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The sling and the blowgun as combat weapons in pre-Islamic Java

Notes on Old Javanese terms *gaṇḍi* and *tulup*

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ABSTRACT

Two Old Javanese terms, *gaṇḍi* and *tulup*, are discussed in detail. While the term *tulup* appears to be unproblematic, *gaṇḍi* has previously been identified with a score of weapons, including bow, club, war hammer, and sling. I argue that the original meaning of this enigmatic term is “projectile, pellet”, while its second, derived meaning refers in most cases to “sling”, and, occasionally, to “blowgun”. Both weapons are represented in the Old Javanese textual record as the weapons associated with predatory warfare, and with the forces of *adharmā*. I have tentatively suggested that this configuration reflects the pre-modern reality of slingers and the men equipped with blowguns perceived as essentially foreign, non-Javanese elements, and hence possibly identified by pre-modern audiences with mercenaries sourced from Sumatra or other parts of Indonesia where the sling and blowgun were regularly used in warfare.

KEYWORDS

Warfare terminology; Old Javanese poetry; literary representations.

INTRODUCTION¹

The main purpose of this contribution is to take a fresh look at two weapons that figure prominently in the Old Javanese textual record: the *gaṇḍi*, an enigmatic weapon that has been interpreted as a kind of bow, sling, or war

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hammer, and the blowgun (*tulup*).² I argue that the original meaning of the Old Javanese word *gaṅḍi* is “projectile, pellet”, while its second, derived meaning covers the weapons employed to shoot stone projectiles and/or clay pellets. Obviously, both the sling and the blowgun can shoot projectiles so that it is not always possible to identify which weapon is meant in particular textual context. Traditionally, both of these long-range weapons were employed in Java to hunt birds and small mammals, as testified still in 1817 by Raffles, whereas their use in pre-modern warfare remains an unexplored issue. The main source of our evidence, Old Javanese *kakavins* (court poems composed in Java between the ninth-fifteenth centuries CE, and later also on Bali and Lombok), ascribe the use of the sling and blowgun almost exclusively to the forces of *adharmā*, represented in many texts as openly demonic. This narrative strategy aims to stigmatize the fictive enemies, identified in ancient Java by way of allegory with local political powers (Robson 2008) by ascribing to them the use of weapons and combat strategies that were considered ethically or otherwise problematic (Jákl 2016). Whereas *kakavins* give us important evidence about the number of (technical) aspects of the use of the sling and blowgun as combat weapons, the texts – fictive in character – at the same time disclose the limits of their value as historical evidence.

This article develops its arguments in four sections. In the first part previous interpretations of the Old Javanese term *gaṅḍi* are critically assessed. In the second part I argue that original meaning of *gaṅḍi* is “stone and clay projectile”. In its derived meaning the word denotes long-range weapons – particularly, but not exclusively, the sling – that were used to shoot *gaṅḍi* projectiles. I also summarize what we know about slings and slingers in pre-modern Java. In the third part I review the evidence for sling projectiles. In the final section I discuss hunting and combat aspects of the blowgun, a remarkable weapon that ceased to be used in Java sometime during the early-modern period.

This paper also aims to reopen a discussion on the relevance of Old Javanese court poetry (*kakavin*) as a source of cultural history of pre-modern Java. Representing literary fiction, the relationship of Old Javanese *kakavins* to the realities of Javanese life has always been contentious. On the one hand, *kakavins* have been used as a rich source (at times, the only source) for a number of aspects of life in pre-Islamic Java (Ras 1976; Wisseman Christie 1993). On the other hand, some scholars were inclined to dismiss Old Javanese poetry as a viable source for history (Berg 1951, 1969). In what seems to be a current trend, scholars are admitting the value of *kakavins* as a rich source for the cultural history of pre-modern Java, though methodological problems are widely acknowledged (Supomo 2001; Creese 2004; Worsley et al. 2013).

² I transcribe Old Javanese according to the system proposed by Acri and Griffiths (2014). In order to avoid any confusion, I have also standardized the spelling of quoted primary sources according to these conventions.

PREVIOUS INTERPRETATIONS OF THE GAṆḌI WEAPON

The *gaṇḍi* weapon is known from a number of Old Javanese and Middle Javanese texts, as well as from the Old Javanese epigraphical record. In most cases, it is simply listed as an element of weaponry, both real and mythological. In the *Śivarātrikalpa*, by way of example, soldiers armed with the *gaṇḍi* figure among the troops of Nīla and Antaka, two generals of Yama, the God of Death:

vadvanya sārvouda macakra dudu-ṅ maganḍi
len tañ makanda hana tomara sañjatanya
*dukduk lipuñ paraśu nāraca bhinḍivāla*³

Their men were countless: some armed with disc-weapons, others with *gaṇḍis*,
 Yet others had swords, and some had spears as their weapons,
 Pikes, javelins, or war hatchets, *nāracas* or *bhinḍivālas*.

