

Article

The case of Berber: Some Reasons to Doubt That Neolithic Expansions and Macro-Families Always Coincide

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Abstract: According to one of the current syntheses about linguistic, archeological and genetic data, homelands of linguistic macro-families coincide with epicenters of Neolithic expansion. Among other persons, who are archeologists for the most part, this scenario has been developed and advocated by the Australian archeologist, Peter S. Bellwood. The paper investigates the case of Berber, a branch of the Afrasian phylum. It appears that Berber lexical data very seriously conflicts with this line of reasoning. There are clear signs that the vocabulary of Neolithic realia and activities is *not* inherited in that branch of Afrasian but was borrowed from several sources, which include Latin and Italic languages. There is at least one group, based on primarily linguistic considerations, that does not fit in the equation ‘linguistic macro-family = neolithic expansion’: Afrasian.

Keywords: Neolithic, macro-family, Berber, Afrasian.

1. *Introduction and purpose*

Several scientific fields provide insight into the deep prehistory of mankind. One of the oldest scientific undertakings of that kind is comparative linguistics. On the whole the current *communis opinio* about Proto-Indo-European (PIE) does not differ much in its principles and location from the “Scythic” theory first proposed by Boxhorn in 1654, apart from the modernization of the wording with the neologism “Proto-Indo-European” coined by Thomas Young in 1813. For example Leibnitz (1764:218) reads as follows:

“The language or dialect of the ancient Goths is very different from present-day Germanic, although it draws from the same source. Ancient Gaulish was even more different, to judge from its closest relative, which is Welsh, Cornish and Breton. But Irish is still more different and displays the traces of a very antique British, Gaulish and Germanic tongue. However these languages all come from one source and can be considered to be alterations of one and the same language, which could be called Celtic. In the Antiquity, Germanic and Gaulish people were called Celts, and if one tries to understand the origins of Celtic, Latin and Greek, which have many roots in common with Germanic or Celtic languages, one may hypothesize that this is due to the common origin of all these peoples descended from the Scyths, who came from the Black Sea, crossed the Danube and the Vistule Rivers, of whom one part went to Greece, and the other formed Germanic and Gaulish people. This is a consequence of the hypothesis that Europeans came from Asia.” [my translation of the original in French]

With a few terminological emendations it could nearly be printed today and it cannot be emphasized too strongly that the oft-touted declaration of Jones in Calcutta in 1876 had nothing original at all and that comparative linguistics is about one and a half century older than Jones. More recently during the 18th and finally 19th century archeology developed its own methods and frameworks. Yet more recently during the last half of the 20th genetics grew at exponential speed and now tends to shed light

on about every possible topic. A field which still seems to be at a quite embryonic stage is comparative mythology but it will certainly add its own wealth of data and insights in the future.

Being obtained according to independent frameworks and different purposes, dealing with epistemological entities that have not been predetermined to overlap, it is hardly a surprise that all these fields provide results, theories and insights that do not necessarily nor easily match. This situation has not deterred the boldest from attempting syntheses. One of them has it that linguistic macro-families around the world coincide with the different centers of Neolithic expansion. Among other people, archeologists for the most part, this scenario has been advocated by Peter S. Bellwood (2005, 2009), a well-known Australian archeologist, who has been gradually developing these ideas for some thirty years. The theory is to a large extent a generalization of the particular case of Austronesian to all linguistic families. It seems indeed quite reasonable and attractive to think, believe or hypothesize that the improved availability of food allegedly generated by Neolithicization can account for demographic expansion, therefore resulting at the same time into the geographic expansion of those groups who practice neolithic activities. Incidentally these people were speakers of some kind of proto-language, which spread and split into daughter-languages during that process of geographic and cultural expansion, thereby creating a family, that is to say a set of genetically related languages, or a macrofamily on a larger scale. Accordingly in an inverted perspective, linguistic macrofamilies, which originate in a number of proto-languages, can - or should I say have to? - be linked to centers of Neolithic expansion. As a consequence most (pre-)historical syntheses currently written on these issues are somehow tailored to suit that line of reasoning. In the field of linguistics a prominent example is the nostraticist Allan R. Bomhard (2008), who connects the Nostratic super-family with the Near-Eastern Neolithic. Logical as the reasoning or the process may seem at first glimpse it can be noted that the *communis opinio* about PIE has so far resisted the theory proposed by Colin Renfrew (1987) of an Anatolian origin of Neolithic dating. The steadfast rejection of that theory by most indo-europeanists has not deterred Bellwood-Renfrew (2002) from promoting it, without addressing the large body of linguistic and lexical objections. The table in Bellwood (2009:244) even claims that the “probable area of origin according to linguistic comparisons” for PIE is “central or oriental Anatolia”, when it is clear that this area was occupied by Hatti and Hurro-Urartian languages and therefore cannot be the homeland of PIE. But this is not the main focus of the present paper to deal with PIE, even though these points underline the partial and mostly archeology-driven nature of that “synthesis”, which does not deal with linguistic material in a way that is acceptable from a linguistic point of view.

The article deals with the case of the Berber branch of Afrasian and aims at showing that Berber dialects provide a clear case that the paradigmatic equation ‘linguistic macro-family = neolithic expansion’ is false in the case of Afrasian, and thereby of Nostratic *sensu largo*. On the whole I focus mainly on the linguistic side of the issue, which shows that Berber does not provide any inherited vocabulary pertaining to Neolithic realia and activities, contrary to what would be expected if Berber resulted from an expansion of Neolithic dating. About all the lexemes in connection with agriculture and breeding, and to a lesser extent with fruits, domestic animals and weaving, appear to be borrowings, many of them even surprisingly of Latin or Italic origin, or display irregular sound correspondences, a feature that undermines any claim that Neolithic activities were known to Proto-Berber speakers. As a conclusion Proto-Berber did not expand with Neolithic, on the contrary Neolithic came to Proto-Berber dialects, which were probably occupying an area similar to that where they are attested nowadays.

