Timber orientation in the traditional architecture of Indonesia

In building a house, or any building, it is genna [taboo] to plant a post with the upper end downwards, as this would cause suffering to the tree. On the other hand, should a post once planted take root and sprout, it must be cut down; otherwise, having overcome the man who cut it, it will “look upon his death”. (Hutton 1921:38.)

One of the fascinating aspects of the traditional architecture of Indonesia is the hidden order resulting from orienting certain elements – posts, beams, skirting planks, and the like – by following certain rules that take account of the direction in which the wood has grown in the living tree. Although long known from occasional mentions in the relevant literature, it is only since the 1970s that anthropologists have become aware that the custom deserves more attention. More and more researchers began to include timber orientation among the topics covered in their fieldwork; as a result, an increasing number of published works now include a few lines, or even a few pages, on the subject. One point that emerged when looking at the custom comparatively (Waterson 1990:124-6) is that rules for horizontal elements differed according to place or ethnic group, whereas for vertical elements there seemed to be only one rule, and this required that the root end must always be below, as it is in a living tree. A similar orientation following growth structure was sometimes also applied to bamboo and other vegetal materials. While the expression ‘timber orientation’ is not meant to cover these other instances, it is a handy term that clearly refers to the context of construction. Timber is wood used in building, and in this article I deal mainly with rules of orienting timber elements in wooden structures. As for ‘orientation’, the focus is on the builder, who in positioning a wooden element follows some rule that tells him
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in which direction the ‘tip’ of the element should point.\(^1\)

While over the last several decades it has become increasingly clear that rules of timber orientation were widely observed in Indonesia, the interpretation of these rules by scholars has usually followed a pattern that does not seem to be in harmony with all the facts. Most researchers who have reported rules of timber orientation have not commented on the meaning of those rules, but most of those who did, were inspired by the observation that house posts had to be placed with the root end below and that this corresponds to the orientation of the wood in living trees. Several authors refer to the use of vernacular expressions according to which posts are said to be ‘planted’, suggesting that this might reveal that posts are likened to living plants.\(^2\) However, the same idiom is also used in English, and as in English, in other languages too it refers only to the technical aspect of fixing a post in the ground.\(^3\) Nevertheless, the idiom has led to the assumption that the ‘planted’ posts of the house are considered symbolically to be still alive. Consequently, tree-life has been assumed to partially account for the life that is traditionally attributed to houses.

Some authors have also suggested that house posts are symbolically alive because they originate from trees, but that their aliveness is ‘expressed in anthropomorphic terms’ (R. Ellen 1986:26; see also Teljeur 1990:65) or is ‘altered’ (Traube 1980:312) or ‘domesticated’ (Waterson 2003:45). Although such formulations try to do justice to the change the materials undergo in the process of construction, they still suggest the existence of a continuity that does not really seem to be implied in the relevant rituals. What the rituals seem to suggest is not that tree-life persists in the timber elements of the house in a pacified or ‘cooled’ state, but that tree-life is exorcized and replaced by a new and different kind of life. When the Sema Naga say that a post planted upside down causes suffering to the tree, they may be thinking of the sad image of a treetop buried in the ground. But if they also say a planted post taking root would be a bad omen, they probably have in mind the ritual of purifying the timber. A post

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\(^1\) Research for this article was done mainly in the context of a larger project dealing with architectural responses to offering rites performed inside the house. A publication on this subject is in preparation. I thank the Swiss National Science Foundation for having partly supported that project.

\(^2\) See, for example, Barnes 1974:74; Forth 1981:32; R. Ellen 1986:26; Waterson 1990:124. Traube (1980:304) relates that, when rebuilding a cult house, the Mambai of East Timor perform a ceremony known as the ‘beating of the earth’, whose purpose is ‘to plant and anchor the “root” (ramuri) of the house (that is, its center columns) by smoothing and beating down the earth’. Although the rite’s obvious purpose is to fix the columns in the ground, Traube suggests that more than that is involved; for she adds: ‘The house too must nurse from the cool, wet underground breast, thus maintaining its moistness and protecting it from destruction by fire’ (Traube 1980:304). Unfortunately, it is not always clear whether such explanations reflect a native statement or the author’s interpretation.

\(^3\) The English noun ‘plant’ derives from Latin planta, ‘sole of the foot’, and originally refers to the stamping down of the earth around a seedling or sapling. See, for example, Hendrickson 2004:568. See also note 17 below.
taking root would be a post that has preserved or regained tree-life, and this is a bad sign because it reveals that tree-life has persisted or returned, despite the fact that the builder has taken ritual care to exorcize it.4

In what follows, I shall first present general arguments against the view I regard as misleading. Then I shall discuss typical patterns of timber orientation, arguing that some are structurally founded while others, being adapted to significant spatial directions, are ritually motivated. In the second part of the article I shall draw attention to sources indicating that no influences from the foot of a post or from the ground were welcome in the house and that house posts participated symbolically in a life that was radically different from tree-life. In conclusion, I shall deal briefly with the occasional use of inverted timbers, a subject that deserves more attention in future studies.

The tree as a living plant and the tree as a form

In works describing instances of timber orientation, the most common terms used for the two ends of a wooden element are ‘base’ and ‘tip’. Other expressions occasionally used for ‘base’ are ‘root end’ and ‘rootstock’, while rarely used variants for ‘tip’ are ‘top’, ‘head’, and ‘summit’. When occasionally ‘trunk’ is used for ‘base’ or ‘root end’, this sometimes refers to a rooted trunk of some height as opposed to the branches growing out of that trunk. As numerous anthropological studies have shown, this latter image plays an important role as a botanical metaphor applied to social and descent relationships, including the relation between an origin house and its branch houses (Fox 1980:14; Traube 1989). It is therefore not surprising that a number of scholars have come to assume that the custom of orienting house timbers according to the growth structure of the wood involves the same botanical metaphor.

