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Monica Janowski and Huw Barton*

READING HUMAN ACTIVITY IN THE LANDSCAPE

Stone and thunderstones in the Kelabit Highlands

For the Kelabit and Penan peoples of interior Borneo, cosmic power is believed to coalesce in the form of stone. This occurs through both natural processes and human manipulation. What is believed to be 'natural' includes what is seen as the petrification of human dwellings, to produce what archaeologists would regard as natural formations; and also the formation of 'thunderstones' - cylindrical stones on which archaeologists have found traces of sago starch and which they interpret as ancient sago pounders formed by human hand. The ability to manipulate the landscape, including stone, is seen as an expression of the possession of cosmic power, and is valorised by the rice-growing Kelabit. The hunter-gatherer Penan are more cautious about manipulation of the landscape.

Until 2006, the visitor arriving in the longhouse community of Pa' Dalih in the southern part of the Kelabit Highlands in the interior of Sarawak would have arrived on foot or by boat, travelling through the forest. When one author (Janowski) arrived for the very first time in Pa' Dalih, in August 1986, she arrived on foot, with her husband and small daughter. She had walked from Bario in the northern part of the Kelabit Highlands, a walk of between 8 and 12 hours, depending on conditions en route and the physical condition of the walker. Arrival in Pa' Dalih felt very much like an entrance into what Harrison (1959) called a 'world within': a 'humanized' enclave in the midst of forest. Below was spread out a set of buildings centred on two longhouses, a primary school and a small clinic, surrounded by wet-rice fields, buffalo pastures and secondary growth areas. As backdrop, there was a vast expanse of forest, leading up to the mountains at the source of the river, the Kelapang, which flows through Pa' Dalih,.

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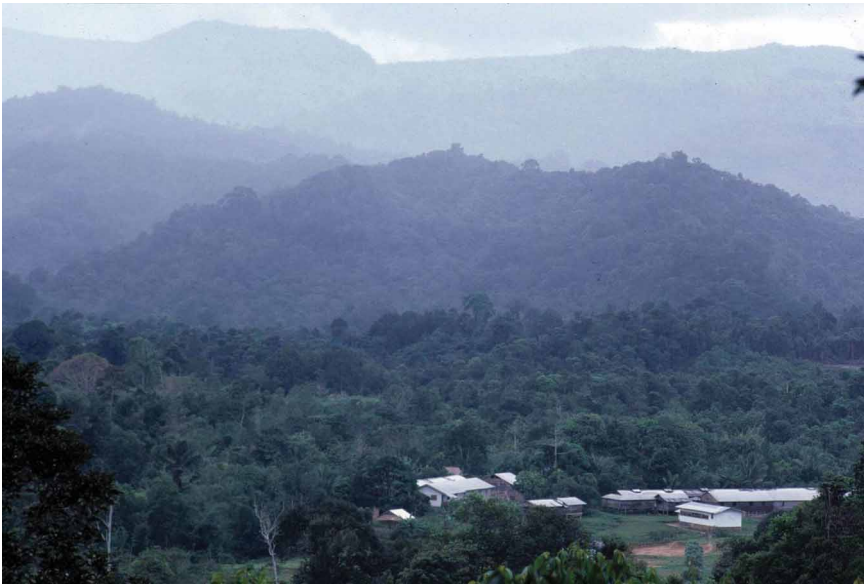


FIGURE 1 The longhouse community of Pa' Dalih in the Kelabit Highlands, with the 'stone longhouse' mountain ridge, Apad Ke Ruma, in the distance. It is believed that the longhouse was turned to stone when its inhabitants laughed at a frog, sending a wave of petrification across the landscape. Photo by Monica Janowski, 1987.

Far away from the longhouse, but apparently immediately behind it, on the horizon, there was – and is – a ridge bearing a resemblance to the roof of the longhouse. This, Janowski was told by the people of Pa' Dalih, is Apad Ke Ruma (Mountain Longhouse). It was, she was told, turned to stone long ago because its inhabitants laughed at an animal. Later, she would learn from informants living in Pa' Dalih that according to old stories it was from up there, high up on the plateau which is the watershed for both the Kelapang River and for rivers flowing down the other side into the Kerayan area in Kalimantan, in Indonesian Borneo, that the people of the Kelapang valley – and indeed all peoples in the world – originated.

The relationship between the living longhouse of the present and that stone longhouse is a vivid expression of the relationship which the people of the Kelapang valley have with their environment and with the past. For the Kelabit people of the communities of the upper Kelapang River, it can be said that the landscape represents a continuum between life and stone. Stone is at the extreme of a progression from and towards hardness, which is both the origin and the end point of life. It represents the coalescence and stasis of the cosmic power (*lalud* in Kelabit) which is seen as suffusing the cosmos and the landscape.

