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**Title:** Amotopoan trails : a recent archaeology of Trio movements  
**Issue Date:** 2012-09-26
Chapter 3

The immobilia of Amotopo

Once the wider biophysical setting of the region is explained, the focus is narrowed to the empirical unit of observation: the material village of Amotopo in the middle Corentyne agglomeration. As expressed in the Introduction, the aim of this research is to approach the topic of movement along archaeological parameters. All constituent elements of an archaeological site share the fact that they can all be considered as no longer moving and that they are all found at the same location. The site brings the mobilia together in a single geographical node where they ultimately converge.

As observation started in an on-going context of the present-day village of Amotopo, it is clear that objects were not entering an empty space. In order to contextualize the moving objects, we therefore first need to get an overview of those items that did no longer move: the so-called immobilia. The focus of this Chapter therefore has been to map the village along archaeological parameters. This implies that all observed elements that will supposedly leave irreversible archaeological traces are discussed. Applying an artificial division, the archaeological context is separated from the on-going context. This will be dealt with in the Chapter 4 (cf. Schiffer 1976:28; Siegel & Roe 1986). Besides providing invaluable context for the discussion of mobilia in the following Chapters, the present Chapter will provide a set of spatial relations within a Trio village (2001-2008) in order to show its merits as to future archaeological comparisons.

A brief introduction is provided to the archaeological mapping of a present day village in 3.1 (see below). A necessary division is drawn between the archaeological trace (the negative) and the object that creates the trace (the positive). The focus is subsequently set on the largest category of features, namely the totality of posts and stakes of the village.

In order to make sense of all these posts and stakes an observational sequence of the construction of a habitation structure is provided (for its foundations see 3.2, and for its architecture see 3.4). Based on this observational sequence, a subsequent model can be formulated for the majority of the founded structures of Amotopo (see 3.3). This will help us to differentiate them into communal, habitational and cooking structures as well as their different varieties (see 3.5).
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Once the core of founded structures of the village has been described, we shall move towards discussing the non-founded structures and the features between and surrounding the founded structures (see 3.6). Located nearby the founded structures, we should bring to mind phenomena such as drying racks and buildings where pots are stored. More towards the periphery of the village, we encounter the dog kennels, the cluster of poles supporting different plants and the refuse deposits.

Last but least, in 3.7, the composition of a number of the above-mentioned features are dealt with in terms of spatial relations. Besides discussing the features’ locations, the village vegetation and the surrounding horticultural band are introduced too. The data on the composition of the village of Amotopo and its archaeological immobile elements are contextualised and concluded in 3.8.

3.1 A positive archaeological image: posts and stakes of Amotopo

The *immobilia* (here the focus lies on the built environment) create the material characteristics of the Trio village of Amotopo (see Fig. 3.1). Although describing the characteristics of a present-day village is not at all similar to describing an archaeological site, it is possible to describe a ‘living’ village along the same lines as an archaeological site. Instead of all the postholes, ash layers, ditches and refuse depositions that archaeologists would encounter in an excavation, you can in the present view the actual

![Fig. 3.1: The location of the Trio village of Amotopo.](image-url)
posts, observe the locations of hearths and see where the inhabitants dump their waste and where their ditches are. In short, to observe where and how they leave their traces in the landscape. Expressed in a metaphor, these features and their traces are intrinsically linked as a negative image is to a positive image. An archaeological perspective is ‘anchored’ within an ethnographic study by choosing to start with this selection of information.

Although the material categories adhered to in this village are the same (posts, hearths, middens and ditches), the perspective does indeed start with a wider unit of observation, namely that of the entire village. In order to situate these material categories we undertake some action in order to adhere particular significance to the features. The ultimate goal of initially describing the village in this way serves to ground the subsequent, observed actions into the material setting described here. During these 8 years (2001-2008) the Amotopoans have created more than 688 immobile features. These can be divided into four categories. The main group is formed by the posts and stakes that leave their traces in the ground (n=639). In addition, the categories ditch (n=15), hearth (n=11) and refuse deposit (n=23). Instead of starting with the latter (i.e., the most physical and therefore archaeologically most visible features), my choice is to begin with the largest group and incorporate the other features while working research-wise towards the periphery.

Let us begin with discussing the numerous posts and stakes that penetrate the soil in the middle of the village. Between 2001 and 2008 the Amotopoans erected approximately 639 posts and stakes which form 93% of the total inventory of traces. This number encompasses all the features that I could observe in 2 successive years. The real count must be higher since I know that several structures had ceased to exist prior to my first visit. These 639 posts and stakes are not all archaeologically ‘visible’, but an attempt was made to document anything that leaves a mark in the soil. Instead of the normative, archaeologically acquired information like the diameter of a posthole and its depth, the negative image so to speak, in this study only positive values could be documented: the length of the posts and stakes and their circumferences.

The posts were measured with a ruler and compass during the first year (2007), and using a measuring tape and compass the following year. Due to incompatibility of several points measured in subsequent years, a decision was made to adapt all data to the most reliable year. The instruments applied in 2008 render the data acquired during that year the most reliable. Although the intra-structural error margin is less than 20 cm, the inter-structural error margin can rise to up to 100 cm on the outskirts of
Fig. 3.2: Number of posts and stakes and their diameter distribution (in cm).

Fig. 3.3: Number of posts and stakes and their height distribution (in cm).
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This error ratio appeared unavoidable, since the method of spatial data acquisition adopted in this research was less intrusive than when compared with conventional archaeological methods (i.e., a total station or a measuring grid). The circumferences of the posts and stakes were measured with a rope or a measuring tape. Based on this circumference the diameter of a certain post or stake could be calculated. From the viewpoint of archaeological sectioning of features, this would be the preferred perspective. I managed to obtain a diameter observation for 524 of the 639 posts and stakes (82%) (see Fig. 3.2). The other variable that could be measured is the height of the posts and stakes. I managed to obtain a height measurement for 327 of the 639 posts and stakes (51%) (see Fig. 3.3).

The two above diagrams (Fig. 3.2 and 3.3) pose a number of questions. As these houses were occupied at the time, it was decided, due to privacy considerations, not to measure certain posts. For the sake of obtaining archaeological parallels we will continue the discussion in this Chapter by referring to structures instead of houses. This terminology will also be employed in the Chapter 4. Whenever a structure is discussed here, a reference is made to a group of interrelated posts or stakes (with a minimum of four) together serving a common purpose. We will now proceed by placing the aforementioned totals into more specific contexts. As it is easier to reason from a structure than it is from a trace, a description of a part of the sequence of how the most common structure is being built is presented in 3.2. This structure will then be considered a general model in order to describe the other structures in the village.

3.2 Building a house in Amotopo, Part I: the foundation supports

Unfortunately I was not able to observe the process of building a house from the very start due to miscommunication with the village captain, Paneshi Panekke who had already begun to place the four roof supports (RSs). Wakapu wood (T: *Wakapu*, L: *Vouacapoua Americana* [Teunissen *et al.* 2003]) is utilised for these roof supports, because of its hardness and therefore also its impenetrability for bugs. It is very irregular and asymmetrical in form, but its hardness (T: *Karime wehto*) is of prime impor-

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33 These error margins apply partly to the second, but predominantly the third ring of habitation structures (see 4.8). The data acquired by means of a measuring tape and compass degrees become less secure over greater distances.
Quite some time before building a house, *wakapu* trees in the vicinity of the village are selected when the men go hunting. They cut these trees down leaving the skin to rot while the hard core remains intact (see Fig. 3.4). Allowing the core of the *wakapu* tree to dry in the sun for quite some time, it becomes that hard a nail cannot be driven into it.

For the roof supports of the structure, a hole was dug with a small shovel to a depth of one arm (see also Fig. 3.6). Atinio Panekke, the captain’s son, explained to me that as to the roof supports of the largest structure known to the Trio (the *Tukusipan*) in general a hole measuring the length of a human body up to the shoulder had to be dug.

