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THE MUNDA MARITIME HYPOTHESIS

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Abstract

On the basis of historical linguistic and language geographic evidence, the authors advance the novel hypothesis that the Munda languages originated on the east coast of India after their Austroasiatic precursor arrived via a maritime route from Southeast Asia, 3,500 to 4,000 years ago. Based on the linguistic evidence, we argue that pre-Proto-Munda arose in Mainland Southeast Asia after the spread of rice agriculture in the late Neolithic period, sometime after 4,500 years ago. A small Austroasiatic population then brought pre-Proto-Munda by means of a maritime route across the Bay of Bengal to the Mahanadi Delta region – an important hub location for maritime trade in historic and pre-historic times. The interaction with a local South Asian population gave rise to proto-Munda and the Munda branch of Austroasiatic. The Maritime Hypothesis accounts for the linguistic evidence better than other scenarios such as an Indian origin of Austroasiatic or a migration from Southeast Asia through the Brahmaputra basin. The available evidence from archaeology and genetics further supports the hypothesis of a small founder population of Austroasiatic speakers arriving in Odisha from Southeast Asia before the Aryan conquest in the Iron-Age.

Keywords: Munda, historical linguistics, homeland, migration, South Asia
ISO 639-3 codes: mun, kfq, sat, mjx, trd, unr, unx, asr, biy, hoc, cdz, ekl, kfp, ksz, bix, agi

1. Introduction

The Munda languages of South Asia have long been known to be related to Southeast Asian languages (Wake 1890, Schmidt 1906), but the details of this relation still remain unclear (Sidwell 2014). In particular, the time frame as well as the geographical and (pre-)historical circumstances that lead to the current position of the Munda languages require further investigation. In this paper we propose a new hypothesis for the geographical and (pre-)historical events that resulted in the Munda branch and its current location in South Asia.

The Munda Maritime Hypothesis consists of two separate claims: The Proto-Munda homeland is situated in the Mahanadi Delta and adjacent coastal plains and was spoken by a rice and millet growing culture consisting of South and Southeast Asian components at around 4 to 3.5 kya.[1] The Southeast Asian pre-Munda reached this location via a maritime route around or across the Bay of Bengal from an unknown area in Southeast Asia.

The hypothesis is based on evidence from historical linguistics and language geography, and it can be corroborated by recent findings in archaeology and genetics. While a maritime dispersal for a group of

[1] We follow the convention to use *BP* and *cal BP* for radiocarbon dates and calibrated radiocarbon dates, respectively. Dates derived from genetics and linguistic phylogenetics are given as *kya* "thousand years ago" or simply as *years ago*. Historical dates are given in the usual BCE and CE form.

languages mostly spoken in upland areas might seem radical, we contend that it fits the available evidence much better than any alternative proposal made so far.

1.1. Rethinking the Munda homeland

Our localization of the Munda homeland is dependent on mapping the current, historic, and pre-historic distribution of the Munda languages, their subgrouping and their geographic distributions. In this section, we summarize what is known about the disposition of Munda, before proceeding to discuss the history of the group. The language catalogues Glottolog (Hammarström et al. 2018b) and Ethnologue (Eberhard et al. 2019) list 22 and 23 Munda languages, respectively. All current scholars and sources agree about the existence and status of eight languages—Gtaq (gaq, gata1239)[2], Gutob (gbj, bodo1267), Remo (bfw, bond1245), Sora (srb, sora1254), Gorum (pcj, pare1266), Juang (jun, juan1238), Kharia (khr, khar1287), and Korku (kfq, kork1243)—as well as the existence of the Kherwarian group (kher1245).

Current papers recognize six branches in the Munda languages: Gutob-Remo (guto1244), Sora-Gorum (sora1255, also called Sora-Juray-Gorum), North Munda (nort3151), consisting of Korku and Kherwarian, and the individual languages Gtaq, Juang, and Kharia. Additional sub-groupings have been suggested in the literature. The most important are Kharia-Juang, Koraput Munda (Gtaq, Gutob-Remo, and Sora-Gorum) as well as South Munda consisting of all non-North Munda languages (i.e. Kharia, Juang, Gtaq, Gutob-Remo, and Sora-Gorum). Kharia-Juang has a long history (Pinnow 1959, 1966, Zide and Stampe 1968) and there is some good evidence for this sub-group (Mahapatra 1976), but Anderson (2001) has cast considerable doubt on the existence of this subgroup. Koraput Munda can be considered rebutted by Anderson (2001) and following research (Anderson 2014, Rau to appear). The status of South Munda is unclear (Anderson 2014:366). There is some evidence from historical morphology for the unity of all non-North Munda languages (Rau to appear), but the group could as well be paraphyletic or polyphyletic. We will follow the current view and recognize Gutob-Remo, Sora-Gorum, North Munda, Gtaq, Juang, and Kharia as established branches of Munda (Sidwell 2014:197).

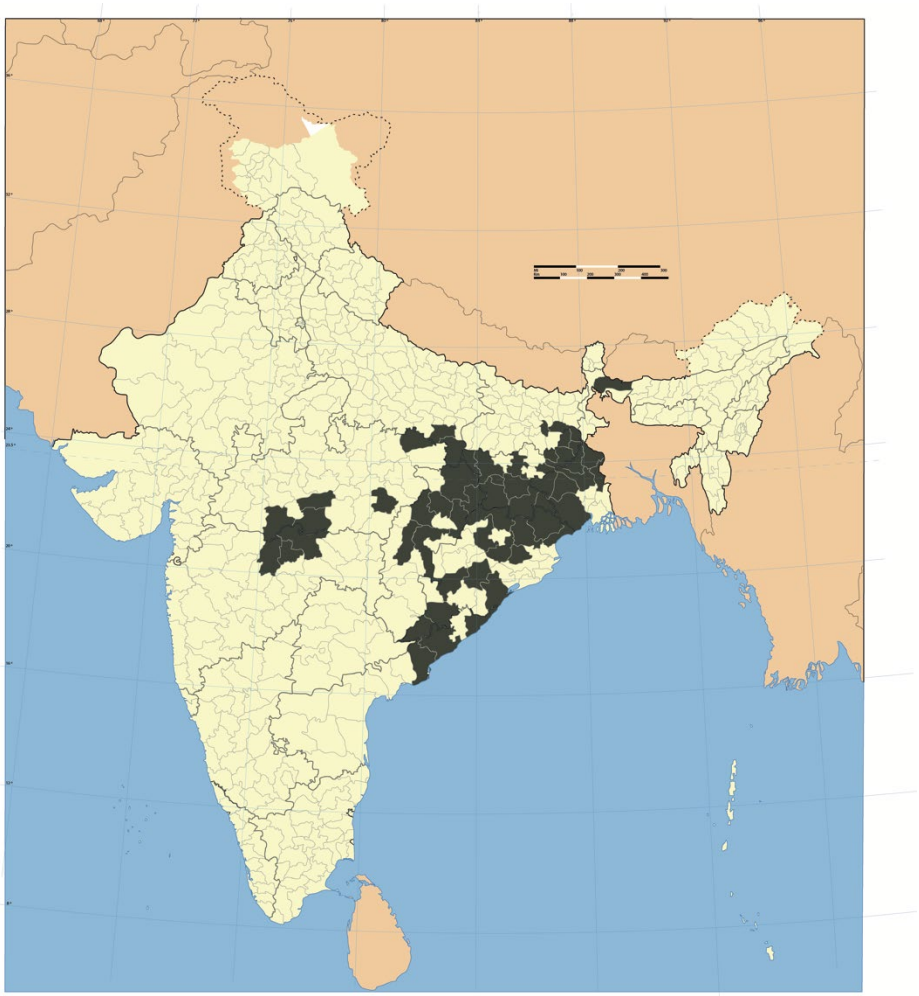
The Kherwarian branch of North Munda has been a source of confusion and a canvas for projection since the 19th century. The Kherwarian languages form a closely related group and most issues with their internal classification arise through the high degree of similarity between them. Glottolog recognizes 13 and Ethnologue 14 Kherwarian languages. Among these languages, Ethnologue lists Agariya (agi, agar1251) as a separate branch of Kherwarian. In Glottolog, Agariya is categorized as a spurious entry conflating information from different tribes with a similar sounding name (Hammarström et al 2018a), and this seems to be correct. In particular, since Verrier Elwin explicitly states that "[t]here is no Agaria language" (Elwin 1942:xxvii). Agariya is just one instance of a series of alleged Munda languages that have been proposed in North or Northwest India, as is Raji discussed in the next section. While these claims of additional Munda languages or substratum in the north have a long history going at least back to Konow (1909), none have been substantiated.

1.2. Early colonial and late pre-colonial distribution of Munda languages.

Currently, Munda languages are spoken in the Eastern Ghats and on the Chota Nagpur Plateau in most of the districts of Odisha (formerly called Orissa) and Jharkhand as well as in many of the districts of Chattisgarh and West Bengal (see Figure 1). Korku is located in the Satpura Hills on the border of Maharashtra and Madhya Pradesh. There are settlements of several Munda speakers around the tea estates of Assam, but these are the result of 20th century labor migration. Furthermore, there are Kherwarian speakers in the Indo-Gangetic plain of Bihar and West Bengal stretching north as far as Nepal (Parkin 1991:15–16).

