

# OLMEC PROTO-MIXE-ZOQUEAN: CAN YOU DIG IT?\*

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## 1. Introduction.

The Mixe-Zoquean (MZ) family constitutes a group of Mesoamerican languages and dialects found in the isthmus of Mexico. Wichmann's (1995) reconstruction of Proto-Mixe-Zoquean (PMZ) uses data from 39 of these, from 18 sources. Campbell and Kaufman (1976) had hypothesized that the Olmecs of Southern Mexico were speakers of PMZ. They based their hypothesis in part on the number of apparent loan words from Mixe-Zoquean (MZ) among other language families in the area, in part on what they called "the rather sophisticated Mesoamerican culture" (p.81) represented by their reconstructed etyma for PMZ, and, I assume, in part on the geographical congruence of known Olmec sites and current MZ languages. Ultimately they proposed a glottochronological dating of 1500 BCE for PMZ, a result which may be somewhat controversial because of problems with the method itself.

In this paper, I examine Wichmann's reconstruction of PMZ and offspring languages with several intentions. First, I use those etyma representing terms of material culture and compare them with available archaeological evidence and theory to examine on that basis the soundness of their inclusion in PMZ. I include some of the relevant etyma from reconstructed offspring languages in order to justify the apparent lack of terms which might be expected to appear in a cultural reconstruction. I then examine some glosses in comparison with the ethnohistory of the area and make a methodological point that reconstructing a language must include reconstructing the culture that is purported to have used it. Evidence is presented that points to the need for accurate translation from intermediary languages. Finally, I provide evidence that Proto-Oaxacan Mixe (POM) is a post-Conquest language stage, based on the number of Spanish material items represented in the etyma.

## 2. The Archaeological Record.

I begin the archaeological aspect with a discussion of general terms relating to subsistence in hunter/gatherer cultures, with emphasis on the ubiquity of the items in Mesoamerica at the time indicated, then move through items related to sedentary patterns, such as agriculture and more sophisticated technology.

The Olmec heartland is in the lowland areas of Veracruz and Tabasco, Mexico. With an ecology rich in plant and animal resources, this area has been shown to be one of the earliest sites for the existence of settlements, both seasonal and permanent, due in large part to the variety and availability of subsistence necessities.

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\* I am grateful to Brian Joseph, Lyle Campbell, and Gwangyoon Goh for their helpful comments and suggestions regarding this paper. They are, of course, in no way responsible for any errors that may appear in this paper; those are mine.

| English Gloss    | Spanish Gloss             | Proto-Reflex  | PLang |
|------------------|---------------------------|---------------|-------|
| alligator        | lagarto                   | *ʔuspin       | PMZ   |
| conch            | concha                    | *sa:ka        | PMZ   |
| crab             | cangrejo                  | *ʔe:si        | PMZ   |
| iguana           | iguana                    | *i:ciC        | PMZ   |
| iguana           | iguana                    | *to:ki        | PMZ   |
| fish with a hook | coser, pescar con anzuelo | *suy          | PMZ   |
| fish with a net  | pescar con red            | *ma:kʔ        | PMZ   |
| snook            | robalo                    | *(h)a(?)y(aw) | PMZ   |
| tortoise, turtle | tortuga                   | *tuka         | PMZ   |

Table 1: Aquatic Animal Protein Sources

A study of animal protein sources by Wing (1977) of skeletal remains in five sites in the Olmec heartland that date to the earliest Olmec-type settlements corresponds with the relevant PMZ etyma in Wichmann, shown in Table 1. Wing 1981 lists conch, snook (still a popular gamefish), turtle and iguana in the remains found at five Early Formative sites in the pre-Olmec region and estimates that 58% of all animal protein was from snook and turtle (Wing 1978: 25). Wichmann has reconstructed two types of fishing in PMZ: 'fish with a net' and 'fish with a hook', the reflexes of which also mean 'sew' not only in PMZ but in both current Jaltepec and San Juan Guichicovi Mixe.