The tops of the roof supports are broken off in a specific way in order to give a future beam more support (see Fig. 3.5). This is done efficiently with a machete by cutting a third of the way in to the core on both sides of the post c. 15 to 20 cm apart. With a simple kick, the pole breaks along the nerve structure leaving a nice cut-out. In order to place the supports at the correct distance between one and other, the captain takes six steps

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34 In almost all cases the posts and stakes were placed with the end with the largest diameter in the posthole and the end with the smallest diameter up in the air. The only exceptions appeared to be the *Wakapu* posts, several of which have a smaller diameter on the ground than the end raised in the air. Due to the irregularity and the asymmetry of the *wakapu* post, probably the heaviest part of the post still tends to be placed downwards. However, this is not always reflected in the diameters.
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(average total distance 346 cm). Captain Paneshi then enters the forest to look for suitable beams and cross-beams carrying a piece of liana with exactly the right length. The quest for these beams is easier than looking for wakapu. Paneshi and Atinio entered the forest to the north of the village and spotted two candidates for posts within as little as 10 minutes. Within 2 hours four beams are taken to the village. Two are Tïikaimë (L: Unknown), and the other two Mekoro Wewe (L: Ephedanthrus guianensis [Hoffman 2009:320]) and Kapai Ejami (L: Duguetia spp., [Hoffman 2009:301]). Firstly, the two closest supports on either side are connected to two cross-beams. These will not stay in place permanently, but only serve to reach the tops of the roof supports. For this random wood is applied: another wakapu beam and one of sokoi (L: Campomanesia aromatica (Aubl.), [Hoffman 2009:324]). These are tied to the roof supports at shoulder height by means of aijaware liana (L: Heteropsis jenmanii [Teunissen et al. 2003]). The aijaware is prepared by soaking it in water and subsequently splitting it into six pieces. The cross-beam is tied to the ‘interior’ of the structure. In order to permanently connect the roof supports, Mekoro Wewe and Kapai Ejami serve as width cross-beams (T: Patêtêmanton). A stronger liana, nopoijame (L: Carludovica sarmentosa, [Teunissen et al. 2003]), serves to affix these cross-beams to the roof supports (RSs). These beams protrude c. 20 to 30 cm.

The length cross-beams are placed on these parts that ‘protrude’. The tïikaimë with its strength and symmetrical shape is ideal for such lengthy cross-beams. In order to level out any height differences, the side of the beam with the highest diametrical value is placed on what is assumed to be the lowest cross-beam. Next, a rough check by eye follows as to determine whether the beams are ‘level’. Once these beams are in place the roof-ridge bearers are positioned in between the roof bearers and tied to

Fig. 3.5: Turning a wakapu post into a support by combining cutting and breaking.
the permanent cross-beams on the exterior. Once again these roof ridge bearers consist of wakapu wood. The depth of each hole for these roof ridge supports is equivalent to the length of a human leg. As soon as these were in place an incursion took place into the forest to find a roof ridge. Once again, the length of this beam was measured with a liana. Once the roof ridge support has been put in place, the foundation of the house’s roof is completed.

While preparing the thatch for the roof, Paneshi also made preparations for the posts that would support the elevated floor. These supports are also wakapu posts that were broken off in the same way as the roof supports (see Fig. 3.5). The side with the cut-out is placed facing the roof bearer and inside the structure. A knee-deep hole is dug and subsequently the post is placed into the hole in a slanting position. In this way the future cross-beam can be carried by the floor supports and lean towards the roof supports. The cross-beams are now placed. As to the erection of most other posts, all the small posts and the stakes, no holes are dug. The posts are thrust into the ground. In 2008, I witnessed a stake (with a diameter of c. 6.4 cm) being thrust into the ground after water had been poured into what was to become the hole (Fig. 3.6 R). After 5 minutes of thrusting, with the aid of water, the stake was deemed to have gone in deep enough (20-30 cm). It was already firmly set in the wet clay and all the more so once the clay dried in the sun.
3.3 From the post to the posthole and back

As can be concluded from the description of the construction process, the measurements of the human body are crucial in determining the depths of the foundations for specific posts. This presents us with a possibility to link the subterranean trace with the construction that led to its creation. But how do we determine how deep these depths actually are? As I was not in the position to determine how deep these body-measured postholes actually were, the body measurements themselves could bring us closer to ascertain the intended depths. On the basis of average somatic measurements of the Trio, a distinction can be made between the different functions of posts.

Glanville and Geerdink measured the Trio in the villages of Tëpu and Alalapadu during 1967 (Glanville & Geerdink 1970:457) providing us with averages of the body composition for Trio adults aged over 21, in the categories stature (n=115), shoulder height (n=78), leg length (n=115) and arm length (n=78). These can all be utilised in the context of this Chapter except for the lengths of legs, since these measurements were determined by subtracting the sitting height from the stature height. Atinio Panekke, the captain’s eldest son, informed me about the measurement they would apply in order to ascertain how deep the hole has to be for the roof ridge support by holding his hand just above his pelvis (Iliac Crest). The knee height was not measured too, but could fortunately also be calculated by subtracting the length of the upper arm from the shoulder height. The elbow joint is normally positioned just above the Iliac Crest allowing the elbow to tuck in just above the Iliac Crest when you carry something. Deducting the mean length of the upper arm from the shoulder height we arrive at the elbow height which is above the height of the Iliac Crest. Because upper arm length measurements are absent with Glanville & Geerdink, a mean number is borrowed from the Tukano-Decana, who are akin to the Trio with regard to the body composition. The average upper arm length measured during the 1950s (n=10) was 30.6 cm (Bastos d’Avila 1950:81). Subtracting this upper arm average from the shoulder height would present us with an Iliac Crest height of c.101.4 cm.

<table>
<thead>
<tr>
<th>Function of Post</th>
<th>Relative Body Measurement</th>
<th>Avg. Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre Roof Support (Tukusipan)</td>
<td>Male height up to the shoulder</td>
<td>124.9 cm</td>
</tr>
<tr>
<td>Roof Ridge Support</td>
<td>Man’s leg on Iliac Crest</td>
<td>101.4 cm</td>
</tr>
<tr>
<td>Roof Support</td>
<td>Male arm</td>
<td>72 cm</td>
</tr>
<tr>
<td>Floor Support</td>
<td>Male knee</td>
<td>35 cm</td>
</tr>
<tr>
<td>Stakes as supports</td>
<td>Thrust</td>
<td>&lt; 35 cm</td>
</tr>
</tbody>
</table>

Table 3.1: Intended depths of postholes and Trio average body measurements.

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35 As to the present Chapter this could be calculated by subtracting the length of the upper arm from the shoulder height. The elbow joint is normally positioned just above the Iliac Crest allowing the elbow to tuck in just above the Iliac Crest when you carry something. Deducting the mean length of the upper arm from the shoulder height we arrive at the elbow height which is above the height of the Iliac Crest. Because upper arm length measurements are absent with Glanville & Geerdink, a mean number is borrowed from the Tukano-Decana, who are akin to the Trio with regard to the body composition. The average upper arm length measured during the 1950s (n=10) was 30.6 cm (Bastos d’Avila 1950:81). Subtracting this upper arm average from the shoulder height would present us with an Iliac Crest height of c.101.4 cm.
There are anthropometric formulas with which to calculate the distance between the fibula and the stature. Genovés formula is applied as cited in White & Folkens 2005: 399. The calculation is $2.50 \times \text{Fib} + 75.44$. In reverse, departing from a Trio male mean stature of 157.7 cm this would result in $32.9 \text{ cm} \pm 3.52$ for the fibula. To come from the fibula to the lower leg length we have to compare it with other regional anthropometric measurements. The relevant anthropometric data are the mean lengths of the lower leg of ten male Tukano-Decana. Their average leg length is 79.6 cm, and their lower leg measures 35.7 cm on average (Bastos d’Avila 1950:81), which makes it possible to assume the Trio knee height to be 35 cm.

Whenever the Trio determine the depth of a posthole for the Tukusipan axis-post, they measure this with their body length from the floor up to below the shoulder. The average shoulder height is 131.9 cm for Trio men. If this result is decreased with the diameter of their upper arm (circumference of 25.2 cm implies a diameter of 8.0 cm) we arrive at an average body length from the floor up to the shoulder of 124.9 cm.

All post lengths discussed refer to the lengths of the posts above surface.
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be calculated on the basis of eight roof ridge posts (n=8).³⁹ The third type, the roof support, has an average length of 2.4 m (n=20). The fourth type has an average length of 63 cm (n= 12).⁴⁰ The fifth type, the stakes, may be present in the house supporting the extensions (see also 3.6 R). As I have not observed an extension being built, I have assumed that these supports have been thrust into the ground. The resulting stake holes are probably shallower than the smallest postholes. The lengths of these extension supports are similar to the roof supports, because the roof extensions for the habitation structures are roughly at the same roof height (2.4 m) as the core of the structure. The range of lengths of the different post categories do not seem to overlap.⁴¹ This could imply that the same

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³⁹ These averages are taken from the habitation structures only (the various structures will be discussed below). The reason being it was this type of structure I observed while it was being built and to which the questions I pose relate. It could well be that the other structures are founded in postholes with the same depths. As to cooking structures, however, I observed various post lengths.

⁴⁰ The number of posts is also calculated on the basis of the heights of the elevated floors on several sides.