There are two groups of people living in and around the Kelabit Highlands: the rice-growing Kelabit, who also hunt and gather in the forest surrounding them, and the traditionally hunter-gatherer Penan.¹ Both the Penan and the Kelabit 'read' the landscape as a record of the dynamics of the cosmos. This is particularly reflected, for them, in the

¹Since the 1980s almost all of the Penan have settled or become semi-nomadic.

distribution of stone. In addition, the Kelabit also emphasise their interpretation of some kinds of stone as expressing the particular dynamics of the human relationship with the cosmos, and the ways in which humans are embedded in the landscape. Cosmic power is both sought out and manipulated by the Kelabit. The Penan, on the other hand, take a less active role in attempting to 'manage' the power of the cosmos.

Both archaeology and Kelabit tradition declare that some stones in the landscape have been moved around and worked by humans. These include the stone jars and supported slabs of stone in megalithic cemeteries (*menatoh*), the huge mounds of stone scattered around the landscape (*perupun*), and carved boulders (*batu narit*). For the Kelabit, other stone is there through natural cosmic processes. This includes not only stone features which archaeologists would agree are natural, but also a range of what archaeologists would see as stone artefacts, including axes, adzes, and the cylindrical stones which are called locally *batu pera'it* or 'thunderstones'. We focus attention here on one class of artefact, these cylindrical stones, as we have clear evidence that these were used, in the past, as sago pounders.² Today, however, neither the Penan nor the Kelabit read their presence as related to human activity. What appear to our 'modern' (or Euro-American) eyes as objects clearly manufactured by people are instead considered to be objects formed by natural cosmic forces. We would suggest that an understanding of the beliefs about cosmological dynamics behind Kelabit and Penan ideas on *batu pera'it* challenge Western boundaries between 'natural' and 'cultural'. We are encouraged, through a consideration of these beliefs, to rethink how we might analyse and interpret past human behaviour.

This article is based on data derived from research carried out by Janowski in the Kelabit community of Pa' Dalih in the southern part of the Kelabit Highlands since 1986 (Janowski 1995, 2001, 2003, 2004 and 2007) and on data gathered by Janowski and Barton, and by Jayl Langub of Universiti Malaysia Sarawak, as part of a joint project conducted between 2007 and 2011, 'The Cultured Rainforest',³ which drew on anthropological, archaeological and environmental science methods. Much of the fieldwork for that project was interdisciplinary, with anthropologists and archaeologists either working closely together or regularly spending time discussing their findings. One of us is an anthropologist (Janowski) and the other is an archaeologist, and we have been enabled through this collaboration to explore our data in new ways. This has led us to the conclusions presented here.

The archaeological work undertaken as part of the project included digs at the old settlement sites and megalithic cemeteries, and in one of these sites a fragment of a thunderstone was found as part of a wall. Starch deposits on thunderstones collected in the Kelabit Highlands by Tom Harrisson between the 1940s and 1960s and now in the Sarawak Museum were also analysed. Anthropological work included extensive interviews with Kelabit in Pa' Dalih, Bario and also among Kelabit now living on the coast in Miri; and, in collaboration with Jayl Langub, interviews with semi-settled and nomadic Penan in the upper Tutoh River. We have also drawn on interviews

²Huw Barton, personal observation 2008.

³Funded by the UK Arts and Humanities Research Council, to which thanks are due. We would also like to thank our collaborators in Sarawak, the Sarawak Museum and Universiti Malaysia Sarawak, and in particular Ipoi Datan and Jayl Langub. Warm thanks are also due to the Kelabit and Penan who collaborated in the collection of the data presented here.

carried out by Janowski subsequent to her purchase in 1988 of thunderstones from people living in Pa' Dalih, as part of collections she made for the British Museum and Sarawak Museum.

This article aims to examine how attitudes to thunderstones help us to better understand the ways in which people in the highland area relate to the landscape, how they conceive of cosmic forces that shape the landscape and the wider cosmos, and how they view the opportunities available to humans to play a role in the actions of such forces.