[2] The three-letter codes are ISO 639-3 codes, and the four-letter plus four-digit alphanumeric codes are Glottolog langoid identifiers.

Figure 1: *Districts with Munda populations as listed in Ethnologue*



The current distribution of the southern languages—Sora, Gorum, Gutob, Remo, Gtaq, Juang, Kharia—seems to reflect the colonial and late pre-colonial distribution well, aside from recent exclaves in Assam. These languages are situated in uplands surrounding the Mahanadi-Brahmani Delta from the Chota Nagpur Plateau in Jharkhand to the hills of the coastal Ganjam district of Odisha and from there further south through the Koraput and Malkangiri districts of Odisha into the Vishakapatnam and East Godavari districts of northern Andhra Pradesh. Anthropological literature does contain indications that at least the Sora were once more widely distributed in the Odisha coastal plains and in particularly emphasizes their connection with Puri and the Jagannath temple (Elwin 1955). However, there is little evidence offered to support these and it is difficult to verify them. Vitebsky (1993:30) remarks that "[h]istorically, the evidence suggests that the Sora have been squeezed into their present enclave from a much wider area. Many villages along the coast from the Mahanadi valley well into Andhra Pradesh have Sora names but few if any 'Sora' inhabitants." While evidence from toponyms could be welcome, Vitebsky does not offer any direct evidence. If the existence of Sora toponyms in the plains towards the Mahanadi valley could be substantiated, this would be good evidence for an earlier presence of Munda speaking populations in the Mahanadi Delta and the coastal plains.

In the Northwest, the current location of Korku in the Mahadeo and Satpura Hills (Parkin 1991:14) some 500km west of other North Munda language clearly date backs well into pre-colonial times. The location reflects an expansion of North Munda from the Chota Nagpur Plateau along the Tapi and Narmada valleys. The source of the Narmada river in the Maikal Hills is approximately 70km away from the Surguja district, where major Kodaku settlements are situated (Singh and Danda 1986). Karvé (1965:316), and following him Parkin (1991:13), claims that an expansion of Dravidian Kui, Gond, and Kurukh drove a wedge between the once continuous Munda population. The geographic separation of the western North Munda group from the remaining speakers then lead to the formation of the two branches of North Munda,

Korku and Kherwarian. The fact that the Gond genetically resemble Munda populations quite closely (Metspalu et al. 2018:130) supports the general scenario of Gondi replacing a North Munda variety, yet the genetic evidence points to a more complex event that involves substantial language shift through an expansion of the Dravidian language, more than a replacement through the Dravidian speaking population.

The modern distribution of Kherwarian has been the source of confusion. Kherwarian stretches from the northern parts of Odisha (in particular Sambalpur, Kendujhar and Mayurbhanj) north via Jharkhand into the Indo-Gangetic Plain and even further north into Darjeeling and Nepal (Parkin 1991:15–16). This distribution and a presumed contact with Himalayan languages has led several researchers to assume a wide distribution of Munda in pre-history in the northern part of South Asia. Konow (1909:179) is a typical exponent of this line of argument when he states: "It therefore seems probable that Mundas, or tribes speaking a language connected with those now in use among the Mundas, have once lived in the Himalayas and left their stamp on the dialects spoken at the present day." This hypothesis has been pursued by Tibeto-Burman scholars, e.g. Sharma (1989) and LaPolla (2001a:241). The latter reports that Raji (rji, raji1240), a language of northeastern Uttar Pradesh, is "so mixed with features that it is hard to determine if it is a Tibeto-Burman language heavily influenced by Indo-Aryan and Munda, or a Munda language heavily influenced by Tibeto-Burman and Indo-Aryan." From a Munda studies perspective, Raji cannot be characterized as heavily influenced by Munda, let alone genetically related. LaPolla (2001b) confirms our position finding no support for Sharma's unsubstantiated claims.

There has been a persistent search for present or historical Munda languages towards the north and northwest of their known location, and positive claims to this effect (see also Parkin 1992:41). Besides Raji, the spurious language Agaria is such a case. In fact, there is no evidence for Kherwarian speakers in the Ganges plains prior to colonial and post-colonial migrations. Dalton (1872:207) stated that, "[i]t is singular that no old colonies of Santáls or other Kolarian [i.e. Munda] tribes are found between the Himalaya and the Ganges. The Santál settlements that now border that river or skirt the Rájmahál Hills are readily traced back to more southern districts and their own traditions hardly support the theory of their northern origin." The current center of Kherwarian are the districts on the Chota Nagpur plateau and in particular the Rajmahal hills in the northeastern Godda, Deoghar, Dumka, Jamtara, Sahibganj, and Pakur districts of Jharkhand. This region has also been called the Santhal Pargana since the 19th century.

Hunter (1868) reports how the Santals were hired after the Permanent Settlement agreement between the zamindars (landowners) and the East India Company in 1790 (Guha 1996) – to settle empty areas in the lowlands and how, in the northern district of Rajmahal, Santals gradually advanced down the slopes (Hunter 1868:219–21). O'Malley (1910:97) reports that, "[b]y 1818 the Santals had made their way further north into the forests below the hills in Godda subdivision, and even into the Daman-i-koh [i.e. the northeastern end of the Rajmahal Hills]". Bradley-Birt (1905:157) notes for 1818 that the Santals had not yet entered later Santhal Pargana, which were then settled by Dravidian speaking while the Santals were only present in the extreme southern edge of the district. He states that their presence in the Santhal Pargana starts in 1832.

The reports from the early 19th century are consistent in their description of the distribution of Kherwarian speaking groups. The Santals and others were not present in the middle Indo-Gangetic plain or in any of the adjacent uplands. They were present on the Chota Nagpur Plateau and in particular around the Damodar river. Importantly, all claims about a Munda presence north of their early colonial location exclusively involve the Kherwarian subgroup of North Munda. Such a geographic extension of the Munda areas would not necessarily move the center of linguistic gravity north, but reflect a secondary movement.

The cumulative evidence leads to three geographic clusters: A western cluster in the Satpura Hills that contains the North Munda language Korku. A northern cluster centered around the Chota Nagpur Plateau that contains the Kherwarian languages and Kharia and at its southern fringe in the hills of Gonasika in Keonjhar the Juang (Patnaik 1989:4). The southern cluster stretches through the Eastern Ghats from northern Andhra Pradesh to southern Orissa and contains Sora, Gorum, Gutob, Remo, and Gtaq. The western cluster is clearly an extension of the northern cluster, although an old one.

The northern and southern clusters have traditionally been treated as coordinate branches of the Munda family tree. In recent years this thinking has been overturned; in particular the Southern Munda cluster is now regarded as comprising at least three and perhaps more coordinate branches (Anderson 2001). This new classification locates the center of Munda diversity in Odisha.

1.3. Watershed geography

If we correlate the pre-colonial and early colonial geographic distribution of the Munda languages with watershed maps of the watershed Atlas of India[3] (provided by the Central Ground Water Board of the Government of India), a clear pattern of correlation emerges. The Munda languages are clustered in upland areas of river basins that are all connected to a stretch of the Eastern Coastal Plains. This coastal area is centered around the Mahanadi Delta. The extensions into the fringes of sub-basins of the lower Ganges basin are geographically marginal and in fact restricted to one subgroup of North Munda. In particular, the area does not significantly extend into the Indo-Gangetic Plain. The Western cluster formed by Korku is a clear outlier as it is located in the upper areas of two basins on the other side of the peninsular plateau watershed.

The northern cluster stretches over the Mahanadi basin and the rivers of the Brahmani basin (the area stretching from the Mahanadi to Damodar and includes the Baitrani and the Subarnarekha rivers, besides the eponymous Brahmani itself). Ranchi is located between the source of the Brahmani and the Subarnarekha, both originating on the Ranchi plateau. The northern part of the cluster lies in the Damodar basin; the Damodar is an important river for the Santals and flows into the Hoogli approximately 80km before the coast. The northern areas of this cluster are on the southern slopes of the lower Ganges basin, in particular the Sone and the Hoogli subbasins. However, many of these areas are the areas mentioned in 19th century reports as the new settlement areas of the Santals and other Munda groups.

The southern cluster is mostly situated on the upper reaches of the various rivers of the Vamsadhara basin area, which stretches from the Godavari to the Mahanadi basin. The mouths of these various smaller rivers are thus all located in the area of the Eastern Coastal Plains directly adjacent to the coastal strip containing the mouths of the large rivers coming from the northern cluster. The southern cluster also touches the highest reaches of the northeastern fringe of the Godavari basin, but none of the Munda languages reach down the valleys towards the Godavari itself.

The Korkus are situated in the upper and middle Narmada basin and the highest reaches of the Tapi basin. The source of the Narmada is located in the Maikal Hills approximately 70km from the Hasdeo river, a major tributary of the Mahanadi, while the source of the Tapi is located near the Betul district. Both rivers flow towards the west into the Arabian Sea.