| English Gloss     | Spanish Gloss         | Proto-Reflex      | PLang           |
|-------------------|-----------------------|-------------------|-----------------|
| chicken, hen      | pollo, gallina        | *ce:wE(kV)        | PMZ             |
| dog               | perro                 | *taka             | PMZ             |
| shoot with bow    | flechar, picar        | *tip              | PMZ             |
| shoot with sling  | tirar; ponerse el sol | *ti:ʔp            | PMZ             |
| deer              | venado                | *haycu            | PM <sup>1</sup> |
| deer              | venado                | *miʔah            | PZ              |
| peccary, javelina | jabalí                | *i:çimi           | PM              |
| peccary, javelina | jabalí                | *mok-yo:ya        | PZ              |
| pig {peccary}     | cerdo, marrano        | *yo:yah           | PZ              |
| turkey            | guajalote, pavo       | *tu:tuk           | PM              |
| turkey            | guajalote, pavo       | *tuʔnuk, *kaʔnevi | PZ              |

Table 2: Terrestrial Animal Protein Sources

The heartland region was also rich in game as reflected in Table 2. The PMZ forms for 'shoot with a bow' and 'shoot with a slingshot' are indicative of hunting techniques, but Wing (1978) estimates that dogs provided 64% of the non-aquatic meat at San Lorenzo. Dogs were domesticated in Mesoamerica by around 3,000 BCE (Adams 1991: 37), and remained the only domesticated animal until around 300 CE, when turkeys were domesticated (Coe, in Campbell and Kaufman). Campbell (personal communication) notes that many Mesoamerican languages borrowed the word for turkey from a root something like \*tul which accounts for a lack of a PMZ reflex, since none of the MZ languages have /l/. Deer was second to dog in the terrestrial animal protein hierarchy.

<sup>1</sup> The following abbreviations are used throughout this paper: MZ = Mixe-Zoquean, PMZ = Proto-Mixe-Zoquean, PM = Proto-Mixe, POM = Proto-Oaxacan Mixe, PGZ = Proto-Gulf Zoque, PZ = Proto-Zoque.

| English Gloss               | Spanish Gloss                  | Proto-Reflex | PLang |
|-----------------------------|--------------------------------|--------------|-------|
| acorn                       | bellota                        | *soh-tim     | PMZ   |
| bamboo [reeds] <sup>2</sup> | carrizo                        | *kape        | PMZ   |
| [tree cotton tree]          | [ceiba]                        | [*pistin]    | PMZ   |
| chile, type of              | chile silvestre "forest chile" | *kuy-ni:wi   | PMZ   |
| edible green                | quelite                        | *cip?V       | PMZ   |
| edible green                | quelite blanco                 | *camam       | PMZ   |

Table 3: Wild Plant Resources

| English Gloss             | Spanish Gloss     | Proto-Reflex   | PLang |
|---------------------------|-------------------|----------------|-------|
| avocado                   | aguacate          | *kúy-tim       | PMZ   |
| bean                      | frijol            | *sik           | PMZ   |
| cacao                     | cacao             | *kakawa        | PMZ   |
| chili pepper              | chile             | *ni:wi         | PMZ   |
| chili pepper, white       | chile blanco      | *po:p?o? ni:wi | PMZ   |
| cigarette (see below)     | cigarro           | *huk?-i        | PMZ   |
| to smoke                  | fumar             | *huk?          | PMZ   |
| cotton                    | algodon           | *coha          | PZ    |
| cotton tree [see 'gourd'] | pongolote         | *pokok         | PMZ   |
| gourd [jícama]            | tecomate [jícama] | *pok[ok]       | PMZ   |
| grind chile               | moler chile       | *mo?c          | PMZ   |
| pea [pea-shaped seed]     | chipilcoite       | *cus-kuy       | PMZ   |
| peanut                    | cacahuate         | *nas-kakawa    | PMZ   |
| yucca [sweet manioc]      | yuca              | *pisi          | PMZ   |
| pumpkin, calabash         | calabaza          | *ci?wa         | PM    |
| pumpkin, calabash         | calabaza          | *pasog         | PZ    |
| century plant             | maguay            | *ca:he         | PM    |
| century plant             | maguay            | *?oho          | PZ    |
| sapote, black             | zapote prieto     | *cu:?kV        | PM    |
| string bean               | ejote             | *yawa-sik      | PZ    |
| string bean               | ejote             | *kuy-sihk      | PM    |

