it probably came from the Usumacinta drainage. A large eccentric flint of horse-shoe shape found at Naco (Lunardi, 1946) is of interest as probable evidence that the trade was by sea and that Naco was an important port even in the Classic period.

In view of the distribution of flint implements and the great concentration of eccentric flints in the Petén and adjacent British Honduras, it is fair to assume that the eccentrics were imports from the lowlands. I think it is also a reasonable assumption that some at least of the better flint points or knives were exported from lowlands to highlands. Almost all those in the El Baúl cache are almost indistinguishable from examples from lowlands caches in shape, ripple pressure flaking and preference for those of sepia color.

The only chipped implement found at Nebaj is of honey-colored stone, about 20 cm. long, and described as "one of the finest pieces of pressure flaking ever found in Mesoamerica" (Smith and Kidder, 1951, p. 51). One can reasonably suppose it to have been imported. The shape is a little unusual, but I think can be explained as perhaps the work of an individual or a center of flint knapping not yet identified, but in the lowland maya tradition.

The only flint excavated at Guaytán, a part of San Agustín Acasaguastlán was a beautiful knife or point in a pottery cache box. Kidder and Smith (1943, p. 164) note "Seven knives of the same stone, of identical workmanship, and of similar shape

were found at Quiriguá cached under Zoomorph B (Stromsvik, 1941, fig. 30); five in a cache at San José (Thompson, 1939, pl. 26)." Here again we are almost certainly dealing with exports from the lowlands. The leaf-shaped stemless blades from Zaculeu, particularly the longest (Woodbury and Trik, 1953, fig. 121c) look lowland work as does the damaged point of brown chert in their Fig. 125. The stemmed point from Zacualpa (Wauchope, 1948, pl. 24k) is both aberrant in shape and of too good workmanship to be of local manufacture.

The material is described in the caption as chert but in the text as an almost opaque gray stone with a glassy luster, perhaps not obsidian. A lowland home seems a reasonable guess.

It is worth bearing in mind that obsidian and glass are generally considered easier to work than flint and related stones. The highland Maya seem to have normally shown little skill in working obsidian, so it is unlikely that they would be capable of far more proficient work in less tractable substances.

Worked Obsidian. In view of what has just been said of the rather poor workmanship in obsidian in most parts of the highlands, one wonders whether the finest pieces may not have been fashioned elsewhere. There is evidence for this: the eight finest pieces of worked obsidian at Kaminaljuyú are of the green variety believed not to be native to Guatemala. As it is unlikely that those of that variety would be far better worked than the regular gray-black obsidian, if they all came out of a local workshop, one may reasonably conclude that those of green obsidian were imported fully worked (the excellent workmanship of the green obsidian knife points at Uaxactún and of fragments at Zaculeu reinforce this conclusion).

It is unlikely that green obsidian was worked in the Maya lowlands and then exported to the highlands, but it does seem possible that Maya lowlanders, who certainly worked obsidian received as cores from the highlands, re-exported some of their best products. The leaf-shaped obsidian point from Zacualpa noted by Kidder as aberrant (Wauchope, 1948, pl. 23g) may have been worked in the lowlands. The two obsidian points in the El Baúl cache are of superior workmanship and were with presumed imports from the lowlands. Here, too, one suspects lowland workmanship. A few years will show this speculation to be fact or fancy.

Salt is heavy. At the present time salt from the Pacific coast or from the salt flats at Sacapulas are the principal sources for the highland Maya of Guatemala. We have seen that salt collected off the northeast corner of Yucatán was shipped from Cozumel to Chol territory in southeastern Petén and adjacent British Honduras. It is reasonable to suppose that salt may also have been carried from Cozumel to Nito and thence up the Motagua or across Lake Yzabal to nearby highland communities. Apparently the Indians prefer ocean salt to the purer salt of Sacapulas (McBryde, 1947, p. 58) and it is possible that the lowland traders could sell their salt more cheaply in the Middle or Upper Motagua Valley than could those who brought supplies overland from the Pacific coast, for some trading canoes were of very considerable size. Moreover, it is probable that Pacific coast supplies were at times cut off, for much of the coastal strip was in non-Maya hands. An overland trade in salt from Bolon Uitz on the Middle Chixoy to the Verapaz almost certainly existed. The Middle Chixoy is now in Kekchi hands, but that northward eruption of the Kekchi is a post-hispanic development. In pre-hispanic times lowland Maya surely controlled the salt beds on the Middle Chixoy.

