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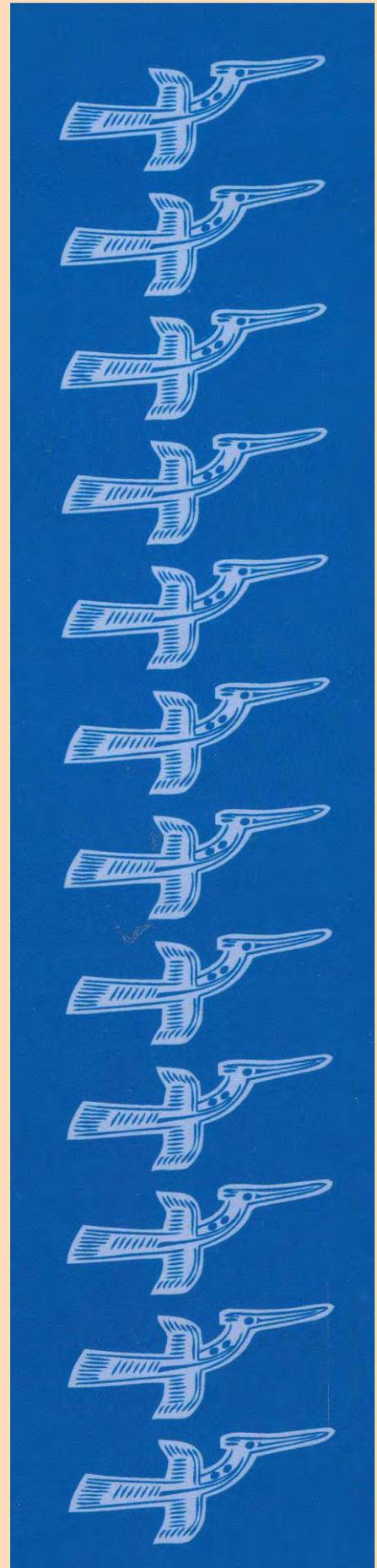
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# Historical Notes on Words for Knives, Swords, and Other Metal Implements in Early Southern China and Mainland Southeast Asia

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## Abstract

Linguistic evidence supports the claim in archaeological studies that early metallurgy practices moved from north to south in China and Mainland Southeast Asia (MSEA). This historical linguistic study of words for knives, sickles, swords, and other metal tools and weapons in the region shows an expected region of Chinese influence from China to northern MSEA, encompassing Hmong-Mien, Tai, and Vietic. However, there is also a region with Tai as the apparent source language group for such terms that appear to have spread later into Austroasiatic languages. The sociocultural circumstances and history of the spread of these words and their associated implements are explored and described.

**Keywords:** Mainland Southeast Asia, metal tools, weapons, historical linguistics

**ISO 639-3 codes:** aav, hmx, map, mch, mkh, och, sit

## 1. Overview

The massive *Lexicon of Proto Oceanic* series, consisting of dozens of articles in several volumes, explores many aspects of Oceanic culture and environment, such as horticultural practices, navigation, fish, and core semantic domains. The authors of those works have used a combination of lexical and ethno-archaeological studies to explore Oceanic sociocultural history and provide ethno-historical hypotheses in a region largely lacking written records. The works of Blench (e.g., Blench 2008 on linguistics, genetics, and archaeology and 2011 on agriculture in MSEA, etc.) and Sagart (e.g., Sagart 2003 on etyma for cereals among major language phyla in China and the Pacific, etc.) have similarly explored the ways that linguistics can provide insight into sociocultural history in Asia.

In that spirit, the goal of this study is to see how the lexical evidence can clarify the cultural spread of groups in Southern China and Mainland Southeast Asia (MSEA). A semantic focus on terms for sharp metal tools and weapons (e.g., knives, swords, sickles, arrows, etc.) allows exploration of early sociocultural development and the interaction of the ethnic groups there from around the last few centuries BCE, a time with assumed large-scale social and linguistic contact but before clear ethnographic information about the groups. While connections between reconstructed words and the items they represented thousands of years ago can rarely be proven beyond a doubt, recurring patterns of their appearance among languages in regions where corresponding archaeological artifacts have been unearthed does provide another source of data by which to explore ethnological history. Gaps in lexical data and reconstructions where archaeological data does exist must be acknowledged (e.g., Osmond (1998:140) in regards to implements to grow yams and Pawley and Pawley (1998:209) in discussing lexical evidence of canoes and seafaring practices in Oceania). Nevertheless, recent large collections of lexical data and reconstructions in MSEA can be applied to this line of inquiry.

Thus, while this is primarily a historical linguistic study involving etymology, loanwords, and language contact, it also requires historical, ethnographic, and archaeological discussion. Of the groups in this study, Sinitic groups in the Central Plains entered the Bronze Age first from around the beginning of the second millennium BCE, and archaeological evidence shows developed technologies and significant social stratification there. In Mainland Southeast Asia (MSEA hereafter), the strongest evidence for the Bronze Age begins at the end of the second millennium BCE (Higham et. al. 2011; Higham 2014:194), with such archaeological cultures as the pre-Đông Sơn Gò Mun culture (1100-800 BCE) in the Red River region of Vietnam and various groups in modern-day Thailand. In China, the Iron Age is solidly established by the mid-first millennium BCE, while in MSEA, it is considered to last from 420 BCE to 500 CE (Higham and Higham 2009:137). In MSEA, the Iron Age was at least in part likely brought from the north via groups in the Lingnan region of Guangdong and Guangxi (Higham 2014:197 and 267).

The language groups of focus in this study include Vietic, other Austroasiatic sub-branches in MSEA,<sup>1</sup> Tai-Kadai, Hmong-Mien, and Sinitic.<sup>2</sup> Thus, it centers on Southeast China and bordering areas in MSEA down into modern-day Laos, Thailand, Cambodia, and Vietnam. Available lexical data shows that Chinese and Tai language groups constitute two major regional centers of the spread of words for such implements into other language groups. Chinese etyma for such vocabulary have, as expected, a dominant position among the Tai and Hmong-Mien languages in China and southward into northern parts of MSEA, generally stopping in the Vietic region. However, some Tai etyma for sharp metal instruments are also widespread, but in southern China and down through MSEA.<sup>3</sup> Within Austroasiatic, there are few widespread reconstructable items for those words (with the exception, for example, of \*kam ‘arrow’ (Shorto 2006) in §3.4), while there has been a great deal of borrowing, primarily from Tai, and apparent sharing of localized lexical innovations among MSEA Austroasiatic sub-branches. Hmong-Mien, while showing some Sinitic influence, has native etyma for ‘knife’ and ‘sword’.

The rest of this paper is divided into four sections: (1) historical, archaeological, and sociocultural issues in the development of sharp tools and weapons in China and Southeast Asia are summarized; (2) lexical data in Hmong-Mien, Tai, Vietic, and other Austroasiatic sub-branches are presented and explained; (3) the main regions of widespread word forms are listed, described, and shown with maps; and (4) final hypotheses and historical sociocultural implications are presented with possible routes of future investigations.

## 2. Cultural Development and Tools and Weapons in the Region

This section has three parts. Section 2.1 describes the types of sharp instruments based on their semantics, forms, and roles in societies. Section 2.2 summarizes the archaeological record of the beginning of the Bronze Age through the Iron Age in regions in China and MSEA. Section 2.3 briefly addresses the tendency to borrow such terms due to sociocultural factors.

### 2.1 Tools versus Weapons and Sociocultural Development

Before summarizing relevant historical and archaeological regions in terms of their development of metal tools and weapons, it is important to consider the features, functions, and ethnological significance of such instruments. The difference between tools and weapons lies in developments in sociocultural complexity. In a concise statement, Kim (2010:77-79) summarizes ethnographic classifications of stages from agricultural and manufacturing tools to weapons for hunting and weapons for war, with levels in between in which the same items can be used for multiple purposes. Often, bronze and later iron items were modelled on items that had previously been crafted

<sup>1</sup> The traditional term ‘Mon-Khmer’ is used in this study only in reference to previously published titles with that label. Recent studies (e.g., Sidwell and Blench 2011) demonstrate that Mon-Khmer is not a sub-branch of Austroasiatic in opposition with Munda. Instead, the dozen plus sub-branches, including Munda, are, via lexical and phonological data, shown to be roughly equidistant. Rather than using ‘Mon-Khmer’ as a shorthand term, this study generally refers to ‘MSEA Austroasiatic’ to capture the geographic generalization.