Thunderstones in Southeast Asia

Beliefs that stone can carry power, potency or life force deriving from the cosmos, which has become petrified, appear to be worldwide, with such beliefs recorded in Brazil, China, eastern India, Greece, Indonesia, Japan, Malaysia, Spain, Scandinavia, Scotland, Thailand, and West Africa (Balfour 1892: 6). Prehistoric stone tools are particularly likely to be seen as power-laden. In Europe up to the 17th century, they were not recognised as being prehistoric tools, but were thought to be formed in storm clouds, falling to earth with lightning (Goodrum 2008). Beliefs in the origin of these stones in the sky, as 'teeth' or 'thunder teeth', shed by thunder spirits, have been common for many centuries in Southeast Asia (e.g. see Glover and Ellen 1975 for Seram and Beekman, 1999: 240–6 for Ambon). Beekman's book *The Ambonese curiosity cabinet* is a translation of *D'Amboinsche Rariteitkamer*, written in 1705 by the Dutch administrator Georg Eberhard Rumphius. It is interesting to note that Rumphius himself accepted the views of his Ambonese neighbours about the natural origins in the sky of the many varieties of thunderstone which he discusses, presumably reflecting the presence of such beliefs in Europe. Beliefs about thunderstones have also been prevalent on the Malay peninsula and Borneo, and there too such objects were often prehistoric stone tools. They were called *batu lintar*, *halintar*, or *batu petir* (all terms meaning thunderbolts) (Evans 1927: 131). In North Borneo such objects were called *gigi guntor* (thunder teeth) (Evans 1913: 155). These objects could be utilised in a variety of ways, through physical engagement, such as rubbing or scratching, or simply through placing them in a variety of locations where their power could influence natural events. Hose and McDougall (1966: 11) recorded that the Kenyah would hang these stones in longhouse galleries or over the fireplaces in their rooms (many examples from the Sarawak Museum are soot blackened). These stones were believed to have been dropped from the jaw of the thunder god, Balingo, and men would carry the 'teeth' into war. Owners of such stones were recorded as being reluctant to part with them, or even to let others touch or view them (Evans 1913: 156; Haddon 1900: 72). This is still applicable nowadays in the Kelabit Highlands. In 2007 Telona Bala of Pa' Dalih was initially reluctant to show one of us two stones which he described as *batu pera'it* or 'thunderstones', one of the cylindrical type which we will describe as 'conical pounders' and the other a narrow polished stone adze. The latter had been used as a whetstone to sharpen his bush knife, which was also used for pig hunting. When asked the reason for using it in this context, he said it would help in the hunt. He explained his reluctance in allowing it to be handled by others as due to his fear that this might lead to the power (*lalud*) being inadvertently drained from the stone.

The majority of thunderstones from the Kelabit Highlands are conical pounders. These are distinctive and only appear to occur in the interior highlands (Harrisson 1951, 1965). They are cylindrical stones about 30 to 45 cm (12 to 18 in) long with a concavity at one end. Harrisson erroneously referred to these tools as 'cyclons' – a misspelling of a word used to describe Australian ceremonial stones termed 'cylcons' (Harrisson 1951). A total of 69 conical pounders recovered from the Highlands, most collected by or for Tom Harrisson, are now stored at the Sarawak Museum in Kuching (see Table 1). Two more were collected by Janowski as part of the collection she made for the British Museum in 1986–88 (Janowski 2003).

While their use was never documented historically in Borneo, it has long been thought that these items were once used for the processing of sago palm, to pound and shred the pith of the palm trunk to release starch flour (Collings 1949; Haddon 1900;

TABLE 1 Distribution of *batu pera'it* ('thunderstones') in the Harrisson collection at the Sarawak Museum, by origin in Sarawak and Kalimantan

LOCATION	COUNT
Sarawak	
Kelabit Highlands	
Bario	9
Pa' Bengar	1
Pa' Dalih	6
Ba' Kelalan	4
Pa' Mada	7
Pa' Main	4
Batu Patong	1
Pa' Trap	6
Pa' Umor	5
Pa' Mudoh (Remudu)	1
Outside Kelabit Highlands	
Pa' Puak	1
Pa' Tik	1
Lawas	1
Long Lellang	1
Pa' Tengoa (Lower Trusan River)	1
Upper Trusan River	1
Upper Baram River (below Kelabit Plateau)	3
Kalimantan	
Belawit	4
Pa' Bawang	5
No location given	7
Total	69

Harrison 1951), though Sellato (1996) has argued for their use as nut cracking implements. Microwear and residue analysis of a sample from the Sarawak Museum confirms that these tools were primarily used to process palm sago.⁴ A fragment of a thunderstone from an old settlement site in upper Kelapang, Taa Payo, has just been dated (Lloyd-Smith et al. 2010) to about 400 AD, and it would therefore appear likely that the use of such stones as sago pounders dates back to at least that time. Sago is still eaten in interior Borneo by the Penan⁵ and was widely exploited by many groups including the Dusun, Iban, Kejaman, Kajang, Kayan, Kelabit, Punan Ba', Sihan, and the Malays of southwest Sarawak as a secondary food source as recently as 50 years ago (Barton 2011). The main palm used in the interior is the hill sago palm, *Eugeissona utilis* Becc., but other palms may also be used, including *Arenga undulatifolia* Becc., *Caryota mitis* Lour. and *Caryota no* Becc. (Brosius 1993). The coastal Melanau also exploit sago as a food staple, though they rely on a species of swamp sago, *Metroxylon sagu* Rott., originally from New Guinea and the Moluccas (Ellen 2004; Kjaer et al. 2004); and this type of sago is also used by coastal Malay peoples in Brunei. Sago was often the first choice for people when a rice crop failed and is still occasionally used as a supplement to rice.