Table 4: Domesticated Plants

While animal protein was vital, there was a wide variety of cultivars (Table 4) listed in MacNeish (1992: 87-8) and undomesticated plants (Table 3). His timeline has all of Table 4 in domesticated by the time of the Olmec horizon. Lee (1989: 221-2) speculates that cacao may have been domesticated in the Olmec region, and that its trade was monopolized between 1200-900 BCE. MacNeish lists sapotes (a fruit) as domesticated in the highland area of Teotihuacan by 2300 BCE, and reports that chilies, gourds and pumpkins were already cultivated by seasonal foragers by 4000 BCE. By 1800 BCE, common beans, corn, squash, avocado, cotton, and sunflowers had been domesticated. Tobacco was not included in MacNeish's list, but Campbell points out that reconstructions for something like 'cigarette' or 'tobacco' are common in other Mesoamerican languages, such as Mayan, and there are species of wild *Nicotiana* which may have been used. The existence of phonetically different reflexes in PZ and PM probably accounts for the lack of a PMZ reflex for 'pumpkin' and 'maguay'. The case with 'string bean' differs in that both reflexes share the common 'bean' root \*sik. On the bases of the importance of the maguay (century plant) for both fiber and pulque, a fermented beverage, and the fact that both it and prickly pear cactus are

<sup>2</sup> Wichmann's glosses appear at the left; alternate or conflicting glosses are as follows: [ ] from Campbell, < > glosses from synchronic languages, ( ) from other sources.

easily transplanted or planted (personal experience) I am assuming that they were cultivated at that time.

Table 5 lists terms used in the corn complex, another aspect of the sophistication of culture. Corn was domesticated by 3000 BCE and the fact that there are three terms for maize referring to different states (generic, shelled, and leached), and two kinds of grinding (dependent on the state of the corn, namely dry or leached), none of which are compounds, seems to point to a long pre-PMZ history. This may be contrasted with the POM term for 'metate roller', an obvious compound. The absence of a PMZ reflex for 'metate' must be due to linguistic difficulties, since Lowe (1989) dates footed metates to pre-Olmec times, and MacNeish (1981) dates less complex metates to 3000 BCE. The reflex for 'lime' *\*ham* is probably indicative of an ash-based leaching agent for maize. Campbell (personal communication) notes that 'ashes' *\*kuy-ham* combines that root with *\*kuy* 'wood/stick'. This can be contrasted with a mineral source of anhydrous limestone, which may be the meaning of PM *?akaf*.

| English Gloss             | Spanish Gloss     | Proto-Reflex      | PLang |
|---------------------------|-------------------|-------------------|-------|
| cornfield                 | milpa             | *kama, *mo:k-kama | PMZ   |
| granary for maize         | granero para maíz | *ce?s             | PMZ   |
| to grind                  | moler             | *way              | PMZ   |
| to grind dough            | moler masa        | *ho:?s            | PMZ   |
| to grind pinol            | moler pinole      | *ki:?t            | PMZ   |
| leached cornmeal          | nixtamal          | *pic-i            | PMZ   |
| lime                      | cal               | *ham              | PMZ   |
| maize                     | maíz              | *mo:k             | PMZ   |
| shelled corn              | maíz desgranado   | *?iks-i           | PMZ   |
| tortilla, food            | tortilla          | *?an-e            | PMZ   |
| to work with sieve or net | lavar nixtamal    | *ma:k             | PMZ   |
| dough (corn)              | masa              | *ki?i-i           | PZ    |
| dough (corn)              | masa              | *hic-i            | PM    |
| to grind leached cornmeal | moler nixtamal    | *hic              | PM    |
| lime                      | cal               | *?akaf            | PM    |
| metate                    | metate            | *pa:w-an          | PM    |
| metate roller             | metlapil          | *pa:n mahnk       | POM   |

Table 5: Corn Terminology

| English Gloss                            | Spanish Gloss     | Proto-Reflex | PLang |
|--|-------------------|--------------|-------|
| to clear underbrush                      | rozar             | *yu:h        | PMZ   |
| field cleared of underbrush              | rozadura          | *yuh?-i      | PMZ   |
| harvest                                  | cosechar          | *pi:?k       | PMZ   |
| to irrigate [to sprinkle, to spread out] | boca abajo, poner | *muc         | PMZ   |
| to sow                                   | sembrar           | *ni:p?       | PMZ   |
| sowing time; sown field                  | siembra           | *ni:p?-i     | PMZ   |
| yield a crop                             | dar, pegarse      | *ci:?        | PMZ   |

Table 6: Agricultural Terms

The rest of the agricultural complex is represented in Table 6. These PMZ reflexes are all to be expected except for the term for 'to irrigate'. This appears to be a mis-glossing over-extended from current reflexes for 'to pour liquid on, to water something, to turn upside down' and clashes with the archaeological evidence that dates the first Mesoamerican irrigation work starting around 800 BCE, according to Adams (1984: 110-11). This can be tied semantically to the term for 'stone railing', in Table 8, which is discussed later.

