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TYPES OF LANGUAGE SPREAD
AND THEIR ARCHAEOLOGICAL CORRELATES:
THE EXAMPLE OF BERBER

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TYPES OF LANGUAGE SPREAD AND THEIR ARCHAEOLOGICAL CORRELATES: THE EXAMPLE OF BERBER

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1. INTRODUCTION

Attempts to link language families and archaeological cultures have a long history, although early efforts tended more towards the realm of mythology than science. Many early writers had the perception that languages provided a window into history, but a history so foreshortened by Biblical chronology as to be almost useless. Modern linguistic classifications seem to begin, not with Indo-European as is usually supposed, but with the Uralic languages (Ruhlen 1991). Progress has been uneven; it was not until the 1980s that some type of classification covering all the world's languages was available.

Early attempts to unravel prehistory from language were generally along the lines of the 'Worte und Sache' method; taking the lexical attestations for individual items and reconstructing their history as material culture or social institution. The agenda was established in the nineteenth century, beginning with the 'linguistic palaeontology' of Pictet (1859-63) who set out his theories linking the histories of words with a speculative history of Indo-European peoples. For African languages the first attempt occurs in an unlikely text by Johnston (1886) who set out a method for reconstructing Bantu culture history. Krause (1895) made some penetrating observations on African culture history as well as establishing a number of key language family names that remain in use and looked forward to a 'biology' of lexical history. The apotheosis of this approach is Gamkrelidze and Ivanov (1994) for Indo-European; a recent example in African history is Schoenbrunn's (1997) account of the Bantu of the Great Lakes. As an approach it has also been important in Oceania, especially with Austronesian (see Ross *et alii* 1999 for a recent example).

In the early period, there was little or no attempt to link the results of historical reconstruction directly with archaeological evidence; indeed there was hardly any such evidence. Indeed, some linguists have held the view that the method of historical reconstruction is an abstract process that should be undertaken quite independently of whatever we might know about history.

However, in general, as archaeological evidence has bulked larger so has the process of integrating it with linguistic results. Where archaeology is sparse, as in much of Africa, linguists have in general been more wary of such interdisciplinary hypotheses.

This process has not been without its problems, the most troubling of which has been its hijacking by nationalist agendas. Blench (1999a) describes how, both in Nazi Germany and Soviet Russia, ethnological and linguistic data were misused to bolster a tendentious prehistory. Even without such overtly political processes, it has sometimes been difficult to disentangle the claims of different categories of linguists. Supporters of macrophyla proposals, such as Nostraticists, put forward historical reconstructions that are rejected by the larger body of mainstream historical linguists.

Even a sympathetic archaeologist could be forgiven for wondering if this represents progress. But this is partly a consequence of an overambitious project; trying to correlate very large-scale archaeological or genetic results with phylum-level linguistics. The successes in this area have all been on a much smaller scale, and there may be reasons for thinking that this is the only scale on which such correlations are likely to apply. This paper¹ explores some general principles that should apply the effective interlinking of archaeological and linguistic data and applies these principles to the interpretation of the distribution of the Berber languages, a family of closely-related speech forms spoken across the Sahara. On the basis of this it concludes with some suggestions for further interpretations of Eurasian language families.

2. WHAT WORKS AND WHAT DOESN'T

Ethnography suggests that there is no reason why language and archaeology must necessarily be correlated. Western culture, with all its material attributes, has diffused widely across the world, and is a powerful influence in non-Indo-European speaking areas. As a few dominant speech-forms spread, many smaller language communities are assimilated. Some lose their material culture, but elsewhere they retain it, at least in part. Language shift and cultural assimilation are evidently common and the pace at which they occur is greater in

¹ I am grateful to Barbara Barich for inviting me to present this paper in Roma in the framework of the "Forum for African Archaeology and Cultural Heritage", December 1998, and for the comments of those present, especially Giorgio Banti. The present version has been prepared for submission to *Origini*, and the original preliminary matter which looked at language classification on a world-wide basis has been omitted to focus more specifically on the Berber problem. Maarten Kossmann and Vaclav Blažek kindly read the revised version, and gave me a number of useful comments. Maarten has also sent me some valuable additional data as well as suggesting some rearrangements of the tables. I freely admit to not being a Berber specialist, and this assistance has helped me avoid a number of errors.

large land masses such as Africa and Eurasia where there are few geographical boundaries to inhibit interaction.

Yet this does not mean the project is hopeless, merely complex. The area where linking language and archaeology is most likely to succeed is when there has been a significant physical expansion of population, 'demic diffusion' in one terminology (e.g. Renfrew 1992). This can occur either when the lands into which a population expands are actually empty, or where the population density is so low and the technological advantage of the incoming group so significant that the impact on their social and material culture of assimilating or eliminating the existing population is so slight as to be undetectable. An example of the first case would be Polynesia; most islands in the Polynesian region seem to have been uninhabited before the first migrations. The earliest seafarers could normally not return to their source island; there is thus a general correlation between first settlement and the gradual diversification of the language. Archaeology, linguistics and genetics are broadly in agreement (Bellwood 1987).