<sup>2</sup> Tibeto-Burman, Chamic, and Munda languages are not central in this paper as they are not in the geographic focus. In terms of lexical data, there is little evidence of exchange of words for metal utensils (e.g., ‘arrow’, ‘knife’, ‘axe’, etc.) between Tibeto-Burman and other language families in southeastern China (other than Sinitic) and MSEA. Chamic has borrowed several terms from Mon-Khmer (PC \*sana ‘crossbow’ (AA \*snaʔ), \*daw ‘sword/knife’ (Vietic \*-ta:w), \*bɾam ‘arrow’ (MK \*kam, though the initial bɾ- is unexplained, weakening this claim), \*jɔ:ŋ ‘axe’ (MK \*cuŋ) (PC words identified in Thurgood 1999:350-364, with all AA reconstructions from Shorto 2006)). Finally, Munda languages have no shared cognates in this semantic domain, with the exception of a few attestations of Austroasiatic \*kam ‘arrow’ in two Munda languages, Juang and Kharia (see section 3.4 for more details). Finally, while both Japanese and Korean have borrowed many of the Chinese etyma in this study, they are similarly out of the scope of the geographic focus of this study.

<sup>3</sup> This article focuses on mainland rather than insular Southeast Asia, and lexical evidence supports this geographic focus. Regarding insular SEA, Blust (2005) discusses words for ‘iron’ and ‘forge’ in Malay-Chamic and suggests contact between Chamic and Mon based on Mon scripts dating from the 6th century CE and after. That lexical dataset (e.g., \*besi ‘iron’) does not appear in the data identified in this study and does not directly impact claims in this study.

with wood, stone, or bone, such as arrows and adzes, but metalworking also allowed for innovation of new types of tools and weapons, such as swords.

As sociopolitical units increase in social stratification and technological levels, some items are developed as specialized tools for settled life, weapons for warfare, and symbols of wealth and power. Thus, regarding the items in this study, some bladed instruments (e.g., sickles and small knives) are more likely to be used to clear plants, make home implements, or process animals for food, and thus may be part of virtually any sociopolitical and subsistence level, such as tribes with basic horticultural practices. Alternatively, weapons for warfare (e.g., swords and battle-axes) tend to be markers of military specialization in socially stratified cultures, such as chiefdoms or states with soldiers, specialist artisans, and leaders (e.g., Haas 1998:4-5 and Nolan and Lenski 2006:120-121).

Typological differences among categories of sharp instruments include length and design (e.g., whether single- or double-edged). However, it is clearly not the case that such semantic distinctions are consistently maintained among or even within languages. Among the languages in the region, terms for long bladed instruments may refer specifically to knives, daggers, machetes, or swords of different types, or a term may have a less precise or blended semantic sense, such as ‘knife/sword’. One example is the Proto-Sino-Tibetan form \*s-ta, glossed ‘knife/axe/sword’ (STEDT), presumably due to the various senses among the Tibeto-Burman languages with this etymon. Moreover, meanings can change over time, such as the Chinese word *dāo* 刀, which earlier referred to a double-edged sword, but in modern Chinese, it generally refers to a knife as a tool rather than a weapon. This semantic shift is similarly seen in Vietnamese, with the Sino-Vietnamese doublet *dao* /zaw<sup>33</sup>/ ‘knife’ and *đao* /daw<sup>33</sup>/ ‘scimitar’. Thus, the precise semantics of donor and recipient languages is not always certain, and shared phonological forms in this contiguous geographic region still have varied meanings within and among language groups and over time as well. An example of the semantic variety of a word is that of the Proto-Palaungic sub-branch of Austroasiatic, namely, \*va:c ‘knife, sword’. Glosses for attestations of this etymon among modern Palaungic languages’ include variously ‘scythe, sword’ (Riang-S), ‘knife’ (Muak-SA), ‘knife, penknife’ (Khang), ‘knife, machete’ (Wa), and ‘sword’ (Samtao and Lawa) (Sidwell 2015:208). Thus, one must expect some semantic variation for the words in this study.

## ***2.2 The Archaeology of Bronze and Iron Implements in South China and MSEA and a Note on Lexical Retention or Replacement***

The shifts from the Neolithic Age to the Bronze Age and subsequently to the Iron Age occurred at different times in different regions, but in general, it was earlier to the north in China and later to the south in China and MSEA. Pigott and Ciarla 2007 and Higham et. al. (2011:39) posit that early groups in that region first established a robust metallurgy and metalworking practice by the early second millennium BCE, which then spread southward into Yunnan and the southern Chinese coastal Lingnan culture, and then finally reached MSEA. The Iron Age similarly began in the northwest in China by the 9<sup>th</sup> century BCE and reached the Yangtze region by the Warring States period (Higham 2014:197). Early Sinitic speech communities were likely among the peoples in central China, though it was still likely a multi-ethnic situation. While the exact timing and origins of bronze-making technology are still argued, especially in MSEA, the following are current widely accepted views. Moreover, working hypotheses are made about the connection between the archaeological cultures and modern language groups.

**North China:** While some bronze items have been unearthed in the Majiayao sites of the upper Yellow River region from the third millennium BCE, the Chinese Bronze Age with a developed metallurgy practice (e.g., smelting facilities) becomes solidly established during the Erlitou period in the first half of the second millennium BCE. Bronze instruments of early Sinitic culture—and potentially some of the etyma—could be connected to that period. Many of the bronze artifacts from this early period consist of tools or ambiguous weapon-tools, not weapons specialized for warfare, such as picks, chisels, axes, spears, and arrows. Somewhat to the south in the Yangtze River region, in a similar time frame, the Sanxingdui culture also developed not only a metallurgy practice, including bronze and gold, but also jade-working. The Iron Age was solidly established by the Eastern Zhou Dynasty (770 BCE to 221 BCE), and thus prior to large-scale southward migration of Sinitic groups.

**South China and the Red River Region:** Vietic and Tai groups are generally considered to have been among the Chinese-named Baiyue (百越 ‘Hundred Yue’) groups from the mid-first millennium BCE, though historical records are vague. In southeast China, there is evidence of an increase in the importance of warfare and military weapons in southern Chinese region where the Zhuang today reside (Barlow 1997:2-3). This includes the Lingnan culture in the Zhujiang River region (and eventually the Nanyue 南越 kingdom in the second century BCE) and the Gouding 句町 area of Guangxi. Northern Vietnam, Guangxi, and Guangdong are where Tai and Vietic groups most likely into contact prior to large-scale Chinese southward expansion. As noted, it is also through the Lingnan region, of the presumed early Tai groups, that Iron Age practices were likely brought south by Chinese into MSEA, though it is also likely that iron technology was brought into other parts of MSEA from India (Higham 2002:169-170).

Further south, archaeological records show that the Đông Sơn region of northern Vietnam was a center of bronze production from early in the first millennium BCE, and it is the likely region of the emergence of Vietic culture (cf. O’Harrow 1978 and Taylor 1983). In the Red River region, the Bronze Age had already been in place for several centuries (e.g., Kim 2010, Kim, Lai, and Trinh 2010, etc.), and many of the Southeast Asian bronze drums from the Đông Sơn era of the first millennium BCE are found in northern Vietnam and bordering areas of southern China. The Cổ Loa site outside of Hanoi dating from the mid-first millennium has numerous bronze implements, such as those found in a large bronze drum, including dozens of ploughshares, other farming implements, and weapons, including axes, daggers, and pointed weapon tips (arrowheads and spearheads) (Kim 2010:1014). Indeed, bronze is dominant in Đông Sơn sites, with iron becoming more common after the arrival of the Chinese.