⁴¹ The floor supports measure in length between 40 cm and 83 cm, the roof supports between 199 cm and 283 cm and the roof ridge supports between 335 cm and 404 cm.
applies to their depths (see Fig. 3.9). Notwithstanding, in absolute terms, these depths exhibit a much smaller range which makes the differentiation subsurface more problematic.

Based on these figures, some depth-length ratios can be calculated too. As for the elevated floor supports, the ratio of posthole depth to post length is × 1.8. For the roof supports this ratio is × 3.33 and in the case of the roof ridge supports: × 3.75. If the centre pole of the Tukusipan is indeed c. 6 m long, this would result in a ratio of × 4.44.

3.4 Building a house, Part II: the roof

Having completed this subterranean prospection of the habitation structure, it is time to inspect the remaining part (see also Boven 2009; Heemskerk & Lachmising 2010). Further examining this structure, we find several elements, a number of which reoccur in the other structures, albeit in different varieties.

As stated in 3.3, the house is mainly founded on three types of posts (see Fig. 3.7). The foundations of the extensions of the structure were not given too much attention in the description above. Reasoning from their length and diameter, we may suppose that the foundations of these extensions are thrust into the soil and that no hole is dug for them (see Fig. 3.6). As to a trench perspective, this renders them probably less visible with respect to the other foundations. The rectangular core of the habitation structure with its dugout foundations together with two extensions, the elevated floor and a wall of planks form the entire model (see Fig. 3.10). The habitation structure is the most complete structure, possessing all these features while the remaining structures have a similar blueprint. However, in order to explain the differences, further discussion on the blueprint extending beyond its foundations is required.

Before proceeding to the roof, a number of vernacular names for the various non-foundation elements that determine the form of the structure need mention (see Fig. 3.10). The foundation supports are not named, only in relation to what they support. Firstly the roof posts, located along the lateral axis of the structure and connected to each other by way of a cross-beam called patëëman meaning ‘one cross’ (pers. comm. Eithne Carlin 2009). Subsequently this lends support to two cross-beams that connect the two patëëman-ton which are called aori, (meaning ‘ribcage’). As to the extensions, the function of these cross-beams is continued by means of a flexible, curved twig connecting the roof posts along the lateral axis. The
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roof ridge posts are tied to the *patêtëman-ton* and, in a number of structures, secured with an extra cross-beam along the long axis called *ihkapei*. These posts support the roof ridge pole that is referred to as *inko*.

Once these cross-beams are in place, the lattice (*jarakapu*) can be placed. A number of stems are collected to serve as bars in this lattice work.\(^42\) On both sides bars are positioned at 40 cm apart. The end of the beam with the largest diameter is placed upwards and the end with the smallest diameter is placed downwards. Nails are preferred when securing these bars to the ridge pole. If there are no nails then split lianas are applied.\(^43\) Once these have been placed two smaller length cross-beams (*itaramëmi*) are added. These are placed on top of the bars slanting at a certain angle and 40 cm lower than the length cross-beams. The bars are all tied to this length cross-beam by means of wet liana strips.

Next the captain starts preparing the thatch. During the three preceding weeks *maraja* (E: Dalibanna palm; L: *Geonoma Baculifera* [van Andel 2000:II:103]) leaves have been stocked to dry. They are wrapped in six organic backpacks (*katari-ton*). The plaiting of the *maraja* is carried out inside the cooking structure. Two types of wood are utilised to plait these leaves. A piece of *piura* (L: *Iriartea exorrhiza* [Teunissen et al. 2003]) and a smaller piece of *Maripa* (L: *Attalea* sp. [Hoffman 2009:319]) that is re-

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42 These bars consist of the following wood species *paripoimë* (L: *Parinari rodolphii*), *paripo* (L: *Licania* spp.), *aritaimë* (L: *Trichilia* spp.), *tireneime* (L: Unknown), *wai* (L: *Licaria* spp.), *aimara ewa* (L: *Lecythis* spp.), *sirisirimë* (L: Unknown), *moweimë* (L: *Pouteria* sp.) and *tikaimë* (L: Unknown). The Latin nomenclature is derived from Hoffman 2009.

43 The liana vines (both *nopojame* and *aijaware*) are split in half with the thumbnail, and yet again, and then one more time, until the initial liana vine is divided into six strips. These are then placed in a bucket of water and soaked in order to provide them with maximum flexibility.
ferred to here as *wekii*. They are both c. 200 cm long. Then the captain takes two leaves positioning them on top of each other with the nerve facing up and the stem towards him. Subsequently he places a leaf with the nerve facing down and the stem pointing towards him on top of the other leaves. The stems of the three leaves are curved around the *piura* before being clasped with *nopoiame* that is tacked through the leaves onto the *wekii*. This process is repeated on average 62 times, resulting in a single *tikapīphē* (lit.: 'the woven one'). On one occasion it was timed to take the captain 37 minutes. In the following days he completed the work on the six *katari-ton* with *maraja* leaves and started placing the *tikapīphē* on the lattice work.

The first *tikapīphē* to be placed on the lattice consist of a different material, *i.e.* the young stems of the *Maripa Ingo* (L: *Attalea* sp.). From these young stems three or four leaves are extracted. Next two opposite stems are tied together. These leaves are then loosely plaited, placed in the lowest place on the lattice in order to prevent the *maraja* *tikapīphē* from losing leaves when positioned on top of these *maripa ingo* *tikapīphē*. The *maraja* *tikapīphē* are now put in the allocated place. On average they are 57 cm wide and 200 cm long. Two are positioned next to each other with an overlap of c. 15 cm. They are tied to every bar in close proximity. A 22 cm long stick attached to a liana that the captain wears around his neck serves to measure the distance between every *tikapīphē* to the one on top. After a while he finished all thirty *tikapīphē-ton* all the way to the top and had to collect new *maraja* leaves.

This time the process of drying does not take very long. After only a little more than a week, the leaves are plaited into *tikapīphē* and placed on the lattice work. Having finally reached the ridge of the roof, two *tikapīphē* are positioned over the ridge in overlapping fashion. Then, eight to ten *kumu* (L: *Oenocarpus bacaba*, [Hoffman 2009:318]) leaves are placed over the ridge of the house. In order to do so, a ladder is made specifically to lie at such an angle on the side of the roof without damaging the thatch. A small stick (*ireti into*) is pierced through the roof in two places on the ends of which small length cross-beams (*ireti apei*) are placed on either side. The *kumu* leaves are then secured to the roof by placing *ireti akinēto* on top of the ridge and the length cross-beams. The *ireti akinēto* (*'ireti’* lit. means ‘antlers’) are the two posts attached to each other forming an asymmetrical cross. They serve as a weight to press down the *kumu* leaves and secure the thatch on the ridge of the roof. The *ireti into* that pierces the thatch also provides an anchor point for the lattice work of the extensions. The thatch of the centre structure therefore needs to be made before the roof of the extensions can be built. Most probably, and in a similar fashion

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44 Atinio pointed out to me that he forgot to use these *maripa* *tikapīphē* for his own house and therefore the lower *tikapīphē* of his roof were losing *maraja* leaves.
to the extensions of the *aotî*, the *maraja* leaves will be plaited on a more flexible sapling. I was able to observe the process of house-building up to this point.

Having discussed how a habitation structure is built, we can now consider how this particular model (see Fig. 3.7 and Fig. 3.10) relates to the other founded structures in the village.

### 3.5 The variety in the founded structures

The founded structures can be divided into the following categories: (a) the communal structure, (b) the habitation structure and (c) the cooking structure. In Fig. 3.12 we see the differences with the previously discussed

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**Fig. 3.11 (top):** Schematic plan view of the foundation posts. RRS: Roof Ridge Support. RS: Roof Support. RES: Roof Extension Support.

**Fig. 3.12 (right):** Plan view of the founded structures. 

- a) Average CMS structure (Paiman).
- b) Average HS structure (Pakoro).
- c) Average CS structure (Wetirihito Pakoro).
habitation structure model. However, this time it is presented in plan view and in comparison to those of the communal structure model and the cooking structure model. These models are based on the average spatial relations between the foundation posts and their relation to its floor area. The floor area in this sense is considered to be that specific part of the structure that remains dry due to the form and size of the roof. How their structural appearances relate to the foundation posts and the floor area will be discussed in this section. As a Trio template or model governs all the elliptical structures, we can estimate the floor area by calculating the distance between the deepest placed posts: the roof ridge supports (RRS) (see Fig. 3.11). In fact, we are now dealing with semi-circles on two sides allowing us to gather a number of averages to work with.

