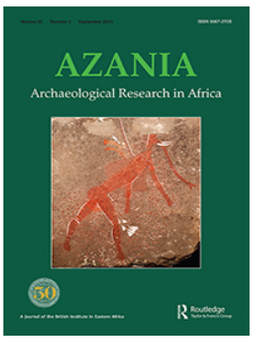

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'The bees are our sheep': the role of honey and fat in the transition to livestock keeping during the last two thousand years in southernmost Africa

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In this paper we suggest a model for how some foragers may have become stock-keepers in the past. Forager beekeepers stay in one place and cultivate a storable and exchangeable product, honey. This desired product has been used by the Okiek forager beekeepers of Kenya to obtain livestock from their pastoralist/agropastoralist neighbours. We believe that amongst foragers such as these the transition to livestock-keeping would not have been as difficult as is sometimes postulated (cf. Marshall 2000; Smith 2005, 2014). We describe parallels between sheep, bees, their products and their keeping, which are informative to the debate. The difficulty for archaeologists is that the archaeology of beekeeping is largely invisible. One exception relates to evidence of interactions between foragers and bees documented in rock-paintings in the uKhahlamba-Drakensberg Mountains, KwaZulu-Natal, South Africa. Here, too, are paintings of sheep that we suggest are old and may represent how foragers thought of sheep during their first encounters with them.

Dans cet article, nous proposons un modèle pour la façon dont, dans le passé, certains chasseurs-cueilleurs auraient pu devenir éleveurs. Les chasseurs-cueilleurs-apiculteurs restent fixes en un endroit, et cultivent un produit stockable et échangeable, le miel. Ce produit très demandé a été utilisé par les chasseurs-cueilleurs-apiculteurs Okiek du Kenya pour obtenir des animaux de leurs voisins éleveurs et agropastoralistes. Nous maintenons que, parmi des communautés de chasseurs-cueilleurs comparables, une transition vers l'élevage n'aurait pas été si difficile qu'il a parfois été postulé (cf. Marshall 2000; Smith 2005, 2014). Nous décrivons les parallèles entre les moutons, les abeilles, leurs produits et leur élevage, qui peuvent informer ce débat. La difficulté pour les archéologues est que l'archéologie de l'apiculture est en grande partie invisible. Les informations fournies par les peintures rupestres dans les montagnes uKhahlamba-Drakensberg du KwaZulu-Natal (Afrique du Sud) constituent l'exception. Ces peintures montrent des interactions entre chasseurs-cueilleurs et abeilles. Ici aussi, on trouve des peintures de moutons que nous pensons être anciennes et qui peuvent représenter la conception qu'eurent les chasseurs-cueilleurs de ces animaux lors de leur première rencontre avec eux.

Keywords: Rock art; bees; fat-tailed sheep; livestock-keeping; honey; traditional beekeeping

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Introduction

In the western half of southernmost Africa, the latest archaeological (Orton *et al*. 2013) and genetic evidence (Schlebusch *et al*. 2012; Breton *et al*. 2014) suggests that a migrating people were at least partly responsible for the introduction and spread of non-indigenous domestic livestock into the drier, western half of the sub-continent. This obviously does not preclude the possibility that some Later Stone Age forager groups were attracted to owning livestock nor does it detract from the question of why some social arrangements are resilient to change, from within and without, whilst others are not. How, then, did some foragers become livestock keepers?

Archaeological evidence is notoriously elusive and archaeologists are constantly required to use their creative imaginations to construct plausible accounts of the past from what they are able to see in the present, whether on the ground, under the ground or on a rock face. This is such an account, initially stimulated by the intensive scrutiny in 2013 (Lander 2014) of paintings of sheep in the northern uKhahlamba-Drakensberg, KwaZulu-Natal, South Africa. We draw on the archaeology of rock art, ethnography and some chemistry to build an argument about the possible connection between bees and sheep and the role of bees in attracting some foragers to keeping livestock.

Rock paintings of sheep and bees

Didima Gorge and the surrounding valleys contain the highest concentration of two types of rock art motifs — sheep and bees — in the uKhahlamba-Drakensberg Mountains of KwaZulu-Natal, possibly in all of southern Africa (Figure 1).[1] In Didima Gorge itself, 39 images of white-painted, and one red-painted, fat-tailed sheep are found, together with some 1500 mostly red-bodied, white-winged bees and related imagery (Pager 1971, 1973) (Figure 2). We consider first the significance of the sheep.

In the debate about the possible adoption of pastoralism by foragers in southern Africa, the archaeological evidence of painted sheep for such a transition has been almost completely ignored. At most they are seen as a marker for the presence of sheep-keepers in the landscape (Cooke 1965). Thus, Forssmann (2013: 67), analysing the occupation of the Greater Mapungubwe landscape at the beginning of the second millennium AD, finds no evidence of herder and farmer settlements on the landscape, although their 'traces' remain in herder rock art and farmer ceramics. He judges the farmer ceramics as 'ample evidence of a farmer occupation', but as evidence of herder occupation the area's herder rock art is dismissed as 'questionable'.

This is not surprising; rock art is commonly disregarded because so little of it has been directly dated. However, to ignore it means that an important piece of the puzzle is missed. Rock art provides a different sort of information. Sheep paintings are one of the few remaining pieces of unequivocal evidence that sheep were in the landscape and that foragers were interested in them. It could indeed be argued that sheep paintings are a stronger type of archaeological evidence because their provenience is secure. They offer us, arguably, the best chance of discovering what sheep meant to foragers.

Despite the lack of direct dating there is some evidence that surviving paintings in the uKhahlamba-Drakensberg Mountains are at least 1500 to 2000 years old, i.e. that they were painted before the occupational hiatus of 1600-600 BP established for the region by Mazel (1989, 1998, 2009a, 2013). On the basis of over 20,000 paintings in the uKhahlamba-Drakensberg, Mazel (1981, 1982) has also shown that there is a distinctive north/south spatial patterning in the rock art of the uKhahlamba-Drakensberg. As Vinnicombe (1976) suggested almost forty years ago, the older paintings are north of the

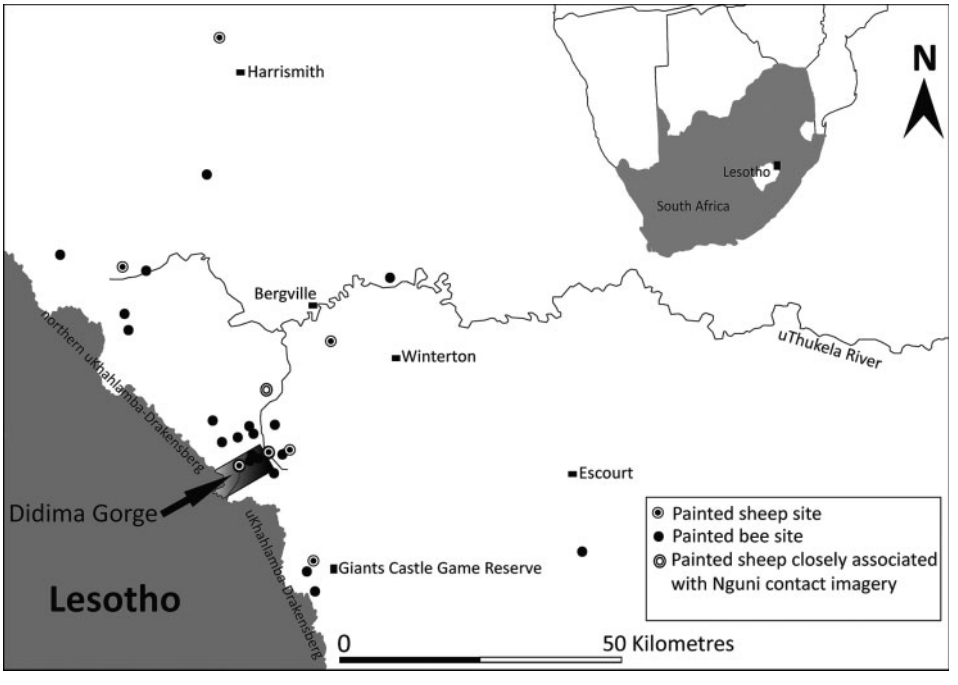

Figure 1. Location of all known sites containing painted sheep and bee imagery in the vicinity of Didima Gorge, KwaZulu-Natal, South Africa.