Written records suggest Tai-Vietic contact via the merger of the Luoyue / 駱越 / Lạc Việt (probably connected to Vietic) and Ouyue / 甌越 / Âu Việt (probably connected to early Tai) groups into the Âu Lạc in the second half of the third century BCE, and archaeological evidence shows clear evidence of trade in the region in the first millennium prior to the Chinese southward migration. However, as will be shown in subsequent sections, despite the apparent exchange of bronze drums in the region (cf. Proto-Tai \*klɔŋ A1 and tentative Proto-Vietic \*klɔŋ?), other than the BRA form for ‘knife/sword’, no other terms in this study were exchanged between Tai and Vietic. Proto-Tai has a rich array of native terms for metal weapons and tools, while such terms in Vietic are largely Sinitic loanwords.

**Mainland Southeast Asia:** While previous estimates dated the Bronze Age in the Ban Chiang site to 2100 BCE, additional carbon-dating and a careful review of prior research and comparison with other areas in the region have put the Bronze Age in MSEA at the end of the first millennium BCE (Higham et. al. 2011). In one study, based on the Ban Non Wat site in northeastern Thailand, the Bronze Age lasted from 1050 to 420 BCE, while the Iron Age lasted from 420 BCE to 500 CE (Higham and Higham 2009:137). Higham (e.g., 1996 and 2014) and Bellwood (2004:128-133) have provided evidence in various publications supporting the idea that Neolithic farmers moved south from the Yangtze region down through southern China and into MSEA. The practice of metallurgy and metal-working was, in Higham’s and his co-authors’ view (2011), the result of ‘social aggrandizers’, individual specialists who used their skills to gain wealth, as has been inferred from certain tombs. Thus, while it can never be determined with certainty, a possible scenario would be small Proto-Tai groups interacting with MSEA peoples, likely including Austroasiatic groups.

**On the Neolithic, Bronze, and Iron Ages:** Finally, on the transition from the Neolithic to the Bronze Age, it is important to keep in mind, as briefly noted in 2.1, that most of the items in this study, including arrows, axes, knives, sickles, and spears, and thus the words for them, existed in human societies many thousands of years before the Bronze Age (cf. Table 8.1 in Nolan and Lenski 2006:80). Only scissors, swords, and saws are metal age implements, generally made of iron rather than bronze, making those words relatively more recent. Thus, in some cases, it must be assumed that the words were retained from the Neolithic period and used to refer to their bronze and iron counterparts as stone implements were replicated in bronze form. This replication of stone implements in bronze was the case during the transition from the Neolithic Phùng Nguyên and Bronze Age Gò Mun cultures in the Red River Valley, such as a Gò Mun site with bronze arrowheads, axes, and a sickle (Higham 2014:169). In other cases, words for the metal versions may have replaced the earlier versions of them as the metal items became the dominant types. For instance, it is apparent that proto-Austroasiatic

\*kam ‘arrow’ is a pre-Bronze Age word that has been retained in many Austroasiatic languages, while a commonly seen word for ‘sickle’ in many mainland Austroasiatic languages appears to be the result of the spread of iron technology from the north, and thus in a later period. While some bronze sickles have been found in as in the above-mentioned Gò Mun site and another site in Cambodian (e.g., Highland 2014:169 and 174), there are many more instances of unearthened iron sickles, more often from Iron Age 2 onward (i.e., 200 BCE into the first few centuries CE).

### 2.3 On Types of Lexical Borrowing and Borrowability

The status of words as native or borrowed is important for understanding the history of the forms in this study. The categories of word origins in this study include the following. Determination of these categories relies on a combination of linguistic, historical, and archaeological evidence, and thus the status cannot always be determined with absolute certainty.

- (a) Native terms in a language (e.g., pre-Bronze Age \*kam ‘arrow’ in many Austroasiatic languages);
- (b) Borrowed terms for introduced items from other groups (e.g., Iron Age words for ‘sword’ and ‘scissors’ in Vietnamese);
- (c) Borrowed terms existing alongside native words (e.g., native and Chinese words for ‘spear’ and ‘sickle’ in Vietnamese);
- (d) Borrowed terms replacing earlier native terms (e.g., replacement of ‘arrow’ in Vietnamese).

A related matter is the overall likelihood of the borrowing of words. Relative borrowability rates of words considered in this study are shown in Table 1 (data from the World Loanword Database (WOLD)). The data shows that words for items of earlier stages of cultural development are generally borrowed less often than those that emerged with increasingly specialized technology and corresponding sociopolitical complexity. Thus, words for ‘arrow’, which emerged in human societies many thousands of years ago, are borrowed much less frequently than words for ‘sword’, which were developed in China only in the mid-first millennium BCE. Finally, terms for metals are borrowed at even higher rates, perhaps due to the use of terms for pre-Bronze Age items and indigenous diversification of instruments, while metallurgy represents an entirely new set of practices requiring skilled artisans for a limited number of minerals. It is thus not surprising that words for items that emerged in the Bronze to Iron Ages, namely, ‘saw’, ‘scissors’, and ‘sword’,<sup>4</sup> have been borrowed more often than words for ‘arrow’, ‘spear’, and ‘axes’. The word for ‘sickle’ is an apparent counter-example, though perhaps the high rate is due to its relatively specialized agricultural function.

The issue of borrowability is noted periodically in following subsections and the concluding thoughts, specifically with respect to the question of introduced technology versus lexical replacement of existing technology.

**Table 1:** Borrowing Rates of Words for Tools, Weapons, and Minerals

Category	Words and Rates
<i>Items with generalized functions</i>	‘bow’ 0.16, ‘arrow’ 0.19, ‘spear’ 0.25, ‘battle-axe’ 0.26, ‘axe’ 0.35, ‘knife’ 0.38
<i>Specialized item</i>	‘chisel’ 0.41, ‘nail’ 0.41, ‘saw’ 0.42, ‘hammer’ 0.45, ‘scissor’ 0.48, ‘sword’ 0.48, ‘sickle/scythe’ 0.52
<i>Minerals</i>	‘silver’ 0.51, ‘gold’ 0.57, ‘tin’ 0.58, ‘copper’ 0.59

### 3. Lexical Data

The following sub-sections summarize the lexical data of the main language groups under consideration from north to south: Hmong-Mien, Tai, Vietic, and other Austroasiatic sub-branches. The lexical data includes (a) reconstructed words from language families or sub-branches and (b)

<sup>4</sup> Swords began as bronze instruments in the mid-first-millennium BCE in China and gradually became made of steel during the Han Dynasty (200 BCE to 200 CE). Instances appear in the archaeological record of Han-Dynasty iron saws (c. 200 BCE) and scissors (first century CE) (Wagner 1996: 162 and 321).

generalized forms for words in all caps when terms are in multiple language families but have not been reconstructed for one or both language families. For instance, Chinese 刀 *dāo* ‘knife’ has been reconstructed in Old Chinese (OC \*C.tʰaw) and Middle Chinese (MC \*taw), but not in any of the other language families in this study (except for Vietic \*-taw). Where it has been borrowed, it is referred to by the generalized form DAW.