Most of the settlements of Munda speakers in the Ganges basin (with the exception of the Damodar sub-basin) and all of the settlements in the Brahmaputra basin in Assam are results of the colonial system and its dynamics and policies. There are no Munda languages in the upper Ganges basin and as we have seen the pre-colonial distribution in the lower Ganges basin is restricted to its southern fringe with no known old settlements in Indo-Gangetic Plain itself.

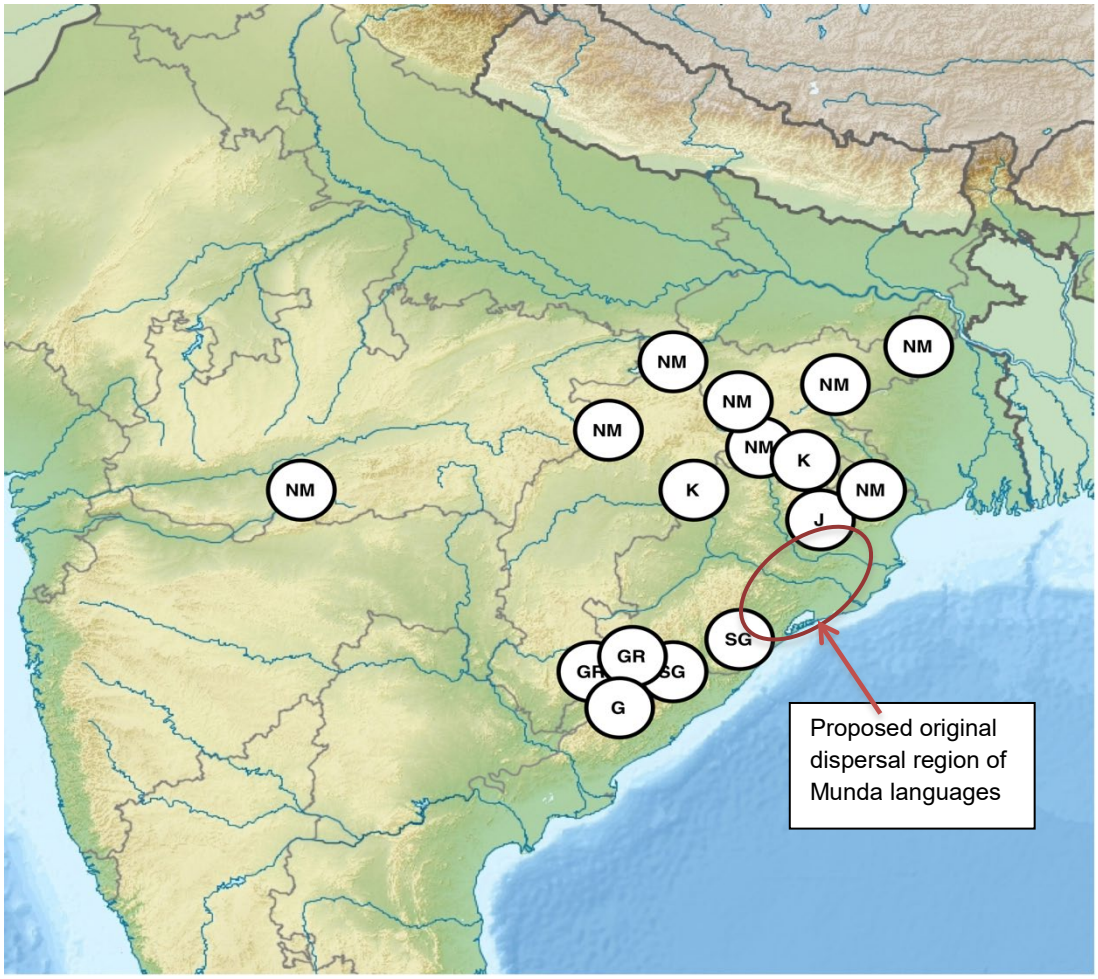
The Map in Figure 2 combines the internal genetic classification of Munda and a simplified model of the linguistic geography of the Munda branches with topological information, and our proposed homeland from where Munda language dispersed. When the linguistic geography of the Munda branches is viewed in connection with the geography of the drainage basins, the center of gravity is in the Mahanadi-Brahmani delta and the surrounding coastal plain. A homeland in this region can account for the location of every branch with minimal movement and without crossing major barriers. While no Munda languages are currently spoken in the plain of the delta itself, Sora and Juang are geographically close to the homeland. The present domination of the delta region by non-Mundas is readily explained by its attractiveness historically, for both agriculture and trade, to more militarily and politically successful social groups.

1.4. Historical linguistics of Proto-Munda and its Culture

The Munda branch of Austroasiatic is known as a highly divergent western outlier of a language family mostly located in Mainland Southeast Asia. Scholars have emphasized the difference between Munda and the other Austroasiatic languages at least since Grierson (1904). The Munda languages have—on the surface—heavily restructured on all levels of grammar (Donegan and Stampe 1983, 2002, 2004 and Donegan 1993) compared to the rest of Austroasiatic, to such an extent that even the relationship itself was denied in some quarters into the 1940s (Sebeok 1942).

[3] http://cgwb.gov.in/watershed/

Figure 2: *Map Modelling distribution of the different Munda branches without modern settlements in other areas (G = Gtaʔ, GR = Gutob-Remo, K = Kharia, J = Juang, NM = North Munda, SG = Sora-Gorum)*



Syntax and morphology of modern Munda languages show influence of contact with Dravidian and Indo-Aryan languages, although Donegan and Stampe (2002) attribute most features of modern Munda languages to an internal shift in phrase and word rhythms rather than contact. The restructuring in Munda includes superficial changes such as the introduction of retroflex consonants, while significant changes include simplification to a five-vowel system and reduction of the Austroasiatic syllable canon *CCVC to CVC. The latter resulted in the splitting of initial clusters in inherited Austroasiatic etyma; for example, Austroasiatic **klaʔ* (MKCD[4] 197) became proto-Munda **kəla* 'tiger' (Sidwell and Rau 2014). While initial cluster-splitting is a widely attested phonological process especially in loan words, Blevins (2017) considers it an unusual process for regular language internal sound changes. Cluster-splitting as a regular sound change only occurs in a language contact setting where speakers of a language that lacks initial consonant clusters acquire a language with these clusters (Blevins 2017:8). We take this as strong evidence that proto-Munda was an Austroasiatic language that went through a substantial contact situation with a very high percentage of second language speakers in the population. Analysis of loan vocabulary can throw some light on the historical situation.

The lexicons of Munda languages contain numerous loans from Indo-Aryan languages as well as some Dravidian loans. There are also words with no Austroasiatic etymology that also do not seem to have been borrowed from Indo-Aryan or Dravidian. However, there are no known Sino-Tibetan loan words in Munda. While some Indo-Aryan loans seem to be old, to our knowledge none has been identified as going back to proto-Munda. This suggests that proto-Munda was not in direct contact with Indo-Aryan.

[4] MKCD refers to numbered entries in Shorto (2006). Note also that we have retained the practice of using 'y' for palatal glide and 'j' for voiced palatal stop/affricate in quoting forms from Shorto, and additionally from the works of Norman and Arlene Zide also utilized here.

Historical linguistics allow us to tentatively reconstruct proto-Munda (agri-)culture. Zide and Zide (1973, 1976) reconstruct around 40 words from the proto-Munda agricultural vocabulary. These include two words referring to rice (Oryza sativa): **ruŋ(-)kub/g'* 'uncooked husked rice' and **baba* 'paddy'. These are supplemented by two terms relating to rice processing: two words for winnowing—**guXm* and **er*—also **saXʔl* 'mortar', **Vnrij'/*VnreXj'* 'pestle'. Except for **saXʔl* 'mortar', all these words can now be given good Austroasiatic etymologies: **ruŋ(-)kub/g'* is a continuation of MKCD 1820 **rk[aw]ʔ* 'husked rice'; **baba* derives from MKCD 120 **baʔ* 'paddy'; **guXm* from MKCD 1317 **gum/*guum/*g[əə]m* 'to winnow', **er* may be related to MKCD 1669 **wir* and related forms meaning 'to go round, to turn round' or to MKCD 1638 **cpiər* 'to blow/winnow'[5]; and **Vnrij'/*VnreXj'* is a continuation of MKCD 1508a **nrəyʔ/*nrəəy[ ]* 'pestle'. To these, we can now also add proto-Munda **gəle* 'ear of paddy', possibly related to MKCD 1577 **gur/*guər* 'ear of paddy'.

Two to four words for millet can be identified and have been tentatively associated with four different species by Zide and Zide: **(h)oXy* 'foxtail millet, Setaria italica'; **gaŋ(-)gay* 'sorghum, Andropogon sorgum'; **ə-rig'* 'small millet, Panicum miliare'; **deray* 'ragi, eleusine coracana'. The first two are reconstructed for proto-Munda, while the latter two can only be reconstructed for subgroups according to Zide and Zide (1976). Significantly, these words have no counterparts in Southeast Asian Austroasiatic, except for the so far unconvincing suggestion that **(h)oXy* continues MKCD 1447 **skuəy* 'Setaria italica(?), millet'. At least two pulses can be reconstructed for the proto-stage: **kodaXj* identified by Zide and Zide (1976) as 'horsegram, Dolichos biflorus' (nowadays: Macrotyloma uniflorum) and **rVm* 'black gram, Phaseolus mungo' (nowadays: Vigna mungo). As for millets, there is no good counterpart in Southeast Asian Austroasiatic. It has to be noted that the identification on species level by Zide and Zide (1973, 1976) is problematic. What seems to be secure is that the four terms—**(h)oXy*, **gaŋ(-)gay*, **ə-rig'*, and **deray*—refer to some form of cereal—most likely types of millet—and that **kodaXj* and **rVm* refer to some sort of small legume.