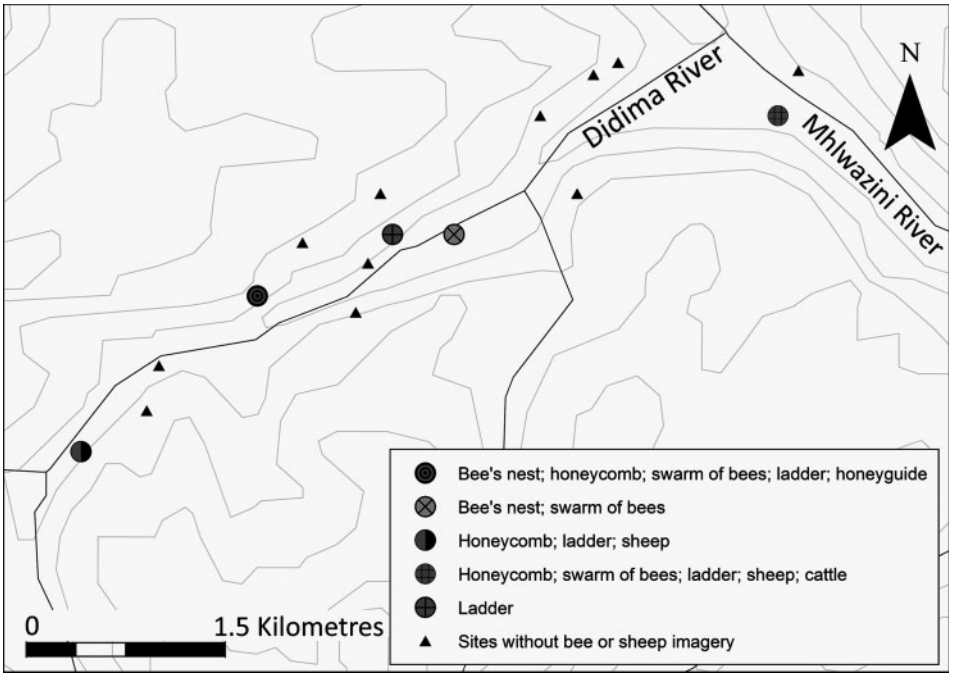

Figure 2. Distribution of painted bees and associated imagery and sheep in the Didima Gorge, uKhahlamba-Drakensberg Mountains, KwaZulu-Natal.

Giants Castle game reserve. These northern paintings contain more sheep, no horses, hardly any colonial or other 'contact' imagery, no rain-making scenes and far fewer cattle paintings. They are also stylistically clearly different from those further south, where paintings of cattle and sheep are commonly associated with the, much more recently introduced, horse (Mazel 1981, 1982, 2009b; Manhire *et al*. 1986). Lander's (2014) more recent study of these northern sheep paintings found that none were associated with historical imagery or with imagery associated with earlier contact with Bantu language-speaking agro-pastoralists. They fit, instead, within what would be considered the typical forager painted repertoire of women clapping, kaross-clad figures, eland, flying buck, etc. Manhire *et al*. (1986) make the same observation whilst arguing for a hunter-gatherer authorship of sheep paintings in South Africa's Western Cape Province. They also note the use of the fine line brush technique and point out that sheep are painted in a similar manner to small antelope and are found within panels containing a wide range of forager motifs, including wild animals. In the uKhahlamba-Drakensberg there is no suggestion that the sheep are being herded (Figures 3 and 4). Rather, they, too, are presented in much the same way as any antelope. Overall, the painters seem to have been interested in the animal, not the humans associated with it (Figure 4).

Sheep in the northern uKhahlamba-Drakensberg are usually painted in monochrome, either red or white (the exception concerns one site at which a sheep is red with white shapes painted onto it (Figure 3)). This reflects a choice by the painter of which hide colour to paint rather than biological reality (Lander 2014). White- and red-haired sheep would have existed alongside those that are a mixture of colours (Epstein 1960, 1971; Clutton-Brock 1994/1995; du Toit 2007; Lundie 2007). Both of these colours, red and white, lend the sheep and these paintings significance. White is associated with supernatural power in nineteenth-century /Xam San thought, as described by Hollmann (2004: 91): 'White is the scarcest of the variations — perhaps its rarity and the fact that this colour is associated with much *!gi*: (supernatural power) made the white springbok a special creature'. Among both the !Kung (Ju/'hoãnsi) San of the northwestern Kalahari and the /Xam, red is also a special colour; it is highly esteemed and linked to things that are beautiful and good (Lewis-Williams and Biesele 1978: 121).

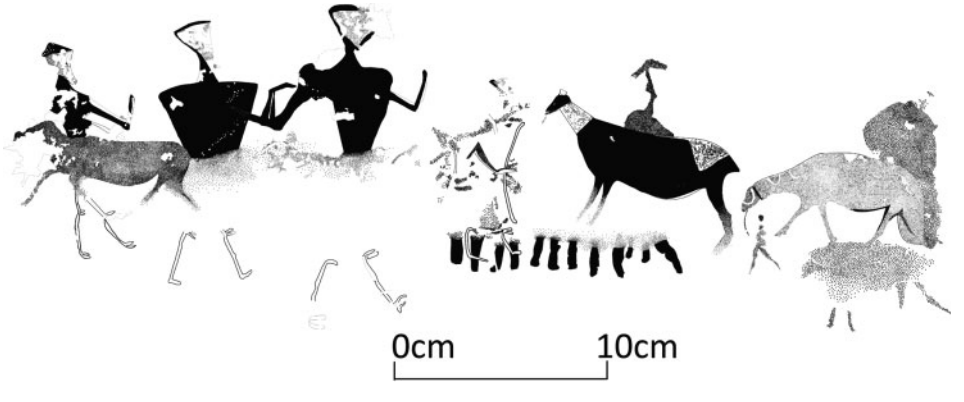

Figure 3. A painted fat-tailed sheep (far right) at Battle Cave, Injasuthi, KwaZulu-Natal, South Africa, in direct association with typical San rock art. This is the only sheep at the site. Note that the sheep has markings that we believe may be brand marks; their position and shape are very similar to those recorded by Russell (2013) among the Turkana of northern Kenya (Lander 2014).