The data was assembled from several large databases and proto-language reconstruction texts in digital searchable form. Key online databases include the Mon-Khmer Etymological Dictionary, the Sino-Tibetan Etymological Dictionary and Thesaurus (or STEDT), and Blust’s Comparative Austronesian Dictionary, all of which have both searchable reconstructions and lexical data for numerous languages in those language families. In addition, the Proto-Tai-o-Matic database shows multiple reconstructions of Proto-Tai and Proto-Southwestern Tai (e.g., Li 1977, Jonsson 1991, etc.). Primary searchable texts of reconstructions include Old and Middle Chinese (Baxter-Sagart (2014) and Schuessler (2007)), Tai (Pittayaporn 2009), Hmong-Mien (Ratliff 2010), Hlai (Norquest 2008), and Chamic (Thurgood 1999). Comparative wordlists are also available in Chinese publications with data for Austroasiatic, Hmong-Mien, Tai-Kadai, and Tibeto-Burman (Mao 2004, Yunnan Gazetteer Commission 1998). Other useful tools include the SEALANG.NET website dictionaries for Khmer, Thai, and Vietnamese, all of which combine multiple dictionary resources and give search results that maximize the output based on search words (e.g., all entries in all available dictionaries containing the word ‘knife’, not only the entry for ‘knife’). Even with this large amount of data and effective search tools, no strong claims can be made, but utilizing all sources above is the minimum to make hypotheses about the past language contact situation.

### 3.1 Lexical Data in Hmong-Mien

The geographic center of Hmong-Mien groups has historically been located somewhat to the north of Tai groups in China, with southward migrations into MSEA only in the past few centuries. Hypothetically, this puts early Hmong-Mien groups in the position to have the earliest contact with Bronze Age Sinitic groups. Of terms for sharp metal instruments, Hmong-Mien has a mixture of native and Chinese loanwords, though perhaps with less Sinitic influence than might be expected based on the significant overall number of Chinese loanwords in Hmong-Mien.<sup>5</sup>

**Table 2:** Words for Sharp Weapons and Tools in Hmong-Mien

Gloss	Reconstruction/Form	Source
<i>Axe</i>	*tʰeiC *pouB (Proto-Mien)	Proto-Hmong OC 斧 *p(r)aʔ
<i>Sword</i>	*ndaŋA ‘long sword’ *ɲəukD	Proto-Hmong Proto-Mien
<i>Knife</i>	*tsæC ‘billhook/brush knife’ DZU (several HM lgs. in Wang and Fu 1995:628) DZIP ‘knife to cut grain’ (several HM lgs. in Mao 2004:524)	Proto-Hmong Hmong-Mien (but cf. OC 刀 *C.tʰaw) Proto-Hmong-Mien
<i>Sickle</i>	*ljim (Proto-Hmong-Mien)	MC 鎌 *ljem
<i>Saw</i>	DZOW (several HM languages in Mao 2004:529)	Proto-Hmong-Mien (but cf. MC *kjoH)
<i>Arrow</i>	TSAN (Mienic lgs. in Wang and Fu 1995:474)	MC 箭 *tsjenH
<i>Scissors</i>	*ʔgljieuB (Proto-Mienic)	MC 鉸 *kaewX

Table 2 contains the relevant items, with proto-Hmong-Mien, Proto-Hmong, and Proto-Mien reconstructions from Ratliff 2010. While Hmong-Mien ‘sickle’ and ‘scissors’ are Chinese in origin, the presence of two native words for ‘sword’ is notable. The approximate forms (no available reconstruction, listed in all caps) DZU ‘knife’ and DZOW ‘saw’ in Table 2 may be native, though their similarity to Chinese words are tentatively noted, as both Chinese words were also borrowed in Tai (§3.2) and Vietic (§3.3). For ‘axe’, Hmongic has a native form, while proto-Mienic has a Chinese

<sup>5</sup> Of Ratliff’s (2010) nearly one thousand reconstructed forms in Proto-Hmong-Mien, Proto-Hmong, and Proto-Mien, a rough estimate of one quarter of the items are Chinese loanwords.

loanword. Ratliff (2010) does not list the possible Chinese source word for ‘scissors’. However, in light of forms in various Hmong-Mien languages in both Wang and Fu (1995:385) and Mao (2004:524), with a comparable KEW form, and the tone B in Hmong-Mien corresponding to the rising tone in Middle Chinese, this appears to be a probable Chinese loanword.

Overall, the lexical exchange in this semantic domain is with Sinitic; in contrast, there is no indication of exchange of such terms with Tai or Austroasiatic groups. Thus, the lexical data in Hmong-Mien suggests a distinct history in metalworking from other groups in and near MSEA. Throughout this article, lexical data including reconstructions and transcriptions are taken unmodified from original sources (e.g., Li 1977 for proto-Tai and Baxter and Sagart 2014 for Old Chinese (OC) and Middle Chinese (MC)).

### 3.2 Lexical Data in Tai Languages

Tai groups resided south of Hmong-Mien groups in the Bronze Age but farther north in the Lingnan region than Proto-Vietic groups did. Archaeological evidence discussed above shows Lingnan contact with the Bronze Age northerners came earlier than Vietic groups. Some of the Proto-Tai groups served as mercenaries in the Zhou Dynasty of the mid-first millennium BCE and developed their own cultural military practices (Barlow 1997). Thus, considering this situation, it is not surprising that, unlike the large number of Chinese words metal instruments in Vietic, most Proto-Tai words and widespread Tai forms for bladed tools and weapons are not from Sinitic or other language groups.

Table 3 shows that most native Tai words for metal instruments are reconstructable to Proto-Tai (PT in Table 3), while a few are seen only in Proto-Southwestern Tai (PSW in Table 3) (i.e., words for ‘sword’, ‘arrow’, and ‘saw’). While Old Chinese words are seen throughout all sub-branches of Tai, such as ‘harrow’, an OC borrowing also in Vietnamese (Alves 2014), Middle Chinese words have been borrowed mainly into Central Tai, such as Chinese KIM B2 ‘sword’ and LIM A4 ‘sickle’, probably later borrowings. Regarding words for ‘sword’, there is a dichotomy, with Southwestern Tai \*ʔdaap DL3 versus Central Tai KIM B2 from Chinese. However, the most widespread Tai form is \*vra C2, which has a wide range of semantic interpretations among various daughter languages. Based on comparative phonological evidence, the form could go back to the pre-Sinitic period and prior to the innovation of swords.

**Table 3:** Words for Sharp Weapons and Tools in Tai

Gloss	Proto-Tai	Source
<i>sword; long knife; machete</i>	PSW *braa – PT: *vra C2	Tai
<i>knife</i>	PSW *miit – PT: *miət D2L	Tai
<i>small knife</i>	PSW *hriip – PT: *thriɛp D1L	Tai
<i>sickle</i>	PSW *khɔɔ – PT: *xɔ A1	Tai
<i>sickle</i>	PSW *giau – PT: *giau A2	Tai
<i>axe</i>	PSW *khwaan – PT: *xwan A1	Tai
<i>spear</i>	PSW *hrɔk – PT: *hrək D1L	Tai
<i>sword</i>	PSW *ʔdaap DL3	SW Tai
<i>arrow</i>	PSW *puun A2	SW Tai
<i>saw</i>	PSW *luay B4	SW Tai
<i>saw</i>	PSW *kuuu – PT: *kuu B1	OC 鋸 *k(r)a-s
<i>scissors</i>	(none) KEW C2 in all branches	OC 鉸 *mə-kʰraw?
<i>harrow</i>	PSW *fuə – PT *fue	OC 耙 *[b]ʰra
<i>sword</i>	(none) KIM B2 in Central Tai; Proto-Hlai *ku:mfi (Norquest 2008:494)	MC 劍 *kjaemH
<i>sickle</i>	(none) LIM A4 in Central Tai	MC 鎌 *ljem

Overall, the lexical data shows somewhat more developed warfare culture in terms of the number of native forms for weapons prior to Chinese arrival, though for the Tai groups residing in

Chinese territory, some lexical additions and replacements did occur later. The two native forms for ‘sickle’ are noteworthy for their clear agricultural application. The reconstructions are mainly from Li (1977) and also Jonsson (1991) via the Proto-Tai’o’omatic online database, while the generalized forms are from Gedney’s lists (Hudak 2008).