2. Presentation of Berber

The Berber family is a genetic group with easily recognizable features from the morphological and phonetic point of view. In addition to the Tuareg branch in the south of the Berber-speaking area, there remains in Morocco a large percentage of Berber native speakers, who can be assigned to three main dialectal areas: *Chleuh* (or tachelhit, tasusit) in south Morocco, *Amaziɣ* (or tamaziɣt) in the center and *Rifian* (or tarifit) in the north. In Algeria, the main dialects are *Kabyle* (or taqbaylit) and *Chawi* (or taçawit) in the Aurès mountains. These dialects are still spoken by several million people on a daily and regular basis. Some vulnerable and isolated spots in Egypt, Libya, Tunisia and Mauritania still

exist. The usual French tradition resorts to the word *dialect* rather than *language* to describe the different Berber idioms. I will keep this word as is common practice by most berberologists. It must nevertheless be noted that from a sheer technical point of view most dialects actually amount to independent languages. Berber is not a single language but a family of languages. In the rest of the article, I will add a capital letter to the names of the dialects as is usual in English. An uptodate bibliography for the lexical material of each dialect as of November 2010 is available in Fournet (2010b) and (2012).

Berber has long been detected to be a close relative of Hieroglyphic Egyptian and Semitic. Berber verbal affixes are strikingly similar to those of Semitic, both in form, function and position as prefixes or suffixes, even in the Touareg branch that is only marginally influenced by Arabic. That feature must be inherited from the common ancestor of Berber and Semitic, as noted by Lipiński (2001:44). The connection of Berbero-Semitic with Egyptian and its Coptic daughter dialects is less striking and is more of a lexical nature. The classical perimeter of that (macro)-family was reached in 1844 and involved Berber, Semitic, Egyptian, Chadic and Cushitic at that time. It became known as *Hamito-Semitic* in 1876. In recent years the name has changed to *Afrasian* or *Afro-Asiatic*. This change entails more than terminological cosmetics as the perimeter of Afrasian was enlarged to include Omotic and a number of languages like Beja, which has unclear affinities with any of the already established subfamilies. The issue of the most valid perimeter for Afrasian will not be discussed here. It is nevertheless egregious that people who promote the large perimeter like Ehret (1995) focus on the new-comers like Omotic and hardly deal with the core members: Semitic, Egyptian, Coptic and even less with Berber. In that respect Lipiński (2001:42) is rather conservative and retains only the five classical core members. It must be emphasized that Cushitic seems to be a rather clear group but Chadic is a kind of quagmire. For example it is impossible for me to understand on which grounds a language like Uldeme in Cameroon, supposedly belonging to the Biu-Mandara subbranch of Chadic, can be classified as Afrasian or even Chadic, if Hausa is taken to be representative of (legitimately Afrasian) Chadic. A number of languages lumped into Afrasian certainly do not belong there. In all cases the sound methodology to address the issue of a valid perimeter would demand that Proto-Berbero-Semitic be reconstructed first, as it is doubtless a valid node, then be compared with Egyptian, Coptic and Cushitic. Once a clear picture has been established of these languages, it would become possible to make a relevant assessment of the position or relationship of the other languages. Needless to say that this is only a wish at the present time.

Afrasian itself can be included at an even higher level into Nostratic, an enormous group that tentatively include most families of Northern Eurasia. Nostraticists can be classified in four main schools: (1) the Charleston school represented by Bomhard, (2) the Old Moscow school represented by Illič-Svitič, (3) the Moscow school represented by Starotin, father and son and their colleagues, and (4) the Tel-Aviv school, which is to a large extent an offshoot of the Old Moscow school. There is a growing tendency to hold that Afrasian is best dealt with as a sister-family of Nostratic *stricto sensu*, rather than a daughter-family of Nostratic *stricto largo*. The word 'Nostratic' is therefore somewhat ambiguous as it may or may not include Afrasian, depending on which option is chosen. In all cases Proto-Afrasian is much older than PIE and this point is relevant to the present discussion.

As a last word of presentation of Berber it must be noted that the field is not mature. Most Berber dialects have only very recently been described in dictionaries and grammars, during the last twenty years. This accounts for the meager involvement of Berber in most comparative works, be they in the Afrasian or Nostratic perspective. In Fournet (2010b) and (2012) I was able to describe sound changes that have not been detected before. They are presented in the second part of the paper.

3. *The issue of the Afrasian homeland*

Afrasian occupies the northern part of Africa with Semitic extending into the Near-East. This is the reason why the name Hamito-Semitic was changed to Afrasian or Afro-Asiatic by Greenberg following the example of the word 'Indo-European'. As noted by Bellwood (2005:209) there are two types of theories about the Afrasian homeland: the Near-East itself, where Semitic is attested and

would seem to originate, and somewhere in North Africa, in general preferably in the north-eastern corner around Sudan or Ethiopia.