Zide and Zide (1973, 1976) reconstruct other words for plants—in particular tree and (tree) fruits such as **uXli/uXla* 'mango' (Mangifera indica) and **kaj'-er/*kag'-er* 'unripe mango' as well as words for tamarind (Tamarindus indica), date (Phoenix sylvestris), jamun (Syzygium cumini), wild fig (Ficus glomerata) and tumeric (Curcuma longa). None of these have related Austroasiatic counterparts. Zide and Zide (1973, 1976) also reconstruct several words for livestock and animals in general. These include **si(X)m* 'chicken', which is a clear continuation of MKCD 1324 **cim* 'bird', plus **taŋ* 'cow' and **boŋtel* 'buffalo', both with no Austroasiatic counterpart.

The general picture that emerges from the reconstruction of the proto-Munda lexicon suggests a society that practiced rice and millet agriculture and kept livestock. Certain components of the package are etymologically connected with Southeast Asia, such as rice agriculture, while millets, pulses, tree fruits, as well as cow and buffalo have a local non-Austroasiatic—but also non-Indo-Aryan and probably non-Dravidian—origin.

The combined evidence from the historical reconstruction of the grammar and lexicon of proto-Munda points to a setting in and around the Mahanadi-Brahmani Delta in the Odisha coastal plains at around 3.5–4 kya where a small group of Austroasiatic speakers from Southeast Asia encountered a local population (speaking a language without initial consonant clusters) and established themselves as the dominant local group among them. The local population had already acquired some agriculture, but the Austroasiatic speakers brought rice agriculture and related farming techniques and possibly other components. The resulting proto-Munda culture and language had strong native South Asian features with clear Southeast Asian components.

1.5. The relation to Austroasiatic and its homeland

Particularly since Pinnow (1959), it has been customary to regard Austroasiatic as consisting of two principle families—Munda and Mon-Khmer—and this has been repeated in many of reference works and secondary citations over the decades (e.g. Parkin 1991, Matisoff 1991, Diffloth and Zide 1992, Chazée 1999, and others). Additionally, much was made of a supposed typological dichotomy between Munda and Mon-

[5] Shorto's reconstruction can be reinterpreted as an infixed root **ciər* or **jiər* which could yield proto-Munda **er* (via **yer*).

Khmer (e.g. Pinnow 1963, Donegan and Stampe 1983, 2004) and this was perceived as consistent with the facts supporting a very ancient bifurcation of the phylum.

More recently, views have begun to shift in favor of a more nuanced understanding of Austroasiatic linguistic prehistory. Anderson (2004, 2014), Rau (2011, to appear), and Sidwell and Rau (2014) have demonstrated that Munda languages preserve various archaic features in phonology and morphology that were supposed to lie on the Mon-Khmer side of the typological dichotomy. It is now becoming clear that while Munda languages have a veneer of South Asian structural features, such as simple vowel systems, verb-final syntax, and elaborate inflectional morphology, these are best explained as the outcomes of various processes of language contact and internal drift. Beneath this veneer lies a more Southeast Asian typology of iambic roots, derivational infixes, and a core of Austroasiatic vocabulary.

The classification of Austroasiatic languages has also been undergoing special attention in past decade. The term "Mon-Khmer" is falling out of favor as scholars are increasingly seeing this as an outdated term denoting neither a genetic nor areal grouping in a coherent sense. Diffloth's (2005) revision of the family tree modified the longstanding two-family model of Austroasiatic by proposing three coordinate branches: Munda, Khasi-Khmuic (Northern AA), and Mon-Khmer (Eastern AA). Sidwell (2009, 2010, 2011, 2014) has reported on a series of experiments in computational phylogenetics and attempts to synthesize those results with advances in comparative reconstruction, variously suggesting that Munda is only one of between six and eleven coordinate branches, in what is a more rake-like family tree structure than the more nested-branching prosed by Diffloth (and favored by various earlier studies, see Sidwell 2009 for a wide-ranging discussion).

The clear trend in emerging results is that the Austroasiatic tree is strongly branching, with the highest order splits proving to be very difficult to resolve with confidence. This suggests that early in the phylum's history there was a general fragmentation and outward migration of speaker communities from the homeland region, perhaps connected to a common factor such as the adoption of cereal agriculture in Mainland Southeast Asia during the late Neolithic transition, circa 4150–3265 cal BP as dated by archaeology (Barron et al. 2017).

A Southeast Asian homeland for Austroasiatic has a long history of scholarly support, especially from the early 20th century with pioneering scholars such as Schmidt's (1906) "Austric" hypothesis which sought to link Austroasiatic and Austronesian, and von Heine-Geldern's (1921) theory of a Southeast Asian *Kulturkreis*. However, the more broadly received perception that Austroasiatic is both very ancient and a cereal cultivating culture, has conditioned a view that the homeland must have been further afield, in one of the two zones of ancient civilization in Asia, namely India or China.

A South Asian origin for Austroasiatic would put Munda at the geographical heart of the phylum, a view generally supported by scholars whose studies have been centered on South Asian matters. Van Driem (2001:289–303) reviews in detail the case for a South Asian homeland, although his synthesis finds much wanting in the arguments for a western Indian origin (especially Witzel 1999a,b) and he decides upon, "the area around the northern shores of the Bay of Bengal as the most likely location for the *Urheimat* of the ancient Austroasiatics." (van Driem 2001:290) This view was subsequently endorsed by Diffloth (2005, 2011). Both these scholars take as their departure point the consideration that this approximates the geographical center of Austroasiatic phylogenetic diversity, as well as providing the kind of semi-tropical environment suggested by the flora and fauna of the supposed proto-Austroasiatic lexicon.

Such considerations regarding the center of diversity and proto-lexicon, are subject to strong challenge (e.g. Sidwell and Blench 2011, Blench 2014) and now run against the current trend in discussions among concerned scholars in the Austroasiatic studies community. Ongoing scrutiny has not substantiated assertions of ancient Munda or Austroasiatic influence in Indo-Aryan languages/cultures (Osada 2009), such that there is no evidence of contact until Indo-Aryan languages expanded their influence into the direct vicinity of the Munda speaking areas in East India.

Another tendency correlates proto-Austroasiatic with various locations in central China, especially the Yangtze river valley where rice has its earliest domestication in Asia (Fuller et al. 2009; Fuller and Qin 2009; Deng et al. 2015). Archaeologists and geneticists (e.g. Highham 2017, Matsumara et al. 2019, Lipson et al. 2018) have identified a demic expansion of Neolithic farmers, and the rice and millet they cultivated, from China into Southeast Asia and some linguists have tried to connect Austroasiatic with this event. Among linguists, the works of Norman and Mei (1976) and Schuessler (2007) have been especially influential in suggesting an Austroasiatic lexical stratum in Ancient Chinese, including supposedly the name