A similar situation applies, although not quite as neatly, to the Bantu expansion into Eastern and Southern Africa. Beginning some 4000 years ago, groups of Neolithic farmers began to expand south and east into the rainforest of the Central Zairean basin (Blench 1996). They may have encountered scattered foragers in the forests but in numbers too small to have a major impact on their rapid demographic growth and language diversification (Blench 1999b). As a result, the archaeological 'signature' of the Bantu can be detected fairly unambiguously, both south of the forest in Angola and east of the forest in East Africa.

Bellwood (1991) has argued that this is typically the case with agricultural expansions, Austronesian, Uto-Aztecan and Indo-European being cited as examples. There is another important aspect to this; Austronesian and Bantu are in no wise the same sort of entities. Bantu is, despite its large territorial area, linguistically a 'subgroup of a subgroup of a subgroup', i.e. only the most recent branching of the complex tree of Niger-Congo, in turn the language phylum in the world with the most languages. Austronesian, however, is a phylum in itself. Because of its coherence, Bantu has attracted considerable interest from linguists and we know a great deal about its expansion, compared with older and more complex subgroups of Niger-Congo, such as Mande or Atlantic.

There are, moreover, expansions that cannot be due to agriculture, if only because it was not present in the region at the time. Pama-Nyungan in Australia, Greenlandic, Niger-Congo in West Africa cannot have been due to agriculture, but may have been the result of technological advantage (McConvell, Evans 1998). There are also expansions that appear to be due to either military prowess or pastoralism and possibly the two intertwined (Mongolic and Turkic). So whatever model we propose has to make space both for the linguistic patterns we encounter and the archaeology they hypothetically reflect.

Unless historical documentation exists, it is hard to date these movements precisely; only Polynesia allows us to set a 'clock' for expansion. Yet speed is clearly a key factor; if a group of people has apparently increased in numbers and spread to new territories extremely rapidly, they will not have had time to negotiate with resident populations, develop complex cultural mixtures and a variety of sociolinguistic situations that rapidly become difficult to interpret archaeologically. Pastoral peoples are particularly suited to accelerated expansions. Their high degree of mobility and often aggressive stance in commanding pastures for their herds makes it possible to subsume vast territories rapidly without the costs of high levels of internal culture change. The classic example of this in historical times is the Mongol Empire which for some decades covered half Eurasia. However, other military/pastoral expansions, such the Fulbe in West-Central Africa or the Arabs in the Near East illustrate the same phenomenon.

We can argue the case for the Mongols or the Arabs because copious historical documentation supports the argument. But a more convincing test of the archaeological and linguistic hypotheses would be to argue for a pastoral expansion from present-day ethnographic and linguistic data to a likely archaeological signature. This paper makes such a case for the Berbers of North Africa, for whom historical materials are both scanty and late but whose broad geographical diffusion suggests a process similar to those invoked above.

3. CASE-STUDY: THE EXAMPLE OF BERBER

3.1 *Afroasiatic and the place of Berber*

The Afroasiatic language phylum dominates Northern Africa and Ethiopia, as well as extending far into the Middle East and the Arabian peninsula. Afroasiatic has a somewhat ambiguous status among the major language phyla of the world. As the grouping that includes not only several languages sanctified by major world religions, but also the earliest written language, it has benefited from a massive research and publication effort in certain rather specific areas. It also has old-established traditions of scholarship that have not always had a positive effect on innovative research. Ruhlen (1991:87 ff.) gives a useful concise history of the classification of the languages that constitute the phylum. The kinship of Hebrew, Arabic and Aramaic was recognised as early as the 1530s, and Ludolf pointed out the affinity of Ethiosemitic with the near Eastern languages in 1702. The name 'Semitic' was proposed in 1781 by von Schlözer. Berber and some of the Chadic languages, notably Hausa, were added during the course of the nineteenth century. The internal classification of Afroasiatic remains controversial and recent competing reconstructions of the phylum have not all reached the same conclusions. Orel and Stolbova (1995)