However, trees not only have life, they also display a spatial form, and the botanical metaphor may sometimes refer to formal aspects only. When the Saribas Iban of Sarawak apply a tree image to the river and call the river mouth the ‘base’ (pun) (Sather 1993:75), they are presumably referring to spatial relations and to the similarity in form. A river can be viewed as having the form of a tree lying down that has its roots down at the river mouth and its branching top up in the headwaters. The wide top of the tree is then associated with the upper courses of the river, and the river’s tributaries are implicitly likened to the branches of a tree, regardless of the fact that a tree grows up from below and a river flows down from above. Had the image been based on

4 Although this paper generally deals with sources from Indonesia, I also include a few references to materials from mainland Southeast Asia. As Waterson (2003:35) has pointed out, ‘some concepts and practices – such as ideas about “vitality” and details of construction – can be shown to have striking parallels in parts of mainland Southeast Asia’. See also Schefold 2003.
the idea of a ‘flow of life’, the association would be reversed, and it would be the headwaters of the river that are associated with the roots of the tree.\(^5\)

Seeing that the botanical metaphor can be applied either way, as a biological or as a morphological one, depending on the perspective chosen, the crucial question is how it was applied in architecture and in timber orientation. To conclude from the use of words meaning ‘base’ and ‘tip’ that the botanical metaphor carried the same meaning when it was applied to social relations and to parts of a building seems scientifically unsound, unless the conclusion follows from a critical examination of relevant sources. If the timber elements of a building are ‘trunks’, then it is in the sense of sections of a tree that have two ends distinguishable as ‘base’ and ‘tip’ with reference to the growth direction of the living tree of which they are no longer part. This allowed placing them according to certain rules of orientation, but does not necessarily imply that the life they had had as parts of a living tree was thought to be preserved in an altered form. Carpenters in other parts of the world also distinguish the ends of a piece of timber as ‘base’ and ‘tip’, but they do so without assuming that the timbers are therefore symbolically alive.\(^6\) What is involved in such cases is the morphological tree image.\(^7\) This tells the carpenter where the structure of the wood is tighter, which can be of structural and technical significance in construction.

Various rules for orienting timbers

The structural and technical aspects of timber orientation are especially relevant when building with unconverted (more or less raw) timber, as is still common in parts of eastern Indonesia. With unconverted timber, the root end of a post is not only heavier but also somewhat thicker than the tip, so that placing it below is the natural thing to do. When applied to unconverted timber, this rule is evidently conditioned by structural considerations, or rather by what may be

\(^5\) Vellinga (2004:272-3), dealing with a similar case from Minangkabau culture, sees a ‘paradox’ in the circumstance that the treetop is associated with upstream. Similarly, Therik (2004:155-6) is puzzled by an expression of Wehali ritual language (foho hun, ain tas) that associates the mountain with the ‘source’ and the sea with the ‘foot’. See also the case of the Karo house discussed below.

\(^6\) German-speaking carpenters use the expressions ‘Stock’ and ‘Zopf’ for ‘base’ and ‘tip’ (Heinz Frick, personal communication; see also Frick 1995:114). These are old German words for the base and top of a tree, which are no longer used in this sense. In Japanese, motokuchi and suekuchi are used (Fukaya and Suzuki 2001:572). Moto and sue mean respectively ‘base/origin’ and ‘top’, while kuchi (‘mouth’) refers to the saw-cuts at either end of a piece. For Japanese rules of jointing with regard to base and tip, see Brown 1989:56-7.

\(^7\) Strictly speaking, in timber orientation only the terms for ‘base’ and ‘tip’ are used metaphorically. Applying these terms to a wooden part of a house, and with respect to the growth structure of its wood, means, however, that implicitly the image of the tree as a whole is also associated with the respective part of the house.
called a normal human building behaviour responding to the law of gravity. Similarly, to connect the ends of two unconverted pieces so as to have the thinner ‘tip’ of one piece meeting the thicker ‘base’ of the other – another rule that was often followed – makes good sense structurally, because in this way one gets joints approximately equal in size. Applied to the edge beams of a rectangular structure, this rule results in an arrangement in which all tips of the respective beams or planks point around the rectangle, either clockwise (‘moving to the left’) or counter-clockwise (‘moving to the right’; see Figure 1). In other parts of the world this kind of ‘circling pattern’ is best known from log cabin construction, where it results in approximately equal corner joints.

A further rule that has been reported requires that horizontal elements, such as floor joists, floor boards, or roof slats, are placed in an alternating pattern (Figure 2). This ‘alternating’ rule, too, is technically reasonable, when building with unconverted timber. In Rindi of East Sumba it was said to be ‘essential for the durability of the building’ (Forth 1981:33-4) (Figure 2), and the Nage of central Flores say that alternation helps maintain ‘an equivalence of width (dega sama)’ (Forth 2003:242). The fact is that alternation results in an optimal distribution of weight. If all elements were oriented in the same direction, the thicker and heavier ends would be on one side and the structure would not be well balanced.

Although these rules have sometimes been ascribed the function of bringing luck or of warding off calamity, there can be little doubt that in the context of building with unconverted timber they were founded in structural and technical considerations. It is when certain exceptions to these rules were tolerated or required that we must search for further reasons. This applies, for example, to deliberate violations of the basic rule according to which the ‘tip’

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8 In this context it might be significant that according to Alb. C. Kruyt (1973:87-8), circumambulation in Central Sulawesi was sometimes done twice in opposite directions, first from right to left in order to remove all evil, then from left to right in order to obtain ‘life-force’.
of one piece in a joint must always meet the ‘base’ of the next one. In two parts of a longhouse, the longitudinal beams or floor joists are sometimes oriented in opposite directions, so that there is a position in each series where two elements meet at their root ends (Figure 3a). The opposite arrangement has been observed too: the longitudinal floor-skirting beams of the ceremonial hall (bale lantang) of Sukawana on Bali consist of two elements meeting at their tips (Figure 3b) (Reuter 2002:76-7).

Whereas these linear patterns could in principle be applied to converted as well as to unconverted timber, there are other patterns involving exceptions that seem to be typical of structures built with converted timber. When building with converted timber cut to equal width, differences in weight may still be structurally relevant to some extent, but their negative effects are of course much less critical, so that violations of the ‘natural’ rules can be permitted. The best-known pattern applied to converted timber is the one according to which parallel beams or planks are oriented in the same direction. Applied to the skirting beams of a rectangular plan, this produces a situation in which two root ends meet in one corner and two tips in the diagonally opposite corner (Figure 4). As this arrangement involves additionally a diagonal orientation from the base/base corner to the tip/tip corner, I call it the ‘diagonal’ pattern. It seems that this pattern is usually combined with intermediate beams whose orientation is adjusted to that of the parallel skirting beams (Figure 5).}

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9 Schefold 1988:125-6; Sather 1993:77-8. On Babar the same rule was applied to the midribs of the palmleaf thatch at either side of a tiny opening in the thatch at one side of the roof. The opening was left ‘so that the house may breathe’ and as an entrance for the ancestor spirits who would visit the offering baskets that hung inside (Van Dijk and De Jonge 1987:68, 87).