From a sheer linguistic point of view the strong connections between Berber and Semitic are an issue as Egyptian lies in between geographically but is not at all a linguistic transition between them. This clearly suggests that either Semitic or Berber (or both) changed their original locations in the past. Considering that four of the five clearest families of Afrasian and the main isoglosses are located in North Africa, it is more or less inevitable to conclude that Semitic does not originate in the Near-East. Semitic is the Afrasian equivalent of Indo-Aryan in India: a subgroup of languages with a completely eccentric position. A theory of Afrasian out of the Near-East is about as unacceptable as the Out-of-India theory of PIE. The body does not grow out of the hair, nor the tree out of the leaves. The homeland of Afrasian must reflect the internal subbranchings of that family. Somewhere close to Berber, in the middle of Chadic, Egyptian and Cushitic is the place to look. In all cases this situation ruins the claim that Afrasian could have something to do with the Neolithization of the Near-East as proposed for example by Bomhard (2008:226-227):

“Diakono[v] (1988:23—25) presents a summary of several of the proposals — his own view is that Afrasian was located in the “South-Eastern Sahara (say, between Tibesti and Darfur)”. Another hypothesis has been advanced by Yuri Militarëv. According to Militarëv, the original Afrasian homeland was in the Middle East and the Arabian peninsula (cf. Diakono[v] 1988:24). Diakono[v] (1988:32, fn. 14) further clarifies Militarëv’s views (note also the map given by Shnirelman [1997:159]):

A more precise identification was proposed by Militarev and sustained from the archaeological and historical side by V. Shnirelman. In their opinion, the Proto-Afrasian speakers were the Natufians of the well-known early Neolithic culture of the Palestinian-Syrian area.

In my opinion, Militarëv’s proposals have great merit.”

The theory of a Near-Eastern homeland for Afrasian more or less explicitly states that Natufians were Proto-Afrasian speakers. Bomhard (2008:226-7) accepts that point. The same line of reasoning is developed by Diamond-Bellwood (2003:601). On the contrary the North-African homeland is favored by Lipiński (2001:44), who does not mention Diakonov:

“Although the available data and the very incomplete lexicostatistical studies must be regarded as preliminary, the conclusion from purely linguistic evidence seems inescapable that the Proto-Chadic languages, followed by Egyptian, were the earliest to separate from the common trunk, while Proto-Semitic maintained, for some time, closer language contacts with Libyco-Berber and with Cushitic. This implies that the speakers of Proto-Semitic were still dwelling in Africa in the 5th millennium B.C., in the Neolithic sub-pluvial (ca. 5500-3500 B.C.), when the Sahara’s climate was much wetter”.

Bellwood (2003) mentions three points relevant to the issue of the Afrasian homeland that are worth reading and commenting:

“The core case for the Levant school is based on the following observations:

1. Glottochronological considerations, calibrated against data on ancient Egyptian and Semitic languages (Greenberg 1990:12), suggest that [Proto-Afrasian] is perhaps a little older than PIE (between 1000 and 7000 BC).” Bellwood (2003:209)

It must be noted that for what now amounts to two centuries comparatists and linguists have constantly considered that Afrasian, or at that time Hamito-Semitic, was considerably older than PIE and that the relationships between Afrasian languages were much looser than those which unite IE languages. For that matter some people prefer the term *phylum* rather than family or super-family in the case of Afrasian to emphasize that looseness feature. This point also underlines a contradiction in the

paradigmatic equation ‘linguistic macro-family = neolithic expansion’: Afrasian and PIE cannot both originate in a speech community of Neolithic dating because the former is considerably older than the latter.

2. “The reconstructed vocabulary of [Proto-Afrasian] does not contain any specifically agricultural cognates, but it does include names for a number of plants and animals, that are of Asian, not North African origin (sheep, goat, barley, chickpea, for instance Bla[ž]ek 1999, Militar[ě]v 2000, 2003). Militar[ě]v favors early agricultural correlations.” Bellwood (2003:209)

This point will be dealt with extensively in the second part of the paper.

3. “Proto-Semitic is of undoubted Levant origin and has a full agropastoral vocabulary (Dolgopolsky 1993, Diakonov 1998).” Bellwood (2003:209)

Quite strangely Bellwood (2003:209) and Bomhard (2008:226) draw completely opposite views out of the same document: Diakonov (1998). As a conclusion it would therefore appear that Afrasian does not have a truly agricultural profile but that a number of words can nevertheless be traced to a Near-Eastern origin. This is the issue that will be examined in the rest of the paper. It will be tested against the lexical evidence of a particular Berber dialect: Kabyle, spoken in Algeria. There is no doubt that Kabyle is a Berber dialect and from a grammatical point of view it displays a number of conservative features as noted by Kossmann (1999:91). It constitutes a relevant touchstone for a number of claims, which the paper will now proceed to investigate. Additional data are also drawn from other dialects in so far as they add clarity rather than confusion.

4. *The Latin loanwords attested in the Kabyle dialect*

Dallet (1982) is a dictionary of Kabyle, which often indicates the origin of presumable loanwords. A number of Latin loanwords are thus identified. They will be discussed below. At first sight it seems quite natural that Kabyle has borrowings from French or Romance languages because of the colonial presence of France in that area. The existence of Latin borrowings is due to the Roman conquest of the Maghreb after the defeat of Carthage *ca.* 146 BCE. Latin was then to be spoken in Maghreb for about 850 years until the Arabo-Islamic conquest. This historical fact, generally forgotten or overlooked, has lexical consequences. The number of Latin speakers probably remained fairly low but the number of loanwords from Latin into Kabyle is significant. They have been first studied by Schuchardt (1918) and Lewicki (1953). And what is even more interesting than their sheer existence is the semantic fields of these borrowings.