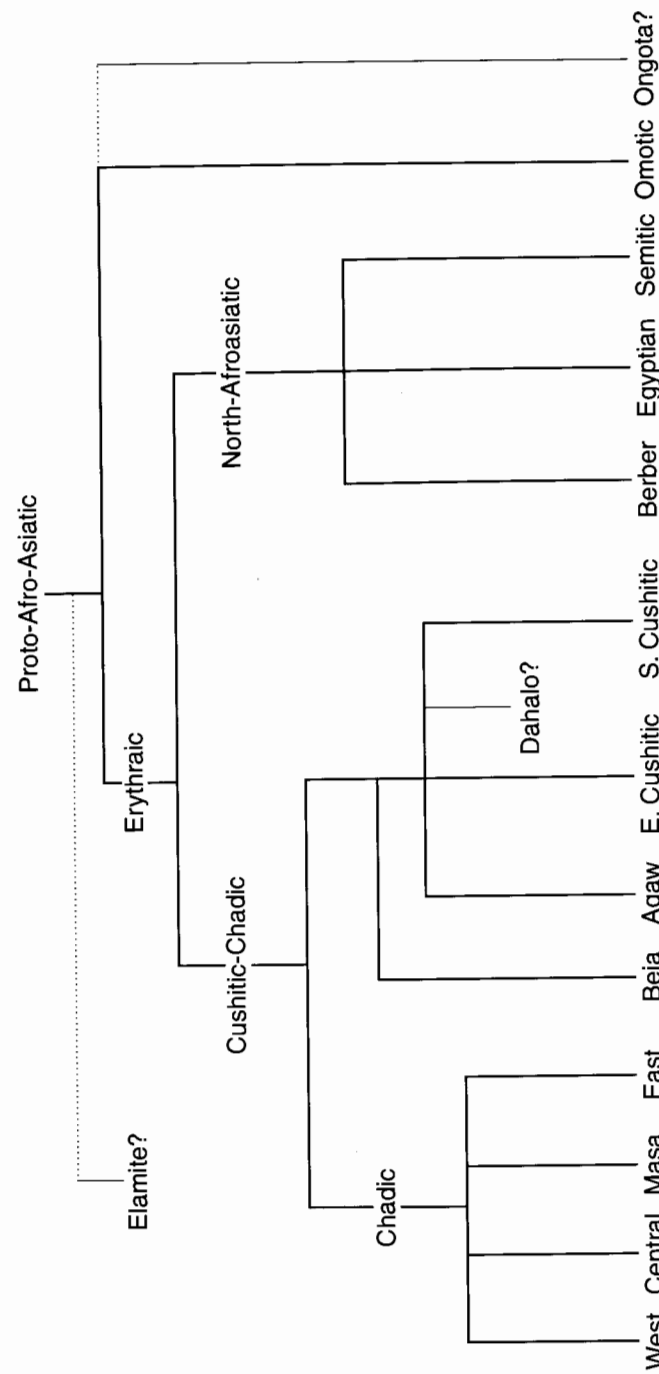


Fig. 1 – Proposed revised Afroasiatic Classification.

have published a massive 'Comparative Hamito-Semitic dictionary' and Ehret (1995) a reconstruction of Afroasiatic with a schema of the internal structure for Afroasiatic fairly similar to the models put forward formally or informally by other researchers. Blench (1999c) adapts some of Ehret's proposed names for the nodes (e.g. North Afroasiatic and Erythraic) and shows a composite view of Afroasiatic incorporating some recent proposals made concerning Elamitic, Ongota etc.

An aspect of Afroasiatic that is striking and somewhat perplexing to linguists is the relative diversity of some branches and the uniformity of others. Egyptian, Dahalo and Beja are single languages, while Agaw, South Cushitic and Berber are small groups of closely related languages. Chadic, Omotic and East Cushitic consist of large numbers of highly diverse languages. In the case of Agaw, South Cushitic and Berber, the first two consist of languages that are geographically very close to one another, and it is usually assumed that such groups previously did have more diversity but that their other relatives became extinct or were assimilated. Berber, however, is different; it is spread over a vast area and yet is only weakly differentiated from one end of its range to the other. Known principally by its best-known and most widespread group, the Semitic languages, which include Arabic and Hebrew, Afroasiatic is often represented as originating in the Near East (e.g. Diakonoff 1988; Militarev 1990). It has, for example, been identified with the Natufian culture (op. cit.). However, linguistically, this is most unlikely, since Egyptian, Berber and Semitic are very undiverse. The Semitic languages are a tightly knit group almost certainly reflecting recent expansion. The diversity of Afroasiatic is almost entirely in a belt stretching from Ethiopia to Lake Chad and Reinisch long ago suggested that this ought to point to its origin in sub-Saharan Africa (Blench 1999c).

3.2 The distribution of Berber

The Berber languages are today spoken from a remote isolated group in Mauritania, the Zenaga, to Siwa Oasis in Egypt. Fig. 1 shows the distribution of Berber languages today and their conjectural past distribution. It is generally accepted that the languages of the Canaries, collectively known as Guanche, were Berber, but these became extinct before they could be recorded by professional linguists (Wölfel 1965). There is also loanword evidence for Berber contact with languages spoken at the Nile Confluence (Behrens, 1985, 1989; Bechhaus-Gerst 1984-85, 1989).