Fig. 3.13: Map of the structures of Amotopo in 2008.
Next to these generalizations applied in order to construct this model, the model itself serves to showcase the differences between the separate structures. In this way the intra-structures become more visible. Additional information belonging to following sections can be found in the Appendices. In Appendix A all the Amotopoan feature types and their abbreviations are mentioned. Together with Appendix B these can be consulted for additional information concerning the features. Appendix C lists all wood species that could be recorded as to the built environment (Trio terms and plant names provided by Paneshi and Atinio Panekke). Their codes are mentioned in Appendix B. Appendix D provides additional photographs for some of the structures. For a map depicting the village with the mentioned structures, see Fig. 3.13 and for a more elaborate version see Fig. 3.31.

3.5.1 The Communal Structures (CMSs)

In the village of Amotopo, two structures could be classed as communal when judging from their physical appearance. The layout of the communal structure distinguishes itself from the habitation model by: (a) three roof ridge supports (RRSs) instead of two, (b) no elevated floor supports (FSs), and (c) by occupying a larger surface than the other structures in the village (see Fig. 3.12). The average length of the two structures from the one roof ridge support to the third in line is 7.73 m. For the length of the total floor area this average is 12.25 m. The width between the centre roof posts is 4.12 m, the width of the floor area is 5.70 m. The averaged floor area of the communal structures comes to 61.85 m².

Instead of dealing with each structure separately, I will now discuss both of them together departing from the model. The average provided earlier serves as a bridge, since the sizes differ significantly (see Fig. 3.14). ST-01 is the larger of the two with a surface of 72.14 m². ST-02 with its smaller size of 51.55 m², seems more to approach the average surfaces of the habitation structures (see 3.5.2). Firstly, the average foundation supports (RRSs, RSs and RESs) are introduced. The RRSs are 3.8 m in length (n=6) and have an average diameter of 9.8 cm (n=6). The centre RRS in both cases is Tiikaimé (L: Unknown), the other four are all Wakapu (L: Vouacapoua Americana). The RSs are 1.81 m in length (n=7).

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45 For the separate and averaged ratios for calculating Trio floor areas from distances between posts, see Appendix E.
46 In providing these averages, the number (n) of the subject supporting the average is mentioned. As the measurements were not taken equally with regard to all aspects of a subject, the amount referred to may vary.
47 The diameter measurements were calculated on the basis of the circumferences taken as low down as possible on the post.
48 The measurements of the lengths were taken only from ST-01 since these data for ST-02 were regrettably not collected.
with an average diameter of 10.5 cm (n=15). The *wakapu* make up 87% of the RSs, the other 13% are represented by *Tïikaimë*. The RESs have an average length of 1.25 m (n=6) and a diameter of 8.2 cm (n=11). *Wakapu* makes up four of the eleven RESs, another four are *Tïikaime* and the remaining part consists of other species.

*Fig. 3.14: The Communal Structures (CMSs). a) ST-01. b) ST-02. c) An average communal structure.*
Secondly, the intra-structures are discussed (see Fig. 3.15). A large difference between the two communal structures is the wall intra-structure (WS) that encloses ST-02. The other intra-structures are storage supports (ISS) found in both structures. All the ISSs are positioned near the extensions. Three of the four are placed inside the extensions of the structures. In ST-01 they serve to store both communal and individual property. For instance, the one small storage support (ISS-2) raises the communal shortwave radio off the ground, while the larger of the two (ISS-1) supports the captain’s and his wife’s individual property. They sleep in that section of the structure. The function of the ISSs in ST-02 remains unclear, as it is no longer in use. It can be stated that it must have supported individual property, as it never functioned as a communal house. Within the ISS of the communal structures, a number of the RESs (Roof Extension Supports) also form part of the ISS.

Another issue is the group consisting of hammock posts (HPs). In ST-01 we count five HPs, while ST-02 has none. Hammocks may hang in all structures, but this does not imply that HPs are found everywhere. In most cases the cross-beams or foundation posts themselves are utilised to hang hammocks up on. The HPs are also used in combination with any

An intra-structure is a group of non-foundation posts positioned within the floor area boundaries of a certain structure.
suitable part of the structure to hang a hammock on. Finally, we must feature two large ditches surrounding ST-02 along the long axis of the structure. These ditches, in some places more than 30 cm deep, drain the abundance of rainwater and prevent it from running through the structure. Apparently this was not necessary for ST-02.

3.5.2 The Habitation Structures (HSs)

The village of Amotopo counts seven habitation structures: ST-12, ST-20, ST-25, ST-32, ST-35, ST-36 and ST-42 (Fig. 3.16). All have the same model except ST-42 which is based on a new model. 50 The remaining structures are characterized by being smaller than the communal structure (with two instead of three RRSs) and by having elevated floor supports (FSs). Due to the elevated floor, the roof supports (RSs) are longer than in the other structures.

The average floor area of the habitation structures is calculated to be 30.16 m² (n=6). 51 This number reflects the floor area of the structure and not the elevated floor area which is smaller. The average distance between the two RRSs measures 4.43 m whereas the total length of the floor area measures 8.0 m. Along the lateral axis the distance between the RSs measures 3.27 m on average whereas the width of the floor area extends to 4.4 m. The RRSs have an average length of 3.8 m (n=8) and a diameter of 8.0 cm (n=9). All of the timbers (n=8) are Wakapu except for one which is Otopïmï (L: Minquartia guianensis [Hoffman 2009:311]). The RSs average 2.4 m in length (n=20) and have a diameter of 10.3 cm (n=25) of which 84% are Wakapu timbers and the rest are Mowë, Otopïmï and Paripo. The heights of the RESs of the habitation structures have not been recorded. However, it can be estimated to be higher than 2.2 m (n=4) 52 and the diameter is 8.0 cm (n=20). They are almost two thirds wakapu timber (total n=16), the remaining six are all of different species. 53 The final category is that of the floor supports (FSs). They are 65 cm long (n=14) and their diameter measures 7.9 cm (n=42). Wakapu again forms the majority of these timbers (86% from n=43). 54

50 This structure was being built in 2008. The men were finishing the roof when I left the village.
51 This average represents a range from 22.45 m² for ST-35 to 41.55 m² for ST-25.
52 The lengths themselves were not recorded in the field. However, during the process of writing up the research they turned out to be interesting data to include. Not the heights of the posts, but the height of the four extensions in general have been applied. Since the supports are even taller than that, it is reasoned here as 'higher than'. Another point of interest, is that the extensions facing northeast are smaller (1.9 m) than those facing southwest (2.4 m) due to the lightly sloping character of the landscape on which the village is built.
53 The remaining six are TIM-9, TIM-56, TIM-72, TIM-90, TIM-33 and TIM-41 (see Appendix C).
54 The remaining six are TIM-40, TIM-46, twice TIM-41 and twice TIM-52 (see Appendix C).
Fig. 3.16: The Habitation Structures (HSs). a) ST-12, b) ST-20, c) ST-25, d) ST-32, e) ST-35, f) ST-36, g) ST-42, h) Average HS.
Those longest standing structures seem to have developed ditches. In other cases their owners dug them. All structures have slatted walls (see Fig. 3.17). These walls are not completely continuous, but feature gaps. In two cases only the central part of the structure is walled. In three cases, however, one of the extensions is also walled. In one case half of its central structure was walled (see ST-25). Depending on the various elevated floor areas, additional supports or various positions for floor supports (FSs) may also be called for. Whereas ST-35 and ST-36 counted a minimal number of floor posts for their elevated floors, other structures feature several additional floor posts. Especially those slightly larger in size, like ST-25, need additional floor support. This has implications for the IWSs, too, which also need additional wall stakes (WS).

All the ISSs are placed in the extensions outside the IWSs and in a single case even completely under the IWS (ST-36). The extension applied is the one without the opening in the IWS. All kinds of objects are supported on these structures. ISS-5 serves to elevate the generator that produces electricity. ISS-6 serves to elevate sealable plastic buckets filled with
various cassava products, ranging from cassava beer to cassava bread. The remaining space in these extensions is occupied by cassava squeezers and items like a shovel, a gun, boots, and other hardware. ISS-7 is an elevated non-walled floor area that serves as an entrance. Its young constructor must have seen something similar on a trip to the city. Finally, plastic jerry cans, empty or filled with gasoline, are stored in ISS-8.

Finally, a note is added on the structures ST-35 and ST-42. They were both constructed by young men. ST-35 was the first structure built by one of the captain’s grandsons who in the course of its construction received instructions from his grandfather. Initially it was too small according to the captain: ‘Where could he possibly hang the hammock of his future wife?’ He had to rearrange it, resulting in some ‘faulty’ postholes (see the PHs in Fig. 3.17e). The other young man, a distant relative, began to build a structure following a new model he had observed while staying in Sandlanding and Apura. The captain’s son expressed his admiration, stating that it was starting to look beautiful. He plans to perhaps construct a similar house in the future.