Most of the identifications of *gaṇḍi* advanced so far seem to be based on the lexical study of the term rather than on analysing the military context in which the weapon is mentioned. In early efforts to interpret this weapon, Old Javanese *gaṇḍi* has been traced to its presumed Sanskrit original *Gaṇḍīva*, a well-known mythical bow used by Arjuna, an epic hero of the *Mahābhārata*. Gonda (1952: 34) has suggested to trace *gaṇḍi* to another Old Javanese form *gaṇḍeva*, a Sanskrit loanword attested in a number of texts, where it denotes, along with its variant form *gāṇḍīva* ‘the bow’. Rendering *gaṇḍi* as “Javanese bow”, Gonda (1952: 34) has drawn a semantic parallel between Old Javanese forms *gāṇḍīva*, *gaṇḍeva*, and *gaṇḍi*. In another line of interpretation, Old Javanese *gaṇḍi* has been associated with its presumed modern Javanese form *ganden* (‘hammer’). Teeuw et al. (1969: 107) render the term *maganḍi*, denoting the combatants armed with the *gaṇḍi*, found in *Śivarātrikalpa* 21.3, as “their men [...] had hammers”. Supomo (1977: 251), following the same line of interpretation, has translated *gaṇḍi* in *Arjunavijaya* 49.8 as “hammers”. Obviously, these scholars interpret *gaṇḍi* as a kind of war hammer, a weapon most probably unknown, and certainly not used, in pre-modern Java. Soewito Santoso (1980: 466) has translated *gaṇḍi* in the *Kakavin Rāmāyaṇa*, an Old Javanese version of the Indic epic,⁴ as “club”, and in yet another identification of this weapon, Hall (2000: 65) has rendered *gaṇḍi* as “hatchet”. These attributions too seem to have been influenced by the meaning of modern Javanese *ganden*. Intriguingly, a musical instrument denoted *gandi* has been documented recently from Buddhist monasteries in Tibet (Vandor 1975; Hu-von Hinüber 1991). There is, however, no evidence that in pre-modern Java any musical instrument of this name was known, and I leave happily any research pertaining to possible connections between the Javanese weapon and the Tibetan musical instrument to other scholars.⁵

³ *Śivarātrikalpa* 21.3. Old Javanese text taken from Teeuw et al. (1969).

⁴ *Kakavin Rāmāyaṇa* may represent the earliest known specimen of the *kakavin* genre, datable according to a current scholarly opinion to the ninth century CE (Acri 2011: xv).

⁵ I am grateful to an anonymous reviewer for calling my attention to the existence of Tibetan musical instrument called *gandi*.

As will be seen in the next section, in virtually all descriptions *gaṇḍi* is represented as a long-range weapon and there is no evidence to support the view that the weapon was ever used in close-range combat (as a war hammer, hatchet, or club), apart from a case of emergency, alluded, to the best of my knowledge, only in *Bhomāntaka* 8.1, a passage discussed in detail below. Zoetmulder (1982: 487), well-aware of a wide range of contexts in which *gaṇḍi* is mentioned in the *kakavin* poetry, has convincingly refuted its identity as a short-range weapon. In his *Old Javanese-English Dictionary* (1982: 487; further: OJED) Zoetmulder glosses *gaṇḍi* “a part. kind of weapon, prob. a projectile thrown with a sling; or: bow (and arrow)?” In his entry on the derived word form (*m*)*agaṇḍi*, which denotes the men armed with *gaṇḍi*, Zoetmulder leaves the word untranslated, glossing (*m*)*agaṇḍi* as “armed with a *gaṇḍi*; *gaṇḍi*-bearer or thrower”. Since Zoetmulder’s groundbreaking work on Old Javanese lexicon, most scholars have preferred to interpret the *gaṇḍi* weapon either as a sling, or leave the term untranslated. This continued uncertainty about the meaning of Old Javanese *gaṇḍi* is obvious in the recent edition of the *Bhomāntaka*, where Teeuw and Robson leave *gaṇḍi* untranslated in stanza 8.1, whereas they render the same word as “slingshot” in stanzas 82.20 and 95.1a (2005: 453, 529). Apart from that, Teeuw and Robson observe that *gaṇḍi* is “apparently not Sanskrit, but looks reminiscent of *gāṇḍiwa*, ‘bow’” (2005: 610). Worsley et al. (2013: 365, 379) render the term *gaṇḍi* in *Sumanasāntaka* 149.7 “slingshots”, and they translate the passive verbal form *ginaṇḍi* found in the same text, in stanza 153.6, as “attacked [...] with [...] projectiles”.

SLINGS AND SLINGERS IN OLD JAVANESE SOURCES

From Zoetmulder’s analysis of *gaṇḍi* it is clear that while refuting to identify *gaṇḍi* as a kind of war hammer, club, or hatchet, OJED 487 has considered sling and bow as two possible denominations of this enigmatic weapon. In support of the attribution of *gaṇḍi* as “sling”, OJED 487 gives the Palembang Malay word *gandi*, denoting “sling with stones as projectiles”. In support of an alternative interpretation of *gaṇḍi* as a “kind of bow”, OJED 487 calls attention to the entry on *gaṇḍi* in Wilkinson’s *Malay-English Dictionary* (1959); the word is understood here as a Javanese loanword, and defined “the Javan. bow as known to the Malays”.⁶ Finally, OJED 487 summarizes that both sling and bow give sense to *gaṇḍi*, “provided it indicates (also) the projectile”.