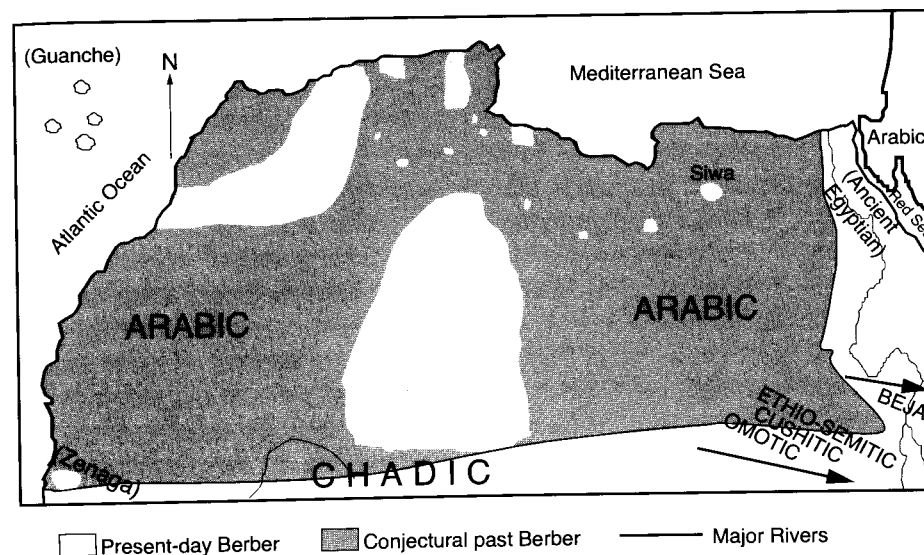


Fig. 2 – Distribution of Berber languages today and their conjectural past distribution.

The Appendix Table gives a listing of all described Berber lects with a very tentative classification. Despite a wealth of information, Berber classification is still very uncertain (see Galand 1988, Ameer 1990, Kossmann 1999). The place of Guanche and Numidian are likely to remain unclear. However, although Siwa is the easternmost lect, it is not the most conservative one, and it is likely that the poorly documented Libyan lects Awgila and Elfoqaha, together with Ghadamès, retain a greater repertoire of archaic forms. I have therefore considered that only forms with attestations in both Zenaga and Awgila/Elfoqaha can be reliably reconstructed to proto-Berber.

The present-day enclaving of Berber is very much a function of the spread of Arabic since the seventh century. Although Berber would have interacted both with the Semitic languages spoken in the Maghreb, such as Punic, and later with Latin², these never became so widespread as to drive Berber from much of its range. The disappearance of Berber-speakers from the Nile Confluence region is less easy to interpret; but whether Berber presence there was ever other than an wandering, isolated group is unclear.

Whether other languages were spoken in the Saharan/Maghreb region prior to Berber is not easy to answer. The Garamantes wrote in a Libyan script, although we have no evidence they spoke Berber³. What they did speak is open to conjec-

² There are a number of loans between Latin and Berber, including Berber *gittus* into Latin *cattus*, 'cat' and Latin *carta* into Berber *tkardat*, 'paper'.

³ I owe this information to Giorgio Banti, since texts on the Garamantes generally assert they left no written records.

ture; the most likely hypothesis is that they spoke a Nilo-Saharan language, related either to Songhay or to Teda, the present-day language of the Tibesti. It has been suggested that the Basque-Tartessian languages spread down from Iberia across the Straits of Gibraltar. Although there are few links between Basque and mainland Berber today, Wölfel (1965) noted a number of interesting Basque cognates in Guanche, pointing to a period of contact between a Basquic-speaking people and the Berber groups who settled the Canaries.

There are references to pastoralists in the deserts west of the Nile Valley in Egyptian records. Ramses III defeated a Libyan tribe called the I-S-B-T-U usually identified with the Asbytes of Herodotos. The 'Tehenu' appear in Vth Dynasty sources (3200 BC) as livestock keepers of the Western Desert and later numerous other tribes are mentioned (Vernet, Onrubia-Pintado 1994: 56). Another speculation surrounds the identity of the peoples referred to by Herodotos, living along the North African littoral. Herodotos names some seven tribes, giving them ever more fantastic attributes as they are further from Egypt, whence came his information. Vernet and Onrubia-Pintado (1994: 61) present a map both of ancient names for North African peoples and speculate on their modern counterparts, although given the high degree of mobility of these populations this might seem to be a fruitless exercise. The cultural diversity described by Herodotos tends to imply a greater linguistic diversity than Berbers exhibit today.