As a general rule Berber words do not follow a three-consonant rule, as in Semitic. Long and complex consonantal skeletons are usually not native. They often betray a foreign origin. Apart from Latin as a source, ancient loanwords also include Greek loanwords like Kabyle *ibellireğ* ‘stork’, with four consonants, from Greek *πελαργός*, this word having a new native vocalic scheme. Phoenician loanwords are rarer and often difficult to distinguish from more recent Arabic loanwords. A clear item of Punic origin is the word ‘onion’, incidentally a vegetable: Augila *bzalim*, Tachelhit *azelim*, Wargli *zalim* and Mzab *zalim*. These words derive from **bəzalim* where the typically Cananean plural **-im* is suffixed to the Semitic word **bašal*. The phoneme **b* (> **h* > \emptyset) regularly falls in most dialects when in contact with emphatics. Cf. Fournet (2010a) on this issue. The Arabic word *bašala* exists in Kabyle *lebšel*. The item **bəzalim* is not attested in Tuareg but it can be noted that it is found from the east in Augila to the west in Tachelhit. Another Phoenician loanword is **ayanim* ‘reed’ attested in Kabyle, Tachelhit, etc. In some cases the origin of wanderwords is not clear: for example Kabyle *asaku* ‘grand sac pouvant contenir un quintal de blé [huge bag with a capacity up to one hundred kg of wheat]’ could be from French *sac*, Latin *saccus*, Greek *sakkos*, or even Phoenician-Punic *𐤍𐤔𐤓𐤌* *śaq* (with *sin*). Dallet (1982: 766) proposes a Latin origin, which is coherent with the absence of emphatics in the word.

The following words are marked as having a Latin origin in Dallet (1982). The somewhat idiosyncratic graphic system used in the book has been modified as follows: underlined letters are spirants, otherwise they are stops. Additional items bearing striking similarities with Latin, but not marked as such in Dallet (1982), are listed in the next paragraph:

- Kabyle *buğamber* ‘décembre, période de grand froid [december, period of cold]’. Cf. Latin *december*, the Kabyle word has *b̄*- instead of *d*- for some unknown reason,
- Kabyle *blitu* ‘blette [chard]’. Cf. Latin *blitum* < grec *bliton*,
- Kabyle *yebrir* ‘avril [April]’. Cf. Latin *aprilis*,
- Kabyle *afalku* ‘faucon [hawk]’. Cf. Latin *falco*,
- Kabyle *fleggu* ‘menthe pouliot à fleurs bleues [pennyroyal]’. Cf. Latin *pule(g)ium*,
- Kabyle *ifilku* ‘fougère [fern]’. Cf. Latin *filix*,
- Kabyle *furař* ‘février [February]’. Cf. Latin *februarius*,
- Kabyle *ifires* ‘poires’ [pears] (collective word). Cf. Latin *pirum*. The sound change *p* > *f* is strange and suggests a very ancient loanword, which has undergone one of the changes evidenced in Afrasian cognates, or it may not be a Latin loanword,
- Kabyle *iger* ‘champ labouré et ensemencé [plowed and sown field]’. Cf. Latin *ager*,
- Kabyle *tagerfa* ‘corbeau [crow]’. Cf. Latin *corvus*. Dallet (1982: 272) holds it to be Latin but it could also be Arabic *ğurba*. Cf. Ghadames *uđerf*, *tugerft*,
- Kabyle *akerruř* ‘broussaille de chênes verts [oak-tree grove]’. Cf. Latin *quercus*,
- Kabyle *taktunya* ‘coing, cognassier [quince(-tree)]’. Cf. Latin *cotonea* < Greek *cydonia*. Phonetics suggests that Latin is an indirect loanword through Etruscan, this plant is of Near-Eastern origin,
- Kabyle *ulmu* ‘orme [elm]’. Cf. Latin *ulmus*,
- Kabyle *maggu* ‘mai [May]’. Cf. Latin *maius* (*mensis*), with consonantal hardening *-i-* > *gg*, which is also attested in Arabic loanwords,
- Kabyle *amureğ* ‘marc d'huile [olive marc]’. Cf. Latin *amurca* or maybe better Greek *amorgē*, because of voiced *g*,
- Kabyle *lemsetka* ‘mastic tiré du lentisque [kind of mastic]’. Cf. Late Latin *masticum* < Greek *mastikhē*,
- Kabyle *errigla* ‘règle (pour tracer) [(drawing) rule]’, *tarigla* ‘montant vertical [vertical beam of weaving loom]’. Cf. Latin *regula*,
- Kabyle *urti* ‘verger (spécialement de figuiers) [orchard (especially of fig-trees)]’. Cf. Late Latin (*h*)*ortus*, with no trace of initial *h*-,
- Kabyle *tuber* ‘octobre [October]’. Cf. Latin *october*,
- Kabyle *therna* ‘taverne, cabaret [inn, pub]’. Cf. Latin *taberna*,
- Kabyle *atmun* ‘timon (de la charrue) [plow beam]’. Cf. Latin *timonem*,
- Kabyle *tayug(w)a* ‘paire, couple ; joug de deux boeufs [pair, couple; yoke of two oxen]’. Cf. Latin *juga* plural of *jugum*.

