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Termites, mud daubers and their earths: a multispecies approach to fertility and power in West Africa

James Fairhead, University of Sussex. j.r.fairhead@sussex.ac.uk

Abstract

The termites and mud-dauber wasps of West Africa build earthen structures in which their eggs and larvae develop. This paper examines how these insect earths are understood and used in West Africa, focusing on their direct consumption (geophagy) and medicinal qualities. Existing research reveals these earths to be enriched in minerals otherwise lacking in the diets of the region, and suggests that insects may also introduce anti-microbial properties into them. The paper examines the place of these earths in the lives of those who use them and through a 'multispecies' approach provides new insights into the ecological dimensions to 'religious' thought and practice, and of the respect that these insects command.

Keywords: Termites, wasps, geophagy, anti-microbials, earth, human-animal relations, West Africa, health.

1. INTRODUCTION

This paper focuses on the works of two kinds of insects that in much mythology across Africa were rare witnesses to the creative endeavours of God, and most dramatically of God's creation of people. These are the humble termite of a range of species, and the mud dauber and 'potter' wasps (especially *Synagris spp*. and *Sceliphron spp.*). Their works, however, are anything but humble. First, in a very real sense they enable human reproduction: these two insects transform earth into soils that many pregnant women (and others) on the continent crave and eat and which give them much pleasure. In the modern language of nutrition, these insects enrich the soils in the minerals that are critical to human health and reproduction but which are critically deficient in diets gleaned from anciently weathered, mineral-poor soils across much of Africa (Hunter 1984, 1993, Wiley and Katz 1998, Abrahams 2012, 2013). In certain regions, at least, insect-transformed soils thus appear to be important (perhaps essential) 'mineral supplements.' (Geophagy can carry toxicity and parasitic downsides, and in some situations might even reduce mineral availability (e.g. Njiru et. al 2011, Abrahams 2012) but whether such downsides relate to insect earths remains unresearched). Second, these insects appear to have coevolved with antibacterial and antifungal ecto-symbiont bacteria in their earth constructions which protect their eggs and larvae from infection (Poulsen et al. 2011, Kumar et al. 2012, Madden et al. 2013, Chouvenc et al. 2013, Zhang et al. 2013, Soohyun et al. 2013), and which may explain the widespread but hardly researched medicinal use of these soils by healers across the continent (Van Huis 2003). The language of 'mineral enrichment' and of 'antimicrobial effects' is, however, not a grid within which these enriched earths, the insects that produce them, and their use by pregnant women and healers are known locally. So how, then, are the works of these insects understood by those who use them?

To address this question, the paper takes a 'multispecies' analytical approach (Kirksey and Helmreich 2010) to examine the intertwined lives of people and these insects. First it reviews evidence concerning the uses and properties of these insect earths. It then reflects on the ecological basis to much so-called indigenous 'religious' thought. This approach is inspired by the work of Brian Morris in three ways. First, the analysis is grounded in the everyday experience of these earths, and thus draws on Brian Morris's (2004) attention to pragmatist philosophy and more specifically to his adoption of John Dewey's (1920, 1929) insight that in social life a 'search for security' and optimistic experimentalism usually takes priority over any quest for certainty. Morris is himself very worried by anthropologists and philosophers who forget this when their own academic 'quest for certainties' lead them into idealist extravagance "that undervalues the natural world and bypasses economic and political realities" (2006: 4). Morris is worried, for example, by accounts of medicinal practices in anthropology that, when discerning the significance of ritual and symbolism in therapy, downplay the significance of the experiential efficacy of medical therapy - its naturalistic and empirical component and the intrinsic powers of plants (Morris 2011). This paper quite literally grounds 'religious experience' in experience of earth. Second, this paper extends Brian Morris's attention to insects in food and culture (Morris 2006) by outlining the importance of these insects in producing geophagic and medicinal soils. Third, pragmatic realism leads Morris to discern how human social relations extend to the non-human world whether in relationships with medicinal plants, fungi, mammals or as in this paper, insects. In this sense, Morris has been a pioneer of what has more recently come to be called the 'multispecies' approach in anthropology, or a 'more-than-human approach' in geography. Yet Morris's analysis of these relations takes him far beyond utilitarian entanglements between human and animal worlds, and extends to their emotional and reverential content, which we, too, follow.

Indeed, attention to the affective relations with insects and the earths that they manipulate is not an obscure footnote to an understanding of West African worlds. As we shall discern, across the continent these insects are understood to be key to the forces that shape fecundity and through this, to the powers on which social authority are built. Attention to the use of insect transformed earth, we hope to demonstrate, unlocks a cascade of understanding of religious practices and political institutions across the continent. Without appreciating their ecological basis, those encountering the representation of these insects in 'mythology' have had to treat them as something simply cultural and symbolic, dislocated from any material ecological relations. Attention to the multispecies complex, we want to demonstrate, provides a paradigmatic shift that enables a coherence to be appreciated.