| English Gloss       | Spanish Gloss | Proto-Reflex | PLang |
|---------------------|---------------|--------------|-------|
| mud bricks, to make | adobes, hacer | *mu: ʔc      | PMZ   |
| house               | casa          | *tik         | PMZ   |
| house pole          | horcón        | *kom(om)     | PMZ   |
| to sweep            | barrer        | *pe:tʔ       | PMZ   |
| basket              | canasta       | *kaʔka       | PM    |
| basket              | canasta       | *waka        | PZ    |
| brōom               | escoba        | *pe:ht-an    | PM    |
| broom               | escoba        | *pet-kuy     | PZ    |
| pitcher             | cántaro       | *mah-an      | PM    |
| pitcher             | cántaro       | *mah-kuy     | PZ    |

Table 7: Settlement Terms

A probable byproduct of extensive agriculture is permanent settlements. From the lack of relevant terms in PMZ in Table 7, it's possible that many terms were borrowed in later languages or that the process was just beginning. The making of adobe bricks is much more an act of planned permanence than the construction of wattle and daub houses, which were being built by 1500 BCE in the highlands near Teotihuacan by later developing agriculturalists, and the use of clay as a building material for floors dates back to 2300 BCE (MacNeish 1992: 112). The earliest house floors preceded those by 600 years (Adams p.37). 'To sweep' is certainly a concept pertinent to settlement, and reflexes for 'broom' in PM and PZ differ significantly only in their suffixes, *-an* (deverbalizer) and *-kuy* ('stick') respectively. The reflexes for 'basket' in PZ and PM are sufficiently different to preclude a valid reconstruction and basketmaking dates to at least 5000 BCE (MacNeish 1992: 108). Reflexes for 'pitcher' in PZ and PM are literally "water instrument", with the same suffixal differences as 'broom'. Adams (p.47) suggests that the Olmecs may have been responsible for the spread of Ocos type pottery (horizon 1500 BCE), which was the first to reach most of Mesoamerica. The fact that it was so specialized makes it possible that there were craftsmen who did nothing else according to Coe and Lowe (in Adams p.48), a type of labor differentiation possible only with the surpluses available from settled agriculturalists. I have included it in this category also because the inherent fragility of ceramics makes it difficult to transport them safely, making it an indicator of a sedentary lifestyle.

We can now consider terms of non-agricultural technology, listed in Table 8 (following page). This aspect of Olmec culture is in some ways the most difficult to adequately discuss in terms of the glosses presented by Wichmann. I begin with those reflexes which can be properly ascribed to Olmec culture of the time frame hypothesized by Campbell and Kaufman. Agave fiber was in use by 5000 BCE, and weaving was done by 3000 BCE, by which time cotton was in use in thread (MacNeish 1981). Canoes had been in use since 7500 BCE, according to MacNeish, Wilkerson, and Nelken-Turner (in Adams, p.39).

However, many of these terms are not synchronic with pre-Olmec and Early Olmec evidence. Although textiles were used, evidence from the earliest sculptural and figurine representations of 350 years later suggests that 'shirt' is an overgeneralization of upper body clothing, and that 'cape' would be more culturally accurate, according to Lowe (1989: 47), who also calls footwear "rare and late" in Olmec evidence, placing it around 300 BCE and later. It must be noted, however, that soil conditions in the Olmec heartland are such that only the most durable materials such as stone and bone survive the damp. The words for 'paper' in many of the current languages from which Wichmann's data were drawn are glossed in Spanish as *amate*, a species of *figus*, the bark or inner bark of which may have been used as a surface for drawing. Wichmann doesn't reconstruct anything for 'to draw', and the semantic overlap in PZ of 'work' as 'handicraft or drawing' makes it seem likely that PMZ 'to write' is functionally (and anachronistically) related to 'paper'.