Zoetmulder’s keen observation shows the way to the proper identification of this weapon. In my view, the problem can be easily solved if we accept that the first and usual meaning of *gaṇḍi* in Old Javanese is “pellet projectile, bullet” while a derived, secondary meaning applies to (diverse) weapons with which such projectiles can be shot. This attribution is supported not only by Old Javanese texts, but also by ethnographic observations from Southeast Asia,

⁶ Wilkinson (1959: 325) distinguishes in his dictionary between Malay *gandin* which he defines as “large wooden mallet” and *gandi*, “a bow”, a term he understands to represent a Javanese loanword.

where small pellets and stone projectiles were shot not only from slings, but also from blowguns and pellet-bows (Bellwood 2007: 150).

Soldiers armed with *gaṇḍi* (denoted *paḡaṇḍi*) are mentioned already in the Cungglang inscription, issued in 929 CE by King Siṇḍok (Stutterheim 1925: 263), so that we may presume that *gaṇḍi* was no mythological weapon, but a real combat weapon used in ancient Java.⁷ The *gaṇḍi*, however, nowhere in Old Javanese textual record carries an association of a heroic weapon, as does so often the (common) bow, another long-range weapon. Obviously, the Javanese *gaṇḍi* lacked its “epic” parallel in the *Rāmāyana* and *Mahābhārata*. In my view, this lack of Sanskrit cachet and any “epic pedigree” explains the consistency with which Old Javanese texts represent *gaṇḍi* as a weapon associated with non-heroic, “uncivilized” troops. It is certainly significant that in most literary descriptions, *gaṇḍi* is represented as a weapon carried by demonic warriors, or by soldiers fighting for *adharmā*. In *Kakavin Rāmāyaṇa* 19.65, the *gaṇḍi* is among the weaponry used by Rāvaṇa’s demonic soldiers, and in *Bhomāntaka* 8.1, the *gaṇḍi* is carried by the class of demons designated in the text by the term *vil*. In stanza 86.1 of the same text the *gaṇḍi* is associated with the demonic troops fighting for Hiraṇyanābha, and in *Bhomāntaka* 88.16, it is among the weapons of the troops of Cedi and Karṇa, the kings fighting for *adharmā*. Similarly, in *Sumanasāntaka* 153.6, the *gaṇḍi* is used by the troops of allied kings who fight against the troops of Prince Aja, representing the forces of *adharmā*. In *Śivarātrikalpa* 21.3, the *gaṇḍi* figures among the weapons carried by the demonic Kiṅkara troops of Yama. Only exceptionally, the *gaṇḍi* is represented among the weapons of the troops fighting for *dharma*: in *Bhomāntaka* 82.20, it is listed among the weapons carried by foot-soldiers fighting for King Kṛṣṇa, and in *Arjunavijaya* 49.8, it is listed among the weapons of the Hehaya warriors.

Now, let me analyse those passages in which *gaṇḍi* most probably denotes the sling and its round projectiles, and contextualize these passages with what we know about slingers in Java. In a number of passages, *gaṇḍi* denotes projectiles rather than a weapon used to shoot them, and from some of these passages we gather that a distinction was drawn between arrows, *gaṇḍi* projectiles, and blowgun darts. One of the most interesting depictions is found in *Bhomāntaka* 86.1, where the *gaṇḍi* projectiles are listed among other ammunition shot by long-range weapons. The passage describes the opening phase of a battle between an army of demon King Bhoma and Kṛṣṇa’s troops:

*sāvur i panahnya gaṇḍi nika sök pasörnya luməpas lavan gutuk-gutuk
ikaṅ aḍaḍap marək mvān agalah parəg paḍa rəbah tumandaṅ asusun*⁸

The arrows and the *gaṇḍi* projectiles were thickly sown and the blowpipe darts flew as well as stones,

⁷ Stutterheim (1925: 208) informs us that the Cungglang inscription is actually a twelfth-thirteenth century copy of the charter issued originally by Siṇḍok in 929 CE.

⁸ *Bhomāntaka* 86.1. Old Javanese text taken from Teeuw and Robson (2005: 474).

the bearers of shields approached with the spear-bearers and bore down together as they went into action, rank upon rank.⁹

The passage is important for it not only tells us that diverse long-range weapons were used to open the battle, but we also learn that warriors covered themselves from this missile fire under large *dadap* shields. Contrary to an established view in Old Javanese studies (Zoetmulder 1974: 194, 243), literary descriptions of war found in *kakavins* oftentimes demonstrate knowledge of warfare practices, and many passages, though in a fictive setting, reflect aspects of warfare culture of pre-modern Java. We know from comparative historical evidence (Charney 2004) that slingers preferred to shoot from some covered position, which gave them safety to reload, or to retreat. The same is suggested in the *Kakavin Rāmāyaṇa*. In stanza 19.65 the anonymous author “deploys” the men armed with the *gaṇḍi*, a weapon unknown in Vālmīki’s *Rāmāyaṇa* and Bhaṭṭi’s *Rāvaṇavadha* (two texts that influenced this Old Javanese *kakavin*), in the undergrowth (*sukāt*):

*anuṅ pramuka riṅ tagal ratha paḍāti lentuṅgaṅan
magaṇḍi mapanah ya tekana kinon umuṅgoṅ sukāt*¹⁰

The main forces in the field were the battle chariots, infantry, and cavalry;
The men armed with *gaṇḍis* [and] bows were ordered to stay [in cover] in the
high grass.