Lime from the Golfo Dulce area or southern British Honduras probably was shipped to contiguous highland areas.

Pottery. Fine polychrome pottery which turns up sporadically in the highlands and is not referable to the polychrome wares of the Verapaz and the Middle Motagua may be presumed to represent imports from the lowlands. The superb polychrome vase at Zaculeu (Woodbury and Trik, fig. 265s) is an example and the glyphic sherd marked *o* in the same figure is another piece almost surely of lowland origin.

A tetrapod bowl of the so-called proto-Maya horizon with a fish painted on its floor from a tomb at Tzicuay, El Quiché (Smith and Kidder, 1951, fig. 75 *k*, 1) is practically a duplicate of a vessel from a chultun burial at Mountain Cow (Thompson, 1931, pl. 42). Shape and colors are precisely the same, but the fish painted on the floor is treated a little differently. There can be little doubt that the vessel was taken to Tzicuay from the lowlands. One may suppose that a number of basal-flanged bowls of Tzakol period passed from the Petén to the highlands.

Fine Orange vessels with carved or molded scenes and often with a band of glyphs at the top occur sporadically through the highlands. Their center of manufacture is still unknown, but doubtlessly lay in the western Maya lowlands and so presumably reached the highlands via Chiapas. Copán Carved Brown ware, with its beautiful glyphic texts, also found its way to the highlands doubtlessly through the Middle Motagua Valley. Indeed, the ware is known at San Agustín Acasaguastlán.

Because of the glyphs and the figures they carry, one may reasonably suppose that the pottery stands which turn up in the Alta Verapaz (e. g. Dieseldorff, 1926-33, vol. 1, figs. 18, 19) derive from the Middle Pasi6n, although they have not yet been found in that poorly known area so far as I know. Presumably they or the molds for making them were shipped down the Chixoy river.

These few examples suffice to illustrate what must have been an active trade in time and space of lowland pottery to the highlands.

Shells. Trade in Atlantic shells to the highlands probably did not equal that of Pacific shells to the lowlands, but in the case of one shell, the quantity traded must have been very large. Atlantic shells in highland sites are:

Marginella apicina is extremely abundant. Several score have been reported from Kaminaljuyú, and the excavations at San Agustín Acasaguastlán brought to light "about 1,000". It was probably represented at Nebaj, and is also common at lowland sites (Uaxactún, San José, Copán).

Dolium galea. One at Kaminaljuyú.

Cassis tuberosa. One at Kaminaljuyú.

Turbinella ovoidea. One at Kaminaljuyú.

Fasciolaria papillosa. One at Zaculeu.

Murex pomum. Identification not certain. Kaminaljuyú.

Shark teeth. Borhegyi (1961) has pointed out that 54 perforated shark teeth found at Nebaj are from cub shark, a species found only in the Atlantic.

Slaves. Bishop Landa states that slaves were sent from Yucatán to Ulúa and Tabasco in exchange for cacao. It is uncertain whether some of these slaves reached the highlands, but it is at

least probable. The Chontal of Acalan also had a hand in the slave trade.

Pelts. Jaguars and other animals whose skins were valued were not common, one may suppose, in the highlands, and the demand for their pelts, particularly that of the jaguar as a symbol of rank, must have been met largely by imports from the lowlands. Jaws of jaguars were in the most important tombs at Kaminaljuyú and at Nebaj, and of unidentified members of the cat family at Zaculeu.