3.5.3 The Cooking Structures (CSs)

Amotopo contains five cooking structures: ST-10, ST-16, ST-21, ST-26 and ST-37 (Fig. 3.18). These structures are the smallest. These most slender founded structures are characterized by two RRSs, the presence of hearths, the presence of food preparation posts, wind shield stakes, gutter supports, and the absence of an elevated floor. As we shall see, these structures are not quite as high as the habitation structures. However, due to the lack of an elevated floor and a narrower floor area, the roof is at a steeper angle. It thus provides a more spacious and, therefore, safer environment while enclosing the open fires.

The average floor area surface is 25.62 m² (n=5) with ST-37 (13.34 m²) and 23.16 m² without (n=4).

The average length of the RRSs of the CSs structures is 3.2 m (n= 6) and its average post diameter is 9.2 cm (n=6). Four of the six consist of wakapu wood, the other two being tiikaimo. The RSs 1.71 m in length (n=14) and the average post diameter is 9.8 m (n=18). Wakapu was the species defined in twelve of the RSs. The RESs are more than 1.2 m in length (n=6) and have a diameter of 7.8 cm (n=11). Six out of eleven are wakapu. 57

55 Surface areas range from 13.3 m² (ST-37) and 24.27 m² (ST-16) to 27.18 m² (ST-10).
56 For the average it was decided to exclude the data from ST-37. Although it has similar elements to the CS model, it is much smaller in all its facets. See the discussion below.
57 Not the lengths of the posts, but the height of six extensions themselves has been applied. Since the supports are even taller than that, it is reasoned here as ‘higher than’. Two RESs of the relatively large cooking structure ST-16 were recorded. Together they have an average length of 1.7 m (n=2).
58 The others being two of TIM-8, TIM-40, TIM-46 and TIM-68.
The cooking structures form the densest clusters of traces (Fig. 3.19). This is due to the presence of numerous features related to food processing and the relatively small area they take in when compared to the other structures. The differences between the cooking structures can be found in the placement of several of these features.

Let us begin with the hearths (Hs) that were documented by means of the outline of their ash stains. Since most of the ashes are swept up, removed and deposited in the trash pits, the ash layer itself can be a very ephemeral feature. Those hearths in use still show the ash stains on the surface. Some hearths, however, had fallen into disuse. H-4 from ST-10 and H-5 from ST-16, (drawn with a dashed line, see Fig. 3.19) did not exhibit any ash stains. I could observe the stains by the relative redness of the baked soil that the former hearth had transformed this part of the

![Fig. 3.18: The cooking structures (CSs). a) ST-10, b) ST-16, c) ST-21, d) ST-26, e) ST-37, f) Average CS (calculated without ST-37).]
H-4 was the hearth of the cooking structure that preceded ST-10 which had a different orientation (see Chapter 4). After rebuilding ST-16 its owners decided to externalize the hearth (see below in 3.6). The sizes of the hearths still in use differ. Several hearths (H-1, H-2 and H-7) are bounded by means of a half-size oil barrel that serves to lift the grill, pot or pan above the fire. The hearth supports found in H-1 and H-3 all consist of pieces of iron thrust into the ground and in H-3 even large, concrete cylinders. These cylinders support a metal griddle on which the cassava bread is baked. These breads are baked on this hearth only; the ash stain borders almost reflect the griddle’s circular form. In H-6 three stones make up hearth supports, the only natural stones serving as HSs.

The following types of intra-structures are found in the cooking structures: (a) the above-mentioned ISS (Intra-Support Structure), and (b) the GWS (Gutter Windbreak Structure). We also come across the ISS in the other structures. It can be any cluster of posts or stakes meant to contain something within its cluster of posts. The position of the ISS in the cooking structures differs from that of the habitation structure as it is placed in the extensions (n=2), as well as in the middle of the structure (n=5). The majority of these ISSs are elevated platforms on which pots, pans, plates

Fig. 3.19: Schematic CS plan views with additional posts and stakes superimposed. a) ST-10, b) ST-16, c) ST-21, d) ST-26, e) ST-37.
or pieces of fruit such as bananas are kept (ISS-10, ISS-12, ISS-13, ISS-14 and ISS-15). The other two have different functions. ISS-9 supports the *komoi*, *i.e.*, a cut-out from an old canoe now with a new purpose: a receptacle for the grated manioc that drains the prussic acid into a bucket placed under the lowest side of the *komoi*. ISS-11 serves to stack up firewood, the stakes of the structure preventing the wood from rolling into the structure.

The gutter and/or windbreak structure (GWS) seems to only occur in this type of founded structure. Whenever a structure has a roof with zinc plates, it is likely to be aligned with a GWS. The stakes placed along the length of the floor area of the cooking structure are all individually connected with a piece of rope consisting of silk grass (*T: Wirawaito*), cotton (*T: Maru*) or industrial to the *aotî* (the cross-beam connecting the RSs along the long axis, see Figs. 3.10 and 3.19) hanging loosely under the thatch. A zinc gutter is fastened to these threads encircling the roof’s edge. It collects the rainwater and drains it to its lowest point near the structure’s extensions where a large iron barrel (old oil barrel) collects it. The GWS-1, GWS-2, GWS-4 and GWS-5 all serve this purpose. However, GWS can also be found when there is no zinc roof. In this case, together with loose plates (zinc or wood), it prevents the wind or rain from entering the structure (GWS-3). Several other GWSs were observed to serve as a windbreak when there was a need thereof.

The final category concerns the isolated posts and stakes. Besides a number of additional RSs and RESs, there are also several PHs and HPs with which we are already familiar from the previously discussed structures. The interesting isolated posts in these structures play a part in the food and drink preparation process (PPs). A distinction can be made between the following types of posts: (a) the sugarcane press posts (see 3.20 L) as found in ST-21 and ST-26 and positioned at a slight angle on the outside of one of the RSs and (b) the manioc press posts found in ST-10 (see 3.20 R). These are applied during manioc processing and consist of two posts, a long and a short one. The long PP is positioned between the RS and the RES. This post is securely tied to the *patêtëman i.e.*, the cross-beam that connects the RSs along the lateral axis. The other end of the post is connected to the lower PP in the extension by way of a cross-beam. Due to the differences in height between the various posts, the cross-beam

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59 The shape of this intra-structure is odd and probably due to its second function. Next to raising a small shelf just below the roof (at the time not supporting anything special), the main cluster is horizontally connected by means of a stick to the ‘isolated’ stake beyond ISS-13, serving as extra support for the lowest *tikapihpe* (strip of thatch). This side of the thatch appeared to be suffering from gravity and now it keeps the storage of ISS-13 from becoming wet. Next to these functions it can also serve a similar function as ISS-9. Its form suggests that its stakes may have served as a GWS. In every sense a multifunctional structure, but one that would be incomprehensible on the basis of the plan view alone.
sticks out at the high end above the long PP serving as a ‘hook’ from which the plaited manioc squeezer can be suspended. At the low end of the long PP, a hole is created large enough to fit a beam. This beam is subsequently positioned through the plaited loop of the low end of the manioc squeezer into the hole of the long PP. When this beam (c. 2.5 m long) is pushed to the ground, leverage is created in order to squeeze the prussic acid out of the grated, bitter manioc.

3.6 The supportive structures from core to periphery

We have discussed the communal, habitation and cooking structures in 3.5. From an archaeological viewpoint, these are the most visible. Their various sizes, randomly placed ISSs and other varieties seem to cause their apparent exterior differences. These ISSs are the small groups and clusters of stakes that create an incomprehensible swarm of stake holes. It seems impossible to categorize them and to ascribe any significance to them. However, it can become more ‘cloudy’ still. It could be postulated that these features are at least embedded in a mother structure. Let us continue with structures lacking such an overarching mother structure. They will be discussed as classified into the following categories: (a) the group consisting of the small structures and (b) the group consisting of the isolated posts and stakes. The first group (a) is mostly constructed by means of stakes thrust into the ground and occupies an area smaller than the smallest cooking structure (ST-37). The second group (b) incorporates those
posts and stakes that do not show any structural correlation with other posts and stakes or those that truly serve a single purpose. We will set off from within the village to then radiate outwards towards its peripheral features.

3.6.1 The Support Structures (SS) and isolated posts

Although the various types of structures above ground do have several features in common, in plan view it might seem to be just an unrelated cloud of posts and stakes. The described communal, habitation and cooking structures also exhibit variation in their lay-out and appearance. This is predominantly due to their various sizes and the variation of the infra-structures. The group of the Support Structures to be discussed here has a functional overlap with the ISS in that the structures in general consist of at least four stakes and in that their surface appears in rectangular form in plan view. For a discussion of two structures that are larger external varieties of these ISS and that serve as extra-large storage facility, see below. The majority of the remaining structures, however, consist of drying racks placed near the cooking structures. These are quite similar to the ISS and keep foodstuffs (cassava bread, fish) above the ground away from insects, rats and dogs. As we shall see these structures do not consist of the strongest wood. This leads to frequent repair jobs and replacements only adding to the growing cloud of postholes and stakes. Although the group of the Support Structures can be subdivided into structures ranging from larger storage units to smaller drying racks, I prefer to unify them under a single group heading as they all have the same rectangular appearance in plan view.