### 3.3 Lexical Data in Vietnamese

It is increasingly agreed by archaeologists that Vietnamese cultural origins stem from the Phùng Nguyên culture in the late-Neolithic in the mid-second millennium (Kim 2010:125). There are numerous archaeological remnants of bronze items in the Red River valley centuries before the Chinese southward expansion of the second century BC, such as the famous bronze drums of Southeast Asia and Southern China, of which a large number are in the Red River region. In archaeological literature, frequently noted bronze tools and weapons in the post-Phùng Nguyên eras, the Đông Đậu, Gò Mun, and early Đông Sơn eras, include axes, spearheads, daggers, and arrowheads (e.g., Higham 1996 and 2014). A bronze sickle is even noted in a Gò Mun site (Higham 2014:167), which places it several centuries before Chinese presence. It is thus not surprising to discover that Vietnamese has native words, or at least words without apparent Austroasiatic origins, for precisely these items (i.e., ‘axe’, ‘spear’, and ‘sickle’) in Table 4.

Still, most of the words in Table 4 are, in fact, Chinese in origin, resulting in a few forms competing with those native words. The impact is seen among both warfare weapons and agricultural implements. This makes sense in light of Higham’s observation that archaeological data in the Đông Sơn period shows that iron was rare while bronze was abundant (2014:207) and his assertion that iron metallurgy at that time was likely the result of contact with the Chinese (Ibid:208-209). Whether the common form for ‘iron’ in Vietnamese *sắt* (cf. literary Sino-Vietnamese *thiết*, not used in Vietnamese) can be shown to be an OC loanword \**ʃik* (cf. Proto-Vietic \**k-rac*) remains to be seen,<sup>6</sup> but if so, it could extend back to that archaeological event.

This exemplifies the two historical layers of Sinitic loanwords: Old Chinese (OC) from around the Han Dynasty (200 BCE to 200 CE) and Middle Chinese (MC) from around the Tang Dynasty (600s to 900s CE) or somewhat later. In the data, two OC-MC doublets include *dao* ‘knife’ and *đao* ‘scimitar’ (Chinese 刀 *dāo*) and *guom* and *kiếm* ‘sword’ (Chinese 劍 *jiàn*). In Table 4, the standardized, literary MC-era Sino-Vietnamese readings of these words, which are not used in Vietnamese, are listed after their OC Early Sino-Vietnamese counterparts for reference. It is worth noting that ‘arrow’, ‘knife’, and ‘saw’ all have level pingsheng tones in contrast with their later non-level tone counterparts, corresponding to final \*-s in OC, as noted by Baxter and Sagart (2014:100, 137, etc.). This further strengthens the claim that these items are in the same era of borrowing.

The only apparent Tai loan is the word for ‘bush knife’, an item seen in many MSEA Austroasiatic languages (see §3.4 and §4). The Proto-Vietic form has been reconstructed as \**m-ra:ʔ*, while the Proto-Pong sub-branch of Vietic has \**p<sup>h</sup>ra*:<sup>4</sup>. The vowel mutation from \**a* to /*uə*/ in Vietnamese is common in ancient borrowings from Chinese (as it is for ‘saw’), and this detail, plus the widespread range of the word in Austroasiatic, suggests an ancient borrowing. Whether the BRA form came before or after Chinese presence is harder to determine with certainty, but it appears to have been borrowed prior to the loss of the glottal stop and the emergence of tones in Tai and Vietic. Moreover, it was spread with the final glottal stop into some MK languages, but without a glottal stop in others. Thus, this type of bladed instrument may have spread in the region during the early Đông Sơn era pre-second century BCE at the same time that the bronze drums were traded. The Proto-Vietic reconstructions are from Ferlus 2007 in the online Mon-Khmer Etymological Dictionary.

<sup>6</sup> The semantic correspondence between the Vietnamese and OC form is solid, while the phonological correspondence is only partial, with the final /*t*/ unexpected for an OC borrowing, but not an MC borrowing. However, there are no comparable source Proto-Austroasiatic etyma, and Proto-Tai \**hlek* and Proto-Hmong-Mien \**ʃik* are both evidently from Chinese. Thus, considering the archaeological, comparative, and phonological evidence, a Chinese source for Vietnamese *sắt* is not certain but should not be excluded pending further data.

**Table 4:** Vietnamese Words for Sharp Weapons and Tools

Gloss	Word	Source	Proto-Vietic
<i>sickle</i>	hái	native word	(none)
<i>axe</i>	riù	native word	*m-ri:w
<i>spear</i>	giáo	native word	(none)
<i>knife</i>	rựa	PT *vra C2	*m-ra:ʔ
<i>arrow</i>	tên (SV tiễn)	OC箭*[ts]en-s	(none)
<i>knife</i>	dao (SV đao)	OC刀*C.tʰaw	*-ta:w
<i>sword</i>	gươm (SV kiếm)	OC劍*s.kr[a]m-s	*t-kiəm
<i>saw</i>	cưa (SV cưa)	OC鋸*ka-s	(none)
<i>hammer</i>	búa (SV phủ)	OC斧*p(r)aʔ ‘axe’	(none)
<i>scissors</i>	kéo (SV giáo)	OC鉸*mə-kʰrawʔ	(none)
<i>sickle</i>	liềm <sup>7</sup> (SV liềm)	MC鎌*ljem	*liəm
<i>harrow</i>	bừa (SV bà)	OC耙*[b]ʰra	(none)
<i>scimitar</i>	đao	MC刀*taw	*-ta:w
<i>sword; sabre</i>	kiếm	MC劍*kjaemH	(none)
<i>spear/lance</i>	kích	MC戟*kjaek ‘halberd’	(none)
<i>spear/lance</i>	mâu	MC矛*mjuw	(none)
<i>spear/lance</i>	thương	MC鎗(none)	(none)

There are two lexical gaps of note. Lexical data for Vietnamese lacks native words for ‘knife’ or ‘arrow’, both of which were borrowed during the period of Old Chinese, and yet both bronze daggers and arrowheads are commonly listed in the archaeological literature on Đông Sơn sites. There is, in addition, the widespread Proto-Austroasiatic form \*kam, which occurs in Muong and minor Vietic speech communities, and possibly in the Vietnamese dialect word *căm* ‘spoke (of wheel)’. Also of note, Vietnamese *đồng* ‘bronze’ is a Middle Chinese borrowing (MC 銅 \*duwng), even though many bronze products appear in the archaeological record in northern Vietnam several centuries before Chinese presence there. Thus, it appears that complete lexical replacement of earlier native terms occurred in those instances in Vietnamese.

### 3.4 Lexical Data in MSEA Austroasiatic Languages

Archaeological literature suggests that MSEA societies prior to the second millennium BCE consisted of early Neolithic hunter-gatherer and fishing groups, presumably bands and tribes. A vivid picture is presented by Nguyen Viet (2005), who describes the Đa Bút culture (pre-cursor to the Phùng Nguyên culture) in the Red River region in the third millennium BCE as having long-term settlements with cemeteries, using stones with polished edges, making simple pottery, and innovating stone fishing net weights. Evidence of metallurgy practices (e.g., molds for bronze implements) appears in MSEA in the mid- to late-second millennium BCE, and thus, the Bronze Age arrived there later than in southern China. How metallurgy practices began in MSEA is not clear, but interregional trade is evident and a likely source (see §2.2). There would likely have been contact and exchange with Tai groups migrating southward, and the lexical evidence of metal objects shows clear linguistic impact of Tai on Austroasiatic sub-branches.

Lexical data on metal tools and weapons shows that, of native Austroasiatic etyma for metal objects, few terms are widespread in the language family, with only a few appearing in multiple sub-branches. For instance, words for ‘spear’ among Austroasiatic languages vary significantly, with some reconstructed forms within sub-branches, but not enough to reconstruct to Proto-Austroasiatic. Words for ‘scissors’ and ‘saw’, which are largely Iron Age items, similarly lack observable geographic patterns. Of widespread terms, Shorto’s Proto-Mon-Khmer \*kam ‘arrow’ is reconstructable in almost all MSEA Austroasiatic proto-languages (Bahnaric, Katuic, Khasic, Khmeric, Khmuic, Monic, Pearic, and Vietic (except in Vietnamese, see §3.1)), including a few reflexes in the Munda languages Juang

<sup>7</sup> The falling tone marks *liềm* as a colloquial borrowing, instead of the expected level tone of the standardized literary reading. However, the segmental consistency suggests that it is still a Middle Chinese borrowing.

and Kharia. There are, in contrast, several widespread terms for metal instruments (‘knife’, ‘sword’, ‘axe’, and ‘sickle’) from Tai throughout MSEA Austroasiatic, as described below.