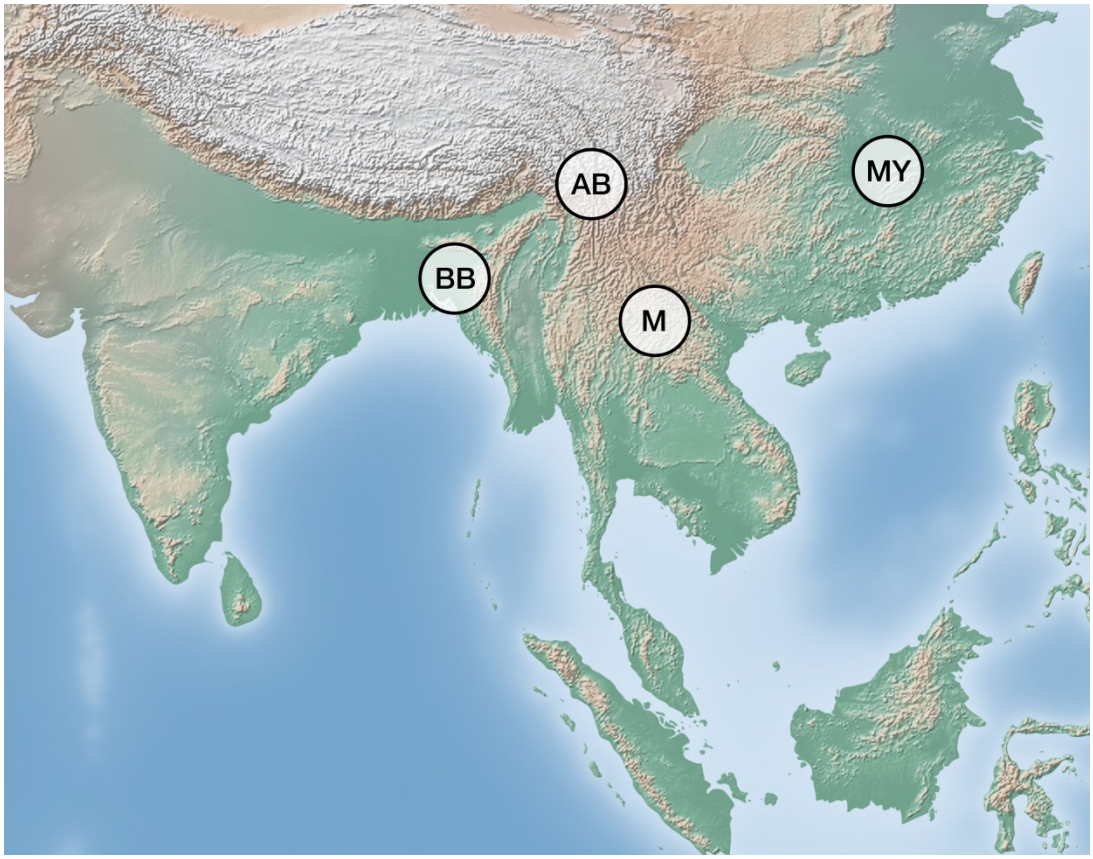
of the Yangtze itself. In this vein, Peiros (2013) confidently advocates that, "the AA homeland was located somewhere not far from the mid-Yangtze valley, probably in the nearby mountains in modern Sichuan, as has been suggested by Peiros and Shnirelman in 1998." However, the authors of this paper join Sagart (2008) in finding the evidence of Austroasiatic-Chinese comparisons to be unconvincing; we point out that the combination of relaxed semantics, uncertainties of the historical phonology, and the large lexicon of Chinese characters, create opportunities for chance resemblances with little constraint. Sagart (2011) continued to defend the hypothesis of ancient Austroasiatics in the Yangtze valley as a possibility, pivoting the argument to one of explaining various typological parallels between multiple language families of East and Southeast Asia. While the suggestion of areal convergence by ancient language families has some merit, the formulation is vague, and permits a wide range of hypothesis concerning the location, duration, and nature of contact that may have happened, without any necessarily problematic implications for the Munda Maritime Hypothesis.

An alternative proposal locates proto-Austroasiatic in Yunnan in Southwest China at the northern fringes of Southeast Asia (Bellwood 2004, Starosta 2005). This proposal reconciles the proposed connection to rice domestication with the attested distribution of Austroasiatic languages in Southeast Asia.

Another approach looks to place proto-Austroasiatic inland somewhere about the headwaters of the Brahmaputra, Irrawaddy, and Mekong rivers as a logical dispersal location that both facilitates migration along rivers and can correlate with center-of-diversity considerations. This is view is expressed by, for example, Blust, the noted Austronesian specialist:

> I suggest that AA has the longest record of settlement in mainland SEA south of China, well antedating the expansion of Tibeto-Burman, Tai-Kadai, Austronesian and Hmong-Mien languages into this area, and I propose there that PAA was spoken in the Assam-Burma border region by 6000 BP or earlier. (Blust 1996:24)

Figure 3: *Proposed homelands of Austroasiatic: BB Bay of Bengal (e.g. van Driem 2001), AB Assam-Burma border (e.g. Blust 1996), MY middle Yangtze (e.g. Sagart 2011), M Mekong (e.g. Sidwell and Blench 2011)*



As one can see, there are multiple views about the Austroasiatic homeland, and by implication the origins of the Munda family. Based on the current understanding of the branching of Austroasiatic and the geographic distributions, we consider the Southeast Asian homeland to be the most promising hypothesis. In our view, the fragmentation of the phylum and its trans-cultural and demic diffusion out of the homeland region is tied to the adoption of cereal agriculture in Mainland Southeast Asia during the late Neolithic transition. The Austroasiatic family may be much older as a distinct linguistic lineage, but significantly expanded as cereal farming and animal husbandry augmented hunting, fishing and gathering. As Bellwood remarks:

> .....around 2500-2000 BCE witnessed some remarkable cultural and biological changes in Southeast Asia [...]. South Chinese Neolithic populations with food production based on rice, millet, pigs and dogs pressed southwards, in the process settling alongside or simply amalgamating the indigenous hunter-gatherer populations. (Bellwood 2015:55)

Rispoli (1997, 2004) identifies a cultural package with its roots in the Chinese Neolithic, marked by ceramics, rice and millet agriculture, pig/dog/cattle husbandry, polished stone tools (mainly adzes), shell-reaping knives, and the manufacture of shell and stone ornaments. The Austroasiatic vocabulary, such as reconstructed by Peiros (2004), Diffloth (2005), Shorto (2006), neatly reflects such a Neolithic cultural repertoire, which we suggest diffused over Indo-China, from north to south, over some hundreds of years. Recently Barron et al. (2017) demonstrated domestic rice within pottery sherds in Lower Mekong sites dated to within 4150–3265 cal BP, establishing a lower limit for this transition across Indo-China. Figure 3 shows the main four proposals for an Austroasiatic homeland discussed here.

1.6. The dispersal of Munda into South Asia

If Austroasiatic was located in a coherent territory in Indo-China by around 4 kya and proto-Munda in the Mahanadi Delta around 3.5–4 kya, pre-Munda speakers must have entered the Eastern Coastal Plains from Southeast Asia. The predominant hypothesis tries to account for the presence of Munda (sometimes combined with the presence of Khasi) in South Asia via a migration downstream along the Brahmaputra. This Brahmaputran migration hypothesis has pre-Munda speakers crossing the watershed between the Irrawaddy or Salween basin and eventually into Assam (Blust 1996, Higham 1996, Renfrew 1998, Starosta 2005, among others):

> "From Assam, the pre-Mundas followed the Brahmaputra River into the northeast Indian plain, leaving behind the Khasis in Assam and acquiring many of the characteristic South Asian phonological and grammatical features from the previous Dravidian residents."
> (Starosta 2005:1912)

Yet, there are strong historical linguistic and language geographic problems with this hypothesis. The internal branching of Austroasiatic and the location of these branches does not support dispersal along the Brahmaputra. Munda and Khasi, the only other language west of the Patkai Range are not closely related, making a joint dispersal from Northern Burma unlikely. Nor is there evidence that Munda is directly linked to the Khasi-Palaungic branch (Sidwell 2014). We also note that Diffloth (2005, 2011) coordinates the Munda branch directly with the root of the Austroasiatic family tree, consistent with an unmediated migration from the homeland. Furthermore, neither Munda, nor the languages in the Indo-Gangetic Plain, or in particular the languages in the Brahmaputra basin, show contact features that would be expected from a diffusion over such a long and geographically challenging area.

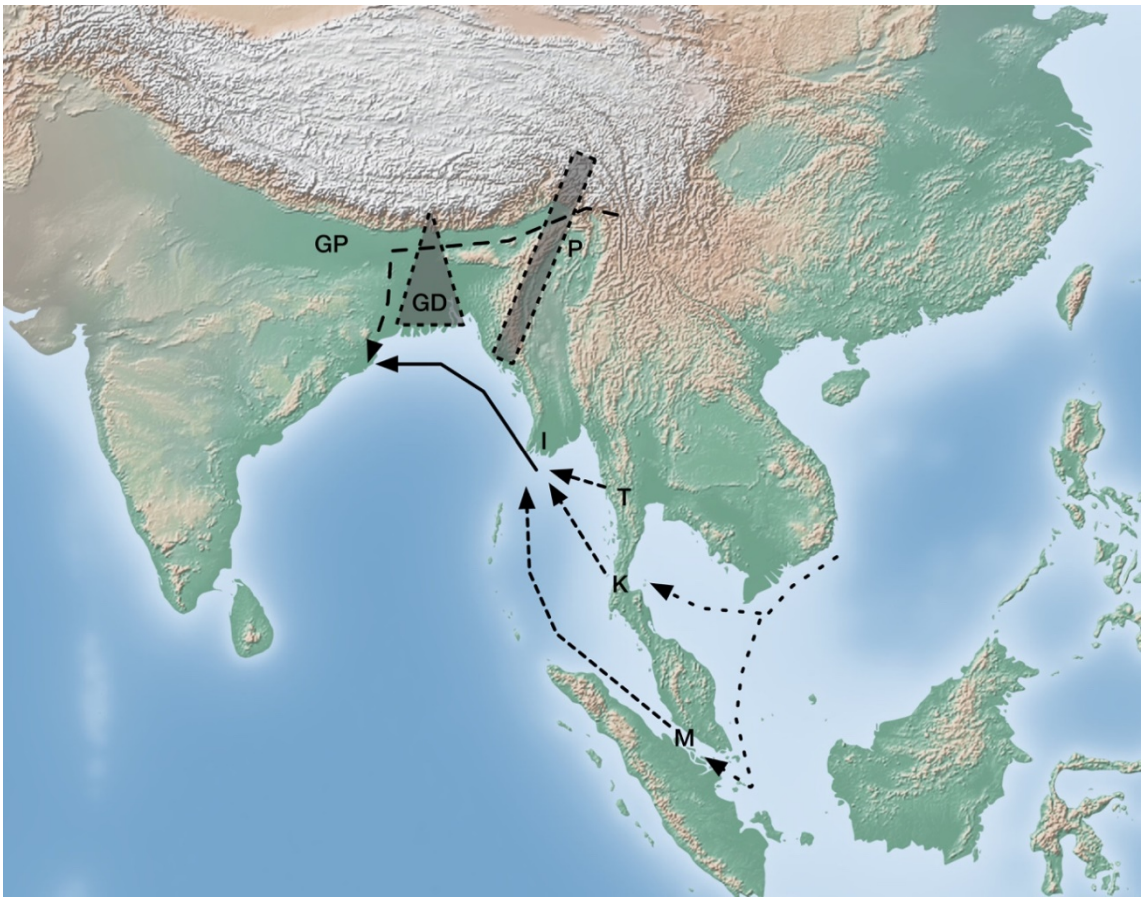
The geography of the proposed Brahmaputra migration is also problematic. The Ganges-Brahmaputra Delta has been a barrier for human migrations since the Pleistocene separating Northeast India from the rest of the subcontinent. (Field and Lahr 2005, Stock et. al. 2007) The area from the Ganges Delta to the Patkai Range has been a major barrier for mammals in general (Dennell 2008:435) and the Brahmaputra is also the marker of two different ecotones (Tosi 2007). As a result, the Brahmaputra has been a genetic, cultural, technological, and agricultural barrier, which "has long constituted one of the most significant terrestrial biogeographic barriers of the Old World" (Boivin et al 2013:42 and citations therein).