3.6.1.1 Pot structures (Patu pakoroton)

Two of the support structures, ST-13 and ST-22 (see Fig. 3.21, Fig. 3.22a and b) are large in the sense that their foundations consist of posts rather than stakes. Although the amount of space they occupy is not necessarily larger than a number of other non-founded structures, they appear to be the only ones the main foundations of which are constructed from wakapu posts. They are referred to as pot houses where all kinds of pots, pans and plates made of iron and plastic are stored, distributed over two platforms placed one above the other. Between 2007 and 2008, ST-22 was equipped with a higher, zinc roof top, thereby now functioning as a rain collector too. The other structure, ST-13, had already disappeared by 2008. It had served as a cooking structure. At the time a proper one had yet to be built (ST-37). This does not imply that the construction of these pot houses

60 A GWS is placed on the north side of the structure, too.
in general precedes that of cooking structures. ST-22 is indeed a separate structure serving as a support structure next to the cooking structure (ST-21). Since these structures have a roof, they also have a floor area. Their average surface measures 5.52 m². The average post height of ST-22 in 2008 was 2.5 m (n=6). Once they raised the zinc roof above the existing structure, the average length of the posts in 2007 was much lower, namely 1.6 m (n= 4, all wakapu). The average post diameter of all the foundations (2007 and 2008 posts coexist) related to this structure is 8.9 cm (n=10, bar two probably all wakapu).

3.6.1.2 Drying Racks (Jarakaputon)

In 2008, the village of Amotopo counted nine drying racks. Six of them are placed in clusters of two (ST-27 and ST-29 [see Fig. 3.23]) and four (ST-7, ST-8, ST-43 and ST-44) (see Fig. 3.22e-f); the remaining three (ST-11, ST-23 and ST-39) are isolated. Although they do not have a roof, a surface calculation is made from the rectangle that can be drawn departing from the four main stakes. From smallest to largest, they range from 0.78 m² (ST-23) to 5.19 m² (ST-08), with an average of 2.3 m² (n=9). The height of the stakes ranges from 0.75 m to 1.36 m and their average is calculated to be 0.86 m (n=36). The wood species are all but wakapu (see Appendix A and C). Except for one (ST-23) they are all positioned near a cooking structure. In 2007, I noticed that several drying rack stakes

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61 ST-13 has a surface area of 4.17 m² and ST-22 a surface area of 6.86 m².
62 As can be seen in Fig. 3.21 (r), the decision to raise the roof was probably the result of the acquisition of a new hard plastic rainwater receptacle. The Amotopoans received this receptacle from a charity organization in 2007 after a second year of floods had affected their lands.
63 The calculation rectangle was placed between the centre points of the stakes.
64 Two stakes had a height of 1.75 m and 2.29 m. Stakes are not always cut off at the required level (see Fig. 5.19). For our average these two anomalies have been excluded.
were supported by a second supporting stake. In 2008, a number of them had been replaced by single supporting stakes. Several old stake holes must have been reused; others were probably thrust in again.

Fig. 3.22: The Support Structures (SSs). a) ST-13, b) ST-22, c) ST-18, d) ST-34, e) From high to low: ST-7, ST-8, ST-43 & ST-44. f) From high to low: ST-27, ST-28 and ST-29.
3.6.1.3 Miscellaneous structures

Three structures that do not belong to one of the aforementioned categories need to be briefly described in order to complete the description of the village. However, they do fall within the category of the support structures (SSs) which is broadly defined as being rectangular in surface and having at least four foundation posts or stakes. These are the hearth structure ST-18, the camp structure ST-38 and the sugarcane structure ST-28 (see Fig. 3.22 c, d and f).

The hearth structure had four foundation stakes and two supportive stakes measuring on average 6.7 cm in diameter. The supportive posts were 1.76 m in length and the structure itself has a surface area of 1.24 m². This hearth was probably externalized from ST-16 the reason for which remains unknown. The sugarcane structure (see Fig. 3.22f middle and Fig. 3.24) was recorded in 2007, but was no longer spotted in 2008. Although it no longer served the proper function of holding sugarcane, it served to store various kinds of items. Except for several dog kennels, this is the one of the few structures observed to have a sloping roof. The long side has an average length of 1.95 m (n=3) and the short side an average of 1.20 m (n=3). The diameter of the stakes is 5.4 cm (n=8). Two out of eight are wakapu wood.65 Its surface area is calculated to be 8.17 m².

The camp structure ST-38 was built alongside the cooking structure ST-16. Due to the floods during the 2008 rainy season, the neighbouring village of Lucie had been completely inundated. The captain of that village, Pepu Ipajari (Okomoyana), and his family, returned to the village of Amotopo to live in his former house (ST-2 and ST-16) for a month in the company of his hunting dogs. Without a kennel in Amotopo he constructed such a camp structure for the time-being. I too saw this camp structure being built when a longer journey necessitated an overnight stop. It has a similar structure to the other founded structures except that here long stakes are utilised instead of posts. In order to improve stability, extra supports stand at an angle to the main supporting stakes of the structures (see Fig. 3.25). The structure had a surface area of 9.31 m².

In 2007, while documenting ST-16, which had fallen into disuse at that time, I observed the remains of a similar camp structure (ST-34), in the same place that ST-38 was later built. This structure had a round appearance in plan view, since its angled supports were positioned outside the floor area rectangle. The majority of camp structures I came across had a canvas roof. Canvas provides an easy means to construct a camp roof and therefore is a common requisite on long journeys. It also serves to protect the goods transported in the canoe against the rain and the water from the river.

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65 The other species represented are TIM-1, TIM-36 (n=2), TIM-75 (n=2) and TIM-90 (n=2).
Fig. 3.23: ST-29 (2007).

Fig. 3.24: The sugarcane structure ST-28 (2007).
3.6.2 *The peripheral structures (PSs)*

The group of peripheral structures is formed by buildings not positioned in between structures, but by buildings placed beyond the border of the cleared area of the village; in other words beyond the core of founded structures. Kennels and lavatories belong to this category.

*Fig. 3.25: ST-38 (2008).*
3.6.2.1 The dog structures (DSs)

The dog kennels (ST-14, ST-15, ST-31, ST-33, ST-34 and ST-40) have a trait in common with the habitation structures in that they also have an elevated floor in order to keep the sand flees and other insects away from the hunting dogs (see Fig. 3.26 a-c, 3.27). The sizes of the kennels can range from a structure fit for a single dog to a structure that houses several dogs. The largest structure (ST-33) has a roof ridge top; the other smaller ones have a sloping roof top of Maripa leaves. The surface area covered by these structures ranges from 3.54 m² (ST-34) to 12.60 m² (ST-33) with an average of 6.55 m² (n=4). The average diameter of the stakes can be discerned from the group of the floor stakes, ø 3.2 cm (n=14), and the average of those supporting the roof ø 5.7 cm (n=15). The length of latter is on average 1.92 m (n=19). A wide range of timber species serve as construction materials (see Appendix C).

3.6.2.2 Lavatories (Ls)

The lavatories (ST-19, ST-24 and ST-30; see Fig. 3.26 d-f, Fig. 3.28) are placed at a reasonable distance from the cleared areas. Each one is constructed at the end of its own private path. In order to do so a cesspit

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66 These structures are the ones that I spotted in 2007 and 2008. However, I was told of others that had existed in the past (ST-4, ST-6 and ST-17).
67 Only the observed floor areas are used in this calculation from ST-14, ST-31, ST-33 and ST-34.
68 In this count three ‘stakes’ were excluded (ø 10.2 cm (n=3). These beams must have derived originally from a saw mill in the coastal area, which the Amotopoans must have found in the vicinity of the village.
The immobilia of Amotopo was dug that is topped with a half open oil barrel. The lavatory closest to the village (ST-24), and therefore visible from it, is completely lined with zinc plates. The other two lavatories not within viewing range are merely fenced off from the village leaving one side open. Their average surface area measures 1.88 m² (n=2).

Fig. 3.27: The Dog Structures (DSs). L: inside view of ST-33 (2007), R: ST-31 with the hunting dog called Jentï (2007).