The overall situation in Austroasiatic can be summarized as follows: (a) lexical data on MSEA Austroasiatic shows few widespread native terms for metal tools and weapons, but there are a number of sub-regional local terms, in some cases from before the Metal Age; (b) Tai loanwords in this semantic domain are common in the region; and (c) Chinese lexical influence in this domain is minimal south of the Vietic region. Due to this complex situation, this section has two parts, one covering words for knives/swords first and another on words for axes and sickles.

### 3.4.1 Words for ‘Knife/Sword’ in MSEA Austroasiatic Languages

Archaeological evidence excludes the possibility of reconstructing ‘sword’ in Austroasiatic since swords as a specific warfare category only emerged in the mid-first millennium BCE in China, long after the assumed dispersal of Austroasiatic. Thus, while Shorto reconstructs *\*wac/waac* ‘knife/sword’ (Shorto 2006:255), it can only reasonably be connected with the sense of ‘knife’. Shorto posits attestations for this etymon in Khasi, Aslian, and Palaungic. However, comparable lexical forms, possible borrowings, also exist in some languages in Bahnaric and Khmuic. However, having these words in Palaungic and Aslian, but not in central Mon and Khmer is of concern. Another confounding factor in assessing this proposed etymon is Shorto’s reconstruction for the sense ‘to cut, reap’ *\*[ ]wəc/\*[ ]wəc/\*[ ]wək/ \* [ ]w[uə]k*, a form which has enough phonological and semantic overlap to consider it as a viable derivational source (though more typically, a nasal infix derives a noun from a verb in Austroasiatic). Altogether, it is an etymon that cannot be ignored, but there are complicating factors in trying to connect all the forms with Proto-Austroasiatic ‘knife’, much less ‘sword’, which is unlikely based on archaeological grounds.

Shorto reconstructed a few other relevant items, though these are restricted to only a couple of sub-branches each. Also in Table 5, some comparable proto-forms are noted which suggest an approximate PIT form for ‘knife’.

**Table 5:** Native Words for ‘Knife’ and ‘Sword’ in Austroasiatic<sup>8</sup>

Forms	Phylum Branch	Attestations
<i>*wac/waac</i> ‘knife / sword’	<i>Aslian</i>	several languages with the form WOJ
	<i>Bahnaric</i>	Stieng [wiəʔ] ‘knife (small)’ (Huf1971:C:3312-443-13)
	<i>Proto-Khasic</i>	<i>*wac</i> ‘knife, sword’ (Sid2012:R:864.A)
	<i>Khmuic</i>	Khmu (Cuang) [wək] ‘jungle knife’ (Suw2002:C:973)
	<i>Proto-Palaungic</i>	<i>*waac</i> ‘knife, sword’ (Sid2010:R:1162)
<i>*pis/piis</i> ‘knife’	<i>Proto-Bahnaric</i>	<i>*pih</i> ~ <i>*pi:h</i> ‘knife’ (Sid2000:R:300)
	<i>Khmuic</i>	T’in [piəʔ] ‘knife (small)’ (Huf1971:C:3309-443-5)
<i>*sjaŋ</i> ‘kind of sword’	<i>Proto-Bahnaric</i>	<i>*caŋ</i> ‘knife, sword’ (Sid2011:R:91)
	<i>Monic</i>	Mon [səaŋ] ‘sword’ (Huf1971:C:5821-764-4)
PIT ‘knife’ (tentative)	<i>Proto-Pearic</i>	<i>*be:t(?)</i> ‘knife’ (Hea1985:R:20)
	<i>Proto-West-Bahnaric</i>	<i>*pi:t</i> ‘knife’ (Sid2003:R:414)
	<i>Proto-Katuic</i>	<i>*ʔmbiat</i> ‘knife’ (Sid2005:R:500)

Beyond native etyma, there are a few Tai and Chinese loanwords in Table 6. The DAP form may be another Tai loan, though it appears to be mostly in Southwestern Tai, suggesting a later historical period (and Malay has *dap*, referring to a longsword with a bamboo handle). There is some phonological and semantic overlap of MIT ‘knife’, from Tai, with the posited form PIT ‘knife’ in Table 5, but these must be considered separate etyma for now unless further evidence shows phonological patterns to relate them. Finally, DAW is likely a Chinese word, though as it is also a Sino-Vietnamese (SV in Table 6) item, it could have come from both Chinese (though not from varieties with the /ow/ rhyme, such as modern Cantonese or Hokkien, but rather the /aw/ rhyme of Middle Chinese) and Vietnamese at different times.

<sup>8</sup> The Austroasiatic data comes from the online Mon-Khmer Etymological Dictionary. In the tables of this article, the sources are included in the format used in the MKED, making them easily located there.

However, the most widespread form for ‘knife’, in both native and borrowed terms for ‘knife’, is the BRA form. Shorto reconstructs \*mraʔ for ‘dah/matchet (sic. Machete?)’ based on forms in Mon and South Bahnaric, and Shorto notes the comparable Thai word  $\text{พร้า}$  *pʰrǎa*, as does Headley in his 1977 Khmer dictionary. However, Vietic and Waic also have comparable items with final glottal stops. The final glottal stop in Vietic corresponds to tone C in Proto-Tai, which shows this was borrowed in those Austroasiatic sub-branches with the final glottal stop on this form (Proto-Monic, Proto-Vietic, and Proto-Waic) at a very early period. In contrast, five other Austroasiatic sub-branches (Proto-Western Bahnaric, Proto-Katuic, Proto-Pranic, Khmeric, and Mangic) have an approximate BRA form without the final glottal stop. Those sub-branches appear to have borrowed the term after the full development of tones and loss of the final glottal stop. Thus, Proto-Tai \*vra C2 may have been borrowed at multiple times, including once in the pre-Han period and again centuries later after tonogenesis and loss of glottal stops was complete in Vietic and Tai.

**Table 6:** Likely Loanwords for ‘Knife’ and ‘Sword’ in Austroasiatic

Source Form	Phylum branch	Attestations
BRA ‘large knife’ from PTai vra C2 and SWTai *braa C2	<i>Proto-Monic</i>	*mraaʔ (Dif1984:R:N191)
	<i>Proto-Vietic</i>	*m-ra:ʔ ‘bush-knife’ (Fer2007:R:120)
	<i>Proto-Waic</i>	*plaʔ ‘(classifier for tools, knives)’ (Dif1980:R:ʔ89-1)
	<i>Proto-West-Bahnaric</i>	*bra: (Sid2003:R:4)
	<i>Proto-Katuic</i>	*braa (Sid2005:R:6)
	<i>Proto-Pranic</i> (of Khmuic)	*bra: (Sid2013:R:PP-34)
	<i>Khmeric</i>	Khmer [prie] ‘a large knife for chopping or cutting’ (Headley 1977)
	<i>Mangic</i>	Mang [pja:ʔ] ‘knife’ (Loi2008:C:962)
MIT ‘knife’ PTai *miət D2L SWTai *miit D2L	<i>Khmeric</i>	Surin Khmer [kmet] ‘a knife (in general)’ (Dha1978:C:397)
	<i>Khmuic</i>	Mlabri [miit] ‘knife’ (Ris1995:C:914); Khmu (Cuang) [mi:t] ‘knife’ (Suw2002:C:1519)
	<i>Palaungic</i>	Lamet (Nkris) [mi:t] ‘knife’ (Lin1978:C:276); Lamet (Lampang) [mi:t] ‘knife’ (Nar1980:C:425)
DAP ‘sword’ SWTai *ʔdaap DL3	<i>Khmeric</i>	Surin Khmer [da:p] ‘a sword’ (Dha1978:C:719)
	<i>Katuic</i>	Bru [da:p] ‘sword’ (The1980:C:332); Ngeq [da:p] ‘sword’ (Smi1970:C:429)
DAW ‘knife / sword’ from Chinese and Vietnamese	<i>Proto-West-Bahnaric</i>	*ta:w ‘sword’ (Sid2003:R:139)
	<i>Proto-Vietic</i>	*-ta:w ‘knife’ (Fer2007:R:250)
	<i>Khmeric</i>	Khmer [daaw] ‘sword’ (Huf1971:C:5819-764-1)
	<i>Monic</i>	Nyah Kur [buun taw] ‘sword’ (Huf1971:C:5819-764-5)
	<i>Pearic</i>	in five varieties of Pearic