3.3 *Dating the Berber expansion*

The earliest concrete evidence for Berber comes from the 'Old Numidian' inscriptions (Rössler 1958). These are graven on rocks in North Africa and rarely consist of more than personal names and simple memorials. Nonetheless, the script they use is the ancestor of modern-day Berber scripts such as the Tifinagh of the Twareg. Hard-to-interpret inscriptions, apparently in Numidian-type script, are found on rocks in the Canaries (Cubillo 1984). The Berber affiliation of the language the inscriptions represent is usually accepted (e.g. Rössler 1964, though see dissenting views in Galand 1988), but they are too fragmentary to tell us much about the history of the Berber language. Nonetheless, we can assume that by 200 BC Berber was well established and widespread.

However, a date for Berber of 200 BC is very late for most researchers; Behrens (1985, 1989) suggests a date as early as 6000 BC. But the case of Berber admits of a wide variety of solutions. The problem is as follows;

a) Berber shows surprisingly little internal differentiation, as if it represented a recent expansion

b) Yet is very different from its neighbours in Afroasiatic as if it split away a long time ago.

Sociolinguistically, two alternative explanations for this state of affairs can be put forward. Either;

a) Berber was indeed once much more diverse and its apparent uniformity is because a powerful cultural force expanded and assimilated speakers of diverse but related languages. The example of Hausa assimilating related West Chadic languages would provide an analogous situation

b) Berber expanded some time ago, and sociolinguistic factors have acted to keep groups in contact with one another, reducing the pressure for language diversification. The Fulfulde language of West Africa, spread by pastoralists during the last 1000 years, but still intelligible across more than 2000 km of the Sahel, provides a parallel.

Whatever the case, the phenomena here are sufficiently dramatic and widespread for it to be difficult to imagine that they are not associated with comparable socio-cultural patterns, and that these in turn would leave material traces. The question, therefore, is what archaeological data can be used to interpret the present-day distribution of Berber languages?

3.4 *Were the Berbers Capsians?*

The term 'Capsian' in Maghrebin research applies both to the Palaeolithic populations who appear to have reached this region from 10,000 bp onwards and the 'Capsian Neolithic', livestock producers whose traces appear in sites in north Africa from about 6500 bp onwards (Camps 1974; Camps-Fabrer 1989). The main Capsian sites are in Tunisia and Algeria (Relilaï, Mechta-al-Arbi, Columnata, Aïn Kéda) and in Libya (Haua Fteah). There are striking resemblances between the material culture of the pre-agricultural Capsians and the Natufians, who are usually considered to extend from 10,500-8300±200 BC in the Near East and Camps-Fabrer (1989) argues that the Natufians gave rise to Capsian culture, although the mechanisms of this process are not spelled out. The term 'Neolithic' is also used for any sites where pottery is found, and since some of these are very early in the Sahara (>9000 bp) such 'Neolithic' cultures have neither agriculture nor domestic animals.

An aspect of the archaeological literature that is confusing in a linguistic context is the use of 'Paleoberber' and 'Protoberber', both usages originally deriving from Camps (1980). In this terminology the 'Paleoberbers' would be the ancestral populations in the region present until a key point in the Saharan Neolithic, about 4000 bp. The 'Protoberbers' would be the immediate ancestors of modern-day Berber populations present after this period. In linguistic terminology, 'Proto-Berber' would be the reconstructed language spoken by the population that broke away from Afroasiatic.

The two most significant sites for understanding the irruption of livestock production in the Maghreb are Haua Fteah (McBurney 1967) and Grotte Capéletti (Roubet 1979). In both cases, small stock are found in the earliest phases and not cattle. The dates given by Roubet for the first phase of 'Neolithic' occupation are 4,580 ± 250 B.C. which are clearly marked by extensive ovicaprine remains. Vernet (1993: 214,217,232) observes that the earliest dates for livestock in Mauretania are around the 4000 bp mark (Dhraina, near Nouakchott at 3980 BP) and that the likely source region is further north. A dry episode at this time may have been the impulsion that stimulated herders to seek pastures close to the coast where they could also have access to aquatic resources. However, dates in the Eastern Sahara for cattle are nearly as early (Wendorf, Schild 1981, 1984; Smith 1980). There are also sites in Mali with cattle bones at very similar dates to the Mauretanian material so an eastern source is also possible (MacDonald, p.c.).

Vernet and Onrubia-Pintado (1994: 57) say '*Ces protoberbères sahariens s'enracinent parfaitement dans la tradition néolithique du Sahara central*' which finally becomes a sort of tautology, as this is essentially the definition of 'Protoberber' they have adopted initially. To actually link the concrete language spoken today will require the additional step of considering the linguistic data. Blench (1993, 1995) discusses how linguistic evidence for historical reconstructions of livestock terminology can be linked to archaeological and historical data.