In Borneo, the Penan pound sago using a large wooden adze, called a *puloo*, made from two pieces of solid timber, while elsewhere in the island archipelago sago-eating groups tend to use tools made from the internodes of bamboo or from wood (sometimes with pieces of metal incorporated into the design). Sago pounders with stone inserts as the cutting edge (usually a conically flaked 'core' with a wide flat surface) were relatively common in New Guinea and also known to occur westwards in the Moluccas (Wallace 2000: 290; and see Ellen 2008 for a review of sago-pounders in different areas). The conical sago pounders from the Kelabit Highlands in Borneo are a rare form; other known examples come from the north coast of New Guinea, sourced to Sissiano and Aitape (Gonthier 1987; Lewis 1998).⁶

However, the Kelabit and Penan do not recognise any of the thunderstones in the highland area as having been created by humans, whether as sago pounders or for any other purpose. Even when informants have been told that sago has been found on them, they have insisted that they were not made by humans, although they concede that it is certainly possible that humans may have found them and once used them to pound sago. For both the Kelabit and the Penan, thunderstones are believed to come into being when cosmic power from thunder and lightning hits the earth.

Penan and Kelabit beliefs about thunderstones

All Penan and Kelabit with whom thunderstones have been discussed by the authors believe that stones are thrown down from the sky during periods of thunder/lightning (described together as *pera'it*) or that they are formed when *pera'it* hits the earth. One Kelabit, Yahya Talla, described to Janowski witnessing one being thrown down, spiralling down a tree and falling to the ground. It is believed that certain kinds of wood

⁴Huw Barton, personal observation, 2008.

⁵For details of sago production techniques by the Penan, see Puri (1997).

⁶Conical pounders from this region of New Guinea held in the Australian Museum collections were also examined by Huw Barton in 2007.



FIGURE 2 Two 'thunderstones' (*batu pera'it*), found by inhabitants of Pa' Dalih at abandoned settlements nearby, and bought from them in 1987 by Monica Janowski on behalf of the British Museum. They had almost certainly been stored in rice barns at the settlements in the belief that they would increase the amount of rice in the barn through their power (*lalud*). Photo copyright British Museum, 2010.

attract *pera'it*, and until recently the use of these in house-building was avoided. Such stones are said to be *batu pera'it* ('thunderstones'), because they derive from thunder. Many informants also said that they are 'teeth of thunder' (*lipen pera'it*), echoing the views of other peoples in Sarawak, Sabah, Peninsular Malaysia and in the Naga Hills in Burma (e.g. Evans 1913; Hose and McDougall 1966: 11; Hutton 1926).

Thunder is believed to have great power (Kelabit: *lalud*; Penan: *penyukat*), and thunderstones are believed to be a concentrated or petrified form of that power. Kelabit and Penan see the cosmos as suffused with power. *Lalud/penyukat* is seen as being essentially the same as life; if something has power, it is alive. Not only plants and animals, but also stones, earth and water are seen to be, in some sense, 'alive' (Penan 'to have life [*urip*]');



FIGURE 3 A stone axe, described as a 'thunderstone', *kara ngkuk*, kept by the Semang of the upper Siang River. Donated to the British Museum by B. Cerruti in 1906. Photo copyright British Museum, 2010.

Kelabit ‘to live [*mulun*]’) and therefore to possess power.⁷ Indeed, stone is seen as the most concentrated form of *lalud* or *penyukat*. As it is believed possible for the concentrated cosmic power in thunderstones to be transmitted, thunderstones were, until the 1960s, kept by the Kelabit in their rice barns, where they were believed to increase the amount of rice in the barn. The hunter-gatherer Penan living nearby used them as charms to enable them to be successful in finding natural resources including rattan and sago, the source of their staple starch. Thunderstones were found scattered in the landscape and may well have been passed down the generations, although we have no records of instances of this. In the Kelabit Highlands, thunderstones were often found at the sites of old longhouse settlements, suggesting that they may have been kept by the inhabitants of those settlements.

Turning to stone: the logic of transformation

Both Kelabit and Penan believe that living entities can transform from one state to another (*balio* in Kelabit). Millipedes are, for example, believed to transform into catfish and snakes into dragons.⁸ Kelabit informants have told Janowski that they have witnessed such transformations.

Petrification is one form of *balio*. It can take place gradually or suddenly. Living things are believed to become harder, more static and more stone-like as they grow older.⁹ Balang Pelaba, an elderly Kelabit who died in 2009, related how the mountain Batu Lawi, to the north of the Kelabit Highlands, was suddenly turned to stone long ago. It was, he said, once a couple with a small child. Another example of sudden petrification is constantly present to the eye for the inhabitants of Pa’ Dalih, in the form of the mountain ridge mentioned earlier, Apad Ke Ruma, Mountain Longhouse. This is also known as Apad Ke Runan, or Runan’s Mountain, because it is said to have turned to stone when a young lady living there, Runan, released a frog with a bell around its neck, at which the rest of the inhabitants laughed. The inevitable consequence of laughing at animals is petrification, and so the house was turned to stone. Runan, who had deliberately instigated this event because of maltreatment of her child by the other inhabitants, escaped and is said still to roam the area around the mountain. Petrification is seen as a potential chain reaction; the petrification event which turned Apad Ke Ruma to stone was said by Baye Ribuh of Pa’ Dalih in 2008 to have swept across the landscape, turning to stone everything living lying in its path. In the tale of Tukad Rini as told by Balang Pelaba to Janowski in 1986 (see Janowski forthcoming b) and as related in another form by Ngemong Raja of another longhouse, Pa’ Mada, to the American poet Carole Rubenstein (1973),¹⁰ the hero and his followers enter inside a huge

⁷Janowski (forthcoming a) discusses Kelabit and Penan beliefs about cosmic power and spirits.