10 In November 2004 in Sukawana, a mountain village of Bali, I came across an intermediate solution that combines the clockwise circling pattern with equally oriented intermediate beams. This pattern was applied to the roof beams of the ceremonial longhouse (bale lantang) when it was rebuilt in 1998. A carpenter who had participated in the rebuilding explained it to me with a drawing, saying that it indicates a circling motion in increasingly larger turns. According to Reuter (2002:77) there is a correspondence in Sukawana between the orientation of the corner posts and skirting planks of the bale lantang and certain rituals that have to do with the ‘circular passage of a person through life, afterlife and rebirth’. As for normal houses in Sukawana, the same carpenter said that lengthwise beams, including the ridge beam, point to the (northern) mountains and transverse ones to the east (‘diagonal’ pattern). In Sembiran, another mountain
In these cases (Figures 4 and 5), what apparently caused the adoption of rules requiring exceptions to the ‘natural’ rules is the desire to adapt timber orientation to the outer orientation of the house and to ritual orientation. The use of converted timber made this possible without resulting in structural disadvantages. It can be no coincidence that the circling and alternating patterns have been reported mainly from parts of eastern Indonesia where traditional houses were still often built with unconverted timber,\(^{11}\) whereas the ‘diagonal’ pattern is best known from regions where houses were mostly built with converted timber using a more developed carpentry technique.\(^{12}\) So far, examples of the ‘diagonal’ pattern are mainly known from the building traditions of ethnic groups such as the Karo Batak, the Toba Batak, the Minangkabau (Vellinga 2004:253), the inhabitants of Nias (Beatty 1992:22), the Mentawaians (Schefold 1988:124-5), the Sa’dan Toraja (Waterson 2003:52, n. 19), and the Balinese.

Timber orientation and ritual orientation

The classic case for the use of the ‘diagonal’ pattern is the Karo Batak multi-family house. It has long been known that in Karo houses timber orientation is applied to the four skirting planks of the floor and that the base/base corner is called *bena kayu* (‘base of the tree’), the diagonally opposite tip/tip corner *ujung kayu* (‘top of the tree’) (Joustra 1910:119; Singarimbun 1975:55). In this case the basic rule requires, furthermore, that the *ujung kayu* should

\(^{11}\) For example, Central Sulawesi (Adriani and Kruyt 1950-51, I:175), Lembata (Barnes 1974), Sumba (Forth 1981), Halmahera (Teljeur 1990:82), Palu’ê/Flores (Vischer 2003).

\(^{12}\) When the diagonal pattern is applied to a house in which the roof is built with unconverted timbers, it may happen that the rule adopted for the converted timbers is also applied to the unconverted ones of the roof, although this results in structural imbalance. I have observed such cases in houses of the Karo Batak.
be at the upstream end of the house, and there it is usually at the east or right side when facing upstream, depending on the flow direction of the river that is chosen as the standard of orientation for the longer axis of the house (Domenig forthcoming). What has likewise been known for a long time is that in a Karo multi-family house the marked diagonal axis assumed importance for the social use of space. The head of the house would ideally dwell in the jabu bena kayu, the apartment (jabu) in the corner at the ‘base of the tree’, while his bride-receiver would occupy the diagonally opposite apartment at the ‘tip of the tree’ (jabu ujung kayu).

Interpreting this case, one must take care to differentiate between the botanical tree image applied to social relations and the morphological image implied in the orientation of timber. Whereas the sociologically relevant point is often that the ‘younger’ inhabitants occupy the place closest to the youngest part of the imaginary lying tree, the architecturally relevant aspect is that the tip (with its younger wood) can indicate a meaningful spatial direction. In a Karo house it is difficult to distinguish the two tree images because in the marked diagonal axis of the house they coincide spatially. In a Minangkabau house, however, the situation is different. The rooms are lined up at one long side of the house, and the distinction between the (old) ‘base’ and the (young) ‘tip’ influences the allocation of rooms, which depends on the relative age of the occupants (Vellinga 2004:253-61). Although in this case timber orientation likewise invokes the image of a diagonal ‘tree’, the social differentiation occurs only along the longitudinal axis, so that the two images do not coincide spatially. The same seems true for the houses of the Sa’dan Toraja, in which all lengthwise timbers have their root end at the south. As Volkman was told, the southernmost room (sumbung) is therefore regarded as the ‘root’ of the house, and a to minaa (priest) suggested that sacred heirloom cloths and swords are stored there because ‘[t]he roots must be “fertilized”, […]’, so that the “branches and the leaves” (the front of the house) will be beautiful’ (Volkman 1985:47). Considering the function of heirlooms, the image of the ‘living’ tree appears to refer here to the house as a social entity with an origin, past and future, the branching treetop standing for the descendants. While this botanical tree image was apparently applied to the south-north axis, the morphological tree image is implied in the ‘diagonal’ pattern of timber orientation, which deviates from this by pointing northeast.

In this case the ritual meaning of the diagonal pattern is evident, because the Sa’dan Toraja orient all houses roughly to the north, while the ‘tips’ of the beams must face north and east, respectively, the auspicious directions ‘asso-

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13 An exception is the ceremonial house (bale lantang) of Sukawana mentioned in note 10. There, the seating order according to precedence is such that the higher-ranking elders sit closer to the ‘tip’ end of the two longitudinal skirting planks, whereas the most recently married men are seated at the ‘base’ end of these planks (Reuter 2002:173).

14 For variations see Domenig forthcoming.
ciated with the deities’ (Waterson 2003:52, n. 19). The intermediate (diagonal) northeast direction also played a part in rituals; temporary outdoor offering-stands would sometimes face northeast (J. Kruyt 1921:162-3), implying that the deities coming to taste the offerings would approach from north and east. From these two directions they also were supposed to visit the house when offerings were placed on a beam or shelf in the northeast corner of the interior (J. Kruyt 1921:65, 180). Similar situations can still be found in parts of Bali and elsewhere.