2. METHODS

This paper builds on long term participant observation as part of social anthropological fieldwork conducted in the Kissidougou Prefecture of Guinea for different purposes since 1992 (Fairhead and Leach 1996, 2003a; Leach and Fairhead 2007). Further attention to insect earths has been prompted by preliminary inquiry into the nature of Ebola spillover event in December 2013 thought to have occurred in the stricken village of Meliandou that lies 20km south-west of our earlier fieldwork site (Saez 2014). Reports from our longstanding research collaborator Dominique Millimouno, who is from this locality, drew attention to the geophagic practices of the mother of the one-year-old boy believed to have been 'patient zero', and her consumption of insect earths (Millimouno 2015). We develop here an analysis of this practice, rooted in a review of wider literature. Our aim is not to stigmatise the widespread practice of geophagy with the taint of Ebola. It is quite the inverse: to reveal the much richer ways in which people engage with the ecological worlds and their logics so that

research into zoonotic spillover and the medical use of these soils can build on more informed hypotheses. To this end, the insights from the Kissi speaking region are extended by reviewing the comparative ecological and ethnographic literature that relates to the use of these insect earths across West and Central Africa.

3. ARGUMENT

3.1 Geophagy and insect earths

The consumption of earth, principally by women and children, is practiced throughout much of tropical Africa and beyond (Wiley and Katz 1998; Young et al. 2011). Whereas some clinicians used to consider geophagy simply as a pathological behaviour (a form of '*pica*' – the purposeful consumption of non-food substances) and called for preventive and therapeutic intervention (e.g. Horner et al. 1991), a now large literature reveals several nutritional and medical logics to eating certain earths whether as an antidiarrheal medication (e.g. Vermeer and Ferrell 1985); an antidote to toxins found in plant foods (Johns and Duquette 1991), or as a mineral supplement (Hunter 1984). These interpretations are also found in zoological literatures to explain why a wide variety of mammals and birds also eat specific earths (Abrahams 2013).

This literature reveals that geophagy is not 'one thing', but that different types of soil are consumed for different stated and perhaps adaptive reasons. Consumption is sometimes focused on mineral-poor, but kaolin-rich 'white clays' for which there is a thriving commerce in many African regions (e.g. Vermeer 1966); sometimes on iron-rich red soils (Geissler 2000; Geissler et al 1997), and sometimes on insect-transformed soils.

Geophagy is particularly associated with pregnancy and in some regions the enhanced desire to consume clay is even used locally as a diagnostic criterion for pregnancy (Anell and Lagercrantz 1958). Whilst women's expressed rationales in Kissi and other regions often focus on the pleasures it brings (tasting 'sweet', 'good' and 'smelling nice') or to satiate a 'felt need' or 'strong desire' (e.g. Geissler 2000), these cravings can be attributed, biologically, to quelling pregnancy sickness (especially in the first trimester) or fulfilling a subconscious desire (autonomic imperative) for minerals such as calcium and iron (Hunter 1993). As Geissler points out, however, such desires should not be dissociated from the wider meanings and practices of these soils; from the 'webs of significance reaching beyond the body and its functioning' (2000: 656).

Geophagy is not restricted to pregnant women. In Kissi villages, growing children are regular users and many women divide their earth with toddlers, whether to help them grow or to treat diarrhea. Geissler et al. (1997) found that among the Luo of Western Kenya, for example, three quarters of primary school children and adult women ate earth every day, consuming between 8g and 108g per day (median 28g/day). Luo boys usually stop eating soil when they become men, although it is a hard habit to stop and many continued the practice secretively when older. Girls, however, tended to eat more as they entered reproductive age, stopping (perhaps) at menopause. As Geissler et al. remark, earth eating can therefore be a significant, though neglected marker of life course and its gendered, embodied nature (1997).

In the Kissi-speaking village of Meliandou in Southeast Guinea, white kaolin is sometimes eaten that is sourced from the bank of a particular small stream, but geophagy is otherwise focused on insect earths - on the clays to be found within the mounds of *Macrotermes spp*. termites or the clay nests of two kinds of mud dauber wasps (*Synagris spp*). Hunter (1984)

investigated the mineral benefits that these insect earths bring in a similar, Kissi speaking village just 30 miles away across the border in Sierra Leone. He found that half of pregnant women reported eating soils extracted from termite mounds, and that between ten and twenty percent ate the earth of mud dauber wasp nests (the species reported only as *kinkinda*). Amounts consumed varied from 20g/day to more than a kilo per day, with termite clay eaters averaging 143g/day. Wasp nests were eaten as supplementary snacks of about 20-25g/day, but when used exclusively, consumption reached 80g/day.