| English Gloss                      | Spanish Gloss               | Proto-Reflex | PLang |
|------------------------------------|-----------------------------|--------------|-------|
| agave fiber                        | ixtle                       | *nawin       | PMZ   |
| canoe                              | canoa                       | *ʔaha        | PMZ   |
| thread                             | hilo                        | *pi:ʔt-i     | PMZ   |
| to weave                           | tejer                       | *ta:kʔ       | PMZ   |
| carpenter [woodpecker]             | carpintero                  | *cehe        | PMZ   |
| chisel                             | cincelar                    | *pa:hʔ       | PMZ   |
| to cut with scissors               | tijeretear                  | *meʔps       | PMZ   |
| instrument for writing             | instrumento para escribir   | *ha:yʔkuy    | PMZ   |
| paper                              | papel                       | *noki        | PMZ   |
| sandal (lit. "limb leather")       | huarache                    | *kiʔ-ʔak     | PMZ   |
| shirt                              | camisa                      | *suy-i       | PMZ   |
| to spin thread                     | hilar                       | *pi:ʔt       | PMZ   |
| stone railing {parapet, dam, dike} | pretil, presa, dique        | *me(ʔ)ke     | PMZ   |
| stone wall, to make a              | colocar piedras en un cerco | *neʔw        | PMZ   |
| to write                           | escribir                    | *ha:yʔ       | PMZ   |
| work; handicraft, drawing          | obra; diseño                | *cik-i       | PZ    |

Table 8: Terms of Material Technology

One item reflecting more durable evidence is 'stone railing'. According to the Spanish glosses given by Wichmann for 'stone railing' *\*me(ʔ)ke*, one of which means 'low wall', another of which means 'dike', this could be reconstructed as 'dam', which would coincide with the previously mentioned 'to irrigate'. Although these would not fit the time frame postulated by Campbell and Kaufman, if the time frame is later (the 800 BCE given by Adams for irrigation), these two terms could fit the culture. The other term regarding what would be the most durable evidence is 'make a stone wall'. Campbell (personal communication) points out that a stone wall can be something as simple as piled stones around the edge of a field. The evidence suggests that, for the time period under consideration, this is all it could be, since the earliest known stonework delineation of public space, consisting of unworked stone borders date to 1350 BCE. Lowe (p.47) puts the earliest date of dressed architectural stone at around 900 BCE, which applies to the apparently misglossed 'stone railing', as well.

| English Gloss        | Spanish Gloss | Proto-Reflex | PLang |
|----------------------|---------------|--------------|-------|
| buy                  | comprar       | *huy         | PMZ   |
| expensive {valuable} | caro          | *cow-ah      | PMZ   |
| pay, owe             | pagar, deber  | *yoh         | PMZ   |
| road                 | camino        | *tu:ʔ-ʔaw    | PMZ   |

Table 9: Economic Terms

Another aspect of specialization is the development of higher economic sophistication. Given the early trade mentioned in the corn complex, the possible monopolization of cacao trade, and the spread of Ocos type pottery, the PMZ reflexes in Table 9 seem justified.

| English Gloss             | Spanish Gloss                   | Proto-Reflex | PLang |
|---------------------------|---------------------------------|--------------|-------|
| copal incense             | copal, incienso                 | *po:m(o)     | PMZ   |
| to dance                  | bailar                          | *?ec         | PMZ   |
| dancer                    | danzante                        | *?ec-pa      | PMZ   |
| drum                      | tambor                          | *kowa        | PMZ   |
| festival, name, sun       | fiesta, nombre, sol             | *siw         | PMZ   |
| to play a wind instrument | chifflar                        | *su:s?       | PMZ   |
| recite prayers            | rezar                           | *ko-nu:ks    | PMZ   |
| chant, hymn               | canción, himno                  | *?iw-i       | PM    |
| chant, hymn               | canción, himno                  | *wan-e       | PZ    |
| church, temple            | iglesia                         | *pu:s-tik    | PM    |
| church, temple            | iglesia                         | *masan-tik   | PZ    |
| sacred language           | idioma sagrado                  | *?a-ma:san   | PM    |
| to soothsay, to divine    | adivinar                        | *?a-koc      | PM    |
| wind instrument           | instrumento de musica de viento | *su:s-an     | PM    |
| to baptize                | bautizar                        | *niy-?iy     | PZ    |

Table 10: Ritual Terminology

MacNeish (1981: 73) divides Mesoamerica into two distinct cultural developments, with the lowland Olmec heartland moving toward a theocracy, and the upland culture becoming a more secular culture. He gives the time frame for this split as occurring after 900 BCE. The reflexes in Table 10 are for PMZ and its daughters PM and PZ. None of the reflexes are synchronic mismatches to the Olmec era. MacNeish cites examples of apparent human sacrifice as early as 5000 BCE (p.69) and postulates a "complex religious life" in the period of village agriculturalists beginning in 1500 BCE for upland Mesoamericans (p.72). This is only slightly later than similar developments in the Olmec heartland. Thus we would expect to find the kinds of PMZ reflexes in Table 10 consisting of a complex involving incense, music, dance, and festival. Even the PM and PZ etyma are all reasonable within the framework of the Olmecs; conversely, all the PMZ reflexes are reasonable for a much less sophisticated culture.