3.5 Linguistic evidence

The argument is broadly that the small ruminant producers who spread west and south from the Nile Valley from ca. 7000 years ago were speaking some form of Berber. If this is so, then linguistic support for this would come from reconstructions of words related to small ruminants. If some livestock terminology can be reconstructed encompassing both Siwa, Awgila and Elfoqaha in the east and Zenaga in south-west Mauretania then it is at least more probable that the spread of Berber speech was related to the diffusion of livestock production and can thus be assigned to the 'Capsian Neolithic'. The present section proposes such reconstructions and also explores some other cultural features associated with the Berbers.

Tab. 1 - Proto-Berber 'goat' *t-ayad-t

| Lect | Attestation | Gloss |
|--------------|-----------------|----------|
| Ghadamès | tēat | chèvre |
| Awgila | tyât | capra |
| Nefousa | tyidet | capretta |
| Siwa | tyaʃ | f. |
| Chleuh | tayaʃ | chèvre |
| Figuig | tyaʃ / tiyidett | chèvre |
| Zenaga | tāq | chèvre |
| East Zenati | tyaaʃ | f. |
| Nefusi | tyaaʃ | f. |
| Sokna | iyid | kid |
| Tayirt | tayat | kid |
| Tawellemet | tayat | kid |
| Mzab | tyaʃ | chèvre |
| Rif | tyaʃ | chèvre |
| Kabyl | tayaʃ | chèvre |
| Middle Atlas | tayaʃ | chèvre |

Table 1 shows a data table for a proto-form *t-ayad-t for 'goat'.

Tab. 2 - Proto-Berber 'male goat' *a-zVlay

| Lect | Attestation | Gloss |
|------------------|-----------------------|---------|
| Awgila | azālaq | caprone |
| Nefousa | zalay | caprone |
| Siwa | zalaq | bouc |
| Tiout (~ Figuig) | azlay | bouc |
| Tawellemet | āzolay | bouc |
| Ayr | ezolay | bouc |
| Ahaggar | āhūlay | bouc |
| Sened | azləy pl. izuləy (La) | male ~ |
| Ghat | ajulay (La) | male ~ |

Table 2 shows a data table for a proto-form *a-zVlay for 'male goat'.

Tab. 3 - Proto-Berber 'goat, kid' *iγayd

| Lect | Attestation | Gloss |
|-------------------------------|--------------------|----------|
| Ghadamès | aeïd | chevreau |
| Awgila | ayîded | capretto |
| Elfoqaha | ayîd, ayêd | capretto |
| Chaouia | iyid | chevreau |
| Nefousa | yid | capretto |
| Chleuh | iyid | chevreau |
| Figuig | iyid pl. iyayden | chèvre |
| Tayirt | eyed | kid |
| Tawellemet | eyed | kid |
| Tamesgrest | eyed | kid |
| Tafaghist | eyəjd | kid |
| Sokna | iyid | kid |
| Zenaga | əjgād ^h | kid |
| Sous, Ntifa, Tachlit | iyəzd | chevreau |
| Rif cluster | igiiḏ | chevreau |
| Rif | iyeyd | |
| Kabyle, Ouargla, Middle Atlas | iyid | chevreau |

Table 3 shows a data table for a proto-form *iγād for baby goat.

Tab. 4 - Proto-Berber 'goats' *welli

| Lect | Attestation | Gloss |
|--------------|-------------|--------------------------|
| Guanche (T) | ara | goat |
| Guanche (GC) | aridaman | flock of - |
| Ghadamès | welli | goats |
| Elfoqaha | ulli | gregge |
| Chleuh | ulli | petit bétail |
| Kabyle | ulli | brebis |
| Figuig | ulli | moutons |
| Ouargla | welli, ulli | livestock herd |
| Tawellemet | wəlli | goats |
| Tamesgrest | wəlli | goats |
| Tafaghist | ulli | goats |
| Rif | uḡḡi | ovins et caprins |
| Zenaga | u'lla'n | brebis, chevres, agneaux |

Table 4 shows a root that was probably a suppletive plural originally, meaning 'flock of goats'. Whether the Guanche forms are truly cognate is uncertain.

Tab. 5 - Proto-Berber 'small ruminant' *t-iγsi

| Lect | Attestation | Gloss |
|--|--------------|---------------------|
| Awgila, Figuig | tixsi | menu bétail |
| Elfoqaha, Ouargla | tixsi | chèvre |
| Kabyle, Chleuh, Middle Atlas, Rif, Chaouia | tixsi | brebis |
| Mzab | tixsi | small ruminant |
| Zenaga | tekši, tòkši | caprin, ovin |
| Tawellemet, Ayr | téysé | tête de menu bétail |

Table 5 shows a root attested for Zenaga and Awgila, probably meaning 'small ruminant'.