⁸Belief in metamorphosis from one species to another is not uncommon in the region e.g. see Ellen (1985).

⁹This echoes the discussion in Bloch (1993) among the Zafinimary of Madagascar, another Austronesian people, of the hardening of people as they grow older and eventually die.

¹⁰The transcription and translation by Rubenstein is problematic in many ways, containing errors (Maxwell 1989; Rousseau 1989), but it is nevertheless a valuable record of a dying story.

stone which, in Balang Pelaba's version, is also a *balang*, or 'tiger' spirit.¹¹ Inside the stone there is a longhouse full of people with whom battle is joined and eventually won.

Rain, especially heavy rain and thunderstorms, is widely associated with petrification in Borneo (King 1975; Langub 2009; Needham 1964). Hail is described in the Kelabit Highlands as 'stone rain' (*udan batu*); and hail and thunderstones appear to be regarded as essentially the same thing, although thunderstones are bigger. The trigger for petrification, in other words, generally comes from the sky. However, this is itself often provoked by humans laughing at an animal, as happened, it is said, in the case of Apad Ke Ruma. Both Kelabit and Penan, but the Penan in particular since they live directly under trees which may be brought down in storms, are extremely fearful of thunderstorms. One Kelabit woman born in the 1960s, Rinai Adun, told Janowski how when she was young people used to gather any hail that fell inside the longhouse and throw it out to avoid petrification.

For a living human, petrification means death. In the pre-Christian belief system current until the 1950s to 1960s, this meant the passage of the person concerned into the spirit world.¹² The spirit world is believed to co-exist with the normal world. It is, however, normally invisible to the living, although they perceive echoes of it in the shape of voices, smells and sights deriving from spirits. Nowadays most people believe that humans, when they die, do not pass into the spirit world but go to heaven. Informants say that they do not know the location of heaven, but believe that it is in another place, distinct from the normal material world. The spirit world – and heaven – contain much higher levels of power than the visible material world (see Janowski forthcoming a).

Stone, death and the manipulation of cosmic power

While the nomadic Penan simply leave their dead where they die and abandon the camp, the Kelabit place them in cemeteries. In pre-Christian times these were called *menatoh* and were considered to be like villages of the dead. In them, the dead continued to live in the parallel spirit world or dimension, growing rice, keeping chickens and so on. *Menatoh* are at the confluence of one river with another and seem to associate the dead in them with the watershed of the rivers concerned. It was considered vital that the dead be placed at the *menatoh* containing their closest kin, and they would be transported over long distances to be placed in the right *menatoh*. This would often be after some time, and might involve only the removal of certain key bones; the Kelabit practised secondary as well as primary treatment of many of the dead, particularly prominent dead. With the introduction of Christianity from the 1950s onwards, new cemeteries have been established at which the dead are buried rather than placed on the surface of the ground in containers, as they were in the past. These are described

¹¹Tigers do not exist in Borneo, and the translation of the term *balang* as 'spirit tiger' can be queried. However the Kelabit say that the *balang* is the same as the *harimau* in Malay, which means 'tiger'.

¹²Information about Kelabit pre-Christian beliefs derives from interviews carried out by Janowski with elderly informants in the late 1980s, particularly Balang Pelaba of Pa' Dalih, and from information in Harrison's unpublished diaries and notes, held in the Malaysian National Archives in Kuala Lumpur and consulted by Janowski in 2010.



FIGURE 4 The megalithic cemetery, *menatoh*, at Long Diit near Pa' Dalih, where the dead of the settlements in the area were placed until the 1950s when the Kelabit became Christian. Photo by Monica Janowski, 2005.

as *tanem*, deriving from the word for 'to bury'. Most Kelabit say that the dead do not remain in the *tanem* but go to heaven, although some people thought that some dead, who had not behaved well in life, might perhaps remain in the *tanem*.

Menatoh are stoney places. Their focus is stone jars (*batu longon/navi*) and slabs (*batu nangan*), placed in close association, in most cases, with natural outcrops of rock. In the past 200 years or so, and perhaps for longer, the dead were placed in Chinese dragon jars or in hollowed out wooden tree trunks, close to the stones. Stone and death are, then, closely intertwined, recalling Bloch's work on the Merina of Madagascar, also an Austronesian people (Bloch 1971). Soft, young life eventually culminates in the stoniness of death.

The stone jars and slabs within the megalithic cemeteries have now been dated to between 800 AD and 1400 AD (Lloyd-Smith et al. 2010). All Kelabit with which this has been discussed by Janowski believe that *batu longon* and *batu nangan* were placed there by their ancestors long ago, in a time described as *getoman lalud* – 'joining with cosmic power'. At this time, they say, humans were giants and were more powerful and able to manage and manipulate stone and its power in a way in which humans now cannot. Through placing their dead in the megalithic cemeteries which they see as having been created by their powerful ancestors, the Kelabit link themselves back to this time and these ancestors, and also lay claim to the river watersheds in which the *menatoh* are situated.