Judging from the above examples, it would seem that in principle timber orientation according to the ‘diagonal’ pattern served to have the tips of both sets of important timbers point in auspicious directions. One set would usually point upriver and/or towards the mountains, the other to the east and/or to the right. In the Sa’dan Toraja case this principle is generally followed because virtually all traditional houses are still oriented with the front gable facing the northern mountains. However, when the outer orientation of a house is changed, the timbers as parts of the house change direction too, of course, so that their orientation may eventually cease to be related to old ideas about auspicious directions. Timber orientation may then continue to play a part in the inner orientation of the house and in the social and ritual use of space, but to what extent this is the case under varying conditions – for instance when houses are lined up along both sides of a street – is a subject that remains to be studied.

To sum up, we can distinguish two main typical cases as far as the orientation of horizontal elements is concerned. On the one hand there is the ‘circular’ pattern combined with alternating orientation of intermediate elements, a pattern that is structurally founded and typically applied to buildings constructed with unconverted timber. On the other hand there is the ‘diagonal’ pattern combined with adapted orientation of intermediate elements, a pattern that is ritually conditioned and is mainly found in structures that are built with converted timber. In addition, there are less common patterns, such as the linear one involving a single tip-to-tip joint or base-to-base joint (Figure 3), and patterns combining characteristics of the ‘circular’ and ‘diagonal’ types, as when the circular pattern is combined with parallel intermediate elements pointing in the same direction (see footnote 10).

As for vertical and inclined elements, the natural rule requires that the heavier root end is below. Although I have stressed the structural reason for this, I am aware that this rule can be associated with symbolic meaning too. Seeing that in the case of horizontal timbers exceptions to the base/tip rule were tolerated in the interest of having the tips point in ritually significant directions (upstream, uphill, east), we have reason to expect that the significant aspect of vertical and inclined timbers might likewise be their upward pointing position. In the old days the vertical structure of the house was
usually characterized by associating ground floor, raised floor, and attic with domestic animals, humans, and spirits, respectively. Ancestor spirits were sometimes thought to dwell in the attic, but often they were imagined to visit the house from the outside to taste offerings in the interior. On such occasions they were usually thought to enter by way of the roof and to descend along roof timbers to the offerings, which were usually deposited on the attic floor or just below it. When on special occasions spirits were invited further down into the dwelling space, they were often imagined to get there by descending along the house posts. The four central posts of houses on Sumba, for example, usually feature vertical grooves that are often said to represent the ‘paths’ along which an ancestor spirit can descend from the attic to the dwelling floor. It seems therefore that if there was ritual significance in the orientation of house posts, it was their relation to the upper parts of the house. For the building’s stability the relation to the ground was of paramount importance, but ritually and symbolically what was meaningful was presumably the post’s function as an upward-pointing element and a potential pathway for descending spirits.

Whereas researchers discussing timber orientation have usually focused on the ‘root end’, stating that in posts the root end must be below, as it is in a living tree, indigenous informants sometimes focus on the ‘tip’ instead, saying the tip of a post must be above. As the missionary G.J. Ellen (1942:68) was told in North Halmahera, the ‘tip’ of a post must always be above because the post is compared to ‘to a human being who also would not walk around in the world with the head below’. Here the post was likened not to a living tree, but to a human being, even to a walking human.

By focusing on the ‘tip’ instead of the ‘base’, we can arrive at a different understanding of timber orientation, namely a view that acknowledges its function in marking ritually significant directions. In the case of posts this is the direction upwards to the attic and beyond; in the case of beams and other horizontal elements it is the direction to an auspicious or otherwise ritually significant part of the landscape or the horizon. The few examples given above must suffice here to make this point. It is up to future studies to go into the details of specific cases.

Although the interpretation of timber orientation I object to seems not to have run into serious criticism over the last three decades, it must be repeated that most researchers reporting on rules of timber orientation have refrained

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16 This reminds us, incidentally, that in many parts of Indonesia houses are traditionally built with posts set on stones, which separates them from the ground and allows transporting them intact to a new site, if needed (Waterson 1990:78, figure 86). Note that the comparison with a human body is sometimes also applied to horizontal elements. In one part of Java the beams on top of the four central posts of the house are said to be conceived as lying (sleeping) persons and their heads are to point north or east (Frick 1995:114). For the anthropomorphic interpretation of posts on Bali, see Howe (quoted below); for comparative notes about ‘the house as body’, see Waterson 1990:129-32.
from commenting on their meaning. Moreover, there is the independent view expressed by Clifford Sather in his discussion of longhouses of the Saribas Iban of Sarawak. Sather (1993:75, 80) refers explicitly to the ‘spatial’ and ‘morphological’ aspect of the botanical metaphor. As his remarks appear to have been partly misinterpreted by others who have made reference to his work, I briefly summarize some of his main points here.

Timber orientation in Saribas Iban longhouses

Sather points out that in one type of the Saribas Iban longhouse the base ends (pun) of the lengthwise beams all face upriver, whereas in another type they all face downriver. With respect to these two cases he speaks of the image of ‘a tree lying down’. In a third type of longhouse the pun of the lengthwise beams all face towards the ritual main post in the centre of the longhouse (see Figure 3a, above), so that in this case one might speak of the image of two trees lying down whose pun meet in the centre of the longhouse. Sather (1993:77) prefers the image of an ‘upright’ tree which ‘represents the longhouse as originating from a central pun’, but to avoid misunderstanding, he stresses that both images apply not to the upstanding posts, but to the horizontal elements (ramu), particularly to the lengthwise beams. Nevertheless, his choice of the term ‘upright tree’ has led some to assume that he is referring to a ‘planted’ tree with the trunk represented by the central main post. What Sather’s case implies, however, is the image of a tree whose root is in the central apartment and whose two trunks or branches extend horizontally and bilaterally. The posts merely lift this tree above the level of the ground.