Plumage. Although the Yucatán peninsula does not shelter the quetzal, it is the home of many birds, such as toucans, humming birds, herons, parrots, trogons, etc. the plumage of which must have been exported to the highlands. Moreover, there were in Yucatán "two or three kinds of ducks of the country bred for their feathers" (Rel. de Yucatán, 1:86), and from other sources (Torquemada, bk. 3, ch. 41) we know that plumage was exported from Yucatán to the bottom of the Bay of Honduras, most logically with the highlands as ultimate destination, for Honduras was famed for its plumage. Macaws were bred on the Bay Islands and exported to the mainland (Rel. de Yucatán, 1:391).

Iguanas, much prized as food and for their medicinal properties, presumably were shipped alive to the highlands, as at the present time.

Tortoiseshell. Working of tortoiseshell was an important industry in Campeche in colonial times, and continues on a reduced scale to this day. Exports to the highlands in pre-Columbian times are at least a possibility.

Honey and Wax. Yucatán, particularly the Province of Chetumal, produced large quantities of honey. Oviedo y Valdés (1851-55, bk. 32, ch. 6) has left a lengthy description of apiculture in Chetumal.

At that one place there were two to three thousand hives of the log type, still in use among the Maya of Yucatán. Cozumel, too, was a great center of apiculture (Martyr, 1612, Dec. 4, ch. 3). As noted, there are various references to the export of honey and wax from Yucatán. I know of no reference to apiculture in the highlands of Guatemala on a large scale in pre-

Columbian times. The present-day Kekchi sometimes bring hives of wild bees to their homes, but there is hardly an industry. The rarity of bee keeping among the present-day Maya highlanders may be due to the replacement of honey by sugar, but the higher regions are almost too cold for the domesticated stingless bee of ancient America, so I suspect that the lack of notices on pre-Columbian apiculture in the highlands reflects actual conditions. Accordingly it is logical to suppose that a good share of the export from Yucatán found its way to the highlands, and, who knows, perhaps a pre-Columbian predecessor of that delectable (?) drink *Xtabentún* was part of the cargo.

Wax candles almost surely were unknown in pre-Columbian America, but wax was of ceremonial importance and had many uses. If the assumption that hives were scarce in the highlands is correct, wax was probably brought from Yucatán.

Vegetal products undoubtedly passed in large quantities from the lowlands to the highlands. That trade unfortunately is not mirrored in archaeology, nor did it arouse the curiosity of colonial writers; we can infer its nature and range only from present-day conditions, much affected by the introduction of Old World crops and domestic animals. Below is a selection of such products.

Cotton textiles are the exception to what has just been said. The fine brocaded textiles of Yucatán were famed all over Middle America, being one of the most important items of tribute paid in early colonial times. Landa (1940, p. 94) says they were exported to Ulúa and Tabasco; the best description is that given in Las Casas' (1877, bk. 2, ch. 20) account of the cargo of the canoe Columbus encountered in the Bay Islands: "Many cotton mantles, much decorated with diverse colors and designs, and short sleeveless shirts, also colored and with designs, and loin clothes which the men use of the same colors and designs". Incidentally, the statement concerning "cloaks calling them *Zuyen*", which Blom (1932, p. 533) attributes to Las Casas or Oviedo y Valdés, has no value for it was made by López de Cogolludo (bk. 1, ch. 1) who wrote nearly two centuries after this encounter.

Oviedo y Valdés (1851-55, bk. 32, ch. 8) also mentions canoes from Yucatán going laden with cloth and other merchandise to Ulúa, as does Torquemada (1713, bk. 3, ch. 41).

Finally, the *Relación de Tecauto y Tepacán* (Rel. de Yucatán, 1:125) speaks of cotton mantles, wax, honey and salt traded to Mexico, Honduras and other parts.

Rabbit fur was brought to Yucatán from Central Mexico—the Mixteca according to one source—was embroidered or, more probably, brocaded on the textiles, and some of these in turn seem to have been re-exported. Feathers were also woven into cotton goods particularly loin cloths. Much of this trade in cotton goods seems to have been in return for cacao from the coastal strip from the Ulúa to Lake Yzabal, but some surely got to the highlands. The export of wax and mantles from Yucatán to Central Mexico continued into colonial times under Spanish auspices for Zurita (C. 1940, ch. 16), writing about 1570, mentions the trade as still active. Teotitlán del Camino, in northern Oaxaca, traded huipils to Guatemala, notably Suchitequez, for cacao (*Papeles de Nueva España* ser. 2, vol. 4, p. 215) so perhaps the producers of chocolate wealth could command the finest textile products of Middle America.