Besides the stones in *menatoh*, there are other stones in the landscape which are interpreted by the Kelabit as placed there or shaped by their ancestors, recent or distant: monoliths (*batu senuped*), huge mounds of stones (*perupun*) and carved boulders (*batu narit*). Monoliths and carved boulders, and also earth ditches and forest clearings on ridges, are said to have been made at great *irau* feasts in the past.¹³ Monoliths were

¹³*Irau* are focused on one or more shared rice meals provided by the hosts of the feast, which are intended to celebrate the achievements of the host and to confirm and generate status. Until the mid 20th century, they were usually held in association with secondary funerals. Nowadays they are held by grandparents to celebrate the birth of grandchildren, and at them grandparents, parents and children take names.

erected in relatively recent times, until World War II or perhaps shortly after it. They were often erected in pairs, emphasising their association with married couples; couples are associated with the transmission of power (Janowski 2007). Pairs of monoliths are associated with the mountain Batu Lawi, which is in the form of two stone peaks. This is seen as a couple, as discussed above. Carved boulders are mainly said to have been made in the time of 'joining with power', by those giant ancestors with great power. However, at least one boulder was carved in recent years, commissioned from the carver Anyi by the leader of the southern Kelabit in the mid 20th century, Penghulu Miri, to commemorate his father, Penghulu Tinggang. Nowadays, whether they were made in the distant or recent past, monoliths and carved stones are interpreted as marks made to memorialise important individuals at *irau* feasts long ago, by more powerful ancestors. Mounds of stone (*perupun*) are interpreted as having been made at an *irau* held before death by a wealthy person without issue, in order to place his or her wealth underneath it.

All of these are part of a broader emphasis among the Kelabit on making 'marks' (*etuu*) on the landscape (Janowski and Langub 2011). The prominence of a human is reflected in the marks he or she makes on the landscape. Nowadays, permanent wet-rice fields can be seen as modern marks of this kind (Janowski 2004). There are also stone marks associated with the activities of the culture hero Tukad Rini, who lived at the time of 'joining with power' and is believed to have been an ancestor of the Kelabit of the Kelapang valley. Because of his *lalud*, his great power, Tukad Rini's fingers and feet are said to have made marks on stone simply by touching them. He is said to have left footprints on stones in the Kelapang River; a tracing of a spirit 'tiger' that he hunted down and killed, made with his fingers on a huge stone in the river; and marks also made with his fingers on the stone where he cut up the 'tiger'. There is also a stone slab like those in *menatoh* cemeteries, which he is said to have used as a sharpening stone for his knives and which is located near the place where his settlement is said to have been sited. The size of this is said to reflect the fact that Tukad Rini was a giant.

Reading human activity in the landscape

Kelabit see evidence of human activity throughout the landscape. They see groups of stone jars and tables as cemeteries, mounds of stones as created by childless people, *batu narit* carved stones as made at *irau*. In these stones, they see continuity between their world and that of their ancestors. They do not, of course, only see evidence of their ancestors in stone, they also see this in more ephemeral ways: in evidence of old settlements, in the presence of fruit trees deep in the forest, and in the changed vegetation of parts of the forest, used in the past as swidden rice fields. Stone, though, is the most permanent of all of these marks and carries the most weight, imbued as it is with petrified power.

In seeing stones as subject to human agency, the Kelabit are in agreement with perceptions of the ways stones are manipulated which are brought to bear by researchers such as ourselves. Kelabit differ from us in considering that many of the stones simply could not have been moved or worked by ordinary humans nowadays, but only by more powerful people living in the time they describe as *getoman lalud*. The Kelabit also see human history in stone in the landscape in what are, to our eyes,

natural features: ridges of stone on mountain ranges and outcrops of stone. For the Kelabit, there is a fuzzier boundary between stone which is there because humans have manipulated it and stone which is there because of natural processes. It is not an either/or question in Kelabit eyes: humans are part of the natural processes which lead to stone being where it is and in the form it is. It is because they could draw on the power of the cosmos, at the time of 'joining with power', that human ancestors were able to move and manipulate stone. And it is because they misbehaved in relation to the forces of the cosmos that some people have been turned to stone together with their longhouse, with some becoming, for example, the stone longhouse at Apad Ke Ruma. The natural processes which cause stones to be where they are do not exclude human agency; humans are part of those natural processes.

For both Kelabit and Penan humans were, in pre-Christian times, at least, eventually incorporated into the landscape. For the Kelabit, stone is a vital and central part of this process. The human dead, in cemeteries and in stone longhouses, have been incorporated into the stone of the Kelapang valley. Their descendants, through their consubstantiality with those powerful ancestors, become part of the landscape, and this is clearly displayed through these stones. A sense of 'being part of the landscape' has been argued to be important for many peoples throughout the world (e.g. see chapters in Hirsch and O'Hanlon 1995), and this has been explored for closely related Borneo people by Hoare (2002).