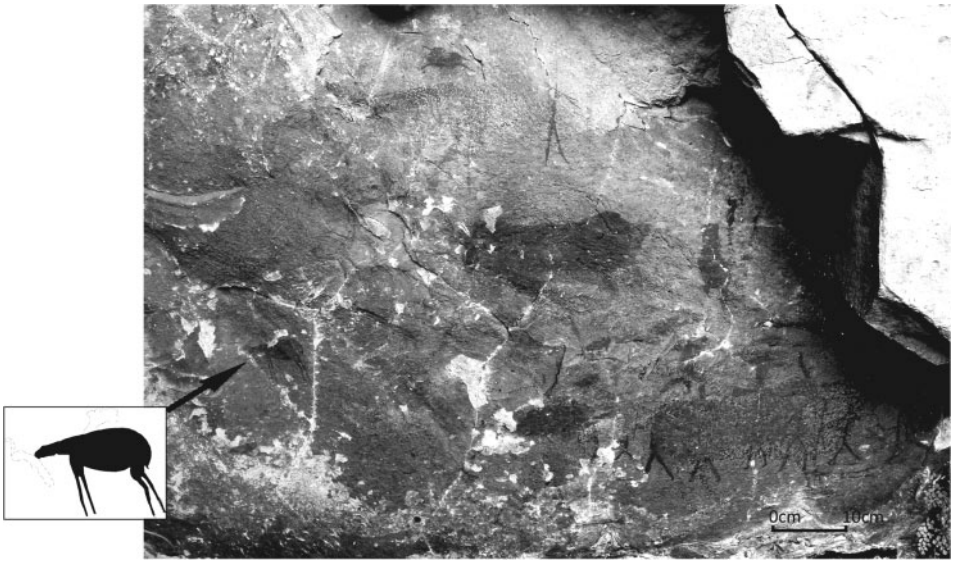

Figure 4. A red painted fat-tailed sheep at Esibayeni (formerly Sebaaieni Cave (Pager 1971)), Didima Gorge, KwaZulu-Natal, South Africa. This was misidentified by Pager (1971: 92, Figure 82) as a buck. Note that it occurs alone. Paintings of eland and humans can be seen to the right of the sheep. The photograph was taken by Cally Thompson.

Recently, Hollmann (2014) has identified in the uKhahlamba-Drakensberg foothills a black sheep painted with a black bull and contact imagery associated with Nguni-speaking farmers (Figure 1). We believe that the age and context of this sheep are different to those recorded by Lander (2014) and Hollmann suggests that it was painted by San who were in contact with Bantu language-speaking farmers. The more recent (post-600 BP) paintings to the south have frequent colonial and farmer images reflecting a history of the meeting of culturally different groups.

Sheep and fat

Besides the desirable quality of whiteness, rare amongst wild animals and potent for the San (Lander 2014), the fat-tailed sheep had another desirable quality: fatness. Fat is of critical importance to the Kalahari forager diet and is very hard to come by (Silberbauer 1981; Rudner 1982; Guenther 1989). African large mammals, with the exception of eland (*Tragelaphus oryx*) and hippopotamus (*Hippopotamus amphibius*), are very lean (Silberbauer 1981; Speth 2012).[2] Schulz and Hammar (1897: 69-70) on an expedition in the Kalahari describe their longing for fat in their depleted diet:

> 'All hunters will agree with me how gruesome the daily meal is without any fat; for game at this season of the year is especially dry, while it is almost impossible to transport fat on an extensive trip like ours — rather would we depend on replenishing our stock from time to time from occasional hippo and eland that might fall to our guns'.

These travellers would not have had access to (nor possibly the taste for) those other more labour-intensive vegetable and insect fats to which the San have recourse. Bleek (1928: 17), for example, says that amongst the Naron (now Nharo) white termites, 'are considered a

great dainty on account of their fat, in which the Bushman menu is often lacking'. Working with /Xam-speaking informants in the late nineteenth century, Lucy Lloyd's notebooks refer to //Kabbo speaking of women processing ant larvae for their fat (Lloyd LII.35.3224-3225). Silberbauer (1981: 274-275) notes that some seasonal esculent plants provided the G/wi San with fat, but that for the most of the year their diet was fat-deficient, while Rudner (1982, 1983) observes that ethnographic and historic references to the San use of fat rarely make reference to its source.

However, beyond diet, fattiness alone does not make an animal special. The reason the eland is special for the San is because, peculiarly amongst African antelope, it is the male that carries the most fat (Lewis-Williams and Biesele 1978: 119; Lewis-Williams 1981a: 72, 2002: 82). A !Kung woman describes the link between male eland fat and young women in the girls' puberty dance:

> 'The Eland Bull dance is danced because the eland is a good thing and has much fat. And the girl is also a good thing and she is all fat; therefore they are called the same thing' (Lewis-Williams 1981a: 48).

Eland fat is supernaturally potent (Lewis-Williams 1981a; Jolly 1986), containing *n/um* among the !Kung (Marshall 1969) or *!gi* among the /Xam San (Lewis-Williams and Dowson 1989: 32). An informant of San descent in South Africa's Eastern Cape Province told Jolly (1986: 7) that the use of eland fat in paint made the paintings highly potent. Recent chemical profiling of black paint from a site in that region has found that burnt animal fat was an ingredient in its manufacture (Bonneau *et al*. 2012), with several direct radiocarbon dates putting it in the range 2120-1890 cal. BP (Bonneau *et al*. 2012: 291). Further north, Prinsloo *et al*. (2008) have also identified fat in paint samples from Barnes Shelter, Giants Castle in the uKhahlamba-Drakensberg. Here, a radiocarbon date from a crust covering red pigment provides a minimum age for the rock art dated at this site of 1060 ± 65 BP (OZD-466) (Mazel and Watchman 2003: 67)).

In the fat-deprived southern African environment, where eland fat is potent, fat-tailed sheep would have been of particular interest to the first foragers who butchered them and found the great amount of fat stored in their tails (Figure 5). They would have noticed that, as with the eland bull, the ram carries the largest quantity of fat (up to 12 kg) (Figure 6) and even a male lamb carries more fat than a fully grown ewe, whose tail can weigh up to 6 kg (Epstein 2014). Previously, Manhire *et al*. (1986: 26), Hollmann (1993: 19), Hall and Smith (2000: 40) and Eastwood and Eastwood (2006: 181) have all linked sheep with the ritual potency of fat, but have missed the association of the greatest amounts of fat with the ram.

Bees and honey

The rock paintings of bees, honeycombs and honey-gathering at Didima Gorge and its surroundings are one of the very few pieces of surviving archaeological evidence that foragers were involved in these activities in southern Africa (Figures 7 and 8). The shapes depicted in these paintings have been compared to those found in rock overhangs in the same area (Lewis-Williams and Challis 2011: 148). Similarly shaped combs would also be found in man-made hives that do not contain frames, such as those described by Huntingford (1929) for the Okiek of Kenya. At sites in Didima Gorge that contain bee imagery there are a high number of painted bags (Aron Mazel, pers. comm. 2013), with Pager (1971) recording at least 50 of them. The association of paintings of bags with sites showing bee and bee-related imagery is strongly suggestive of their use in honey

Figure 5. A demonstration of the amount of fat held within the tail of a fat-tailed sheep. On heating this fat turns permanently into a durable vegetable oil-like liquid.

collecting. Interestingly, ethnographic and historic accounts speak of honey being carried in leather bags (Alexander 1838: 109; Stow 1905: 87).