### 3.4.2 Words for ‘Axe’ and ‘Sickle’ in MSEA Austroasiatic

As noted in section 2, bronze axes have a long presence throughout MSEA, at least from the end of the second millennium BCE, while early evidence of bronze sickles comes from the northern Red River region. In the lexical data, there are proto-Austroasiatic terms for ‘axe’, but terms for ‘sickle’ were generally borrowed. Tai has been the main lexical donor, while Chinese has more recently supplied one word for ‘axe’.

Regarding terms for ‘axe’, Shorto reconstructed two etyma in Mon-Khmer that are attested in a few sub-branches each. One more widespread form not reconstructed is the KWAN form, likely from Proto-Tai \*xwan A1. A more recent borrowing in Khmer and Pearic is the Chinese word for ‘axe’ 斧頭, with an apparent southern Chinese pronunciation (cf. Cantonese *fu<sup>2</sup> tau<sup>4</sup>* ‘axe’) and bisyllabic form, marking it as a more recent borrowing.

**Table 7:** Words for ‘Axe’ in Austroasiatic

Source Form	Phylum branch	Attestations
*[d <sub>2</sub> ]muj ‘axe’ Native word	<i>Proto-West-Bahnaric</i>	*tmi: (Sid2003:R:1010)
	<i>Khmuic</i>	T’in [muj] (Fil2009:C:114); Khmu (Yuan) [muj]
	<i>Proto-Palaungic</i>	*ʔmij (Sid2010:R:1282)
*cuuŋ ‘axe’ Native word	<i>Proto-Bahnaric</i>	*cu:ŋ (Sid2011:R:131)
	<i>Proto-Katuic</i>	*cuuŋ (Sid2005:R:1250)
	<i>Monic</i>	Mon [chúəŋ] (The1984:C:336-1)
KWAN ‘axe’ Tai loan	<i>Proto-Pramic (of Khmuic)</i>	*swa:n (Sid2013:R:pP-768)
	<i>Mangic</i>	Mang [khwən <sup>13</sup> ] (Edm1995:C:99)
	<i>Pearic</i>	Chong of Ban Thung Saphan [khwən təw] (Huf1985:C:215)
PTAW ‘axe’ Chinese 斧頭 (fǔtóu)	<i>Khmeric</i>	Surin Khmer [pthaw] (Dha1978:C:993)
	<i>Pearic</i>	Chong (multiple varieties) [pt <sup>h</sup> aw]; Pear (multiple varieties) [pu: t <sup>h</sup> au]

Unlike for ‘axe’, Shorto reconstructed no words for ‘sickle’ in Austroasiatic, nor are there existing reconstructions in sub-branches in the Mon-Khmer Etymological Dictionary. Instead, as shown in Table 8, ‘sickle’ is scattered among languages in various sub-branches, and these show further influence from Tai groups. KIEW in particular seems likely to be from Proto-Tai \*giau A2 ‘sickle’ (Li 1977), or possibly Proto-Tai \*kiaü B1 ‘to cut with a sickle’ (Li 1977). That the latter form is the source is also suggested by KENDIEW, which could be derivationally related to KIEW via a typical Austroasiatic nasal infix /-n-/. If the two forms are related, then this represents a truly broad geographic range of the spread of this item. Finally, while the Sinitic LIM form was borrowed into both Tai and Vietic, the Chinese word did not spread into MSEA Austroasiatic. Finally, whether the KERWIEN form is a native innovation is unclear.

**Table 8:** Forms for ‘Sickle’ in Austroasiatic

Source Form	Phylum branch	Attestations
KIEW	<i>Bahnaric</i>	Tampuan [kǰəw] ‘sickle, reaping hook’ Cro2004:C:458-1N
	<i>Mangic</i>	Mang [ke:w <sup>3</sup> ] (Loi2008:C:447)
	<i>Khmuic</i>	Mal, Khmu, T’in (e.g., T’in [Mal] kiaw ‘sickle’ (Fil2009:C:1822)
	<i>Monic</i>	Nyah Kur (Nam Lao) [kǰəw] ‘sickle’ (The1984:C:1599-1)
KENDIW	<i>Bahnaric</i>	Tampuan [kandǰəw] Cro2004:C:458-1C
	<i>Khmeric</i>	Surin Khmer [knr:w] Dha1978:C:648); Khmer [kandiev] (Hea1997:C:207)
	<i>Pearic</i>	Pear and several varieties of Chong (e.g., Chong (Samre) [kdiəw] ‘sickle’ Por2001:C:1614-4)
KERWIEN	<i>Katuic</i>	in several varieties of Katuic (e.g., Ngeq [kərwǰən] ‘sickle’ Huf1971:C:5194-686-8)
	<i>Monic</i>	in several varieties of Nyah Kur (e.g., Nyah Kur (Klang) [kəwǰən] ‘sickle’ (The1984:C:1734-4))

#### 4. Geographic Regions of the Most Widespread Forms

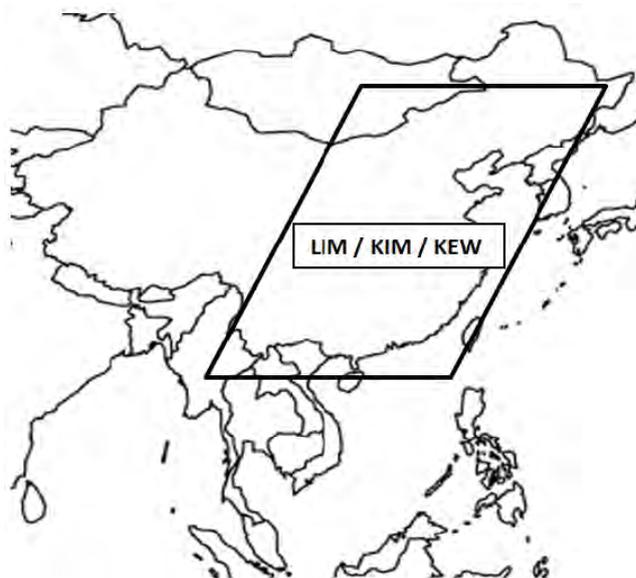
This section lists key forms from previous sections and provides maps showing the two primary regions of sources of terms, namely, the Sinitic and Tai regions. Table 9 shows the most widespread forms in this study, all of which spread southward. As Sinitic groups moved south, some of the terms for metal implements spread into Hmong-Mien, Tai-Kadai, and Vietic, while assumed Tai southward migration subsequently brought both Sinitic and native Tai words into MSEA Austroasiatic.