Had the pre-Munda dispersed along this route, speakers would have entered the Indo-Gangetic Plain, a fertile region that shows all the characteristics of a spread zone as defined by Nichols (1992, 1997). It is not clear what may have motivated our hypothetical migrants to take the difficult route south-west to the

Mahanadi-Brahmani delta, eschewing the fertile lowlands stretching endlessly westward. It is also striking that we find no pattern of linguistic remnants in residual zones around the Gangetic Plain.

Consequently, a dispersal via the Brahmaputra basin to reach the Munda homeland seems unlikely. While the presence of Khasi in Meghalaya and Ahom in Assam testify that migration from the Irrawaddy or Salween has happened, neither of these groups continued beyond the Assam Plain. It seems also unlikely that a dispersal of a group who brought rice agriculture with them would not leave any pocket in the Irrawaddy or Salween basin or on the fringes of the Brahmaputra basin or other indication of their presence in the local languages. However, the next step of the Brahmaputra migration strikes us as particularly unrealistic. How could a group that has already expanded along the whole Assam plain stop expanding into the Ganges plain—a vast and fertile river plain suitable for rice agriculture that lacks any major barrier in the way. Instead, they would have crossed the imposing Ganges-Brahmaputra Delta through the Rajmahal-Garo Gap and spread into the Eastern Coastal Plains. All that way just for a small group to settle in the Mahanadi Delta.

Figure 4: *Proposed Migration routes, the Brahmaputra route crosses the Patkai Range (P) and Ganges Delta (GD) without continuing into the Indo-Gangetic Plain (GP). The maritime route crosses the Bay of Bengal from the Irrawaddy Delta (I), probably starting out in the Tanintharyi region (T), the Isthmus of Kra (K), the Strait of Malacca (M), or even beyond (e.g. Red River Delta).*



The coastal location of the Munda homeland at a major jump off and landfall point for maritime travels—in early history as well as pre-history—along the littoral of the Bay of Bengal suggests to us another route: a maritime migration from (Mainland) Southeast Asia. This is the second part of the Maritime Munda Hypothesis. The location of the Munda homeland is readily explained by the characteristics of ocean currents and the monsoon winds of the Bay of Bengal. The linguistic properties of proto-Munda that are connected with a specific contact scenario involving a small number of Austroasiatic speakers and a high percentage of second language speakers in the early Munda population, are also explained by the restrictions of Neolithic maritime movement moderating the size and frequency of movement. The Maritime Munda Hypothesis proposes that pre-Munda speakers traversed the northern Bay of Bengal aided by seasonal winds from at

least the Irrawaddy Delta, but more likely from the Tanintharyi Region, the Isthmus of Kra, or the Strait of Malacca. The latter two locations allow for a point of origin even further east.

2. Support for the Maritime Munda Hypothesis from other disciplines

2.1. Archaeology of the Mahanadi Delta

The Eastern Coastal Plains have a pre-history that is distinct from the Indo-Gangetic plains. In the Iron Age, the Indo-Gangetic plain became increasingly influenced by Indo-Aryan culture which spread from the Panjab eastwards through the Indo-Gangetic plain (Southworth 2005), while the area around the Mahanadi Delta remained outside of the Indo-Aryan sphere. The Mahanadi Delta and the coastal strip to the south was known in early history as Kalinga (Law 1939:204), and not considered part of the Āryāvarta, the land of the Aryans. The Dharmasūtra of Baudhāyana (1.2.14-15) states that if someone visits Kalinga, they commit a "sin through their feet" and require expiation (Olivelle 1999:134).

Kane (1930:30) places Baudhāyana tentatively at 500–200 BCE. This suggests that until the conquest of Kalinga by Ashoka in the Kalinga Wars (261 BCE), the coastal areas around the Mahanadi were known to eastern Indo-Aryan culture but were not part of the Aryan cultural world and probably not yet Indo-Aryan speaking areas. At that time, the Mahanadi Delta was already a hub for early maritime trade with Southeast Asia (Tripati 2011) and the western world including the Roman empire (Tripati et al. 2015). As Odra and Kalinga, it features in the works of Pliny and Ptolemy who identify it as the land of the *Suari* or *Sabaræ*, respectively (Cunningham 1871:509–11). No historical evidence and in particular no written record exist from this region prior to the conquest by Ashoka; consequently, evidence has to come from archaeological research.

The archaeology of Neolithic-Chalcolithic Odisha has established two separate traditions: The Eastern Wetland Tradition and a distinct Odisha upland tradition (Harvey et al. 2006). The upland culture seems to have lacked rice and millet agriculture completely and was presumably a tuber-based agriculture (Harvey et al. 2006:30). The Eastern Wetland Tradition is an agricultural tradition based on cereal and legumes. The sites are mostly located in the Mahanadi Delta and adjacent plains and extend into the Mahanadi valley.

The best documented sites of the Eastern Wetland Tradition are the Neolithic-Chalcolithic sites at Golbai Sasan and Gopalpur—both in the southern Mahanadi Delta near Chilika Lake. These sites feature a specific assemblage consisting of rice (Oryza sativa), two to three pulses (Vigna spp., Macrotyloma uniflorium and Cajanus cajan) and two to four millets (Bracharia ramosa, Panicum spp., Setaria spp. and possibly Paspalum sp.), as well as domestic cattle and buffalo rearing (Kingwell-Banham et al. 2018).

The development of Neolithic agriculture in coastal Odisha constitutes an independent tradition separate from the west-to-east-spread of agriculture in the Indo-Gangetic Plain. The introduction of wheat, barley, lentils, and peas as found in Chirand in Bihar on the northern bank of the Ganges did not continue into the coastal plains of Odisha. This makes the Eastern Wetland Tradition culturally distinct from the traditions of the Indo-Gangetic Plain (Harvey et al. 2006:30).

The beginning of the fully sedentary agricultural of the Eastern Wetland Tradition has been dated by AMS radiocarbon dates taken directly from individual seeds at around 3500 cal BP (Kingwell-Banham et al. 2018:11–2). This Neolithic culture is situated in the Eastern Coastal Plains of Odisha and in particular in the Mahanadi Delta and there are indications that it (later) expanded at least into the middle Mahanadi valley. Its agricultural assemblage consists of rice, two to three types of pulses, and two to four varieties of millet described by Kingwell-Banham et al. (2018) and is strikingly similar to the linguistically reconstructed proto-Munda agriculture. The archaeological record and the linguistic reconstruction both lack evidence for the presence of wheat, barley, lentils, and peas in the Eastern Wetland Tradition and in proto-Munda agriculture. Both cultures practiced animal husbandry and kept cows and buffalos and probably goats and/or sheep. Generally, the temporal, geographical and agricultural parallels are striking, and offer solid support for our proposed proto-Munda homeland.

The archaeological record offers additional evidence that has been far less well studied. The Neolithic pottery of the sites of East Wetlands Tradition consists of dull and slipped red ware, grey ware, and cord impressed ware (Mohanty et al. 2012), which does not stand out from South Asian Neolithic ceramics. Interestingly, according to Gupta (2018), Sarma (2000) has identified ceramic forms common to Neolithic Southeast and South Asia, but these similarities appear to be insufficiently documented and are not reliable evidence for a cultural link.