Kinahan (1991: 57, 1994/1995: 220) notes the presence of modified beehives at sites in the lower Hungorob Ravine, Namibia, the entrances of which were sealed with stones. He attributes these to foragers turned pastoralists and draws attention to the use of pottery in collecting and storing honey. He further suggests that such pots would have acquired ritual rather than a simply functional significance, given the ethnographically known ritual significance of honey amongst foragers. Sullivan (1999: 16, Figure 2) describes the modern day placement of stones in the entrance to wild hives to assert ownership thereof by the Damara of Namibia, while on sand dunes on the South African side of the Mozambique border a Mr Potter discovered a large open pottery bowl with the traces of where five honeycombs had been attached when it was in the upside down position (Figure 9); possibly of Tsonga manufacture, this vessel is now in the KwaZulu-Natal

Figure 6. A fat-tailed ram demonstrating the huge fatty tail.

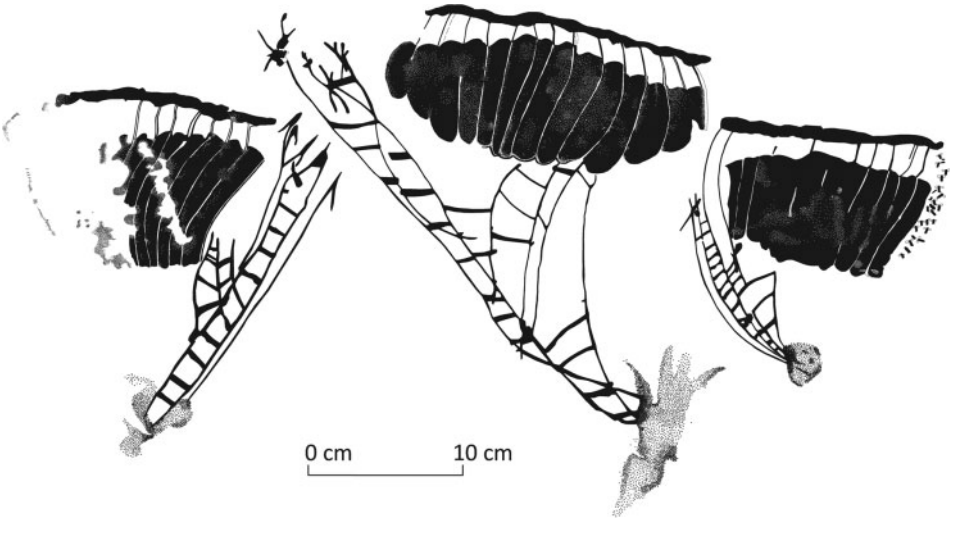

Figure 7. A redrawing of Pager's (1971: 352, Figure 389) copy of a rock painting at Anchor Shelter, Didima Gorge, KwaZulu-Natal, South Africa. On the left are red-bodied, white-winged bees flying close to a hive. Ladders lead to the hives. Stow (1905) describes how San used ladders made from projecting pegs, long leather thongs, fragile wooden supports and platforms.

Figure 8. Two painted honeycombs at Brotherton Shelter, Cathedral Peak, KwaZulu-Natal, South Africa. Human figures are seated below the lower honeycomb.

Museum, Pietermaritzburg, South Africa (Accession number 87/8, National site 2632DD 008). A description recorded in the collection catalogue states that a Mozambican informant told Mr Potter that vessels with holes in them were used as beehives and that similar bowls were made in Mozambique until the 1970s.

There are several other historic and ethnographic accounts of the importance of bees and their products to foragers. In the Bleek and Lloyd digital archives, containing the thoughts of late nineteenth-century /Xam San, there are 93 references to honey, 18 to bees, three to honeycombs and one to a *!goin-!goin*, which /Han≠kass'o, one of her informants, explained to Lucy Lloyd was 'beaten to attract the abundance of bees and provide honey for the people to eat' (Lloyd: LVIII.1.6108-6127). In these accounts bees and honey are connected to potency, trance, transformation and creation (Lewis-Williams and Challis 2011). For example, the bull eland grows from a shoe whilst fed on honey and bee brood (Lloyd: LII.4.489-493, 504-519). /Xam San also said that the hartebeest (*Alcelaphus buselaphus*) was red because Kaggen, their creator-trickster deity, once fed it with the red comb of young bees (Vinnicombe 1976: 195). Schapera (1930: 204) describes a bee dance amongst southern Bushmen (i.e. /Xam) in which the dancers mimic a swarm of bees in dance and song, while performance of a similar dance has been described among the !Kung, who use it to harness the bees' supernatural potency when they are swarming (Marshall 1969; Lewis-Williams 1982, 1985, 1986, 1988a). The association between bees and trance is also suggested by the humming sound that bees make and that people in trance often hear (Lewis-Williams 1985: 80, 1988a: 11; Dowson 1989: 92). Katz (1982: 94) specifically notes that bees contain potency among the !Kung and in a rock painting at Ebusingata, KwaZulu-Natal, a man shown bleeding from the nose is depicted carrying honeycomb and surrounded by bees (Woodhouse 1987), thereby connecting the notions of trance, honey and bee potency. This linkage recalls the juxtaposition of eland and bees in the rock art of the uKhahlamba-Drakensberg (Pager 1971: 148) and Lewis-Williams (1997: 202) connects them by their smell (of honey). Overall, the connection between bees (and bee symbolism) in the rock art and potency can thus be considered well established (Pager 1973; Lewis-Williams 1981a, 1981b, 1985, 1986, 1988a, 2002, 2013; Dowson 1989; Yates and Manhire 1991; Lewis-Williams and Challis 2010, 2011).

Further to this, the !Kung believe that the wife of the Great God is the mother of the bees (Lewis-Williams and Pearce 2004: 114), while Schapera (1930: 184), noting the dietary importance of honey, reported that a !Kung deity eats 'honey, locusts, fat flies and butterflies', all of which occur superabundantly in his dwelling place in the sky. The power of bees is also attested by Marshall Thomas (1959: 253), who recounts being stung by a swarm of bees that were seeking their revenge after an earlier honey gathering foray with some !Kung ended with many bees being burnt to death by the fire used to smoke their nest; the San were not surprised as bees are 'magic', 'medicine' creatures. Consistent with this Bleek (1928: 7) records that the Naron (Nharo) believed that honey touched by a baboon causes death if eaten, while Silberbauer (1981: 76) notes that though they collect honey infrequently the G/wi of the central Kalahari nevertheless possess considerable bee lore.

It is assumed in all these accounts that honey was 'gathered', and Vinnicombe (1976: 97) records the story of the nineteenth-century San leader Melikane who fell to his death whilst attempting to gather honey high on a cliff face in highland Lesotho, an event otherwise said to have been associated with Soai, another nineteenth-century San chief (Mitchell 2010: 159). Vinnicombe (2009: 179, note 4) herself noted that unravelling the truth behind these stories is now impossible, but argued that paintings of human figures carrying forked sticks may depict people collecting honeycomb (Vinnicombe 1976: 264). East African ethnography, however, describes the way other foragers have instituted a more systematic control over bees and their products: they have become beekeepers, with significant consequences for their life style.