Tab. 6 - Proto-Berber 'ram' *ikreri

| Lect | Attestation | Gloss |
|------------|-------------|---------------|
| Nefusa | akrâr | montone |
| Aurès | ikerri | bélier |
| Ouargla | ikerri | bélier |
| Rif | išāri | bélier |
| Zenaga | egrer | bélier |
| Tawellemet | ākār | bélier |
| Ayr | ēker | bélier |
| Ahaggar | ēkrer | bélier |
| Kabyle | ikerri | mouton castré |

Table 6 shows a table for 'ram', *ikreri. The lack of attestation in Awgila and Ghadamès may mean that it was not in proto-Berber, although it is attested in the otherwise divergent Zenaga.

Tab. 7 - Proto-Berber 'ewe' *tehele

| Lect | Attestation | Gloss |
|----------------------|-------------------------------|------------|
| Guanche Gran Canaria | tahatan, tahaxan | ewe |
| Siwa | əttəni | older lamb |
| Nefusa | tili pl. tattən | ewe |
| Tahaggart | tehele or tihəti pl. tihattin | ewe |
| Tayirt | tele | ewe |
| Tawellemet | tiləj | ewe |
| Tamesgrest | tele | ewe |
| Tafaghist | tehele | ewe |
| Zenaga | tijih pl. tatənh | ewe |
| Tachlit | tili pl. tattən | ewe |

Table 7 shows a root for 'ewe'. The consistency of forms both in Guanche and from one end of the Berber spectrum to the other, argues strongly for the presence of sheep production in the earliest phase of Berber culture.

Tab. 8 - Proto-Berber 'ram, lamb'

| Lect | Attestation | Gloss |
|--------------|-----------------------------------|--------------------------------|
| Guanche (GC) | aridaman | flock of goats |
| Ghadamès | ažumar pl. žumarən | ram |
| Elfoqaha | zamar | montone |
| Nefusa | zumar pl. izumar | agnello |
| Siwa | izmər pl. izəmərən | ram |
| Chleuh | izimr | bélier |
| Aurès | izmer | agneau |
| Figuig | izmer | agneau |
| Rif | izmā | agneau |
| Zenaga | əji'mmər^h | ram |
| Sous | izimer pl. izamarən | ram |
| Tayirt | ežemər | lamb |
| Tawellemet | ežemər | lamb |
| Tamesgrest | ažemər | lamb |
| Kabyle | izimer | agneau |
| Middle Atlas | izimer | <i>agneau qui ne tête plus</i> |

The meaning of the root compiled in Table 8 is much less certain, although the geographic spread is very convincing. The *-daman* element in the Guanche citation might be cognate and so is given here.

Tab. 9 - Proto-Berber 'cow' *afunas, tafunast, [tašt]

| Lect | Attestations | Gloss |
|--------------|--------------------|-----------------------|
| Siwa | t(a)funaast | cow |
| | funaas | bull |
| Sokna | tafunast | cow |
| Ghadames | tafunast | cow |
| Tayirt | tašt | cow |
| Tawellemet | tašt | cow |
| Tamesgrest | tašt | cow |
| Tafaghist | tas | cow |
| Zenaga | təffulləš | heifer of 7-12 months |
| Tachlit | tafunäst | cow |
| Tamazight | tafunast | cow |
| Kabyle | tafunast | cow |
| Riff cluster | afunas | |
| Mzab | afunas | bull |
| Wargla | afunas | bull |

Table 9 shows the words for 'cow, bull' divided by the forms cited with and without the t- female affix. Whether the **tašt** forms are cognate with the others is hard to tell; they have been aligned in a separate column at present. Kossmann (p.c.) has also proposed the following as proto Berber although the attestations are relatively few;

Tab. 10 - Proto-Berber 'calf' *agenduz

| Lect | Attestation | Gloss |
|--------------|----------------|---------|
| Kabyle | agenduz | veau |
| Middle Atlas | agenduz | veau |
| Rif | ayenduz | taureau |
| Tiout | ayenduz | veau |

Given the persistent finds, both of ostrich egg-shell (e.g. Camps-Fabrer 1989: 88) and the rock-art representations of dancers with ostrich-plumes (Behrens 1985, 1989) it seemed worthwhile to see if any words for ostrich would reconstruct.

Tab. 11 - Proto-Berber 'ostrich'

| Lect | Root I | Root II | Root III |
|--------------------------|--------------|-------------------------------|--------------|
| Ghadamès | | | awəzz |
| Nefusi | | asil pl. isilən | |
| Sus | | asid pl. isidən | |
| Oued Noun | | asit | |
| Mzab | | asil | |
| Djebel Bani (S. Tachlit) | anhir | | |
| Tahaggart | anhël | | |
| Tawellemet | anil | | |
| Ayr | enil | | |
| Ghat | anhil | | |

Table 11 shows the rather limited set of languages for which a term is recorded;

The forms Zenaga **əlnem** and Mzab **ənnem** are loanwords from Arabic. The presence of an apparently distinct root in conservative Ghadamès argues that a true proto-Berber form cannot be reconstructed. Although there are clearly three distinct roots, they cover a wide geographic spread and it may be that they were originally words for male and female or marked size differences.