Fig. 3.28: ST-30 at the end of its private path.
3.6.3 Peripheral posts and stakes

Clusters of stakes and isolated posts and stakes in both the inter-structural space as well as the peripheral area are discussed in this final category. The clusters of stakes can be distinguished because the majority forms clusters or clouds of stakes that do not demonstrate a clear or common pattern in plan view. The inter-structural posts and stakes unrelated to a group of other posts or stakes serve their own purpose, occasionally with one other post or stake. Firstly, the inter-structural isolated posts and stakes found in the core of the village are dealt with, followed by the peripheral features.

Some of these isolated posts, the HPs, are similar to those encountered within the structure, the only difference being that they are positioned just outside the structure. These hammock posts are placed outside the structures at such a distance that one of the structural foundations can serve as the second post for the hammock. They are only found near the founded structures. In total four HPs were determined not to have an intra-structural position. Another group of isolated stakes is formed by washing line stakes (n=6) that are placed between structures, as well as fence posts (n=6), which leaves a miscellaneous group of posts and stakes that serve very specific purposes (n=6).

The majority of the clusters and isolated stakes are found in the peripheral area, in other words not in between other structures. They can be found beyond or on the border of the cleared area. A minority of these peripheral stakes (n=12) represents birdcage supports positioned along the borders of the village, mainly on the eastern side. Placing birdcages here allows the caged birds to communicate with other birds, improving their songs, but sometimes also attracting and finally luring other birds. These small forest birds, like the chestnut-bellied seed-finch (T: Pikolet, L: Oryzoborus angolensis [Teunissen et al. 2003]), are expensive singing birds and are highly desired in the larger towns where these birds are seen as real masculine pets, whose owners make them take part in large bird-singing contests.

By far the largest group of peripheral stakes is the group representing shallowly thrust plant supports, all supporting either chili pepper plants or cotton plants (see Fig. 3.29). The chili pepper plants (Capsicum spp. & Physalis spp.) receive the most attention, by means of relatively short stakes (average length 0.92 m [n=26], and diameter of 2.6 cm [n=26]) which elevate them from the ground. This is because peppers are an important ingredient in every meal. Because of their role in the daily meals they are mainly planted around cooking structures (see nrs. 20, 21 and 22).

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69 These highly selective purposes are for instance supporting the antenna of the short wave radio (two 6.0 m long posts), two ‘boot hangers’ and two short-lived stakes that supported a bird net that was suspended within structures for a day or two.
in Fig. 3.31). Their supports form the majority of the peripheral stakes. The other plant species in need of support (n=19) are the numerous cotton plants surrounding the village. They require larger stakes (average length 1.95 m [n=15], and diameter of 3.8 cm [n=19]) than those supporting the chili pepper plants. Due to the slant of most cotton plant supports, the deviation on the surface can be large (see Appendices A and B).

An interesting feature to conclude with was a tortoise pen I observed in 2007 in the peripheral area consisting of around 70 stakes placed neatly side by side with a surface area of 0.76 m² (see Fig. 3.29). The tortoises and their pen had disappeared in 2008. A new cooking structure ST-37 was placed not far from where the pen had been seen.

### 3.6.4 The Refuse Deposits (RDs)

Forming a boundary around all the founded structures, the refuse deposits mark the transition area to the periphery. I counted 23 refuse deposit concentrations ranging areas covering between 1.49 m² and 16.48 m², the average being 7.25 m² (n=23). Only the outlines of these heaps could be measured. The pattern is that they are found near the cooking structures and along both sides of the paths leading to the lavatories. These paths appear to be real waste trails. The largest and thickest deposit by far is refuse heap RD-1 located behind ST-10 which is the communal structure where manioc is processed (see Fig. 3.30). The majority of the waste can be found here. The smallest deposit is the one in the northeast next to the
new cooking structure ST-37, which is RD-23. After several initial deposits there, Atinio, the eldest son of the captain, asked his wife and daughters to no longer use it as a trash pit. The reason being he planned to expand the boundaries of the village in that direction. Thus the densest trash heaps are those near the cooking structures, whereas heaps not far from habitation structures seem to predominantly represent an accumulation of patio clearing, so mainly soil and grasses. The clearings of the communal area around ST-01 seemingly serve to cover over the dense rotting heap.

Fig. 3.30: The main refuse heap RD-1. At the back, beyond the horticultural strip, we see cooking structure ST-10.
behind the main cooking structure (ST-10). The presence of these heaps does not mean that all refuse is found in deposits. More durable, discarded artefacts can be found in a waste zone. This waste or ‘toss’ zone is situated between the cleared areas and the surrounding forest which appears to also coincide with other ephemeral boundaries. These will be further discussed in 3.7 (see below).

3.7 Amotopo composition

Having discussed all the various features we can now move to their composite level as encountered in 2008. The distances between the structures will be discussed first, then the distances between the structures and the refuse heaps, and finally the more ephemeral vegetation boundaries of the village. Subsequently a number of values are created for the village in its entirety.

3.7.1 Distances between the structures

The inter-structural distances represent a significant value from an archaeological standpoint. Firstly they provide us with a sense of space within a certain village. How far apart are the structures positioned? Which are more adjacent, and which stand further apart? How far away from the structures are the refuse heaps? Some of these values can be of interest as to ethnographic comparisons (the Lokono and Kari’na structures seem, for instance, to stand much further apart) and as to prospective comparisons in archaeological research. Secondly, it provides an interesting parameter with regard to spatial change over time. As we will see in Chapter 5, a village where the captain of Amotopo grew up 50 years ago (Alalapadu) had various structures and various spatial distances.

We can measure these distances in two ways. On the one hand, the distances between the RRSs of the structures and, on the other hand, the distances between the closest floor spaces, which will make these values easier to compare with village plans with different architecture. We will start with ST-01 in the core of the village. Thanks to its central position, it provides us with the best initial accounts. An overview of its inter-RRS distances between ST-01 and the surrounding structures, and the distances between the floor area of ST-01 and the closest floor areas of neighbouring structures can be presented as follows:

On average the distance between the nearest inter-RRS distance in this category measures 13.32 m (removing the outlier ST-02 would bring this average down to 12.61 m). For the actual inter-floor area distance this av-
Amotopoan Trails

In general it can be stated as to the village of Amotopo specifically that habitation structures are closest to the cooking structures which are placed behind them, albeit in such a way that one of the extensions can still be seen from the communal structure. These compounds that I will refer to as the habitation and cooking structures jointly (Siegel 1990:338) are positioned in a ring around the communal structure. The inter RRS distance between the habitation and cooking structure forming a compound measures on average 9.29 m. The distance between their floor areas measures on average 5.56 m.

Outside this first ring of compounds lie other habitation structures which I will refer to as the second ring of two habitation structures (ST-32 and ST-36). They are positioned on an average of 41.96 m (inter-RRS, n=2) and 37.26 m (inter-floor, n=2) away from the communal structure ST-01. Lastly, we have a third ring of habitation structures, again two (ST-35 and ST-41), that lie even further away from ST-01, namely at an average measures 8.63 m (remove the outlier ST-02 and this average drops to 7.72 m).

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Table 3.2: The inter-RRS and inter-floor distance between ST-01 (CMS) and the surrounding habitation structures (HSs).

<table>
<thead>
<tr>
<th>Structures</th>
<th>Inter-RRS Distance</th>
<th>Inter-Floor Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST-02</td>
<td>16.16 m</td>
<td>12.28 m</td>
</tr>
<tr>
<td>ST-10</td>
<td>12.26 m</td>
<td>7.65 m</td>
</tr>
<tr>
<td>ST-12</td>
<td>12.58 m</td>
<td>7.56 m</td>
</tr>
<tr>
<td>ST-20</td>
<td>12.88 m</td>
<td>7.32 m</td>
</tr>
<tr>
<td>ST-25</td>
<td>12.73 m</td>
<td>8.33 m</td>
</tr>
</tbody>
</table>

Table 3.3: The inter-RRS and inter-floor distances between the habitation (HSs) and nearest cooking structures (CSs).