We can see from the archaeological evidence that, for the greatest part, the linguistic reconstruction matches the material culture reconstruction, with certain, perhaps inevitable, gaps from a multiplicity of causes. These include lack of evidence due to the nature of the environment, in this case damp acidic soil which destroys all but the most impervious materials; the time depth involved; and in terms of dating, the crucial vocabulary that exemplifies the cusp of a major cultural change, namely that from village to urban society, which might be expected to be lost with the changes in culture in the language family since that time.

### 3. Methodological Issues

I would now like to briefly examine three aspects of linguistic reconstruction that are also pertinent to cultural reconstruction. The first of these is a knowledge of the history of the area of the protolanguage(s) involved. Table 11 illustrates the necessity for this.

| English Gloss     | Spanish Gloss  | Proto-Reflex | PLang |
|-------------------|----------------|--------------|-------|
| chicken, hen (m)  | pollo, gallina | *ce:wE(kV)   | PMZ   |
| money (l)         | dinero         | *me:nyu      | PM    |
| pig {peccary} (m) | cerdo, marrano | *yo:yah      | PZ    |
| peccary, javelina | jabalí         | *mok-yo:ya   | PZ    |

Table 11: Spanish Material Culture (m) and Linguistic Loans (l)

Pigs and chickens are European imports to the Americas. The peccary is related to the pig, and the anachronistic reconstruction of the PZ reflexes *\*mok-yo:ya* 'peccary' (literally "corn pig") and *\*yo:ya* 'pig', is probably due to a shift in post-Conquest cultural salience as the pig became the more familiar of the two and the peccary became more of a nocturnal cornfield predator than a meat source. Wichmann bases the PMZ form for 'chicken' on the root *\*ceweE* 'to prick'; however, he does call the set of proto-reflexes "speculative". PM *\*me:nyu* 'money' is based on the Spanish word *medio/media* 'half a real' (Spanish coin) which Campbell characterizes as "the almost ubiquitous Spanish loan in Latin American languages". The use of 'to load a gun' might fit synchronic reflexes from which PZ *\*maʔ* is derived, but there might well have been no Conquest had that gloss been accurate for PZ speakers. Spanish *armar* also means 'to set a trap' which Wichmann includes, and more generally means 'assemble', according to Campbell (personal communication).

| Wichmann            | Campbell; {other}           | Wichmann      | Campbell                              |
|---------------------|-----------------------------|---------------|---------------------------------------|
| bamboo              | reeds                       | carpenter     | woodpecker                            |
| cotton tree [ceiba] | gourd                       | grindstone    | gizzard stone                         |
| ground cherry       | miltomate, husked tomato    | iron, metal   | iron [hard metal], metal              |
| marmalade fruit     | <mamey: synchronic glosses> | stone railing | {parapet, dam, dike: Spanish glosses} |
| yucca               | sweet manioc                |               |                                       |

Table 12: Ethnologically Inappropriate Glosses

The second aspect is that of having an ethnological knowledge of the current cultures from which synchronic linguistic data are drawn. Table 12 lists glosses which are ethnologically inaccurate to varying degrees. Of them, the most misleading is 'carpenter'. If PMZ *\*cehe* were to be taken as 'carpenter' rather than 'woodpecker' (from the Spanish gloss *carpintero*), this would suggest a labor specialization which may in fact have existed but cannot be reconstructed linguistically. The PZ reflex *tiʔ-kyu*, if glossed as 'iron' when what is meant is "hard metal" which Campbell cites as the rural meaning of Spanish *hierro*, would be anachronistic, since iron is another European import.