Tobacco was probably imported from the lowlands as today. Much tobacco is now grown in the vicinity of Copán, but this seems to be a fairly recent development. Tobacco had an important outlet as a medicine. In some areas powdered tobacco was taken with ground lime.

Maize. At the present time the Guatemalan highlands are not self-supporting, and much of their maize is obtained from the Pacific coast. In pre-Columbian times the inhabitants of the Pacific coast cultivated much cacao and other tropical produce, and so perhaps had little surplus maize. Moreover, hostilities may often have cut off supplies. It is, therefore, reasonable to suppose that maize was brought from the Atlantic lowlands, particularly in early summer for lowland maize ripens before that of the highlands.

Cacao. With strategic entrepôts near the mouths of the Motagua and Dulce on the east and others in the Usumacinta and Grijalva deltas, the Chontal were in a position to share the highland market with the producers of the Pacific coastal slope. Cacao is still cultivated in Tabasco, notably between Villahermosa and Teapa, and it is still grown by the Mopán Maya of southern British Honduras. The cacao plantations in Tabasco

were of immense importance in the sixteenth century, and large orchards lay along the Belize River and the parts of northern British Honduras comprised in the state of Chetumal. Such areas must have exported both to Yucatán, too dry, and the highlands, too high, for these money-producing orchards.

Vanilla. Some of this lowland crop may have been sent to the highlands. It is reported as cultivated in the Belize Valley in colonial times, and it also grows wild in the Petén.

Rubber. Probably some export to the highlands.

Mamey, chicozapote, nance plums are still taken from the Pacific slopes to the highlands. It is likely that the Maya lowlands shared in the traffic in pre-Spanish times.

Copal. Groves of copal trees (*Protium copal*) were noted in Yucatán at the time of the Spanish conquest and the tree grows wild in the lowlands. This resin is superior to other varieties of native incense and doubtlessly was shipped to the highlands, presumably in maize husk containers as still used by the Maya.

Palm products. The Zutuhil Maya of Atilán send young men to the Pacific lowlands to fetch spathes of cohune buds—three to four feet long—which are used in the Easter ceremonies. The sheaths open to display and then scatter their thousands of sweet-smelling blossoms (McDougall, 1955, p. 64).

From cohune palm leaves are made *suyacales*, the rain cloaks still widely used in Middle America and surely in use in pre-Columbian days. Cohune leaves are also used by the highlanders to make fire fans, and no doubt highlanders living near stands of cohune might follow the lowland custom of using their leaves for thatching, but obviously sufficient cohune leaves to thatch a hut could not be carried long distances. McBryde (1947, p. 146) writes of the sale of swathes of the Pacaya, a lowland palm, in the highlands which are much enjoyed for their slightly bitter taste. The same is true of the hearts of the cabbage palm (*Sabal mexicana*) which have a slightly bitter taste, and are much relished by the lowland Maya. They are now eaten widely as a Good Friday dish, but there is no reason to suppose that their consumption was not general long before the

Spanish conquest. All of these palm products may well have been shipped up the Motagua and lake Yzabal routes in earlier times.

Chile. Dried chile is still brought in large quantities from the Pacific coast. Imports from the Atlantic lowlands may also be assumed.

Vegetal dyes. One may confidently assume that logwood and Brazil wood dyes were exported from the lowlands to the highlands in pre-Columbian days.

Annatto. Cortés listed this as a product in which Acalán traders dealt. It was used to a large extent for staining the body and for giving flavor and color to food. The tree produces in abundance without any attention. Accordingly annatto should have been able to undersell other red pigments when durability was not a factor.