From honey-gathering to livestock ownership via bees

Bees can be cultivated in one place over many years. Bee-keeping goes hand in hand with concepts of ownership, inheritance, territoriality, reduced mobility and the need for a technology to store honey and to house bees. Honey itself is a durable, exchangeable product that requires storage and it also makes other products more storable: for example, meat preserved with honey can be kept for up to three years (Micheli 2013: 63). Beekeepers thus practise a delayed return economy such that their society begins to resemble that typically associated with agropastoralism. Among foragers like these, the acquisition and keeping of livestock might thus be less difficult than usually imagined (for example, by Smith 1990, 2005).

Amongst the Samburu in East Africa, it is forager beekeepers, and not pastoralists, who are seen to have the strongest rights to land (Spencer 1973: 205). Describing the Masula, a segment of Samburu pastoralist society with forager-beekeeper ancestry, Spencer (2004: 287) says that these Masula, with their stronghold around Mount Ngiro 'are the only Samburu to claim exclusive ownership of land and water, based on their local rights as beekeepers'. Similarly amongst the Suiei, another East African forager group, land and certain trees are individually owned by men who have the sole right to cultivate bees there. The owner may allocate its use to others, even strangers, but on his death, the land and trees are passed to his sons (Spencer 2004: 283). Spencer (2004: 283) estimates that on the Mathews Range of Kenya, where the Suiei live, land is allocated at about 2 square miles (approximately 4.5 km^2) per adult male, but that across their entire range, which covers some 920 km^2, not all the land is suitable for bee cultivation. Writing of yet another East African forager group, Blackburn (1996: 210) notes that 'The Okiek share with the Kikuyu (cultivators) a stationary food source which ties families to specific

places for long periods of time'. This connection between permanence in place and bees is echoed in southern Africa by Stow (1905: 87), who describes:

> 'Bushmen who still clung to the land of their fathers returned regularly during the summer to their old haunts, for the purpose of examining and taking as much honey as they required from the swarms of bees which had occupied the same hollows and crevices from time immemorial'.

Of all these beekeeping African foragers it is the Okiek who have been studied in most detail. They live in scattered pockets across Kenya, mainly in the high altitude forests (Huntingford 1929, 1942, 1955; Blackburn 1971, 1973, 1974, 1982, 1986, 1996; Kratz 1980, 1986, 1988, 1989, 1993, 1994; Woodburn 1982, 1988; Distefano 1990; Marshall 1994; Kratz and Pido 2000; Dale *et al*. 2004; Micheli 2013). There are about 30 to 40 Okiek groups (sometimes described as 'Dorobo') (Kratz 1986). Huntingford studied the Kamelilo, Kapchepkendi and Kipkurek Okiek of the central rift and their relationships with the (agriculturalist) Nandi, while Kratz, Blackburn and Micheli's work refers principally to the Kipchornwek living on the Mau Escarpment in the Narok District, who had close relations with the (pastoralist) Maasai.

Huntingford (1929, 1942, 1955) described the way beekeeping facilitated Okiek foragers' relationships with neighbouring agropastoralists and predisposed them to livestock ownership. They have long been in contact with the surrounding non-Okiek peoples, the Nandi, Maasai and Kikuyu, with whom they exchange honey for metal arrowheads, knives, tobacco, pottery and seeds. Blackburn (1974) notes how dependent the Maasai pastoralists were on Okiek honey, without which they could not complete rituals (see also Kratz 1980, 1988).

When first interviewed in the late 1920s most Okiek still lived in the forest, where their staple foods were hunted meat and honey collected from man-made hives, and the forest itself was divided into territorial sections, the edges of which were marked by paths and rivers (Huntingford 1929). Each family had its own section over which men had a hereditary right (Huntingford 1929; Blackburn 1986.). Land could also be, 'given, sold, traded, lent and in certain circumstances lost or taken' (Blackburn 1986: 62). These rights to land are, however, more accurately represented as rights to its resources: the trees in which hives could be placed, the wood from which hives were made and the honey collected from those hives (Blackburn 1986). Families could also hunt, trap, and gather food on their own land (Huntingford 1955), while hunting outside one's own section could only take place with the permission of the relevant section owner. Huntingford (1929: 348) gives detail of the particular trees used for hives and describes how the leather bags that were made for the carrying and storage of honey could be distinguished by their absence of hair. He believed that they obtained all their pottery from neighbouring Nandi agriculturalists, but later accounts suggest, quite convincingly, that the Okiek made their own pottery (Blackburn 1973).[3] More recently, Micheli (2013: 62) has noted that honey is stored in a secret place in the forest in large wooden containers made from hollowed tree trunks, while Dale *et al*. (2004: 354) observed that leather bags of honey were buried in remote parts of the forest. Large ceramic pots are also used to store honey in caves in the forest and smaller ceramic pots filled with honey are buried there (Kratz 1989: 63; Dale *et al*. 2004: 354). In the home, honey is kept in a small container made from plant material (Micheli 2013: 74) and pots are also used (Blackburn 1971, 1973; Kratz 1989: 63).

This hunting and beekeeping life in the forests was wrenched apart by the British colonial administration, which evicted the Okiek and declared their country a forest

reserve in the late 1920s (Huntingford 1942). The Okiek were moved to share the reserve allocated to the agropastoralist Nandi, but, resisting this, some occupied the land that lies between the forest edge and the boundaries of European farms; though often working on these farms, they continued to have access to the forest to attend to their hives and lay traps (Huntingford 1955).

By 1929 some Okiek, living on the edge of the forest, were growing African finger millet (*Eleusine coracana*) and keeping small numbers of cows, goats and sheep (not more than five to ten head) (Huntingford 1929), but honey remained a central part of their economy. It was fermented and drunk as an intoxicating wine or beer, diluted with water as a nutritious drink, offered in libations to ancestors, bartered with neighbours and used for medicine. Men also used it to acquire wives. It thus had social, ritual and subsistence functions. Blackburn (1974: 146) likens the Okiek relationship to honey to that of certain pastoralists to their cattle, describing it as a 'honey complex', as, 'it is the principal substance of ritual and social communication and exchange'. The Okiek themselves say that their bees know them and that they, in turn, can recognise their own bees (Huntingford 1955).

Between 1927 and 1938 the Okiek started to grow crops more because their access to the forest resources was restricted, but their stated ultimate goal was to acquire livestock (Huntingford 1942, 1955). This was difficult as the Nandi would sell them goats, but not cows. Oxen could be obtained through a very slow process of gift exchange with their Nandi neighbours, but cows were attainable only by the marriage of Okiek women to Nandi men. Such gift exchange starts as a friendship between an Okiot (singular of Okiek) and a Nandi, with the first exchange often being that of honey from the former to the latter. There was no immediate return, but eventually the Nandi would reciprocate, perhaps with a goat. Huntingford (1955: 627) describes a friendship between two men initiated when an Okiot gave a fur garment to a Nandi. This was followed some time later by the gift of an ox from the Nandi. In this way the Okiot built up a small herd, which, however, the Nandi looked after on his behalf in exchange for a share of the milk, for the Okiek have none of the 'cattle customs' of their neighbours, even when they own cattle. Kratz (1986) describes a similar history of the acquisition of stock for those Okiek who had close relationships with the pastoralist Maasai from the 1930s to the 1950s. Stock acquired was often eaten, but those that were kept were lodged with the Maasai, just as among the Nandi. In the archaeological record, stock-owning (rather than stock-keeping) people such as these would be invisible.