From many descriptions we learn that missile fire was generally not considered to be efficient to force a victory. In fact, in a number of passages arrows and other missiles are depicted more as an irritant than a weapon capable of forcing a decision; *Sumanasāntaka* 149.7 informs us that those who were struck by countless missiles fired by archers and bearers of *gaṇḍi* were “immobilized” (*tan pasāra*), but not killed. In the *Bhāratayuddha* we learn that Prātipeya, hit by Bhīma’s arrows, “reels in pain”, but stands his ground, retaliating with his javelin.¹¹ The lack of stability inherent in simple arrows is sometimes alluded in metaphors: the arrows flying through the air are compared to the “grass carried in a whirlwind”.¹² A volley of arrows is often likened to the shower of rain and a strong barrage of arrows could be compared to the rain in the month of Māgha.¹³ In the *Kṛṣṇāyaṇa* the arrows hitting a target are likened to the leaves falling to the ground.¹⁴ All these examples suggest that traditional bows shot arrows in an overhead trajectory: only powerful composite bows, probably always rare in pre-modern Java, could shoot arrows in flatter trajectory which made possible precision shooting at individual targets. The same may be true about traditional slingers, as we gather from the passage in

⁹ Teeuw and Robson (2005: 475) translate *gaṇḍi* in this passage ‘slingshots’.

¹⁰ *Kakavin Rāmāyaṇa* 19.65. Old Javanese text taken from Van der Molen (2015: 432).

¹¹ *Bhāratayuddha* 17.2.

¹² *Bhomāntaka* 88.4.

¹³ *Bhomāntaka* 89.9.

¹⁴ *Kṛṣṇāyaṇa* 51.4.

Bhomāntaka 78.1, in which a metaphor suggests that projectiles shot from the *gaṇḍi* weapon can only hurt, but not kill, an opponent. The anonymous author of the *Bhomāntaka* uses this metaphor, which may have been well-known in ancient Java, to depict the harshness of the speech delivered by Bhoma's envoy Gada at the court of Kṛṣṇa:

nāhan liṅ saṅ gadākras rasanya
ṅkāne saṅ dūta śatruntapākhyā
atyanteṅ karṇaśūlānlare tvas
*hrū mvaṅ gandy āṅane tur padanya*¹⁵

His [Gada's] words were exceedingly painful to the ear and distressing to the heart, the same as an arrow or *gaṇḍi* that strikes the knee.¹⁶

Slings were inexpensive weapons made from leather patches with strings of sinew or gut attached to opposite ends. After loading the patch and spinning it around, the slinger released one string and the missile flew off. Information about slingers in Javanese texts is sketchy, suggesting that they were of low social status and played a subordinate role in warfare. We should, however, not underestimate the efficiency of pre-modern slingers. As slinging is a lost art, Hunt (2008: 123) observes that “modern experiments on the speed and force of slings may underestimate their power due to inferior slings and untrained slingers.” There are, indeed, some passages in Old Javanese literature, in which the men armed with *gaṇḍi* feature as formidable warriors able not only to harass the enemy, but to inflict severe losses, especially on the men who were on flight and could not cover themselves with shields. In *Sumanasāntaka* 153.6, the retreating men of Prince Aja find themselves under a heavy missile fire, “attacked from both sides with arrows and *gaṇḍi* projectiles” (*inirup pinanah ginaṅḍi*). In the *Bhomāntaka*, the *gaṇḍi* weapons are used with success against the Yadu troops who, exhausted by a long battle, “without responding [...] were struck by *gaṇḍi*, lanced and overpowered by the attack” (*tan pamaləs ginaṅḍi ginalah pva sinusunan amūk*).¹⁷ We may presume that widely available round stones and pellets of baked clay were used as *gaṇḍi* projectiles, and it is certainly true that especially heavy stones might have done considerable damage. Sling bullets were fast and hard to see, so that they could not be dodged. Ancient Greek sources, by way of example, insist that slingers had an effective range of about 200 meters and could outdistance archers (Pritchett 1971: 56). Slingers fought dispersed as they needed room to swing their slings. They fought best on rough ground and against cavalry with unprotected horses. Javanese slingers were still used with success against British troops in June 1812, when they proved surprisingly accurate at short range. Carey (2008: 7) believes that slings were still at the beginning of the 19th century CE among “the most effective armaments” used by Javanese troops.