In the middle Brahmani river valley near Angul, excavations of a Neolithic-Chalcolithic burial site at Sankarjang have produced interesting finds. One grave contained Neolithic lithophones that have been dated to the second millennium BCE. This type of instruments is unusual in South Asia, but it has contemporaneous parallels in Southern Vietnam. The presence of lithophones in Odisha has been interpreted as "evidence for cultural contact between these two disparate parts of Asia in the prehistoric period" (Yule et al. 1990:584). The burials at Sankarjang have also produced teeth whose dental morphology suggests that these individuals had East or Southeast Asian ("mongloid") ancestry (Yule et al. 1989:127–30).

This evidence is tentative and might turn out to be unreliable; in particular the dating of the evidence from Sankarjang is not well established. However, the consistent theme of archaeological connections of the late Neolithic sites in Odisha with Southeast Asia is remarkable. Gupta (2005:22) goes so far as to proclaim that "[t]he situation of Golbai—merely 20 km from the Bay of Bengal—and its unique Neolithic-Chalcolithic assemblage hints at Southeast Asian landfall on the eastern Indian sea board in the 2nd–1st millennia BC."

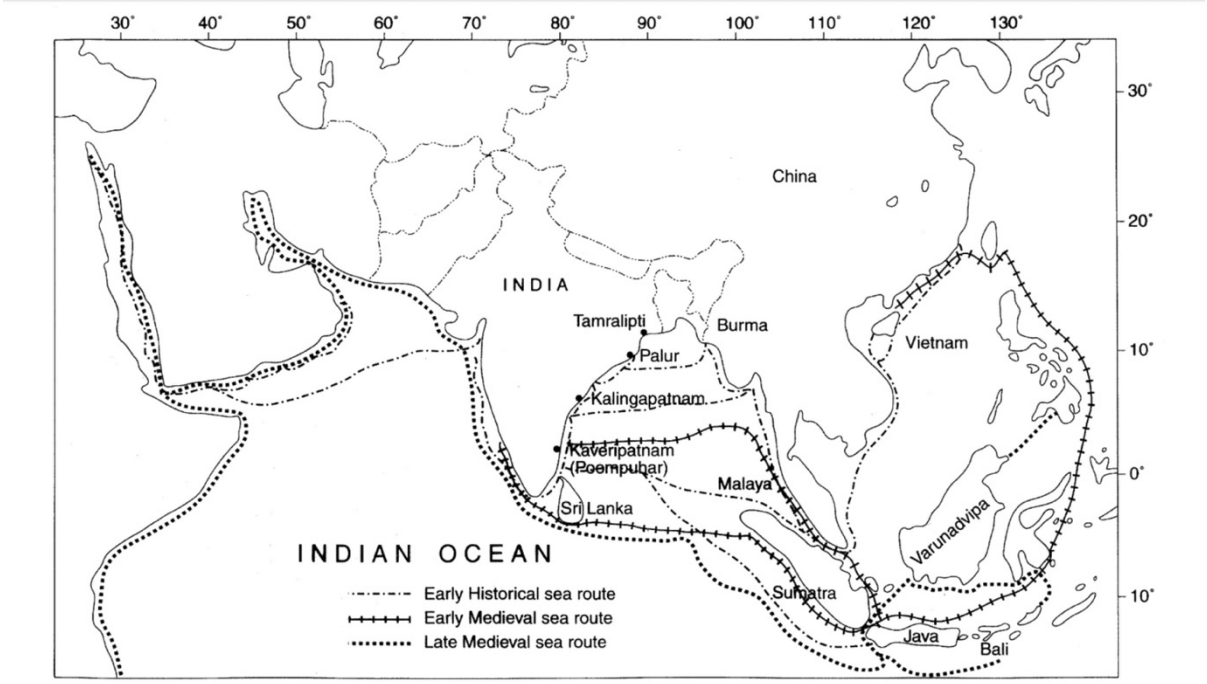
Figure 5: *Archaeological sites in the Mahanadi-Brahmani Delta mentioned in the text*

From the point of our Hypothesis, the major issue of the archaeological record is the dating for evidence of maritime exchange between South and Southeast Asia. The existence of an exchange network around the Bay of Bengal and beyond has been well documented and described for the late pre-historic time from around 500 BCE (Gupta 2005, Glover and Bellina 2011, Bellina 2017). Gupta (2005) dates the beginning of what he calls the Bay of Bengal Interaction Sphere to around 1000 BCE, connecting Sri Lanka, the Eastern Coastal Plains of India—from the Coromandel Coast in the South via the Northern Circars to the Utkal Plain—with the Irrawaddy Delta, the Isthmus of Kra, Sumatra and Insular and Mainland South East Asia beyond the Strait of Malacca (Figure 6). The ports in and around the Mahanadi Delta, have played a major role in this exchange network (Tripati and Raut 2006, Tripati 2011). While this interaction is well

documented for the Iron Age and later periods the archaeological evidence for a Neolithic-Chalcolithic exchange is less abundant.

The Isthmus of Kra has been a major connection point between the Bay of Bengal Interaction Sphere and the exchange networks of the South China Sea. For the South China Sea, the existence of an interaction and exchange network has been demonstrated as early as the 3–4 kya (Bellina 2017:240). Evidence for involvement of South Asia in this early exchange comes from the dispersal of Southeast Asian plants in parts of South Asia. This dispersal included areca and betel, banana, as well as sandalwood. The areca nut (Areca catechu L.) is considered native to the Philippines, but it was widely dispersed in Insular and Mainland Southeast Asia at a very early date. For South Asia, Zumbroich (2008:127) dates the presence of the areca tree to 3–4 kya. The dispersal of betel (Piper betle L.) is closely linked with the dispersal of the areca palm and has probably the same time depth. Banana (Musa paradisiaca) reached South Asia by the late third or early second millennium BCE (Fuller and Madella 2009:333). Sandalwood (Santalum album) is native to Java and the Lesser Sunda Islands and in particular to Timor. Sandalwood charcoal has been recorded in late Neolithic/Megalithic transition levels in South Indian sites and can be shown to have had reached India by 2–3.4 kya (Asouti and Fuller 2008:116-117). Zumbroich (2008:127) takes the view that "[l]ong-range Indian Ocean exchange networks whose products reached as far as the Neolithic groups of the south Deccan plateau were apparently functioning earlier than is usually stressed for this region."

Figure 6: *Map of historical sea routes from eastern India (Tripati and Raut 2006:867)*



Extensive pre-historic maritime contact between the Munda homeland region and Southeast Asia is well established and the archaeological evidence for an early connection between this area and Southeast Asia is pervasive and comes from human remains, artifacts, and crop plants. The evidence for this early maritime contact is much more tentative than in the late pre-historic period and in particular the dating of the evidence is not well established. Nonetheless, evidence suggests an early maritime contact that supports a maritime linkage between the proto-Munda homeland and the Southeast Asia.

2.2. Genetic evidence for a Neolithic Southeast Asian origin

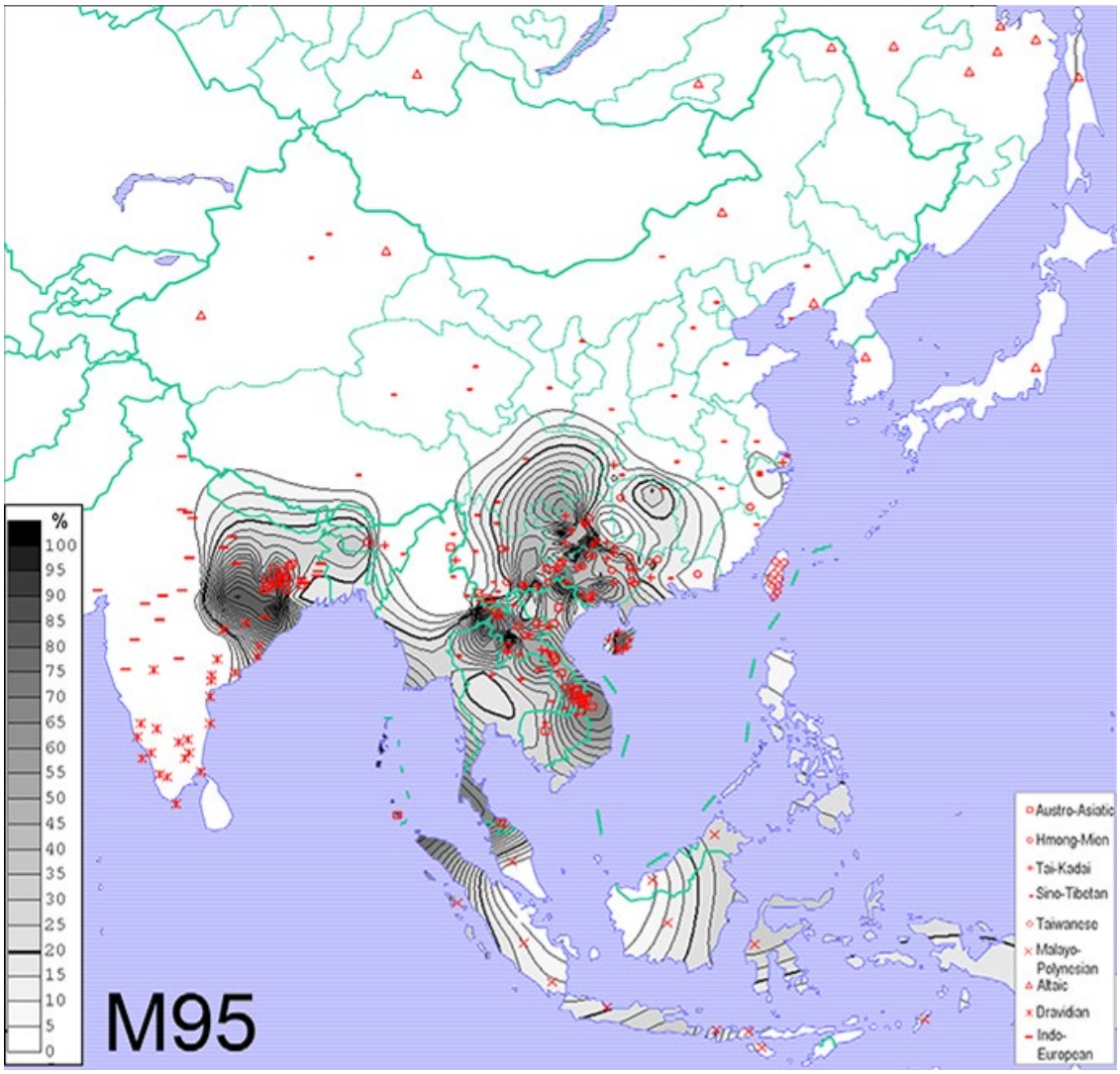
Reich et al. (2009) describe the complex genetic make-up of South Asia by two major gene pools: the ancestral North Indians (ANI), related to West and Central Asians and Europeans, and the ancestral South Indians (ASI), as distinct from ANI and East Asians as these two groups are from each other. All modern populations (except for indigenous Andaman populations) are a mixture of ANI and ASI ancestry, with ANI ancestry being higher in groups traditionally considered upper caste and in Indo-European speaking groups.