As regards the ritually most important central post, it symbolizes the idea of ‘rootedness’ (Sather 1993:76), but not in the sense of allowing ‘life’ to enter the house from below. Rather, by rootedness Sather means that the post is fixed firmly in the ground. Before raising this post, the Saribas Iban bathe, oil and smear the post with the blood of a chicken. The gods are then invoked, and a pig is sacrificed, whose ‘blood and severed head, together with other ritual objects, are placed in the hole into which the central tiang pemun is then driven’ (Sather 1993:71). The buried offerings include a branch of a small shrub ‘that typically grows rooted in rocks in streams or river beds’ and of which it is said that it ‘cannot be uprooted, even by floods and strong currents’ (Sather 1993:76, n. 16). This offering explicitly symbolizes the idea of the post’s firm physical fixation in the ground, an idea that is also expressed in the name of the rite, ngentak rumah, which literally means ‘to fix’ or ‘drive in the longhouse’. The name refers to the driving into the earth of the main post.
posts (tiang pemun) of the various apartments.\textsuperscript{18}

The ritual does not suggest that the central main post channels a ‘flow of life’ from the ground into the house. Such an interpretation would be difficult to maintain, given that it would not work with the two other types of longhouse mentioned. Since in these two types all lengthwise floor beams point in the same direction, an imaginary flow rising through the central post and always proceeding from ‘base’ to ‘tip’ could extend through only one half of the building.\textsuperscript{19}

Sather’s contribution is important because it shows that a comparison of timber orientation in different house types can help us avoid an interpretation that may seem to work with one type of house but turn out to be inadequate for another. If we take care to consider both types, we might arrive at a view that can do justice to both. In the present case the consideration of the various patterns has led to focusing on the orientation of the lengthwise beams. Thus Sather (1993:77) points out that ‘the pun is also ritually marked so that, for example, when the bards call for the coming of the spirit heroes while singing the besugi sakit songs, they hang the swing on which they sit so that it faces towards the pun ramu, whether this is centrally oriented or toward one or the other end of the house’. Similarly, Reimar Schefold (1988:125) notes that the Sakudddei of Siberut place the lengthwise beams of their communal house (uma) with the tips pointing to the entrance, so they can show good forces, particularly the souls of the inhabitants and of the hunted game, the way into the interior.\textsuperscript{20}

\section*{Sealing the boundary between the earth and the house}

The idea that beneficial influences from the ground were thought to enter the house by way of ‘planted’ posts can be traced back to Robert Barnes’s (1974) pioneering discussion of timber orientation as practised by the people of Ké-

\begin{footnotesize}
\begin{enumerate}
\item Sather 1993:70-1. I thank Clifford Sather for having read this summary and for confirming the accuracy of my reading of his text.
\item Sather himself does not make this point, but it is implicit in his discussion and evident from the drawings he adds for illustration (1993:figure 4). The same problem is also encountered in the communal house (uma) of the Sakudddei of Siberut. Reimar Schefold (1988:124-7), in his interesting detailed initial discussion of this case, likewise does not say that good forces enter the house along the main post from below. In a recent article, however, he presents a different interpretation, saying that the magic ingredients placed in the hole excavated for the ritual main post are ‘to ensure that good and cooling forces from below can pass this point of transition and enter the uma’ (Schefold 2003a:48).
\item Ancestor spirits could enter by the same route, for example when they were invoked together with the souls of the inhabitants (Schefold 1988:447-51).
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\end{footnotesize}
Barnes’s informants knew the rule that house posts should be placed with the root end below, but it seems they did not associate this with a symbolic meaning. Barnes (1974:60-1, 68-75), based on several pieces of circumstantial evidence, presented his own interpretation, according to which not only ‘life’ but also the spirit of the house enters the house from below by way of the ‘planted’ posts. Barnes was well aware that his interpretation differed substantially from what Endicott had written a few years earlier in his ‘Analysis of Malay magic’ (Endicott 1970). In Endicott’s (1970:113; 133-6) view, hard woods, nuts, and pieces of metal deposited in postholes ‘are most likely intended to seal the boundary between the earth and the new house’ and ‘to prevent earth spirits from invading the latter’. However, although conceding that Endicott’s interpretation might be correct for the Malays, Barnes maintained that ‘a very similar set of ideas and procedures have a different significance in Kédang’. He insisted that ‘an absolute sealing of the boundary between the house and the earth is something the Kédangese would not want’ (Barnes 1974:71).

To anthropologists dealing with Indonesia, Barnes’s interpretation had some plausibility because the metaphor of a ‘flow of life’ from ‘base’ to ‘tip’ was found to play an important part in other cultural contexts, particularly in social relations. This may explain why the idea of house posts drawing life from the ground did not run into serious criticism and why some researchers applied it to their own cases, either incidentally (Traube 1980:304; Forth 1981:417), or in the context of discussing timber orientation as practised by a specific ethnic group. Dirk Teljeur (1990) in particular elaborated ideas along quite similar lines. In his study of the symbolic system of the Giman of South Halmahera he claims that, issuing from a central navel on the ground, a ‘stream of life’ (flow of life) is thought to rise and pervade the house timbers up to the top of the roof, proceeding always from ‘rootstock’ to ‘summit’ and strengthened by ‘coolness’ emanating from pieces of metal placed in various parts of the structure. In this case the posts were placed on a foundation of cement and coral rocks, and the lower end of each post contained small metal pieces wrapped in cotton wool (Teljeur 1990:65-83). Whereas Barnes (1974), dealing with a case where the posts were buried in the ground, had assumed that coolness enters the posts from the ground, Teljeur’s informant only said that metals come from the earth and are cool. By this the informant ‘did not mean to say that coolness came directly from the ground […], the metals themselves gave the coolness’ (Teljeur 1990:70).

Barnes and Teljeur both dealt with structures where the orientation of horizontal timbers followed a ‘circling’ pattern. Since this pattern was combined with the normal rule that all vertical and inclined elements had to have their root end below, it resulted in a situation where an imaginary ‘flow of life’ starting below would have been able to pervade practically all the wood-
en elements of the building by proceeding from base to tip. While the vertical elements would lead upwards, the horizontal ones would lead around the edges and from there inside into beams and floorboards and other intermediate horizontal elements. Although this situation is no doubt favourable to the idea of a flow of life permeating all parts of a building, it must be said that convincing evidence for the existence of this concept in indigenous traditions has not yet been produced.