The implications of the incorporation of humans into the landscape via stone are expressed through the Kelabit contention that they have rights over any area where a megalithic cemetery, a mound of stone or a carved stone is present, because those must, they say, have been placed there by their (more powerful) ancestors. When groups of Kelabit moved down from the upper Kelapang valley to live in an area outside the highlands between the late 19th and mid 20th centuries, establishing the longhouse of Long Peluan, they found a megalithic cemetery, stone carvings and a mound of stone. On the basis of these, the people of Long Peluan declare that they have more significant rights over the territory than the Penan, who themselves say that they were living in the area when the Kelabit arrived. The Kelabit of Long Peluan say that their ancestors long ago must have lived in this area, must have made the stone marks. They had, in fact, been incorporated into the landscape through these stone marks, and it was therefore theirs. The Penan do not 'incorporate' themselves into the landscape through stone and therefore do not have rights over the landscape, as far as the Kelabit are concerned.

However, the Penan do see themselves as being incorporated into the landscape. This is through leaving the dead where they die, at camps which are at the summit of hills, in watersheds with which they are associated. These are places which are named and mapped onto a landscape of the living and the dead. Penan also point to evidence of their activity in the landscape through their maintenance of sago groves, which are also places of significance that may be named. In discussion with Janowski, some Penan living in the Long Peluan area expressed some indignation at the Kelabit assertion that the area is theirs. This would seem to suggest that they do not share Kelabit ideas about the significance of manipulation of stone in terms of establishing an integration or incorporation into the landscape, leading to rights over an area. This can be seen as reflecting a different way of relating to the landscape expressed through attitudes to and beliefs about spirits on the part of the Kelabit and the Penan (Janowski forthcoming a).

Small nuggets of power

Stone, then, is associated with cosmic power by both Kelabit and Penan, and, for the Kelabit, may be associated with human activity and human presence. Thunderstones, too, are associated with cosmic power, but are not believed to have been shaped by humans, although humans can access the power in them.

Thunderstones are a sub-class of small powerful stones – what one might call nuggets of power. While thunderstones come from the sky, there are other powerful stones which are believed, at least by the Penan, to come from the river, as they told Janowski in 2008. Yet other stones are found in the forest and are sometimes kept by both Kelabit and Penan because they are believed to carry power. Unusual or regular stones are widely kept among peoples in Borneo (King 1975). For the Kelabit and Penan, such stones seem to be a sub-class of a wider category of powerful ‘hard objects’ which include beads, pigs’ tusks and bezoar stones. Telona Bala of Pa’ Dalih has a large collection of unusual hard objects from the forest which is displayed in his house. He has told Janowski that in the 1980s and 1990s he used to actively seek these out in order to access the power he believed might reside in them; in 2011, although he still kept his collection, he said that he had abandoned any interest in their power.

While all stones appear to be considered to be concentrations of cosmic power, some are also believed to be the abode of spirits – *beruen* (Penan) or *ada’* (Kelabit). These are stones which are smooth and undamaged; a number of Penan and Kelabit have told Janowski that once a stone is damaged its spirit is likely to leave the stone. Such stones must be fed with blood.¹⁴ Bernstein (1997) noted in his research among the Taman of Borneo that there is an important class of stones kept by shamans which are seen as the materialisation and petrification of spirits, and which also need to be fed blood. Needham (1964) found in his research in the early 1950s that the Penan used to let blood as an offering to the thunder god. Blood, then, is perhaps to be seen as the food of spirits. Stones kept by Penan and Kelabit are seen as sources of power for their owners, as Bernstein found Taman shamans’ stones to be, but they can also be dangerous to keep. The blood needed to feed them has to be sourced somehow. This is done, according to Balang Pelaba of Pa’ Dalih, himself a shaman who kept stones containing spirits, by killing faraway enemies. However, this requires power in itself. One Kelabit gave the opinion that the reason for a certain other man ‘living weakly’ (*daat mulun*) – meaning that things he engaged in did not prosper – might be that he was keeping a powerful stone. The logic of this seemed to be that he was feeding it insufficient blood deriving from other people, and it was turning on its owner for sustenance.

The fact that thunderstones are often damaged may be the reason why, whilst all Penan and Kelabit informants agree that *batu pera’it* carry *lalud* – cosmic power or life force – there is a lack of agreement as to whether thunderstones have spirits associated with them (Penan: *beruen*, Kelabit: *ada’*). Two of the thunderstones in the Harrison collection appear to have had flakes removed. The importance of an undamaged stone argues against the likelihood that people would have deliberately chipped pieces off a

¹⁴This may well be linked to the pre-Christian practice among the Kelabit of smearing people with blood (*ngelua*), which seems to have been carried out in situations where their life force needed to be strengthened.