¹⁵ *Bhomāntaka* 78.1, Old Javanese text taken from Teeuw and Robson (2005: 416).

¹⁶ Teeuw and Robson (2005: 417).

¹⁷ *Bhomāntaka* 88.16.

Though the *gaṇḍi* seems to have indeed denoted the sling in pre-Islamic Java, it is not the exclusive term used to designate this long-range weapon. Old Javanese *bhiṇḍivāla*, another difficult military term, seems to have been used as an alternative term for a kind of sling. The word is derived from Sanskrit *bhindipāla*, a term which denotes sling in Indian medieval texts (Singh 1989: 109, note 4). We know that troops of trained slingers were still part of medieval Indian armies (Bhakari 1981: 73). Along with *gaṇḍi* and *bhiṇḍivāla*, two other Old Javanese words, *umban* and *gutuk*, seem to have been used occasionally to denote sling projectiles (balls, pellets). By way of example, the troops of *yakṣas* and *dānavas*, depicted in the *Sutasoma* as “hurling stones” (*maṅgutukriṅ vatu*) on the enemy warriors, who look for safety in treetops, may well represent slingers.¹⁸ Alternatively, the two terms denote hand-thrown stones or other large objects pelted at the enemy.

The hail of stones flung on the enemy is one of the popular motifs of the *kakavin* battle scenes. Simian soldiers fighting for Rāma are depicted as particularly skilled in hurling huge boulders on the enemy, and bombarding him with other impressive missiles such as mountain tops and uprooted trees.¹⁹ Commonly, the Old Javanese word *amaṇḍam* is used to denote a hailstorm of large missiles: I gather this from the passage in *Bhomāntaka* 95.3, in which Bhoma’s demon warriors pelt (*mamaṇḍam*) on their adversaries the heads of decapitated victims, missiles certainly too big to be used with any hand-operated sling.²⁰ In common with many parts of the pre-modern world, hurling stones on the enemy was presumably a regular military practice in Java: several reports of early Dutch observers confirm that simple pelting of stones on the enemy was still part of Javanese military strategy in the seventeenth century CE (Schrieke 1957: 124).

SLING PROJECTILES: BULLETS AND SHARP PELLETS

Interestingly, in *Bhomāntaka* 8.1 and in *Sumanasāntaka* 149.7, the projectiles shot from the *gaṇḍi* are denoted by the term *hrū*, glossed in OJED 645 simply as “arrow”. It seems to me that Zoetmulder’s reliance on dictionaries of modern Javanese in interpreting the meaning of Old Javanese *hrū* as “arrow” has been uncritically accepted by other scholars. Obviously, arrows represent projectiles incompatible with the sling. In my view, we must accept that the meaning of Old Javanese *hrū* was less restricted than the meaning of its modern counterpart, and covered, besides arrows, also darts (used in blowguns) and sharp pellets shot from slings. From the Middle Javanese *Kidūn Sunda*,

¹⁸ *Sutasoma* 137.1.

¹⁹ The epic motif of using an uprooted tree as a weapon goes back to the *Rāmāyana* literary tradition, and it is attested in the *Mahābhārata* too: in a well-known scene found in the *Ādiparva*, Bhīma kills the demon Baka with an uprooted tree that he uses, after stripping off its bark, as a deadly club. For the motif of a mountain top employed as a weapon see, for example, *Sutasoma* 100.2, where it is used by the demon Indrabajra against Śalya.

²⁰ The motif of pelting stones on the enemy is common also in the Sanskrit literature; especially Indian scholars often interpret such descriptions as an evidence of slings: Singh (1989: 97) interprets *adri* and *aśani* (stone) as “sling bullets”.

composed sometime between the fourteenth and sixteenth centuries CE, we gather that both the bow (*gaṇḍeva*) and the *gaṇḍi* weapon shot projectiles denoted by the term *hrū*.²¹ The interesting stanza in *Bhomāntaka* 8.1 gives us a rare glimpse into the operation of the *gaṇḍi* weapon, and provides valuable evidence pertaining to the shape of sling projectiles. Teeuw and Robson, editors of the *Bhomāntaka*, leave *gaṇḍi* in this passage untranslated, while they interpret *hrū* as “darts”. Let me quote the Old Javanese original and their translation first:

*parəṅ asusun ikaṅ vil vīra riṅ praṅ magaṇḍi
pati pəcut apəcut sep de nikānujvakəṅ hrū*

rank upon rank the demons valiant in battle bore *gaṇḍis*,
whipping all about they used (them like) whips – it was too late to take aim with
darts.²²

The passage depicts “demonic” combatants who, finding themselves hardly-pressed fighting at close quarters, are forced to use their *gaṇḍis* in the capacity of whips. It is obvious that the sling is represented as an emergency weapon here: restricted in movement, the men seem to have been unable to reload their slings with projectiles so that they use the slings as whips, a traditional weapon attested from many parts of pre-modern Indonesia.²³ *Bhomāntaka* 8.5 gives us further interesting information about the *gaṇḍi* weapon:

*ikanaṅ akuda mapraṅ rovaṅ puluh kveh nikāṅgyat
kirivili rinakutnya ṅ vicitreṅ magaṇḍi*

the horsemen fought, twenty in number, and suddenly
seized the *kirivili* of the demons, skilled at fight with *gaṇḍi*.²⁴

Kirivili is a difficult word and Teeuw and Robson (2005: 141) translate it tentatively as “sash”. Zoetmulder (1982: 878) renders *kirivili* “a part. article of dress, prob. a sash hanging down from the waist”. It is tempting to speculate that Old Javanese *kirivili* denotes the (decorated) front part of the loincloth (apron), or a sash used to secure the loincloth, an element of battle dress that may have been associated in *kakavin* with low-status warriors, such as *vil* demons represented in the fictive world of the *Bhomāntaka*. Rubinstein (2000: 163), for one, renders *kirivili* as “sash that hangs from the waist”, and gives the word as listed in the *Canda*, an Old Javanese treatise on prosody. This means that *kirivili* was a clear and well-known term by the time the *Canda* was

²¹ *Kidun Sunda* 2.175. The Middle Javanese text reads: *gandeva kalavan gandi titir luməpas hrūnya kyāṅənanani*.

²² Old Javanese text and translation taken from Teeuw and Robson (2005: 140, 141).

²³ The same motif of inefficiency of *gaṇḍi* in a close-range combat is found in *Harivaṅśa* 35.4: along with cumbersome *ḍaḍap* shields and long *galah* pikes, *gaṇḍi* is named as a weapon useless in a pitched battle.

²⁴ Old Javanese text and translation taken from Teeuw and Robson (2005: 140-141).

composed (see Krom 1924). Obviously, the men using *gaṇḍi* had a need for some kind of a bag or quiver in which to store the projectiles. In my view, apart from having an apotropaic role, *kirivili* may have served this practical function. By the act of seizing the enemy's *kirivili*, a manoeuvre we are never privileged to witness in detail, the horsemen would deprive the slingers not only of an apotropaic element of their dress, but also of their store of ammunition. In *Sumanasāntaka* 149.7a, some warriors shoot arrows, while others shoot *gaṇḍi* projectiles (*amana-manah moaṅ ikāṅ agaṇḍi*); yet, in line *c* of the same stanza the author says that "their arrows/pellets (*hrū*) filled the sky like flocks of rice-birds (*anrik*), spreading everywhere like rain clouds". Obviously, the term *hrū* covers in this passage both arrows (*panah*) shot from the bows, and the pellets shot from the *gaṇḍis*. The same configuration is encountered in *Sumanasāntaka* 153.6, where, in line *a*, we learn that warriors "were attacked from all sides with arrows and *gaṇḍi* projectiles" (*rinampak inirup pinanah ginanḍi*), and in line *c* the missiles, "thick as rain-clouds" (*kadimegha maṇḍuṅ*), are denoted by the term "arrow" (*panah*).

There is, in fact, yet another, quite tempting, way to interpret Old Javanese *gaṇḍi* weapon: it may have referred to the pellet bow. The problem is that we lack any evidence that this weapon was ever used in island Southeast Asia, though pellet bows were popular in some parts of mainland Southeast Asia, India, and south China.²⁵ Clay pellets are known from Neolithic of Ban Non Wat (Higham and Kijngam 2010: 127) and several Bronze Age sites from the Lower Mekong and Khorat Plateau (Higham 1996: 208). Wilkinson and Winstedt (1908) claim that the pellet bow in the Malay Peninsula was at the beginning of the twentieth century CE limited to use as toy, while its existence in pre-modern insular Southeast Asia remains a contested issue (Bellwood 2007).

Interestingly, in Middle Javanese the term *gaṇḍi* came to denote one kind of early firearms, most probably muzzle-loaded rifles.²⁶ This semantic shift in the meaning of *gaṇḍi* is easy to understand if we accept that the word *gaṇḍi* covers (round) projectiles. While the antiquity of the use of fire weapons in insular Southeast Asia remains unknown,²⁷ the concept of weapons "producing fire" was part of a warfare lore: the category of "divine weapons" (*divyāstra*), mythological and epic weaponry of enormous destructive power, wielded by gods and most accomplished epic heroes, has also covered the weapons that issued fire-arrows (Whitaker 2000: 90). The *Āgneyāstra* (Fire-weapon), by way of example, figures prominently in Old Javanese texts (Zoetmulder 1974).

²⁵ In south China, a special kind of composite pellet bow, referred to as "monkey bow", was used to shoot pellets. These bows are often hinged at the centre to make them collapsible (Grayson et al. 2007: 19). In some parts of China, a form of pellet crossbow, known as *nu-kung*, was still used by the nineteenth century CE for stunning birds (Selby 2000).

²⁶ See, for example, *Kidūṅ Sunda* 2.86.

²⁷ Jordaan (2011: 205), for one, considers the 1380s as the lower limit for the dissemination of firearms in insular Southeast Asia. This dating, however, may be too early, as in Đai Viet, the first Southeast Asian state that acquired gunpowder technology, fire weapons appeared only around the 1390s (Sun Laichen 2003a: 4).