What we apparently have here are ad hoc explanations by local informants and scholarly interpretations going beyond what informants knew or said. Even if these interpretations reflected ideas held by local adat experts at the time, I would argue that they cannot be taken as representative in the light of what is known from numerous other ethnic groups of Indonesia who, like the Malays, used to take ritual precautions to prevent influences from the ground entering the dwelling from below. In particular, the custom of placing a coin or some other piece of metal under the principal posts (sometimes under all the posts) was widely practised in Indonesia. Such metal pieces were usually said to keep away evil spirits or influences, or they were regarded as a payment to the earth spirit for the land on which the house was to be built.

To mention only a few examples, on Java metal coins placed under the four posts of the central saka guru construction of the house were said to function as mirrors against evil spirits of the ground (Frick 1995:114). In Rindi of East Sumba, metal pieces placed in the holes dug for the planted posts were associated with tutelary spirits that ‘prevent the entry of malevolent powers’ (Forth 1981:125-6). In Manggarai of West Flores people said that iron ‘must be buried under the house poles so that evil forces cannot enter the house through them’ (Erb 1987:206). On Roti a piece of gold or silver, wrapped in red cotton, was deposited under the main post of the house, and the meaning was made explicit in a ritual formula telling the earth spirit that he is now ‘paid off’ and must do no further harm (Van de Wetering 1923:480-1). The Sa’dan Toraja, before building a house, used to put a piece of cast iron, three old coins, and three yellow beads in the ground, the rite being called ‘dialli padang lako Ampu Padang’ (‘land must be bought from the Lord of the Earth’) (Van der Veen 1966:51). Similarly, the To Pamona of Central Sulawesi would put a coin and a bead for the earth spirit into the first excavated posthole, calling this ‘the price for the ground’ (Adriani and Kruyt 1950-51, I:172), while in western Central Sulawesi a copper coin and sirih-pinang were put in ‘to buy the ground so that humans may dwell there’ (Alb. C. Kruyt 1938, II:14).

The last examples are revealing because they relate the placement of metal pieces to the ritual occupation of the building site. In that ritual, the earth or nature spirits were made partners in an agreement that obliged them to vacate the site and leave it to the human occupiers, who in return would regularly provide the spirits with offerings. In the subsequent ritual purification
of the site, the spirits were assumed to be still present, therefore treated as (temporarily) evil, and expelled, often by calling them with abusive language (Van de Wetering 1923:462-5). This ritual, which in many variations used to be performed when opening up a site – in Indonesia and elsewhere – implies that earth spirits as a matter of principle would not be welcome if they should later return to the land and approach a house from below.

I deliberately say ‘from below’, because the single earth spirit, who represents the spirits that have ceded the land, may later be invited to the house to taste offerings. However, although the offerings might then be placed on the ground, as befits the earth spirit’s nature, the spirit paradoxically would have to approach the offerings from above. It is beyond the scope of this article to discuss the ethnographic evidence in support of this understanding and to deal with the counter-evidence that can occasionally be found.21 In the present context, where the interest is in principles rather than in deviations, the significant point is that the paradox is implied in the logic of the land-clearing ritual, which not only removes earth spirits from the land, and for good, but at the same time turns them into receivers of regular offerings and thus into spirits of a higher status.

An interesting observation made by Andrew Turton in northern Thailand shows that even ritual experts are occasionally puzzled by the implications of this important ritual. After having chased away the spirits from a building site, people offered food, money, and red and white cloth to ‘the nagas under the ground’. This rite was called ‘exorcism of the earth or offerings to the nagas’, and, as Turton notes, the ambiguity already present in this name led to a disagreement between two experts. One of them said the offering should be buried under the two principal posts (which was finally done), whereas the other expert thought ‘it should be taken outside the house-site as an exorcism’ (Turton 1978:116). In this case it would seem that both experts were in a sense correct, as the logic of the land-clearing ritual indeed allows for two possibilities. According to a presumably older ritual practice, the offerings were placed outside the site because the exorcized earth spirits were now supposed to stay out, being represented in ritual by the earth spirit in the singular. On the other hand the earth spirit could be invited to taste the offerings on the site, but in this case the logic of the ritual implied that the spirit had to approach from the outside and by way of the air.22 The placement of offerings

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21 Loeb (1929:210, n. 37) mentions a feast in Mentawai where a bamboo tube was stuck into the ground to allow Teteu, the earthquake god and a manifestation of the earth spirit, to ascend to watch a dance spectacle performed in his honour. Counter-evidence of this kind will be dealt with in a later publication.

22 When the Wehali of West Timor, on the occasion of the harvest ritual, present offerings inside a maize field, they also place whole maize plants at the four corners of the field. These are said to be food for the ‘owners of the land’ (the earth spirits), who ‘usually get access to the garden through its four corners’ (Therik 2004:200).
on trays signified that they would be tasted from above, although this was of course done according to tradition and without pondering the significance of it. In this case the problem was caused by the interference of an idea of vertical cosmology (‘underground’ nagas) in a ritual context that properly referred to a horizontal world view.23

Although in the context of the land-clearing ritual metal coins placed into a posthole could be interpreted as a payment for the land, it seems that it was rather the power of ‘cooling’ ascribed to metal that was generally associated with this practice. In the case of the foundation of a building, such ‘cooling’ could be understood as neutralizing the evil intentions of spirits, so that they would withdraw, knowing that they must not enter the house from below. If some scholars assumed that metals were viewed as providing coolness that would emanate from them so as to permeate the timber elements of a house, they ascribed to these metals a property that in the context of building rituals was not usually associated with them. What is well known is that metals are generally considered to be ‘cool’ and to have a ‘cooling’ effect, which is why they are often placed at critical boundary points of a structure or territory where potential attacks of ‘heat’ are expected. As ‘heat’ produced by malevolent spirits is thought to cause illness and bad luck generally, preventing the entering of ‘heat’ will promote a healthy and lucky life in the house. From this perspective it is even understandable that pieces of gold and silver added to a post could occasionally be thought to bring wealth (Bakels 2000:168). Yet all this does not mean that metals are understood to actively send ‘coolness’ into the house. On the contrary, their life-sustaining service is limited to defending the boundary. After all, there is no need for a permanent flow of coolness into the interior. Dwellings are ritually purified at the end of the construction process, after which they are assumed to be ‘cool’. If deemed necessary, this ‘coolness’ can later be renewed by repeating the purification ritual.