<table>
<thead>
<tr>
<th>Structures</th>
<th>Inter-RRS Distance</th>
<th>Inter-Floor Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST-25 to ST-26</td>
<td>9.41 m</td>
<td>5.72 m</td>
</tr>
<tr>
<td>ST-2 to ST-16</td>
<td>9.88 m</td>
<td>6.10 m</td>
</tr>
<tr>
<td>ST-20 to ST-21</td>
<td>9.28 m</td>
<td>4.88 m</td>
</tr>
<tr>
<td>ST-32 to ST-37</td>
<td>8.60 m</td>
<td>5.53 m</td>
</tr>
<tr>
<td>ST-12?70</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

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70 This habitation structure was not linked to a cooking structure. Instead it had a number of isolated hearths placed outside and a pot structure. This cluster of features lies on a similar distance when compared with the average of the other compounds. However, in 2007, the people of Amotopo begin to build a cooking structure that seems spatially more connected with ST-32 than ST-12. These habitation structures both apply this cooking structure.
The immobilia of Amotopo

Fig. 3.31: The structures of Amotopo village, the RDs and the various bands surrounding it.
Amotopoan Trails

average of 78.16 m (inter-RRS, n=2) and 74.36 m (inter-floor, n=2). A final interesting distance is the one between the refuse heaps and the closest founded structures. This distance can be of interest for locating structures on the basis of the refuse deposits. Of the 23 refuse deposits, 10 are nearest to habitation structures, the remaining 13 are nearest to cooking structures (CSs). When calculated from the refuse deposits to the nearest RRSs of founded structures, the closest distance measures 6.10 m between RD-02 and ST-37. The greatest distance is 26.42 m between RD-08 and ST-26. On average the distance is 15.48 m (n=23).

3.7.2 Vegetation boundaries

Strengthened with this knowledge concerning the founded structures we can now start to associate their distribution and the distribution of those not yet discussed with their relation to the vegetation boundaries surrounding the village.

The Support Structures (SSs), subdivided into the pot structures, the drying racks and the miscellaneous group, are all positioned within and/or between the founded structures linked to those closest to them. All the founded structures are positioned within the cleared zone. The support structures are aligned in places along the edge of the cleared zone (T: Anna) and that part where cultivated grass grows (T: Ajohpë). In a number of areas on the edge of the cleared area the Amotopoans intend not to clear the soil, but instead cultivate the grass with their machete leaving a band of mown grass. One of the reasons, as the son of the captain told me, is that the grass benefits the wood of the drying racks, some of which are positioned within this area of cultivated grass. Another reason must be an aesthetical one, since the Trio consider it a beautiful sight.

The toss zone begins beyond this cleared area. This zone forms a band stretching all around the core of the founded structures. The village clearing is made clean almost on a daily basis, since especially in the rainy season any vegetation in the clearing returns quickly. The size of the space cleared differed according to my observations in two successive years, which makes these boundaries appear flexible. When Amotopoans do not live in their houses for some time, grass overgrows their once cleared patio. The remaining Amotopoans referred to these overgrown patios as ‘infested with grass’ (T: Oibpije). However, this term is also applied when referring to those parts of the village that had been burned some time ago, but not worked afterwards. A distinction can be made between a segment of the

71 Calculated from the refuse deposits to the nearest floor areas of the founded structures, the closest distance between RD-02 and ST-37 is 4.12 m and the greatest distance between RD-08 and ST-26 is 24.23 m. The average distance is 13.44 m.
village covered in grass that still belongs to the cleared area and a segment that is no longer part of the village.\footnote{I observed the cooking structure ST-16 in an advanced state of oihpije, with grass up to its roof top, It was, however, quite easily cleared again by its owner and reclaimed to the anna. I witnessed how the same occurred as to cooking structure ST-26. It seems logical that the cooking structures fill up with grass more quickly than its paired habitation structure. The reason being that the latter forms part of the communal anna that is mainly cleared by the captain and his wife.}

Then there are two other categories. To explain these I must firstly explain the outer band that is no longer really part of the village. The Trio call it wiripētao. It is considered an ambiguous area surrounding the village, where spirits are said to dwell (Riviére 1981:7). According to Riviére, wiripētao refers to

\begin{quote}
\textit{the area between the village clearing proper and the forest proper. This is a strip of tree roots, uncleared fallen trees, weeds and low secondary growth and is the place where rubbish is dumped. It is neither village nor forest, which are the two essential socio-spatial categories in Trio thought, but something in-between.} \textit{\textquotesingle}(Riviére 1981:7).
\end{quote}

In my view this area sets off with the band of the waste heaps and continues to the place where the actual forest begins and where the visibility from the village ends (T: Itu). The outer band seems to correspond to the first clearing of this place as a garden in which subsequently the smaller, present village was developed. Before reaching this band we find the band called wiripēme, which could roughly translate as ‘a place similar to the one of the spirits’. This was explained to me as a ‘dirty’ area while pointing at scatters of trash beyond the cleared area. Between wiripēme band and the wiripētao band, however, there seems a gradual fading from the visible edge of the village to the location no longer visible. This area which, as a visible band, stretches to the refuse heaps which seems to form the outer part of the toss zone. The latter zone is the area where the trash can be found that has been removed from the cleared area. Even lighter scatters of trash can already be found in the band filled with grass.

A horticultural band is placed on the border of the cleared area and the toss zone. In it useful plant species are grown: chili peppers, cotton, mangos, herbs, pigment-providing plants, calabash, pineapple, and other species are encountered (see Appendix E and Fig. 3.31). Material references to this horticultural band are the shallow thrust stakes that support the peppers and the cotton plants (see 3.6). Beyond this band, the remnants of typical garden plants can be encountered (various manioc and banana species), forming the remaining part of the former garden. The kennels are found in the refuse deposit band or just beyond it.
3.8 Concluding the positive archaeological image

The data presented in this Chapter started with a number of features with which we are familiar with from archaeological perspectives. This Chapter is not about movement at all. However, by beginning with some of the presumed deepest postholes and then continuing on to their structures, working from structures and stakes towards their distributions and their spatial relation, a positive archaeological map of material distribution is provided helping us to ground subsequent ‘movement’ Chapters.

Some interesting conclusions can be drawn with regard to the field of archaeology. The Trio measured the depths of the postholes according to certain specific bodily dimensions. With this knowledge a ratio could be calculated for a number of depths within these Guianese soils to the actual heights of certain posts. Reasoning from the distribution of these foundation posts and the distances between them, a floor area for elliptical structures can be calculated through certain ratios (see Appendix F). Variation between structures based on the same model can be explained by differences in terms of size, of internal post distribution and of associated additional posts and stakes. Here a distinction can be made between (a) foundation supports, (b) stakes requiring a posthole, and (c) smaller stakes that can simply be thrust in the ground. All non-founded structures, except for perhaps the pot structures, are constructed by way of these thrust stakes. This different construction also corresponds to the application of various timbers. Where the founded structures are mainly constructed from *wakapu* timber, the non-founded structures are constructed by means of stakes consisting of different and softer wood. This also leads to frequent replacement and repair which in turn increases the number of traces.

Peripheral structures and stakes, as sub-category of the non-founded structures, are usually invisible in archaeological cases. However, when some structures and stakes are recorded they usually end up in a residual category and remain too speculative to ascribe to a specific function. As some stakes do not exhibit any patterns except for forming ‘clusters’, a different material correlation is needed to assign any function. This issue can be approached by discussing spatial boundaries. In the Trio village of Amotopo the founded structures and their ISSs, and SSs that are positioned in between them, together form the core of the village. The kennels, lavatories and plant supports can all be found within the peripheral band surrounding this core village. This peripheral area seems to be composed of three ‘material’ bands: (a) the outer area formed by the band of refuse deposits, (b) the inner band which is the cultivated part bordered by the horticultural band and in places marked by the clusters of plant supports and (c) the area between this inner and outer band. This is where
any loose rubbish is disposed of and where the kennels can be found.\textsuperscript{73} The lavatories are located in the area beyond the refuse deposits or along paths beyond these deposits.

This material notion of three bands also roughly corresponds with the Trio perception of their surroundings. The cleared space which signifies the core of the village (T: Anna) is followed by a band of horticultural plants (T: Unknown), behind which lies a toss zone they refer to as ‘dirty’ (T: Wiripême). The next band (T: Wiripêtao) marks the area between the refuse deposits and the initial outline of the first garden beyond which the forest (T: Itu) begins.

How this seemingly synchronous material image is divided into the years of its existence and is linked to the movements of the social dimension is dealt with in Chapter 4. Here I will introduce its inhabitants and connect them to the immobile sphere discussed in the present Chapter. Hence we will have a decent departure point in order to focus on the mobilia and their relations outside the village. As could already be read between the lines, the materials presented all form part of the process of the village. The becoming of this village over a period of eight years shows that a number of the structures are not contemporaneous and in some cases overlap each other even within the space of such a short period of time. The positive image, as it is presented here, is not at all its final stage. The village is not an archaeological site. The present chapter employed an artificial ‘freeze’ that I imposed on the village’s process. On the contrary, its spatial boundaries are in a state of constant fluidity. This artificial ‘freeze’ does, however, provide us with some notion of distance signified by the Amotopeans in their young newly founded village.

\textsuperscript{73} I must mention here that the area surrounding a number of kennels (e.g. the path leading to the structure) seemed to be cultivated on a regular basis. As was not the case as to all the structures I documented in 2008.