These detailed studies allow us to track the Okiek through a time that has seen some of them abandon their forager-beekeeper lifestyle, while others have added livestock-keeping and horticulture onto this repertoire. They provide an example of the kind of transition to livestock-owning that past foragers may have experienced. Among the Okiek a sustained ownership of bees has been institutionalised with long-term consequences for social transformation.

Among Akie foragers of northern Tanzania, who *gather* honey from wild, rather than man-made hives, Bakken (2004: 112) observes similar social and economic organisation to that described amongst the *beekeeping* Okiek. They too are not immediate return hunter-gatherers. Bakken (2004: 113) relates these patterns to the centrality of honey procurement, the ownership of assets (honey), territoriality and inheritance. The Akie have patrilineal rights to wild bee nests in trees within defined clan territories that are themselves inherited in the patrilineal line, while some Akie have now started to keep domestic livestock that they have acquired from neighbouring Maasai for circumcision services or in bridewealth payments (Bakken 2004: 110).

Fat and honey

At a site in Zimbabwe a sheep painted with a honeycomb is interpreted by Huffman (1983) as an expression of the connection between sheep fat and honey, for both are potent and on the banks of the Orange River, South Africa, too, there are rock paintings of honeycomb with domestic stock (Woodhouse 1987). The images of bees and sheep in the rock shelters of the northern uKhahlamba-Drakensberg made us wonder about their connection in the minds of the painters. We found in the recorded statements of twentieth-century forager informants in both southern and eastern Africa explicit parallels between livestock and beekeeping. In East Africa, for example, the Okiek compare the beehive to a cow when saying 'High in a forest tree this Okiek man is "milking his cow"' (Blackburn 1996: 192). Over two hundred years ago in southern Africa Sommerville (1979: 187) heard a comparable metaphor used:

> 'The Bushmen say they never rob a bee nest that belongs to another horde. They informed us that when one discovers a nest he puts a heap of stones as a mark which others hold sacred, for added one, "the bees are our sheep" and we must not rob one another'.[4]

Another account demonstrating the equal worth that southern San attributed to sheep and bees comes from Stow (1905: 356), who said that if a San person found that his hive had been robbed, he would take the first sheep he encountered, though unfortunately no further details are given as to whose sheep that was.

Bees are like sheep in that both are sources of essential foods (see Mazel 1989; Wrangham 2011). Are they also alike because they are owned? Scattered evidence suggests that they are and that this is an ownership that is fiercely asserted. Marshall (1976: 370), for example, recounts how among the !Kung a man was killed for stealing honey from a hive 'which had been found and marked and was therefore owned by someone else'.[5] Stow (1905: 86) likewise recounts that once discovered a beehive became the 'sacred property' of the finder and that the theft of honey from a 'marked' hive could be punished with death; this marking could involve both public marks (for example, a cairn or peg) or private ones (allowing the owner to detect any attempt to steal honey in his absence) (Stow 1905; Barnard 1992: 81). Ownership of honey is also implied by Bleek (1927: 109), who writes of honey being 'traded' by San in Angola, while in the uKhahlamba-Drakensberg Mountains San, like the Okiek, owned hives that could be inherited (Lewis-Williams and Challis 2011: 165-166). Stow (1905: 87) adds that San marked and returned to hives because they believed that they 'had descended from their ancestors to themselves'.

Are bees like sheep because honey is like fat? Both sugar and fat are scarce and valued items in the forager diet. Without honey only small amounts of sugar are to be found in plants, fruits and the resins of certain trees (Russell and Russell 1979: 45),[6] whereas honey would have provided enormous amounts of glucose in short periods (Murray *et al*. 2001; Wrangham 2011). Both honey and fat are linked to !Kung ideas of sex and fertility; to 'eat or drink honey' or to 'eat or drink fat' are, for example, euphemisms for sexual intercourse (Biesele 1978: 927). Furthermore, the eating of either of these calorie-rich foods would make one fat and fat itself is linked to fertility; young maidens, for instance, may be appreciated for the fat that they carry (Jolly 1986).

Biesele (1978: 927) thinks that honey and fat are special foods for the !Kung because of their unique quality of being both liquid and solid: you can eat or drink them, making them simultaneously 'dry foods' and 'wet foods'. Most animal fats melt on heating and revert to a solid state on cooling, but the tail fat of the fat-tailed sheep is one of the few

exceptions since it remains a golden, honey-like liquid, which can be stored without refrigeration for long periods,[7] just like honey (Wrangham 2011). The eighteenth-century naturalist, John Barrow, similarly observed in South Africa's Cape that when melted the fat from the sheep's tail has the consistency of vegetable oil (Clutton-Brock 1994/1995: 164).[8] The two substances are also connected by Galaty (1979) in his discussion of their acquisition from foragers by Maasai pastoralists; both are scarce and require transformation by rendering and brewing. The similarity of honey to fat in the minds of nineteenth-century /Xam is evident in //Kabbo's words to Lucy Lloyd (Lloyd: LII.14.1365-1367), when he speaks of 'the honey's liquid fat' and 'that the honey might become fat', in addition to which there are at least six further references to 'liquid honey', 'liquid fat' and 'fat honey' in the same archive. Back in East Africa and writing of the Okiek, Kratz (1988: 242) links honey and fat by their colour, consistency and sweetness, while the Akie honey-gathering foragers of northern Tanzania describe the rhinoceros and elephant as being as "sweet as honey" because of their fattiness (Bakken 2004: 108).

As with the San, amongst the Okiek fat is associated with women and fecundity, while honey is connected to men (Kratz 1988: 241). The latter is collected in leather bags by men, but then carried by women in baskets to the homestead, where they and their children consume it (Kratz 1988: 243), or to a storage place in the forest (Micheli 2013: 62-63). Honey wine, on the other hand, is made in leather bags by men, and is consumed by older men (Kratz 1988: 242). Amongst the /Xam and Nharo San, too, honey was collected solely by men (Barnard 1980: 116, 1992: 81, 142).

In southern Africa, fat and honey are also linked by colour; they can both be white when solid and golden red when liquid (Figure 10). White is associated with fat in nineteenth-century /Xam beliefs (Lloyd: B.VIII-2.6151-6152) and specific reference is made to eland fat being this colour (Hollmann 2004: 20) (See Figure 10). Bee products fed to antelope by the trickster /Kaggen determined whether they became white (from the bees) or red (from the cells in which young bees are found) (Lloyd: LV.3.4071-4074). More generally, the colour (and taste) of honey depends on the species of nectar from which it is made and can vary from white and sweet (Galaty 1979; Micheli 2013) to yellow, brown and black; it may also be bitter (Micheli 2013).

In sum, both honey and fat can be both liquid and solid. Both are associated with powerful colours (red and white) and are potentially potent. They are scarce, good and sweet (Galaty 1979; Lewis-Williams 1981a; Kratz 1988).