Yet, none of the terms used for fire-spilling epic weaponry was adopted to designate firearms. The Javanese, Malays, Vietnamese, Siamese, and Burmese knew and used firearms well before the first Europeans arrived in Southeast Asia in 1509 CE (Reid 1988; Charney 2004). Especially the Vietnamese were well-known for their gunpowder technology and employed simple hand-guns already by the late fourteenth century CE. It has been argued that transfer of this military technology from China was greatly furthered by Ming invasion and occupation of Đai Viet during 1406-1427 CE (Sun Laichen 2003a: 10).²⁸

Vietnamese gunpowder technology spread through the agency of mercenaries into other parts of Southeast Asia, and it may have reached the Malay Peninsula by the mid-fifteenth century CE.²⁹ We know that at least since 1469 CE, Melaka felt the consequences of Đai Viet military expansion (Sun Laichen 2003a: 23), and this increased pressure may have pushed Melaka to develop its own artillery. At the beginning of the sixteenth century CE, Portuguese traveller Tomé Pires was impressed by skillful use of firearms and a large production of guns by the Vietnamese. Interestingly, he reports that a large quantity of sulphur and saltpetre was traded to Vietnam from the Solor archipelago in Maluku via the port-city of Melaka (Sun Laichen 2003a: 26). We know that Javanese merchants were actively trading in many parts of eastern Indonesia during the fifteenth century CE (Reid 1988) and it is plausible that Java draw its own supply of saltpetre from Solor. The island figures among the tributaries of Javanese Majapahit in the *Deśavarṇana* composed in 1365 CE (Robson 1995: 34). Java had a long-standing tradition of bronze-casting, used to produce the earliest firearms, and may have monopolized access to the source of saltpeter in eastern Indonesia. The necessary technological knowledge of firearms may have been received directly from Đai Viet or, alternatively, it may have been mediated by Melaka sometime during the second half of the fifteenth century CE. By the beginning of the fifteenth century CE, however, Majapahit has lost its ascendancy in the Indonesian archipelago outside of Java, though it continued to exist as supreme Javanese kingdom for the whole fifteenth century CE (Noorduyn 1978: 255). It is tempting to suggest that coastal Javanese Muslims, trading in saltpetre from Solor in the fifteenth century CE, may have been instrumental in the dissemination of gunpowder technology in Java. Their access to saltpeter, an indispensable ingredient of gunpowder (Crosby 2002), may have been among the factors that led ultimately to the fall of Majapahit.³⁰

²⁸ Accepting an estimate that ten percent of the early Ming army was equipped with firearms, Sun Laichen (2003a: 6) argues that around 21.500 Chinese soldiers invading Đai Viet used some form of firearms. The early Ming army used cannons, hand-guns, rocket-arrows, and grenades (Sun Laichen 2003b).

²⁹ Interestingly, Champa, which has been many times exposed to Vietnamese attacks, has not developed its own gunpowder technology before the sixteenth century CE. Sun Laichen (2003a) observes that there is no evidence that Champa used firearms in the fifteenth century CE, and a Chinese-Cham vocabulary, composed in the fifteenth century CE, contains no words pertaining to firearms (Blagden and Edwards 1940).

³⁰ Non-Islamized parts of pre-modern Java had historically a rather limited access to gunpowder technology: Noorduyn (1971: 152) has called attention to an interesting fact that

BLOWGUN: OLD JAVANESE EVIDENCE

The blowgun, sometimes also called a blowpipe, has a long but poorly documented history (Charney 2004). The weapon has been traditionally associated with Austronesian communities, and archeologists consider the use of blowgun to be one of the defining features of Austronesian prehistoric culture (Bellwood 2007). Originally, the blowgun was devised as a hunting weapon for use against small mammals and birds. The most developed forms of the weapon are encountered in Kalimantan where the barrel is made by a laborious process of drilling a hole through a solid piece of hardwood about two metres long (Van Zonneveld 2002). The blowgun is used by inserting a projectile, typically a dart, inside the barrel, even though seeds and clay pellets have also been used. The force created by one's breath is used to give the projectile momentum. Tips of the darts may have been dipped in poison in order to paralyse the target. Especially poisoned darts were sometimes notched to ensure that the shaft would break when the victim tried to remove the dart, leaving the head lodged in the wound. This ensured that the toxic head remained in the wound as long as possible to maximize the amount of poison entering the bloodstream. The stoppers for darts most often took the form of cotton or *kapok* fibre twisted around the tail end of the shaft to form a small ball. This made for a good air seal within the barrel without adding much to the dart's overall weight (Van Zonneveld 2002).