Other words not listed as Latin are nevertheless close phonetically to this language:

- Kabyle *beř* ‘uriner [to urinate]’. Cf. Latin *piss-are*,
- Kabyle *abely^wezfan* ‘oblong’, Cf. Latin *oblongus*, with an expressive suffix *-zfan*,
- Kabyle *aberg* ‘[a rod which was used in the old potter's wheel]’, Ghadames *abarg* ‘poutre [beam]’, Augila *aberg* ‘pillon [pestle]’. Cf. Latin *fulcrum* ‘beam, pillar’,
- Kabyle *tabburt* ‘porte [door]’, Ghadames *tabburt*, Augila *teburt*, Tahaggart *tahort*. Cf. Latin *fores*,
- Kabyle *bri* ‘concasser, écraser’ and *fruri* ‘être émietté, en morceaux [to grind, crush]’, Ghadames *abræg*, Tachelhit *bri*, Middle Atlas *brey*, Mzab *břuri*, Wargli *bruri*, Chawi *bri*. Cf. Latin *frio*, *frango*,
- Kabyle *ibawen* ‘fèves [beans]’, Ghadames *ababba*, Augila *biw*, Ghat *ababaw*, Siwa *awaw*, etc. Cf. Latin *fava*. This word has long been detected to be a potential loanword but this is not indicated in Dallet (1982), the phonetics of *ibawen* is more Italic **b^hab^ha* than Latin,

- Kabyle *afurk* ‘branche [branch]’, Tawellemet *afargagga* ‘branche de palmier [palm-tree branch]’. Cf. Latin *furca*,
- Kabyle *agernin* ‘arrière du crâne [back of the skull]’, Tawellemet, Tayert *takar̄kort* ‘crâne [skull]’. Cf. Medieval Latin *cranium* from Greek *kranion*. *Agernin* is supposed to be from Arabic \sqrt{qrn} in Dallet (1982: 274) but this does not explain the Kabyle initial and the Arabic word itself is a potential Greek loanword,
- Kabyle *egres* ‘gel, glace [ice]’, Tawellemet, Tayert *aḡaris* ‘glace [ice]’. Cf. maybe *glacies* > Romance **glats-*,
- Kabyle *kkal* ‘cailler [to curdle]’. Cf. Latin *coagulare* > Romance **kagl-*, possibly a late loanword of Romance dating,
- Kabyle *tikulma*, ‘écheveau [skein]’. Cf. Vulgar Latin **skabellum*, with vocalization of *b/β* into *u*,
- Kabyle *ekred* ‘gratter [to scrape]’, Tawellemet, Tayert *kar̄kar* ‘gratter [to scrape]’. Cf. Late Latin *grattare* < Germanic,
- Kabyle *ikerrez* ‘labourer [to plow]’. Cf. Latin *carrus* of Gaulish origin. A widespread Berber word, often represented with a palatalization as $\sqrt{šrz}$. Quite surprisingly it seems that this obvious loanword has remained so far undetected,
- Kabyle *aldun* ‘plomb [lead]’, Mzab, Wargli *buldun* (with #b-), Zenaga *aldun*, Tahaggart *aHaldom* ‘plomb, étain [lead, tin]’, Ghat *ahellum*. Cf. Latin *plumbum*. This wanderwort of unclear origin has the neuter ending *-um* typical of metals in Latin, it is unclear whether the final *-on* should be attributed to Greek or not,
- Kabyle *mmur̄des* ‘mourir ou être égorgé non rituellement [to die or to be killed without respecting ritual principles (said of animals)]’. Cf. Latin *mori*, *mortuus* with final *-s*,
- Kabyle *imriy* ‘être très salé, saumâtre [salty, brimy]’. Cf. maybe Latin *amārus*,
- Kabyle *tarubya* ‘garance [madder]’. Cf. Latin *Rubia (tinctoria)*,
- Kabyle *erfu* ‘être en colère [to be angry]’. Cf. Latin *rabio*,
- Kabyle *tisila* ‘sandale, semelle [sandal, sole]’. Cf. Latin *solea*,
- Kabyle *awren* ‘farine [flour]’, Ghadames *abarn*, Augila *brun*, Siwa *aren*, Mzab *wiren*, etc. Cf. Latin *farina*. The connection is obvious but it has been rejected by Schuchardt (1918) or Kossmann (1998) among others,
- Kabyle *ewzen* ‘peser, mesurer [to weigh, to measure]’, Ghadames *azbed* ‘mesurer [to measure]’, Augila *ḡbaṭ* ‘peser (des céréales) [to weigh (cereals)]’, Tarifit, Mzab, Wargli, Metmata *ized* ‘peser [to weigh]’, Ghat *azed* ‘mesure pour les céréales [measure to weigh cereals]’. Cf. maybe Latin *pe(n)so*, *pe(n)sito* ‘to weight’ if we accept a chain: *pe(n)s-* > [pez] > Berber **[bz, zb]*. The Kabyle word is tainted by Arabic *bazana* ‘to weigh’,
- Kabyle *tayerza* ‘labour [ploughed field]’. Cf. Latin *aro*, or better French *herser* < Latin *herpic-*. In the latter case this is a late Romance loanword. Dallet (1982: 422) derives this root from *krz*, without explaining how *k* could become *y* in Kabyle.

Kossmann (1999) also proposes that the Berber word **abrid* ‘path, road’ is from Latin *veredus* ‘post horse’. Semantically and phonetically this is quite hard to accept. It can be noted that the loanwords shed light on the morphology of Latin grammatical genders:

- Masculine: (1) *mmur̄des* ‘[to die or to be killed without respecting ritual principles (said of animals)]’ < Latin *mortuus* with final *-s*, (2) *ikerrez* ‘[to plow]’ < Latin *carrus* of Gaulish origin, (3) *akerruš* ‘[oak-tree grove]’ < Latin *quercus*,
- Feminine: (1) *tarubya* ‘[madder]’ < Latin *Rubia (tinctoria)*, (2) *tberna* ‘[inn, pub]’ < Latin *taberna*, (3) *taktunya* ‘[quince(-tree)]’ < Latin *cotonea* < Greek *cydonia*,
- Neuter: *aldun* ‘[lead]’ < Latin *plumbum*,

Some loanwords seem to be of Romance rather than Latin dating: Kabyle *kkal* ‘[to curdle]’ < Romance **kagl-* < Latin *coagulare*. A possible loanword in the opposite direction is Latin *tamariscus* which can be analyzed as the unattested (feminine gender) **tamar* of Kabyle (masculine gender) *amar* ‘tamarisk’, the root being $\sqrt{m(a)r}$ with masculine article *#a-* ~ feminine article *#ta-*. This tree is indeed of North African origin.