One final quality linking sheep to bees deserves mention: the similarities between beeswax and the tail fat from the fat-tailed sheep. Both are lipids that are solid at room temperature (before boiling), but liquid when heated (Tulloch 1970; Charters *et al*. 1995; Garnier *et al*. 2002). Both can also be used as waterproofing agents (for example, on ceramics or leather (Welbourn 1989: 63; Garnier *et al*. 2002)). Being hydrophobic, fat will also not mix with water, except in the presence of an emulsifier, such as honey. Chemical analysis shows that fat was, at least sometimes, an ingredient in paint (Bonneau *et al*. 2012), raising the possibility that an emulsifier like honey might have been a key ingredient in fat-containing paint to allow it to mix with other water-based substances. Hahn (1879) in fact observed that honey and fat were both ingredients in paint amongst San in Namibia. In the light of the conceptual associations we have discussed above, the presence of honey, like fat, would have made the paint more potent, while it seems unlikely that these parallels in the chemistry of wax, fat and honey would have gone unnoticed by foragers in southern Africa.

Figure 9. A ceramic bowl that has been used as a hive from Maputaland, KwaZulu-Natal, South Africa. The traces of the honeycomb's five attachments are still visible inside the bowl. These are redrawn, bottom right. The photograph was taken by Gavin Whitelaw.

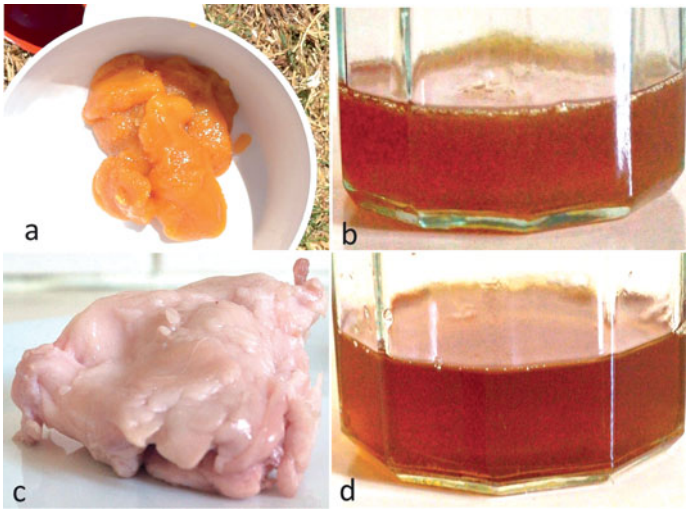

Figure 10. A comparison of *buchu* honey (a and b) and eland fat (c and d). On melting both are dark golden-red liquids that revert to solids, unlike their original forms, on cooling. Though not shown here, the sheep tail fat illustrated in Figure 5 remained as a liquid on cooling (Thembi Russell, pers. obs. 2009).

The suitability of the uKhahlamba-Drakensberg and other parts of South Africa for bees

Wright and Mazel (2007: 62) write that the uKhahlamba-Drakensberg region of South Africa is not suitable for honey production today, but may have been in the past, suggesting that the absence of bee-related rock art in its south may be due to this being a colder and less afforested, thus less bee-friendly, area. However, this is contrary to Fletcher (1978: 157), who describes perennial bee colonies at altitudes of almost 2000 m above sea-level, where temperatures of below 0°C occur over six months of the year and snow is common. In the Thukela Valley of KwaZulu-Natal Fletcher further identifies an indigenous plant, *Isoglossa eckloniana*, that covers a vast area and attracts bees in great numbers when it is in flower. This raises the question of which parts of southern Africa were suitable for honey and bee activities in the past. Bees are found across South Africa, although their colony size and honey production is restricted in less accommodating environments (Johannsmeier 1979). On the Mau Forest escarpment in Kenya, home to the Okiek, bees move between the highlands and lowlands according to rainfall and temperature (Micheli 2013) and a similar pattern could be suggested for the uKhahlamba-Drakensberg. Indigenous forests in the Western Cape, Eastern Cape, KwaZulu-Natal, Mpumalanga and Limpopo provinces of South Africa would all have been attractive to bees in the past (Olivier 2009). For example, the abundance of bees and honey in the forests of the mountains of the southern Cape is described by a European traveller in the eighteenth century (Tribe 1982), while in the less well-watered parts of South Africa (namely the interior and the western half of the country) bees are supported by forests of *Aloe dichotoma* (quiver trees) and nest in the ground and in termite mounds (Johannsmeier 1979; Tribe and Johannsmeier 1996). Bees do, however, need water, but in arid areas this is available from the dilute nectars of *Aloe* spp. (Tribe and Johannsmeier 1996) and their honeycombs are adapted for the mass storage of water (Eksteen and Johannsmeier 1991). Historic accounts confirm this: Sommerville's (1979: 187) description of a San individual gathering honey takes place near Carnarvon in South Africa's arid interior, while further west, and in arguably even drier conditions, Alexander (1838: 109) described the large amounts of bees' wax available along the Orange River and met with a Nama man, who recounted that on a honey hunt he could quickly fill his wagon with skin sacks of honey.

Conclusion

Given their colour, context and potentially early date, it is likely that sheep paintings from the northern uKhahlamba-Drakensberg region of South Africa are based on the first encounters between foraging people and domestic stock (*c*. 2000-1600 BP) and that they represent the profound impact that this meeting would have had on hunters accustomed to being familiar with, and expert in, all the animals they encountered. In addition to potency of their fat (particularly as the ram's high fat content would make it an anomalous creature (see Lewis-Williams 2002: 82)), sheep may have seemed more potent due to their colour, noise[9] and ease of control. Hunter-gatherers may well have thought the sheep to have been influenced and controlled by shamans as wild animals often were to secure a successful hunt, sometimes, so it was thought, by taking on their disguise (Lewis-Williams 1980, 1981a, 1988b; Guenther 1988; Challis 2005; Lander 2014). What would the San have made of animals controlled by (undisguised) humans? It is widely accepted that the fine-line, forager-authored paintings in southern Africa are essentially shamanistic and religious in nature (Holm 1961; Maggs 1967; Vinnicombe 1976; Lewis-Williams 1981a,

1982, 1998; Maggs and Sealy 1983; Yates *et al*. 1985; Lewis-Williams and Dowson 1989, 1990) and that 'non-economic, non-gastronomic factors motivated the painters' (Guenther 1988: 194). These early paintings of sheep should be considered in this light. Manhire *et al*. (1986: 27) make a similar proposition, based on their review of sheep paintings in the Eastern Cape, South Africa, noting that sheep paintings as compared to cattle paintings, 'relate to different sets of prevailing conditions' and that sheep paintings reflect the earlier contact between foragers and herders (see Hall 1986). In the Western Cape the absence of cattle paintings led Manhire *et al*. (1986) to conclude that sheep paintings there are of greater antiquity. Until recently such an interpretation was supported by the absence of early cattle remains in archaeological assemblages, but an early date on a cattle horn from the Northern Cape (Orton *et al*. 2013) may challenge this assumption.

The northern uKhahlamba-Drakensberg sheep are painted without herders and sometimes alone. This emphasis suggests that it was the non-human animals that had the biggest impact on the foragers who first encountered them, and not their human keepers. This is not surprising when viewed in the light of human-animal San relationships as described by Guenther (1988). The domestic sheep was an animal to which the San could make no prior reference, an animal that had not existed in primal time, when humans were animals and animals human. This particular context of sheep painting — singular, unherded, and in association with 'typical' San rock art — may be used to identify older paintings of sheep and may represent the first encounters between foragers and domestic sheep. The paintings may be an expression of the need to understand the new animal and to deal with its potency. They perhaps reflect the minimal impact that a new group of people had on their lives. Today, of course, we *are* interested in the people associated with the sheep. The possibility that they should be linked to the presence in the wider KwaZulu-Natal area of (Khoe-speaking?) pastoralists should not be discounted, even though this has, as yet, only rarely been considered (Mazel 2013; Lander 2014).