It is difficult to assess how important the blowgun was in pre-modern Java. Though attested from literary, inscriptional and visual record, the blowgun seems never to have attained the same status that it enjoyed in the Malay-speaking areas of the Malay Peninsula, Sumatra, and Kalimantan. In fact, Javanese sources generally depict the blowgun as a low-status weapon, used mainly in hunt. We may presume that the blowgun was still a common hunting weapon by the time of Majapahit; Pigeaud (1962: 72) has suggested that in the fourteenth century CE the blowgun shooting darts was commonly used to hunt birds and small game. Interestingly, whenever used as a combat weapon, the blowgun is associated in Old Javanese literature with demonic warriors fighting for *adharmā*. The confusion between animal and "human" quarry, a motif well-known from *kakavin* warfare scenes, is probably best illustrated in the *Kakavin Rāmāyaṇa*. In stanza 18.31, Rāvaṇa urges Śuka and Sāraṇa to order hunters to go to fight Sugrīwa's simian soldiers, using blowguns (*tulup*) and bows, weapons used typically to hunt monkeys in the treetops. A similar association of blowguns and demonic warriors is attested in *Arjunavijaya* 6.10: in the battle which ensues between *rākṣasa* and *yakṣa* armies of Rāvaṇa and his older half-brother Dhanañjaya, Rāvaṇa's warriors

firearms are mentioned in a number of texts composed in Old Sundanese. Claiming that firearms were "not introduced in Java much earlier than the sixteenth century", Noorduyt took these references to firearms as another proof that most of the Old Sundanese texts could not be dated before the sixteenth century CE. At the same time, however, the virtual absence of Arabic loanwords in these texts forced him to accept that the texts could neither have been composed "much later than the sixteenth century" (1971: 153).

use bows, while some demons shoot darts from their blowguns (*manulup*). The blowgun is represented as a weapon of demonic warriors also on a few visual depictions of this weapon found at the Borobudur reliefs (Krom and Van Erp 1920: 354).

Even though the blowgun represents a surprisingly precise and efficient weapon in the hands of a trained man, its use in combat must have always been limited. The accuracy of the blowgun is very much dependent upon barrel length, while higher velocity equates to a flatter trajectory. The blowgun has a shorter range than the bow because its propulsive power is limited by the user's respiratory muscles. The effective range at which the target can be hit with a dart retaining enough energy to do damage is around 70 metres for medium-length blowguns. This effective range of the weapon must have always limited its use in combat. Most effectively, blowgun may have been employed in initial encounters, in ambush, or to remove sentries quietly. Blowguns, however, represented preferred weapons of the Malay "marine infantry", soldiers manning the *lancara* warships, such as those kept at the Lingga islands in 1513-1514 (Manguin 2012: 151). In the context of warfare, the blowgun is attested from Java for the last time in 1596 when Lodewycksz reported that Javanese carried in battle, among other weapons, "squirts or blowpipes through which they blow tiny poisoned arrows [*sumpitan*]" (Schrieke 1957: 123). Unwilling to accept this information at face value, Schrieke (1957: 123) observes that "[t]he blowpipes which the Dutch observed at Banten clearly belonged to persons from Borneo". This claim, however, could be doubted, for as late as in 1667 the Dutch *Dagh-Register* lists blowguns among the weapons used on Bali, and it is plausible that blowguns were used at least in some parts of eastern Java at the same period (Schrieke 1957: 123). It seems that the Malays, and possibly also the Chams, disseminated the use of blowguns to continental Southeast Asia and to the region of the Indian Ocean: the Sri Lankan chronicle *Cūlavamsa* accounts that Malay invaders of the island used blowguns shooting poisoned darts during their assault (Kern 1896: 245). Blowguns were certainly known in Angkorian Cambodia; a relief panel at Baphuon in Angkor Thom shows a man hunting birds with a blowgun (Jacq-Hergoualc'h 2007: 49).

CONCLUSION

I have discussed two Old Javanese terms, *gaṇḍi* and *tulup*. I have argued that the original meaning of the Old Javanese word *gaṇḍi* is "projectile, pellet", while its second, derived meaning, covers the long-range weapons that have been used to shoot *gaṇḍi* projectiles. Scholars have previously identified *gaṇḍi* with a score of weapons, including bow, club, war hammer, and sling. I have demonstrated that the interpretation of *gaṇḍi* as "sling" is well-supported by the Old Javanese textual evidence, unlike other identifications suggested to date. Though it is the sling which seems to have been alluded in most textual references, Old Javanese *gaṇḍi* may have occasionally referred to blowgun, a long-range weapon still used in some parts of Indonesia to shoot pellets,

along the more common darts. To summarize, in view of an ambivalent meaning of Old Javanese *gaṇḍi*, the strategy of rendering the term as “*gaṇḍi* weapon”, selectively adopted by Teeuw and Robson (2005), is fully justified. I have demonstrated that both the sling and blowgun are represented in Old Javanese texts as the weapons associated with a predatory warfare, and with the forces of *adharmā*, conceptualized in ancient Java as uncivilized and unruly. We may hypothesize that this configuration at least partially reflects pre-modern reality of slingers and the men equipped with blowguns being perceived essentially foreign, non-Javanese elements, and hence possibly identified with mercenaries sourced from Sumatra or other parts of Indonesia where the sling and blowgun were used regularly in warfare.

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