ASI and in particular the mitochondrial DNA (mtDNA) of South Asia contains deep-rooted lineages that diverged from other lineages outside of South Asia tens of thousands of years ago. The ANI component is the highest in the North-West of South Asia and decreases towards the East and South. This pattern of mixture has been called the 'Indian Cline'. The date for the mixture has been estimated to range from 1900 to 4200 years ago. (Moorjani et al. 2013, Metspalu et al. 2018)

The Munda populations do not fit into this 'Indian Cline' but are distinguished by a substantive percentage of Y chromosome haplogroup O2a1-M95 (Metspalu et al. 2018), a Southeast Asian haplogroup particularly frequent among Austroasiatic speaking groups (Arunkumar et al. 2015a, Chaubey et al. 2011). While Munda populations feature a considerable percentage of Southeast Asian heritage—over 60% of the Y chromosome variation is dominated at haplogroup O2a1-M95—their mtDNA (i.e. purely maternally inherited DNA) is virtually exclusively South Asian (Kumar et al. 2007, Chaubey et al. 2011, Zhang et al. 2015, Metspalu et al. 2018).

The haplogroup present in Munda populations is nested in the Southeast Asian Y chromosome clade O2a2. This whole Southeast Asian branch including Munda O2a1-M95 dates from 5-7 kya (Karmin et al. 2015, Supplementary Information p. 19). The Munda O2a1-M95 itself had initially been determined to be 4.3 kyr old (Arunkumar et al. 2015b:558), but a recent analysis by Tätte et al. (2018) on genome-wide data suggests the Munda-specific admixture occurred 2–3.8 kya. This implies a significant male-specific founder event as part of the admixture process. Among the different Munda groups, the Southeast Asian component is stronger in the groups of the southern cluster than in the groups of the northern cluster (Tätte et al. 2018).

Figure 7: *Contour map of O2a1-M95 frequency distribution (Cai et al. 2011:5)*



Tätte et al. (2018) and Chaubey et al. (2011) find that Mundas lack one ancestral component (k2) that occurs in Indo-Aryan and Dravidian speaking populations. This component is thought to have come to India through the Indo-Aryan migration. This would date the Munda admixture to a time before this component reached South Asia or the location where the Munda admixture happened. This restricts the possible locations for this event to parts of the subcontinent that were by 1800–1 BCE not in the sphere of Indo-Aryan influence.

Identity by Decent (IBD) analysis conducted by Tätte et al. (2018) showed Munda populations share the highest number of DNA segments identical by descent with the Aslian groups Mah Meri, Temuan, Jakun, and Che Wong (Austroasiatic, Peninsular Malaysia) in Southeast Asia and in India with Chenchu (Dravidian, Andhra Pradesh) and Chamar (Indo-European, North India in particular Uttar Pradesh). This analysis does imply common ancestry of these groups.

Interestingly, the Khasi differ substantially from Munda and are closer to Tibeto-Burman groups (Chaubey et al. 2011, Metspalu et al. 2018), while Gond and Nihali have a genetic profile very similar to the Munda and were disregarded for the IBD analysis by Tätte et al. (2018). The Gond population features a high percentage of Y chromosome haplogroup O2a1-M95 for a Dravidian speaking group (Karmin et al. 2015, Supplemental Figures S3 and S33). Their genetic make-up suggests a language shift scenario in which an expansion of Dravidian from the Godavari basin in the South separated the western and eastern part of North Munda leading to the formation of Korku and Kherwarian (see also Chaubey et al. 2018).

The picture that arises from genetics converges with the linguistic findings: Munda populations are Indian populations with a Southeast Asian component that was introduced by a small male Austroasiatic founder population, with no particular connection to Khasi. The indigenous South Asian population was less influenced from ANI populations from the Northwest than all current dominantly ASI populations. The admixture has been dated to either the Neolithic or Chalcolithic in a location that had not yet experienced Indo-Aryan influx. The evidence corroborates the hypothesis of a Munda homeland in the Mahanadi Delta at around 3.5–4 kya (2000–1500 BCE). This location and time provide a suitable setting for the required population configuration: ancestral South Asian populations away from northwestern influence, still outside of the Indo-Aryan sphere, and without East Asian influenced Tibeto-Burman groups. This location can also account for the fact that the Southeast Asian component is stronger in the southern cluster of Munda groups than in the northern cluster.

3. Conclusion

The Maritime Munda Hypothesis suggests that the Munda languages originate with a small population of Southeast Asian Austroasiatic speakers interacting with a South Asian population in the Mahanadi Delta in the Eastern Coastal Plains around 2000–1500 BCE. The pre-Munda speakers reached the Mahanadi Delta via a maritime route around the Bay of Bengal and brought rice agriculture and their language with them. The interaction with the local population created an Austroasiatic language with a substantially altered phonology and lexicon. The resulting proto-Munda language and culture dispersed from the coastal plains along the major rivers into the Eastern Ghats, the Chota Nagpur Plateau and from there as far west as the Satpura Hills.

The proposal of a maritime dispersal for the movement of Munda from Southeast Asia to South Asia might seem radical, but the case of Nicobarese, an Austroasiatic group that is located on an island chain in the Indian Ocean, suggests that this is not without parallel. It is unambiguous that the Nicobarese reflect an Austroasiatic speaking community that arrived on the islands by ocean-going craft, although so long ago there is no direct evidence that might suggest a timeframe.

It is also striking to note that a sub-grouping relationship between Nicobarese and the Aslian branch has been proposed (Diffloth 2005, 2011, Sidwell 2014). Dunn et al. (2013) have located the Aslian homeland in the center of the Malay Peninsula, during the Neolithic around 4 kya, and Bulbeck (2004) proposed an Aslian homeland on the west coast at a similar latitude to the proposal of Dunn et al. (2013). It may be that the locations of Nicobarese and Aslian are explained by a similar, or even the same coastal migration event. The Nicobar Islands and Malay Peninsula are characterized by proximity to the strategic route through the Ten Degree Channel, passing the Nicobar archipelago, and the Straits of Malacca. And in the light of genetic analysis suggesting a particularly close relation by descent between Munda and Aslian groups (Tätte et al.

2018), it may be that the locations of three geographically peripheral Austroasiatic branches are explained by a common ancient maritime adventure.[6]

For dating the arrival of the pre-Munda on the east coast of India, the time ranges of the three disciplines broadly match, although more detail is needed. The synthesis of the date ranges from linguistics, archaeology, and genetics point to around 3500 years ago (approximately 1500 BCE) as the best estimation for proto-Munda. This suggests an interesting dynamic in Mainland Southeast Asian just after the Neolithic transition and poses tantalizing questions about the location and affiliation of pre-Munda at that time.

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[6] Other suggestions of ancient Austroasiatic maritime movements have been made from time to time, but it is not clear how any of these may connect with the present hypothesis. In particular Adelaar (1995) pointed to phonological coincidences and two apparent lexical isoglosses (‘to die’, ‘to wash’) shared between Aslian and Bornean languages. However, we regard such similarities as more likely related to Iron Age Austronesian networks in the South China Sea and Western Austronesia.

[7] https://commons.wikimedia.org/wiki/File:India_districts_map.svg

[8] https://commons.wikimedia.org/wiki/File:India_relief_location_map.jpg

[9] https://commons.wikimedia.org/wiki/File:Asia_vectorial_map.jpg

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