3.6 The antiquity of Berber and the significance of overlapping isoglosses

The linguistic evidence suggests rather strongly that the Berbers were a close-knit livestock-producing ethnolinguistic group with a similar lexicon across their entire range. However, it would be unusual for a people that dispersed as long ago as 7000 years to retain such homogenous vocabulary.

Bantu and Polynesian, respectively ca. 4000 and 3500 years old, have split into many more lects than Berber. However, the alternative is to try and tie Berber to some more recent archaeological culture and propose that the Capsian Neolithic represents a wholly different population. No plausible suggestion of this type has ever been made and the equation, Berber = Capsian Neolithic, remains alluring.

Such linguistic homogeneity could therefore only be the result of a constant pattern of migration, back migration and relexification from already closely related languages. One aspect of Berber does suggest that this might indeed have been the case. An aspect of Australian languages that has perplexed scholars is the difficulty of finding isoglosses or sound-shifts with sufficient common geography to define groups of languages or lects. Almost every linguistic feature seems to have its own distribution. This has led Dixon (1997) to argue that Australian languages have reached an 'equilibrium' state. Dixon's generalisation of this argument to other language phyla has been much criticised, but it would seem to apply to Berber. Basset (1936, 1939) undertook a very extensive lexical enquiry into Berber and produced some parts of a remarkable project, a linguistic atlas, regrettably never completed. Later, reviewing his results, he commented on how few isoglosses seemed to match one another (Basset 1952). Drawing lexical and phonological isoglosses produces complex overlapping patterns. In this, Berber seems to resemble Australian more than Polynesian or Ijɔ. In other words, highly mobile populations already speaking closely related languages, constantly encountering one another in open terrain, helped maintain a remarkable uniformity over the 7000 years since they expanded westwards from the Nile Valley.

4. CONCLUSIONS

According to the principles established in (§2.), it should be possible to seek examples of closely-knit language families around the world and see if they respond to archaeological interpretation. Examples comparable to Polynesian, Bantu or Pama-Nyungan are in the minority, but other intriguing cases suggest themselves, notably, Mongolic, Turkic, Ijoid and Berber. Each of these language families are relatively undiverse and each has some association with pastoralism or fishing nomadism. Mongolic and Turkic have spread relatively recently and show a limited degree of diversification compared with agricultural populations. Ijoid remains tightly-knit because its speakers seem to have been mobile fishing populations until recently (Williamson p.c.). Berber is clearly older than these, but nonetheless, remains a good candidate for simi-

lar processes. This suggests that good correlations between language and archaeological data can be made under specific circumstances. To deny the potential of this approach in totality because there are cases where it clearly cannot be applied is to bypass a major source of data for interpreting the past.

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Appendix Table 1. The Berber Languages, outline classification⁴

| | Branch | Sub-branch | Lect |
|------------------------|--|-------------------------------|--|
| Guanche | Guanche† | | Ferro Fuerteventura Gomera Gran Canaria Lanzarote Palma Tenerife |
| Old Numidian Berber | Western isolate | East Numidian † (=Old Libyan) | |
| | | Zenaga | |
| | Eastern isolates | Ghadamès | |
| | | Elfoqaha | |
| | Eastern | Awjila | |
| | | Siwa | |
| | | Sokna | |
| | | Zurg (=Kufra) | |
| | Twareg | Fezzan | Tmesssa |
| | | Tawellemet | Abalagh (=East) |
| | | West | |
| Tayirt | | Ingal Gofat Azerori | |
| Northern Atlas | Tamesgrest | | |
| | Tafaghst | | |
| | Tahaggart (=Ahaggar) | | |
| | Ghat | | |
| Kabyle | Tachlhit (=Shilha) | Senhaja | |
| | Tamazight | | |
| Zenati | Kabyle | Kabyle | Shawiya Tidikelt |
| | | Riff cluster | Tuat Tarifit (=Riff) Ghmara Tlemcen Sheliff Basin Iznasen |
| | Mزاب-Wargla | | Gurara |
| | | | Mزاب |
| | | | Wargla |
| | | | Ghardaia |
| | | | Tugurt |
| | | | Seghrušen |
| | | | Figuig |
| | | | Tmagurt |
| East Zenati | Sened Jerba Tamezret Taujjud Nefusi Zwara | | |

⁴ I have adapted this classification from more conventional sources (e.g. Ameur 1990) on the basis of an unpublished sketch kindly sent me by Maarten Kossmann.

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