**Table 9:** The Most Widespread Word Forms

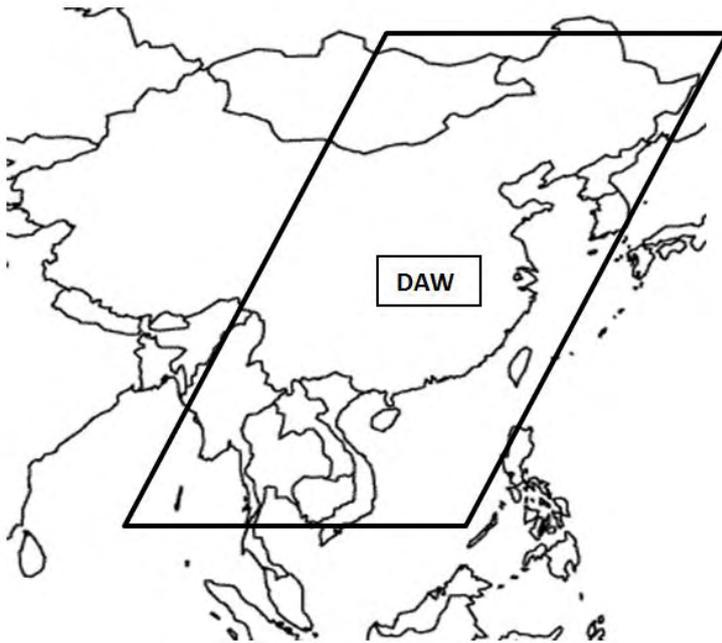
Source	Form	Glosses	Recipient Groups
Sinitic	DAW	knife/sword	Vietic and later in various MK languages and Chamic
	KIM	sword	Vietic and Central Tai
	LIM	sickle	Vietic and Tai
	KEW	scissors / shears	Hmong-Mien, Tai-Kadai, and Vietic
Tai	PRA	knife/sword	Austroasiatic (two stages, with and without final glottal stop)
	DAP	sword	Surin Khmer and Katuic
	MIT	knife	Several Austroasiatic sub-branches
	KWAN	axe	A few sub-branches of Austroasiatic
	KIEW	sickle	Several Austroasiatic sub-branches

In terms of geographic regions, while Chinese LIM ‘sickle’, KIM ‘sword’, and KEW ‘scissors’ extend south to the Vietic region (Map 1), DAW ‘knife/sword’ has entered MSEA to some extent (Map 2). DAW is likely a later borrowing in MSEA than the form in Vietic, which goes back to the Han Dynasty, and Vietic then probably spread the form to neighboring Austroasiatic languages. DAW was not listed in the tables in the sections on Tai or Hmong-Mien (albeit with tentative possibilities), though it does appear sporadically in them (e.g., Thai ปั้งค้อ *bang*<sup>33</sup> *da:w*<sup>33</sup>, Hmong (Bunu) *tau*<sup>33</sup>, etc.), and so may be more recent borrowings. It most often has the modern meaning ‘knife’ as a tool more than a weapon, in contrast with its apparent warfare origins. The source and timing of the later borrowing appears to be a combination of spread from Vietic as well as later settlements by Chinese in recent centuries.

**Map 1:** Region of languages with Chinese LIM ‘Sickle’, KIM ‘Sword’, and KEW ‘Scissors’ in China and Northern MSEA



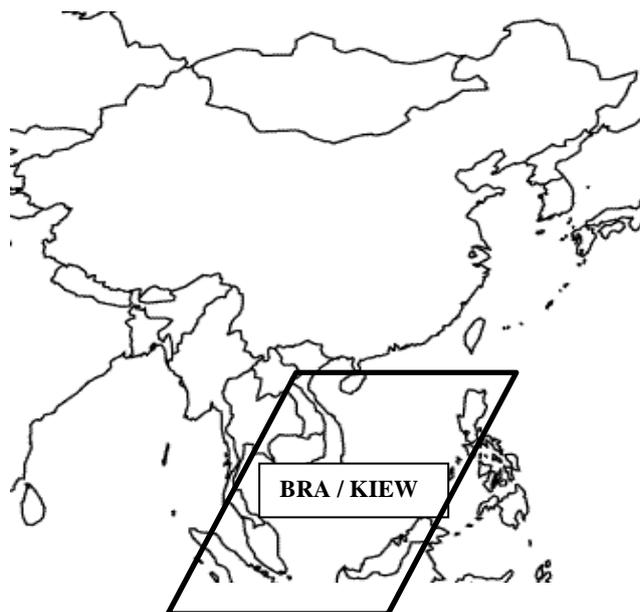
**Map 2:** Region of languages with Chinese DAW ‘Sword/Knife’ in China and MSEA



In a parallel development to the south, Tai BRA for ‘knife/sword’ and KIEW ‘sickle’ are also among the most widespread in MSEA among Austroasiatic languages (Map 3). Regarding BRA, the following points describe the sociohistorical spread as seen by linguistic evidence.

- The BRA form in Tai and Austroasiatic languages most likely comes from Tai \*vra C2. The Tai C tone is likely connected to a final glottal stop, as is the case for Old Chinese loans (e.g., Pittayaporn 2009:240).
- Some MK sub-branches have the final glottal stop in that word, such as Vietic and Monic, while others do not. Had the borrowing gone in the other direction, there should be some Tai groups with tone C but others with tone A, reflecting the MK languages without final glottal stop.
- In terms of sociocultural developments, it is more likely that Tai metallurgy practices were robust enough to maintain a group of native lexical items, which is not the case in Austroasiatic territory, where there are few widespread ancient terms for metal instruments.
- As for timing, BRA must have been borrowed in Vietic at a time when Tai still had final glottal stops and prior to the change from \*a to /ua̯/ in modern Vietnamese. In Khmer, which has the form without a final glottal stop, it appears to have occurred prior to vowel changes there as well, from \*a to modern Khmer /ie/.

**Map 3:** Region of languages with Tai BRA ‘Sword/Knife’ and KIEW ‘Sickle’ in Southern China and MSEA



### 5. Summary of Key Findings and Directions for Further Exploration

The claim that metalworking practices moved from north to south parallels the linguistic data in this study. Sinitic is the source of terms for many metal implements to the south, especially in Vietnamese, which has a majority of its early words for metal instruments from Chinese. In contrast to Vietic, Proto-Tai shows a large set of native terms for sharp bronze tools and weapons, and Hmong-Mien also has a notable number of non-Chinese words in this semantic domain, though unlike Tai, Hmong-Mien does not appear to be a frequent linguistic donor. Other Austroasiatic languages have a mixture of lexical sources: some native words, some from Tai, and some from Chinese, sometimes via other languages. If this lexical situation does match the transmission of material culture, the Old Chinese terms in Vietnamese should have been borrowed around the time of the West to East Han of about the second century BCE to the first century CE, and the Tai BRA form would have been borrowed at least as early, though perhaps earlier in the pre-Chinese Đông Sơn period. Other Tai loanwords in Austroasiatic appear to vary considerably in terms of both geography and time and cannot yet be established with any certainty; some could have been traded sporadically more than a thousand years ago, while others could have been borrowed during the dominance of Tai kingdoms over the past 600 years.

There are some gaps where the lexical evidence does not match the archaeological evidence. For instance, the Cồ Loa site in northern Vietnam has many bronze items that pre-date the arrival of the Chinese administration, and it is very likely that early Tai groups and Vietic groups interacted and traded. However, other than BRA and perhaps ‘drum’ (§2.2), there is little lexical evidence of Tai-Viet language contact. Metal knives and axes, according to archaeological data, were in the region at least three thousand years ago, and yet a majority of Austroasiatic languages have Tai words, and Vietic has been impacted heavily by Sinitic. Some Chinese words in Vietnamese are evidently replacements of earlier native Austroasiatic words. The clearest example of lexical replacement is that of ‘arrow’, which has a very low borrowability rate, and yet was replaced in Vietnamese with the Chinese word. The only clear evidence showing that Vietic originally had the very widespread \*kam ‘arrow’ Austroasiatic etymon comes from data in related minor Vietic languages. It is quite possible that the non-Chinese Vietnamese terms for ‘axe’ and ‘sickle’, which also have no Austroasiatic cognates, are connected to the pre-Chinese Bronze Age items. It is less likely that Sinicized Vietic peoples re-invented terms for these items after having borrowed them. Thus, it must be assumed, as the archaeological data suggests, that some groups in northern Vietnam and other parts of MSEA had words for bronze implements from the second millennium BCE, though how geographically widespread such terms cannot be ascertained.

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