Removing the traces of tree life from timbers

The second thesis to be discussed claims that the posts and other timber elements of a house were thought to be invested with tree-life. However, in the same way as earth and nature spirits used to be ritually expelled when people took possession of the building site, the tree spirit used to be ritually removed from the timber before and during the building of a house. Ethnographic re-

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23 To solve this problem conceptually, the underground spirit was sometimes said to emerge through a river source on a mountain, approaching the place of offering from there. This idea is well expressed in the Sa’dan Toraja hymn Passomba Tedong (Van der Veen 1965:46-9, verses 194-198, compare verses 605-607). For the same idea among the Ngada of Central Flores, see Arndt 1929/31:826.
ports dealing with the house often mention building rituals intended to exorcize spiritual powers that might still adhere to the timber. Not only was it a frequently mentioned practice to ask the tree spirit to leave before felling a tree; purification rituals used to be performed again later to make sure that nothing of the life-spirit of the tree still resided in the wood. Marcel Vellinga (2004:187), in a detailed description of the building of a Minangkabau house he witnessed in 1996, writes:

Once a tree that is deemed suitable to provide the *tonggak tuo* [the ritual main post] has been found, a ritual takes place that serves to appease as well as exorcise the spirit (*skodi*) that is believed to reside in and possess the tree concerned […]. Although this spirit is not malevolent by nature, its presence in the tree is undesirable as it is believed to make the tree in question ‘hot’ (*panas*), which renders it dangerous and harmful to people […]. Later during the building process, when the posts are mortised, raised, or already standing, the *tukang tuo* will again perform appeasement rituals to ensure that the house and its building elements are indeed ‘cool’ (*dingin*), or rather ‘cooled down’, and will no longer pose a threat to its inhabitants as a source of illness and misfortune.

If it is the ‘tree spirit’ that is exorcized, this implies that the tree’s soul or life-force is ritually removed in order to turn the wood into timber that can be used for building. As we shall see below, the Mambai of East Timor even perform a sort of ‘death service’ for the cut thatching grass and wood. That the ‘cool’ pieces of timber are later ‘cooled down’ again, and repeatedly, shows how much importance is attached to doing away with the last traces of tree-life. The repetition of the cooling ritual was probably a normal practice among other ethnic groups of Indonesia as well, but reports on building rituals are too often fragmentary, and rarely mention all ritual acts that were performed. Nevertheless, sources from many parts of Indonesia and beyond could be quoted to show that certain rituals were intended to rid the timber of tree-life. Here are a few more examples.

According to a Karo Batak custom, the timber, when assembled at the building site, was surrounded with a bamboo rope, and an altar with offerings was erected inside this marked-off area. For four days no one was allowed to step inside. When this time was over, the bamboo rope and the altar were removed, and the carpenters began working the timber. W. Middendorp calls this a ‘dedication of the materials’ (quoted in Tillema 1915-1922, V:592), while Huender (1929:517), who says the name of the ritual was *malit*, explains the meaning thus:

By this *malit* the spirit of the wood, which has come from the forest, is let loose and sent back to the woods, while the timber becomes accessible for the spirit of the house.
Here it is clearly stated that the spirit of the wood must vacate the timber to make room for the spirit of the house. Huender also notes that the name \textit{malit} appears to come from \textit{palit}, meaning ‘fingerstroke’, and he suggests that this might indicate that formerly the wood was exorcized by smearing blood on the timber. Although this was apparently no longer done when he got his information, a chicken was still sacrificed when the mortise holes for the horizontal anchor rails were cut into the posts. Blood was sprinkled into each hole, and this was done ‘to force the spirits dwelling in the holes to get out and disappear’ (Huender 1929:518).

Purification ceremonies were also commonly performed just before entering a newly finished building, and there are sources indicating that one purpose was to get rid of remaining traces of tree-life. On Tanimbar, before entering a newly built house, a shaman would search the dwelling from bottom to top to make sure that no spirits were hiding, for instance ‘forest spirits that have come along with the trees in which they dwelled when they were still in the woods’ (Drabbe 1928:158). Similarly, in a part of Nias, care was taken at the inauguration of a house to get rid of what was called the \textit{lakhömi} (spiritual potency) of the tree that might still adhere to the timber. The wife-givers, who were charged with this, would ‘address each part and ask the \textit{lakhömi} to vacate it’ (Beatty 1992:275).

Ceremonies intended to rid the timber of tree-life were often also performed when erecting the ritually most important post or posts. In the above-mentioned case from northern Thailand, the wood of all posts was first exorcized by using spells, by driving nails into them (a sort of metal deposit), and by attaching a magical formula to them. Then the offering trays were placed in the holes dug for the two principal posts, and when these posts were erected, a rite was performed called ‘tying the soul of the principal posts’. In this rite the soul of each of the two principal posts (male and female) was ritually ‘called and fixed with the post, which [had] already been cleared of other presences and powers’ (Turton 1978:116-7). Later on, when the finished house was entered, the exorcism of the wood was repeated by again driving nails into all the posts, this time in a hierarchical order. Together with offerings, a shirt belonging to the head of the house was fixed to the male post, suggesting that, in contrast to the exorcized powers, the soul invoked and ‘tied’ to the two principal posts was of a human-like kind. This example is from Thailand, but to dress the main posts at the inauguration of a house was a custom also known in Indonesia (Waterson 1990:126). On Roti, for example, pieces of clothing were hung on this special post, a golden string was tied around it, and it was said that the post’s appearance ‘must be like that of a king’ (Van de Wetering 1923:493).

On Bali I was told that when a new house is ready but not yet used for sleeping, \textit{alang-alang} grass is tied to the corner posts to prevent the \textit{butakala} spirits from getting inside and taking possession of it. Before going to sleep
in the new house for the first time, a ceremony is performed and a mantra is recited in which the wood is addressed and the spirits are asked to return to the forest. Then a cross is smeared with chicken blood on each of the four corner posts and a metal coin is attached to them. The chicken blood and the coin are said to prevent the spirits from returning. On a later occasion, when I asked the same informant why the spirits are sent back to the forest, he looked up to the large roof of the open hall in which we were sitting, pointed to the many well-arranged and nicely tied bamboo rafters and laths, and said, somewhat dismayed at the stupid question: ‘See, this is not a forest, this is a house!’ And he put great stress on the word ‘house’.