5. The semantic fields of Latin loanwords

As described in Kossmann (1999: 24-25) Latin loanwords are not at all limited to Kabyle:

“The Roman colonization has resulted in a high number of Latin borrowings in Berber (Cf. mainly Schuchardt 1918). Among others they pertain to architecture (Ghad *okamir* ‘arch, room with arches’ < *camera* ‘chamber’), agricultural techniques (chleuh *tayyuga* ‘pair of oxen’ < *jugum*), plants (Chleuh *ikikr* ‘chickpea’ < *cicer*), young animals (Figig *fullus* ‘chick’ < *pullus*, *asnus* ‘young donkey’ < *asinus* ‘donkey’) and Judeo-Christian words ([Tahaggart] *anğelus* ‘angel’ < Latin *angelus*).

A difference must probably be made between borrowings of the most ancient period, where the ending *-us* is kept (*fullus*, *asnus*, etc.) and more recent borrowings. One may here think of solar months, which already have a Romance outlook (Figig *nnayer* ‘January’ < *januarius*) (Schuchardt 1918:66). A Romance language probably used to be spoken in North Africa until the Arabo-Islamic invasion occurred (Lewicki 1953).” [my translation of the original in French]

Kossmann (1999) explicitly indicates the semantic fields where Latin loanwords can be found in Berber in general: architecture, agricultural techniques, plants, young domestic animals. In addition to the verb *krz* ‘to plough’, *iger* ‘ploughed and sown field’, *atmun* ‘plow beam’ and *tayugga* ‘pair of oxen’, it can be noted that a few Berber dialects also have: Ntifa *səkka*, *ta-skki-t* ‘soc de la charrue [plow share]’ (Laoust 1920: 282 & 285), Mzab *skkə-t* ‘charrue [plow]’, *skka* ‘labourer [to plow]’ (Laoust 1920: 282 & 285). It is intriguing that this word sounds like Gaulish *sokk-* ‘plow share’, also attested in Irish *socc* and Welsh *swch* just in the same way as *krz* ‘to plow’ sounds like *carrus*. The exact coincidence of form and meaning sheds some doubt on the connections with Afrasian words proposed in Orel-Stolbova (1995). The best putative match is with Egyptian *sk*, *sk3* ‘to plow’, *sk3* ‘plow ox’. Other words have vaguer meanings: ‘to sow, seed’. It would seem that the similarity with Egyptian is a chance coincidence as this Egyptian putative cognate can be explained on an internal basis as being a derivative of Egyptian *sk* ‘to strike, to cut, to fight’ hence ‘to cut the soil = to plow’. In view of the general picture nothing makes this item a compelling cognate between Berber and Egyptian, much to the contrary. In my opinion it is one more Latin borrowing.

In other words, in order to summarize available data, more than 40 words in Kabyle alone have convincing similarities with Latin. Some of them appear even in Tuareg. Additional Latin loanwords can be detected in the other Berber dialects. The most secure items pertain to the following semantic fields:

- Calendar: *buğamber*, *yebrir*, *furar*, *maggu*, *tuber*, respectively: December, April, February, May, October,
- Agriculture : *blitu*, *awren*, *bri*, *fruri*, *ibawen*, *ewzen*, *ikiker*¹, respectively: chard, flour, to grind, beans, to weigh, chickpea,
- Plowing: *iger*, *ikerrez*, *atmun*, *skka*, *tayugga*, respectively: plowed and sown field, to plow, plow beam, plow share, pair of oxen,
- Garden-keeping and fruits: *ifires*, *taktunya*, *amuřeğ*, *urti*, respectively: pears, quince, olive marc, orchard,
- Young domestic animals: *fullus*, *asnus*, respectively: chick, young donkey,
- Nature : *fleggu*, *afalku*, *ifilku*, *tagerfa*, *akerruš*, *ulmu*, *afurk*, respectively: pennyroyal, hawk, fern, crow, oak-tree grove, elm, branch,
- Technical words: *lemsetka*, *errigla*, *tarigla*, *abely*^w *ezfan*, *aberg*, *tabburt*, *kkal*, *tikulma*, *ekređ*, *aldun*, *tisila*, respectively: mastic, (drawing) rule, vertical beam of weaving loom, oblong, (a kind of) rod, door, to curdle, skein, to scrape, lead (metal), sandal,
- Miscellaneous : *therna*, *beš*, *agernin*, *mmurđes*, *tarubya*, *erfu*, respectively: tavern, to piss, back of skull, (found) dead, madder, infuriated.

¹ This word is not attested in Kabyle but in Tachelhit.