PMZ

| Wichmann                                | Campbell; {other}  | Wichmann               | Campbell; {other}                                  |
|---|--|------------------------|--|
| bean plantation                         | bean field   | cigarette              | {thing to be smoked: deconstruction of proto-form} |
| cut with scissors                       | {to cut as with scissors; to cut fibrous material: synchronic glosses} | instrument for writing | {instrument for drawing/ painting}                 |
| paper                                   | {material for drawing upon, <i>amate</i> bark}                         | pasture, grass         | grass, long grass used in construction             |
| sandal                                  |  | shirt                  | {cape: based on Lowe}                              |
| to sprinkle, to spread out, to irrigate | {to turn upside down, to pour out, to water: Spanish glosses}          | stone railing          | {parapet, dam, dike: Spanish glosses}              |
| to write                                | {to draw}  |                        |  |

PZ

|             |                |                        |                        |
|-------------|----------------|------------------------|------------------------|
| iron, metal | {see Table 12} | load a gun, set a trap | set a trap, {assemble} |
|-------------|----------------|------------------------|------------------------|

Table 13: Semantic or Anachronistic Interpretations



A third aspect is the necessity of using a fluent translation of glosses from intermediary sources (in this case Spanish) to avoid either a mistaken sense of the general aspect of the word or, as in the cases above, avoid a possibly anachronistic interpretation to result. Table 13 (preceding page) lists other glosses that have not been introduced before. 'Bean plantation', 'pasture', 'irrigate', and possibly 'stone railing' seem to be inadvertent, possibly dictionary derived, mistranslations from Spanish to English, but each carry a connotation of a higher level of cultural sophistication than befits the early Olmecs. The others are reasonable glosses only in the broadest sense by equating modern usages as generic, as in 'cut (as one would) with scissors' or 'perhaps cut fiber/thread' since scissors were another European import, and 'instrument for writing' in the sense of 'stylus, or brush'.

The more that indicators of cultural sophistication are involved, the less surely the archaeological evidence matches the linguistic reconstruction. There is little evidence capable of pinpointing a date for PMZ from the reflexes given in Wichmann. While it is true that soil conditions in the Olmec heartland have made it impossible to find any less durable materials of the Olmec era than bone, it is also true that those elements which are indicators of the cultural sophistication, and thereby of urbanization, have to do with the organization of the society and labor. Of the PMZ terms, only two imply the kind of community effort an urbanized society would exhibit: \*muc 'irrigate' and \*me(?)ke 'stone railing' per Wichmann; 'parapet, dam, dike' per his Spanish glosses. The discussion above for these terms shows that if they are to be included in PMZ, the date must be later than 1500 BCE.

#### 4. Historical Developments

##### POM

|  |  |
|--|--|
| lime (fruit)<br>fence<br>mason<br>saddle blanket<br>scissors | small mill<br>glass, mirror<br>carpenter's plane<br>mescal<br>soap (?) |
|--|--|

##### PGZ

|           |  |
|-----------|--|
| pineapple | plant in containers before moving to natural environment |
|-----------|--|

Table 14: POM and PGZ Post-Conquest Forms

The strongest evidence for dating any of Wichmann's protolanguages is for POM. Table 14 lists those reflexes which strongly identify POM as post-Conquest, and two which indicate less surely that PGZ may have been. The presence of such items as 'sweat blanket for mount' \*hipa?an presupposes either an unattested use of domesticated deer, or post-Conquest word formation. 'Malabar gourd' is glossed in Spanish as *calabasa castilla* (literally "Spanish or Castilian squash/gourd"), reflecting its origin. Because the pineapple originated in South America, it is possible that traders might have brought them to the Gulf Zoque area before Spanish contact, as may have occurred with the agricultural technology involved in the PGZ \*pa:n 'plant in containers before moving to natural environment'. There are no citrus species native to the Americas, and Wichmann notes that "\*cahp 'sky' is the usual first member in nouns referring to objects associated with the Spanish" in 'lime' \*cahp-pos. The other morpheme \*pos means 'guava'. 'Soap' is indefinite in that it may refer to a kind of soaproot, rather than European soap. Mirrors were made by the Olmecs, but of hematite or magnetite, and apparently for religious or status purposes (Heizer and Gullberg 1981, Carlson 1981), and were not associated with glass, which was another import. Thus we can see that for POM, the ethnohistory of the area firmly dates it as

post-Conquest. It might be possible to fix the time period more closely by looking at loanwords from Spanish, but that would involve a different analysis beyond the scope of this paper.

## 5. Conclusion

From the evidence presented here, we can see that language, as a part of culture, reflects the material culture. If a reconstruction of a language is to be accurate in its portrayal of the culture of which it was a part, we should make maximal use of extralinguistic sources such as archaeology, ethnology, ethnohistory, and the historical record in order to ensure that accuracy.

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