L.E.A. Howe (1983:153-4) describes a variant of the same rite according to which chicken blood, charcoal, and lime are smeared on the four corners of a building, these substances being compared respectively to the sap, the heartwood, and the softer wood between the heartwood and the bark. ‘Whilst this is being done by an assistant the priest prays for the life to return (teka urip) to the materials and for any curses to be removed’. Animal blood, charcoal, and lime are ritual purifiers, so their immediate function is to free the timbers of the last traces of their former tree-life. The blood is apparently meant to purify the sap, the charcoal the heartwood, and the lime what surrounds the heartwood. As the three substances smeared on the corners of the house are thought to prevent tree-life from returning, they can be said to sustain the new life which the wooden elements have acquired during construction.

Bringing a building to life

In Bali, as Howe (1983:139-40) points out, this other kind of life is due to various ways of ‘bringing to life’ a building:

a)  (i) the buildings within a compound are set out in accordance with a cosmological scheme, the nawa sanga, (ii) the house, as a unit, is constituted of parts each of which is analogically related to a part of the human body;

b)  the limbs of the owner’s body are used to derive the standard measurements employed in determining the dimensions of the parts of the buildings;

c)  when the size of any particular part has been so determined a small, additional length known as the jiwa ukuran (“the soul of the measure”) or the pangurip (“life”), is tacked onto the end;

d)  a series of ceremonies to cleanse, sanctify and animate the construction is performed at various points throughout the building process.

Howe has much to say about these different aspects of bringing to life a Balinese building. Note that three of the four categories have to do with art and architecture, the fourth with purifying and animating. What replaces the ‘hot’
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Tree-life in the timber is clearly not a pacified or cooled form of tree-life, but a different kind of life that is akin to human life, that develops in the process of construction, and that is fully there when the house is finished. Eiseman (1990:199), commenting on the same Balinese inauguration ritual, says:

> Once brought to life, the house becomes a living thing. It is no longer made of stone, wood, and grass. It now possesses feet, the foundation, a body, the sasaka [posts], and a head, the roof.

In a certain sense the materials must die – or even be ‘killed’ (Eiseman 1990:199) – before they can be invested with a different life as parts of a house. The Mambai of East Timor express this idea quite literally. They perform a sort of death service for the materials right after cutting them, with the idea that the plants used will be reborn to an altered life with the raising of the posts and the lifting of the thatch to the roof.\(^\text{24}\) That the house is brought to life in the course of construction was also the understanding of Malay informants, who said the house soul (semangat rumah) ‘comes automatically into existence as the various parts of the walls and roof are fitted together’ (Endicott 1970:51; Waterson 1990:115).

To sum up, the sources seem to indicate that the idea of a flow of life and coolness issuing from the ground to pervade the timbers of a house is consistent neither with observed building rituals nor with indigenous statements about how the ‘soul’ or ‘life’ of a house comes into existence. The life of a house apparently does not originate in the life of the materials, but in the way the materials are selected, worked, handled, and assembled during the building process. It is a life that is due primarily to the architectural qualities and their symbolic aspects and that can vary in intensity, depending on design and workmanship as well as on various other factors (Waterson 1990). Yet it would be there even if the house were made entirely of stone or concrete.

Inverted timber orientation

During the last 30 years, discussions of timber orientation have focused on the dwelling-house and on the rule that posts must have their root end below, which seemed to be universally valid. However, in Toba Batak architecture this rule does not apply to the granary (sopo) or the jabu sopo, a special type of traditional dwelling (Domenig 2003a, 2003b). Since the jabu sopo is basically a granary converted into a dwelling (jabu) by the addition of walls around the open platform

\(^{24}\) Traube (1980:312) writes: ‘When pressured, informants identify the precise moment of rebirth with the raising of the plants; the erecting of posts, the lifting of thatch grass to the rooftop. Yet it is clear from the scenario that the grass and trees have been moving throughout the ritual toward a new, altered life.’ As stated at the beginning of this article, I doubt that this interpretation is justified.
below the storage, this exception can be explained as a case of preserving a feature of granary architecture when granaries are turned into dwellings. The question that remains is why the Toba formerly applied reverse rules of timber orientation to their granaries, providing them with posts that have the root end pointing up. Once aware of the phenomenon, one soon finds that ethnographic literature on Indonesia mentions other cases of inverted posts being used with sacred structures or sacred parts of a building, for instance as offering posts, as supports for temporary altars, and as spirit ladders attached to altars (Domenig 2003a:207-9). The ceremonial hall of Sukawana (Bali) even has both normal and inverted timber orientation under the same roof, the inverted orientation being used for corner posts and skirting beams in the most sacred part of the building, which serves as a sort of shrine (Reuter 2002:66-7).

The most likely reason for the occasional use of inverted posts in sacred structures or sacred parts of a building is that inversion reflected the widely held belief that in the spirit world things are reversed and upside down. This explanation has sometimes been given for inverted spirit ladders, such as those added to a temporary altar. However, if inverted ladders were occasionally said to be intended for inverted spirits climbing up to the altar from below, this is probably a misunderstanding. The comparative study of relevant cases leads to the understanding that inverted ladders were meant to be climbed from above by spirits descending headfirst in a spirit world of inverted gravity. When offerings were placed both on top and below an altar, as was often done, some spirits were supposed to get at the offerings on the ground by climbing further down the spirit ladder. In the same sense, inverted house posts were presumably conceived as ‘ladders’ for spirits to climb downwards (Domenig 2003a:210-2).

Space does not allow further discussion of this subject here. Suffice it to note that normally oriented timbers, too, could serve as spirit pathways and spirit ladders. It is as yet impossible to speculate to what extent posts, rafters, and the like were deliberately placed in inverted position in ethnographic times. The existence of inverted timbers probably went unnoticed by observers, and almost no focused research has as yet been done on the subject. It is therefore to be hoped that future field researchers, when inquiring about rules of timber orientation, will also ask about inversions and about exceptions to the rules.

Conclusion

In this paper I have discussed the tree image as it was and still is applied in Indonesia to timber elements of the house when these are orientated according to established rules. I have argued that some of these rules were related to
structural considerations, and that other rules were associated with religious ideas. What was apparently implied in the latter cases was not, however, the idea of a ‘flow of life’ that would pervade the timbers from below, as has sometimes been assumed. Rather, the intention was to orient the timber elements so as to have them pointing in auspicious directions. It was therefore the morphological, not the botanical, aspect of the tree image that was relevant.

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