The southern African historical and ethnographic records referenced here are accounts of those foragers who remained hunters and gatherers despite many centuries of interaction with food-producing societies. It is thus unsurprising that, in the context of honey procurement, they are more representative of the opportunistic foraging of a people who may not have been strongly tied to place. They represent instead those foragers who successfully resisted and/or rejected the more labour-intensive economies of animal domestication and/or crop production. They are, as a result, historically atypical.

Nevertheless, there is some nineteenth-century southern African evidence to suggest that honey and hives could be owned (Stow 1905: 86-87; Sommerville 1979: 187; Lewis-Williams and Challis 2011: 165-166) and today the Khoe-speaking Damara of Namibia mark wild hives as private property that falls within ancestrally owned lands (Sullivan 1999). More compellingly, data from East Africa reviewed above suggest a strong connection between honey procurement and delayed return economies among several forager groups, notably the Okiek, Masula and Suiei. This is so even in situations like that of the Akie who gather honey and do not construct hives for bees, although they do reseal the holes from which honey is gathered so that the bees will continue to produce honey there (Bakken 2004).

This paper is about how foragers might become livestock-keepers rather than why they would do so (although fat may have been particularly desirable (see Mazel 1989:112)). Honey might have been exchangeable for livestock in the Later Stone Age landscape and Mitchell (1996: 59) has raised the possibility that it was one of the 'invisible exports' in exchanges between farmers and hunter-gatherers in the Thukela Basin of KwaZulu-Natal.

Archaeological evidence almost certainly underestimates its importance in past African diets (Wrangham 2011), although, writing of the material culture of the Piik ap Oom Okiek of Kenya, Dale *et al*. (2004) indicate that residue analysis of ceramics might provide direct evidence of honey processing (cf. Charters *et al*. 1995).

Animal husbandry is not, of course, the same as bee-gathering/keeping. However, foragers who collect honey (from either wild or man-made hives) ensure their long-term sustainable production and are thus practising a delayed return economy (Sullivan 1999; Bakken 2004). Given the intimate understanding that foragers have of the wild animals with which they are familiar, it is not hard to imagine them rapidly grasping how to maintain a herd of domestic livestock if that were their aim. Foragers like those we have discussed already have concepts of individual ownership relating to beehives and honey. They also control access to and inherit the land in which the hives are found or placed; they are more strongly tied to place. Woodburn (1982) has argued previously that the transition to keeping livestock might have been easier among precisely such delayed return forager groups. Given the transforming influence of beekeeping on concepts of ownership, sedentism and exchange among East African foragers, the juxtaposition of images of bees with those of sheep in the uKhahlamba-Drakensberg should not be dismissed as an irrelevance in the context of the adoption of livestock-keeping by indigenous hunter-gatherer groups in southern Africa.

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Notes

1. Crane's (2001: 3) survey of paintings of bees in South Africa shows that they predominate in KwaZulu-Natal, followed by the Western Cape and the Free State. The exact number and distribution of painted sheep in southern Africa is unknown. There are concentrations painted in both the Western and Eastern Cape (Anderson 1996; Manhire *et al*. 1986; Hollmann 1993; Hall 1986; Yates *et al*. 1994; Jerardino 1999), the uKhahlamba-Drakensberg Mountains of KwaZulu-Natal (Pager 1971; Vinnicombe 1976; Mazel 1981, 1982; Lander 2014), Limpopo province (Eastwood and Fish 1996; Eastwood and Eastwood 2006), the Harrismith District of the Free State (Lewis-Williams 1985) and Zimbabwe (Goodall 1946; Cooke 1965; Robinson 1986). Painted sheep are also recorded in Namibia (Viereck and Rudner 1957; Rudner and Rudner 1959; Pager 1993), Lesotho (Vinnicombe 1976) and Swaziland (Masson 2011). Manhire *et al*. (1986) present statistics to show that in the Drakensberg area, Ndedema (Didima) Gorge has the highest concentration of painted sheep. For the Western Cape, Manhire *et al*. (1986) describe eleven sites with fat-tailed sheep. A subsequent discovery by Jerardino (1999) raises this number to twelve. In the Northern Cape Province engraved fat-tailed sheep are described by Morris (1988). Current statistics for the rest of southern Africa are not documented; the most recent review remains that by Manhire *et al*. (1986).
2. Rudner (1982: 29) notes that the gemsbok (*Oryx gazella*) is also a relatively fatty antelope, but does the male gemsbok carry more fat than the female?
3. In southern Africa, among the !Kung-speaking Ju/hoãnsi San of Namibia Kinahan (1994/1995: 220) describes the acquisition from farmer neighbours in the last few centuries of specialised pottery for collecting and storing honey.

4. A similar marking of wild goods is described by Bleek (1928: 37) for the Naron (Nharo), among whom 'a man who finds an ostrich nest with one or two eggs, sticks his arrow in the ground close by as a sign of ownership'. The product was owned, but not the ostrich that produced it.
5. The Okiek too, will kill if anyone steals from their hives. Stealing honey or hives is conceived as the most threatening event in Okiek society (Blackburn 1996: 209).
6. In 1973, Russell and Russell bartered artefacts for sugar and jam as they assembled the UEA ethnographic collection (currently being transferred to the Archaeology Collections at the University of the Witwatersrand, Johannesburg) from Nharo, Ga//na and G/wi San who were wintering on the cattle ranches on the western edge of Botswana's Central Kalahari Game Reserve (Margo Russell, pers. comm. 2014).
7. Soft and liquid fats (like those from the hippopotamus, ostrich (*Struthio camelus*) and the fat-tailed sheep) are also desirable because they are more easily mixed with ochres and applied to the skin and hair than are hard fats (cf. Schapera 1930; Rudner 1982, 1983). They would have been easier to paint with too. Soft fats also taste sweeter and are more palatable: the Hadza of northern Tanzania, for example, report that wildebeest (*Connochaetes taurinus*) fat has the undesirable qualities of being hard and sticking to one's teeth and palate (Speth 2013: 67).
8. Webley and Brink (2006/2007) describe the fat of the tail of a Namaqua Afrikaner sheep rendering to a thick white fat. Further investigation is required to understand why their observation is different to the others described for fat-tailed sheep, but perhaps the animal in question was not a pure bred individual? A recent paper by Alves *et al*. (2013) finds that the tail fat of the Damara sheep has a distinct chemical structure linked to a unique type of lipid metabolism. This may be the property we observed.
9. Mazel (2011) discusses the importance of sound in the Didima Gorge and suggests that there may be a connection between the acoustics of the gorge and the high concentration of paintings there, many of which are of a ritualistic nature. In considering the impact of domestic stock on foragers we have considered the impact of their noisiness. Domestic sheep make a lot of noise, particularly lambs. Bees also make a lot of noise. We wonder whether there may be a connection between the noises made by bees and sheep (and their reverberation through the gorge) and their painting.

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