The dependence of agriculture on the Roman (Julian) Calendar is explained in Drouin (2000: 113-127). Even the Islamization, the promotion of the lunar-based calendar used in Islamic computation and the religious condemnation of the sun-based calendar have not been able to replace the general use of the sun-based calendar which is most adapted to the natural cycles and agricultural purposes. The Roman (Julian) Calendar is too crucial for farming to be abandoned. This means that about 80% of Latin loanwords are directly linked with agriculture, farming and gardening. It is revealing to compare Berber with French. Gaul was conquered by the Romans and French retained more than 100 words from Gaulish, most of them have a relationship with countryside and farming. The most conspicuous exceptions are *embassy* and *vassal*. Maghreb was conquered by the Romans, Latin was spoken there for 850 years. As a result more than 40 loanwords can be detected in Berber: 80% of them are directly linked with agriculture, farming and gardening, that is to say the exact opposite of Gaulish. On top of that some of these Latin loanwords are in fact even originally borrowed from Gaulish. How come that basic activities and realia relative to farming, plowing and gardening are Latin loanwords in Berber, if Berber had any previous knowledge of these Neolithic activities?

It is well-known that the simplest and most frequent cause of borrowing is the need to get a word for something new that the language previously could not describe. This raises the issue of the minimal lexical competences that can be expected from a Neolithic farmer. What did the Berbers really know about agriculture, farming, gardening, etc. *before* Romans came there? Where are the Afrasian inherited words in Berber that have a connection with Neolithic? It seems to me that the logical conclusion is that Berber knowledge of agriculture before the Roman conquest was close to nil. They learned everything from the Romans.

6. *The issue of breeding*

As mentioned before, Bellwood (2003:209), following Militarëv (2000, 2003), maintains that a number of words and concepts: ‘sheep, goat, barley, chickpea’, of Near-Eastern origin were known to Proto-Afrasian speakers, and therefore to Proto-Berber speakers. This is an issue that needs to be examined and checked. The first part of the paper has shown that Proto-Berber speakers had no knowledge of agriculture and there remains a possibility that they were nevertheless acquainted with breeding and some agropastoral activities.

Besides as regards ‘chickpea’ we have already mentioned that Tachelhit is *ikiker* of Latin origin *cicer* ‘chickpea’. It can be noted that initial reduplication is not infrequent in Latin for names of plants or animals: *cicer*, *cucumber*, *populus* ‘poplar’, *papillio* ‘butterfly’, *pipio* ‘pigeon’, etc. Besides *cicer* is the nickname of *Cicero* (-106, -43). There is in fact no Afrasian word for ‘chickpea’: this meaning is attested only in Cushitic for a general root **ša(m)bar* that describes ‘grain’ in general, and especially ‘millet’. It can be noted that the fruit of Near-Eastern origin: *taktunya* ‘quince’ is also a Latin loanword. Why did Proto-Berber speakers borrow Latin words for Near-Eastern realia if they are supposed to come from there?

In Fournet (2010b) and (2012) I have proposed that contrary to the traditional point of view Afrasian gutturals have not muted out in Berber but have become palatalized. The reality of these sound changes cannot be doubted and they are sometimes applied to ancient borrowings where a guttural is certain: Semitic **h_m_s* ‘five’ > Berber **^Es_m_s*, attested in Tawellemmet (Niger) *^Esəmmos* (with emphasis), Tayrt (Niger) *^Esəmmos* (with emphasis), Tahaggart (Algeria) *^Esəmmus* (with emphasis), Ghadames (Libya) *səmməs*, Tachelhit (Morocco) *səmmus*, Wargli (Algeria) *səmməs* and Zenaga (Mauritania) *šəmmuš*. The new sibilants generated by palatalized gutturals have sound correspondances that are different from those of the inherited sibilants throughout Berber dialects. In general the inherited sibilants **s* and **z* remained stable. Minor alterations are either palatalizations in the vicinity of **i* or emphatizations in southern Tuareg in that of **u*. In contrast with that situation previously pharyngeal phonemes that have become sibilants display a sharp distinction between:

- **z/ž* in northern Berber and **z* in Tuareg for Proto-Afrasian **ʕ*,
- **s* in northern Berber and **š* in Tuareg for Proto-Afrasian **h*.

Proto-phoneme	Traditional hypothesis	Fournet (2010b)	Kabyle	Tawellemmet
*ʔ	∅	∅	∅	∅
*h	∅	*z	z	z
*z	*z	*z	z	z
*ʕ	∅	*ž	ž	^E z
*ħ	∅	*š	s	^E š
*s	*s	*s	s	s

Comparative table for the diachronic origin of sibilants

Gutturals were frequent and fundamental phonemes of Proto-Afrasian. Examples of guttural palatalization quite logically involve the basic vocabulary of Berber. The following words display palatalization of gutturals and follow the rules described in the table above: *big, bitter, to break, to catch, to chew, claw, cold, day, to drink, to eat, eye, to fall, to get tired, hair, to hear, moon, nail, nipple, red, to rub, genitalia, sky, star, to tie, to weave, wind*. All the relevant data are provided in Fournet (2010b). The same sound laws apply to three zoonyms: *cat, dog, donkey*. Cats and donkeys originate in North Africa, so it is not a surprise that their zoonyms follow regular sound correspondences, if Proto-Berber originates in North Africa. A recent work by Gifford-Gonzalez-Hanotte (2011:13-16) confirms the Nubian origin of the domesticated donkey and mentions that the (self-)domestication of the cat probably occurred on multiple occasions. The word ‘dog’ is not a surprising regular cognate either as dogs are a very ancient companion of man and of hunter-gatherer groups.