thunderstone, although if a piece were to break off it might have been carried around as a lucky talisman. There is evidence from other parts of Borneo that water in which a thunderstone has been washed is considered powerful and that stone-infused water was sprinkled over young rice to ensure the success of the crop (Evans 1913: 156), although we have no instance of this happening in the Kelabit Highlands. The Kelabit are keen Christians and do not now engage in such practices, and it is difficult to retrieve information about pre-Christian practices of this type. There is also some evidence that the rubbing of a stone may transfer some of its power onto other objects. Balfour (1892) records that cock-fighting spurs were sometimes sharpened with thunderstones to increase the likelihood of victory and that kris – wavy knives with great cultural and spiritual significance – might be similarly treated. The use of thunderstones as stone polishers and whetstones appears relatively widespread and those deep black in colour were sometimes used as touchstones to assay gold (Balfour 1892; Moore and Oddy 1985). Telona Bala of Pa' Dalih in the Kelabit Highlands was using a stone adze he considered to be a thunderstone to sharpen his hunting knives in 2011. Several thunderstones from the Sarawak Museum collection have been faceted by their re-use as sharpening stones, and several stone adzes in the Pitt Rivers Museum from Malaysia and Myanmar have distinct areas of smoothing and patches of short-deep scratching. These modifications are clearly a secondary modification, often upon the widest surfaces away from the functioning edges.

Interpreting stone in the landscape

We have noted that while humans are believed by the Kelabit, in the time long ago described as 'joining with power' or *getoman lalud*, to have had the ability to harness the large amounts of cosmic power necessary to work stone, this is not believed to have been relevant to thunderstones. Thunderstones are not seen as having a human origin, but to have occurred through a natural petrification process in which humans did not have a hand. How do we explain this difference? Why is the landscape read differently in relation to different types of stone?

This may simply be related to the amount of time that has passed since the stone was worked. As mentioned above, a fragment of a thunderstone found in what has been identified as an old settlement site in the upper Kelapang, Taa Payo, has been dated to between AD 410 and 590 (Lloyd-Smith 2010). The earliest date for the megalithic cemetery sites and for the stone mounds in the upper Kelapang area, on the other hand, appears to be about AD 800 and the latest 1400 AD (*ibid*). The considerable length of time since the thunderstones were shaped could explain the fact that their original function has been forgotten. Assuming continuity of habitation in the highlands, there is more likely to be a cultural memory passed down the generations of the creation of the megalithic cemeteries, the heaping up of the stone mounds and the carving of boulders. Some of these continued to be constructed until relatively recently. The last stone carving in the Kelapang was in the first half of the 20th century, although this may have been after a long break since the style of carving is different from older carved boulders.

However, it is also notable that thunderstones have a shape which may suggest to the Kelabit and the Penan that they are naturally petrified cosmic force. Their regular and shapely appearance puts them into the class of well-shaped stones, which are believed

likely to be inhabited by spirits. This may contribute to the fact that the Kelabit do not 'read' thunderstones as having been shaped by humans.

Conclusion: stone and power

When the Kelabit and the Penan 'read' the landscape they do not primarily look for human agency. They look, rather, for the flow of cosmic power: for processes of *balio* (transformation), of petrification, of transmission of *lalud* from stones to people, of dangerous contact with *lalud* of stones leading to illness. Humans take a hand in the flow of power, and Kelabit look for signs of this, particularly in the shaping of stone, which embeds humans within the landscape in a way that they see as being highly significant in terms of 'belonging'. This is, for them, part of a bigger picture which is dominated by the flux and flow of cosmic power that includes human actions.

Thunderstones are, for both Kelabit and Penan, one type of stone which expresses the flow of cosmic power. If perfect, they may contain a spirit which makes them particularly powerful. They are not seen as expressions of human involvement in manipulating the flow of power, unlike stone jars and slabs, mounds of stones or carved boulders, perhaps because they do not 'fit' local notions of the ways in which humans involve themselves in the flow of cosmic power. While humans, in the time of 'joining with cosmic power' did, it is believed, shape stone, this did not include thunderstones. The lack of any cultural memory of the use of these stones to pound sago, despite the continuing practice of sago processing, undoubtedly underlies the contention that these stones are natural. However it is notable that informants deny that they could have a human origin. Kelabit and Penan cannot conceive of the possibility that these stones could have been made by humans. For them the nature and origin of thunderstones can be read in the landscape – a landscape imbued with power which flows in certain ways.

Kelabit and Penan views of the flow of cosmic power challenge the assumptions of Euro-American researchers that other people possess, as the researchers' culture does, a clear sense of a distinction between 'nature' and 'culture'. In Penan and Kelabit cosmology, power or life force flows through the entire cosmos, without distinguishing between those parts of it which are alive and those parts which are inanimate, and without distinguishing sharply between parts of the flow which are shaped by humans and processes which do not involve humans. To a Kelabit or a Penan, no part of the cosmos is without *lalud* (Janowski 2012). It is always possible for one thing to turn into another – the transformation which is called *balio* in Kelabit. Petrification is the most extreme, ultimate transformation – into a form which holds power in stasis, in potential, awaiting further flow and movement around the cosmos – and potentially accessible to human manipulation.

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