Bark cloth. References to clothing of bark cloth are, I believe, confined to the lowlands, but it is probable that there was some use of it by commoners, both for clothing and for combined manta-blankets. Bark cloth was also used for making paper, and to judge by present-day practice in Mexico, for sorcery. Far and away the greatest use of paper in ancient Mexico, and probably also throughout the Maya area, was for sacrificial purposes, either by itself or splattered with rubber or copal. Bark cloth was made principally from trees of the *Ficus* genus, notably *Ficus cotinifolia*. One doubts that the productions from local stands in the highlands would have met the demand; large-scale imports from the lowlands seem likely.

Other agricultural produce, such as beans and huisquil, and perhaps some henequen products perhaps found its way to the highlands. I doubt that the pineapple was known in the Maya lowlands in pre-Columbian times. At least, there appears to be no Maya name for the plant.

SOME GENERAL CONSIDERATIONS

With our present knowledge of geological conditions, it is not easy for even an expert to rule out one area or the other. Miss Shepard suggests that in the case of beryl, amazonite,

and mica the Maya Mountains cannot be excluded as a source. For that reason and also because they are not common, they are not brought into the discussion.

Turquoise, I think, was not mined in any part of the Maya area. Quiché and Cakchiquel dictionaries give *xit* as "*unas piedras preciosas como turquesas*". The word appears to be a corruption of the nahuatl *xiuitl*, turquoise, and leads one to suppose that the highland Maya, on obtaining turquoise from nahuatl-speaking traders, adopted the foreign name for it. Turquoise, never common in the Maya area, appears more frequently in Yucatán than in the Guatemalan highlands, a situation understandable if the turquoise came from Veracruz.

Amber was produced in central Chiapas, and the trade was controlled by the Tzotzil and perhaps the Zoque. Blom (1959) has discussed the matter. There was a brisk export of this amber to Mexico. In Yucatán, Landa tells us, the men used nose rods of amber stone, which must have come from Chiapas.

Among the Lacandón some women wore amber disks the size of a silver *real* linked together or linked to the septum of the nose (Villagutierre Sotomayor, 1933, bk. 5, ch. 6 - the passage can be read in either sense). I know of no finds of amber artifacts in Maya sites, but it has been found at sites in Oaxaca and Veracruz and was used as nose rods by the Cempoallan and Aztec merchants.

Metal is not listed above. It is doubtful that any metal was sent from the highlands to the lowlands, although, as is well known, gold from Panamá reached Chichén-Itzá, an exceedingly long journey, presumably made by sea.

I have not attempted to place items of trade in archaeological periods, for subsequent excavations will greatly amplify our knowledge. There is no doubt that trade was extensive at all periods. Export of obsidian to the lowlands was certainly in full swing in the earliest known period in the Petén.

I have tried to underline my belief that wherever possible those great merchants, the Acalan Chontals, carried their goods in canoes, in contrast to the highlander who perforce had to travel on foot. Conditions may have been different at an earlier period, but even during the Classic period one gets an impression of much commerce radiating from the Usumacinta-Grijalva delta. On the other hand, Palenque seems to have had little commerce with the Petén sites —note, for instance, lack of ec-

centric flints and rarity of fine polychrome pottery—. In contrast, Altar de Sacrificios, which must have been an important point on the Usumacinta-Sarstoon route across the base of the peninsula, has much Fine Orange pottery, presumably brought there from the delta lands.

The picture we piece together of commerce at the moment of Spanish irruption is one of great and widespread activity. Yet, the archeological evidence shows Mayapán apparently more isolated than were earlier Maya sites. The period of Mayapán's ascendancy is known to have been one of cultural decline, and in the few decades between the fall of Mayapán (circa A.D. 1460) and the arrival of the Spaniards, the cultural collapse was accentuated. Yet this complex traffic garlanded the whole Peninsula of Yucatán, in those last years of autochthonous culture. If this was the trough of cultural depression, how must things have been when the Maya were riding the wave of prosperity—or can it be that the Acalan Chontals, those Argonauts of the western Caribbean, were the spearhead of a Maya cultural revival through their search for *Theobroma*—and how truly and poetically it is the food of the gods—that New World equivalent of the golden fleece?

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