The traditional hypothesis of the muting out of gutturals in Berber is not just wrong. It has a number of unfortunate consequences. It fails to see that many words of Berber dialects are in fact inherited from Afrasian and do not come from some “substratic” language. There is no pre-Berber substrate: the problem is that the standard theory is false. These words are Afrasian, once the sound correspondences are properly dealt with. The next point is that a number of words with sibilants follow neither the regular inherited sibilants nor the regular palatalized gutturals. For example, in Northern Berber /ž/ is the regular reflex of the voiced pharyngeal */ʕ/. Regular examples are:

- Proto-Afrasian *k^ʕ_n ‘dog’ ~ Northern Berber *q_ž_n
- Proto-Afrasian *t^ʕ ‘to eat’ ~ Northern Berber *tš (alternating with *tt)

Two of the irregular words are:

- Proto-Afrasian *ʕ^ʕ_m_r ‘lamb’ ~ Northern Berber *z_m_r
- Proto-Afrasian *n^ʕ ‘toe, finger, hoof’ ~ Northern Berber *n_z

Proto-Afrasian *ʕ^ʕ_m_r ‘lamb’ is represented in Classical Arabic by *yaʕmūr* ‘kid, small lamb’ and *ʕumrūs* ‘lamb’. Classical Arabic also has a wanderwort *ʔimmar* with alteration of the pharyngeal into a glottal stop. Berber words which can be compared with Semitic are:

- Tamazight (Morocco) *izimer* ‘lamb’ (irregular)
- Kabyle (Algeria) *izamaren* ‘lamb’ (irregular: should have -ž- like in *aqžun* ‘dog’)
- Tawellemmet (Niger) *ažemar* ‘lamb’ (irregular: should be emphatic)
- Tairt (Niger) *ažemər* ‘lamb’ (irregular: should be emphatic)
- Zenaga (Mauritania) *ežimər* ‘lamb’ (irregular: should be emphatic)

This root provides other forms with the meaning ‘ram’:

- Siwa (Egypt) *zmər* ‘ram’ (regular)
- Kabyle (Algeria) *izimer* ‘ram’ (irregular: should have -ž- like in *aqžun* ‘dog’)
- Ghadames (Libya) *ažumar* ‘ram’ (with irregular unexplainable emphasis)
- Tadağht (Mali) *ežémər* ‘young weaned ram’ (irregular: should be emphatic)

These words do have palatalized gutturals but these are not the reflexes expected from the regular sound laws: in fact the irregular reflexes display the treatment expected in Eastern Berber as in Siwa (Egypt) *a-garzun* ‘dog’. These words can be determined to be internal wanderwords with an Eastern Berber phonology. They are impossible cognates. Another telltale word is ‘hoof of domestic animal’. The reflexes in Berber dialects of Arabic *naʕl* ‘horse hoof’ are irregular and also indicate internal borrowings:

- Kabyle (Algeria) *tinsa* (pluriel) ‘hoof of cattle’ (irregular: should have -š- or -ž-)
- Wargli (Algeria) *tinsi* ‘paw of cattle’ (irregular)

There exists a variant with prefix *f-* and the same phonetic irregularities:

- Kabyle (Algeria) *tifenzett* ‘hoof of goat, sheep or cattle’ (irregular)
- Tachelhit (Morocco) *afnzu* ‘hoof, foot’ (irregular)
- Ntifa (Morocco) *ifenzi* ‘sheep hoof’ (irregular)
- Beni Snus (Morocco) *tifenzit* ‘cattle hoof’ (irregular)
- Mzab (Algeria) *tifenzit* ‘cattle hoof ; goat hoof’ (irregular)
- Wargli (Algeria) *tafənzit* ‘hoof of goat, sheep, cattle or camel’ (irregular)

These words specifically apply to domestic animals: sheep, goats, cattle or camels, and they never have the correct reflexes, except in Eastern Berber. As with the word ‘lamb, ram’ this word ‘hoof of domestic animal’ has the reflexes expected in Eastern Berber and it never displays the expected reflexes attested in the basic vocabulary listed above. The scenario that accounts for the Berber data is that the roots **s_m_r* ‘lamb, ram’ and **(p)naʕ* ‘hoof of domestic animal’ intruded first in Eastern Berber, then the pharyngeals got palatalized according to Eastern Berber sound laws, next these lexemes were disseminated into the rest of Berber dialects bearing the Eastern Berber phonology. In other words the hypothesis that Proto-Berber speakers were acquainted with goat or sheep breeding crumbles. The dialects have a specific word for ‘hoof of domestic animal’ but that word cannot be inherited. It cannot be of Proto-Berber dating but results from the dissemination into a disintegrated set of already independent dialects with their own phonological histories. In addition these words teach us that when goat and sheep breeding began to spread into Berber dialects it came from the east, possibly from Semitic.

7. Conclusion

As seen above the conclusion about Berber knowledge of agriculture is that it was close to nil before the Roman conquest. Berber people learned everything from the Romans when it comes to farming, gardening, plowing, etc. The loanwords from Latin are massively attested in these semantic fields. As regards breeding three words ‘lamb’, ‘ram’, ‘hoof of domestic animal’ can be shown to be internal wanderwords propagated from east to west. Their phonetics are irregular and correspond to the expected reflexes of Eastern Berber.

The only possible conclusion is that Berber dialects never came to their present locations thanks to a Neolithic expansion. On the contrary breeding diffused in a westward direction into Berber dialects that were probably already occupying their present locations.

The general conclusion is that Afrasian is definitely not a macro-phylum which has anything to do with Neolithization. That macro-phylum, of North-Eastern African origin, split into separate

branches much earlier than Neolithicization as can be conclusively determined from the lexical evidence of Berber dialects. It can also be added that the theory of a substrate in Berber is a delusion resulting from an insufficient understanding of Berber historical phonology.

The paradigmatic equation ‘linguistic macro-family = neolithic expansion’ is false in the case of Berber and Afrasian, and thereby of Nostratic *sensu largo*. The Afrasian macro-family is of Paleolithic dating.

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