The mother of patient zero was about seven months pregnant when her one-year-old son fell ill with Ebola. She consumed insect earth daily and 'copiously', thus presumably at the upper end of this scale. She consumed so much, indeed, that her mother had expressed concern about it to her son-in-law. Like other pregnant women in the village, she used to eat insect earth from several sources. She would peel off and eat the earth-plaster from the internal wall of the houses where she lived (and perhaps of other locations too); a plaster that that was itself made from the interior clay of a *Macrotermes* termite mound but which acquires a distinctive smoky flavour over time when used as plaster, a flavour consumers find delicious. She also ate termite earth sourced more directly from the interior of her family's 'private' termite mound. Third, she regularly consumed earth balls made from the nests of two varieties of mud daubing wasps.

These earth balls are prepared regularly in the village by the head of the women's initiation society, who is referred to as the *Sokonö*. Pregnant women initiates regularly bring to the *Sokonö* the nests of *kinkinda* and *gnörignöria* wasps that they prise from the ceilings and thatch poles of houses, huts and hangars where the wasps are tolerated. She prepares and pounds these nests together with a little water and the leaves of two (unrevealed) plants and

rolls balls from it. Having dried and smoked them over a fire, she returns them to the initiates to eat. Stated reasons for their consumption include avoiding ‘an excess of water around the foetus’ and assisting actual birth. Patient zero’s mother ate these earth balls of the *gnörignöria* nest and shared some with her young children too, including patient zero.

Geissler (1997, 2000) notes in western Kenya that only ‘clean’ soils are chosen for eating. When eating the walls of huts, for example, Geissler reports that people avoid the outer surface of mud huts, which they consider dirty, just as they avoid ‘bitter’ soils from the surface of courtyards and schoolyards where people and animals might step, defecate and urinate. Similarly, in Meliandou, the plaster of inner walls is preferred and the plaster of exterior walls is rarely made from clays derived from termite mounds. Kissi consumers also tend to consume earth from private, individually specific sites. For example, the mother of patient zero used to consume earth from the interior wall of her husband’s house, but at the time of the spillover she was residing at her father’s house, and therefore consuming plaster from the bedroom in which she had grown up. It is the fine clay material inside the termite mound (not the gritty outside wall) that is used to make the ‘edible’ interior wall plaster that is consumed more directly (cf. Hunter 1984: 6).

Termites both enrich their mounds in clays (by translocating fine clay particles that they eat and defecate) and concentrate minerals such as calcium carbonate ($CaCO_3$) (Watson 1974) and other nutrients (Hunter 1984). How this happens is the subject of some debate (e.g. Nagaraju et al. 2013) but the fact of enrichment is not (e.g. López-Hernández et al., 2006; Mujinya et al., 2011). Whilst mineral deposition is perhaps associated with the termites accessing aquifers and facilitating evaporation in their ventilation and air conditioning systems that precipitates mineral salts, recent research suggests that the mineral deposits may

derive from the mobilisation and concentrated deposition of minerals accumulated by organic matter brought to the mound, linked perhaps to the activity of the fungal mycorrhiza that *Macrotermes* cultivate (Mujinya et al., 2011). Not all termite mounds even of the same species are equally rich in minerals, however, although those that are larger and older tend to be (Seymour et al. 2014). Animals that also practice geophagy of termite mounds such as elephants are known to be choosy, for example discerning those that are mineral rich and that are located near aquifers (Kalumanga et. al 2015).

Mud daubing wasps roll and carry small moist clay balls taken from puddles, build multicellular nests, and lay an egg in each cell that develops into a larvae which then feeds on the spiders, grubs and caterpillars that they store there. The wasps identify, paralyze, transport and seal inside the nest their living arthropod prey (Hunter 1984: 6). How the earths are enriched with minerals has not been identified, but Hunter's analysis of both these insect earths reveals higher levels and availability of essential minerals, especially magnesium, calcium, manganese and zinc. More specifically, he found wasp earths to be enriched with magnesium, phosphorous, potassium, iron, cobalt and zinc, whereas termite earths were especially enriched with calcium and manganese. The two types of insect earth thus complemented each other. Standard mineral supplements sold in pharmacies include calcium, magnesium, iron, zinc, manganese, phosphorous, copper, chromium, potassium. As Hunter shows, at the average levels of insect earths consumed, they are particularly significant for calcium, magnesium, zinc, iron, and manganese and so, he argues, Kissi geophagy is 'sensible and appropriate behaviour' (1984: 11) just as he argues it is for geophagy in southern Africa (1993).

Geophagy is not much talked about in Kissi society. During participant observation fieldwork conducted over a full year we overlooked the significance of the holes in the interior wall plaster, presuming them simply to be produced by wear and tear. We remained unaware of the practice until Millimouno (2015) reported it. Children usually pick up the practice by observing their mothers and by being offered soil by them. Mothers in Meliandou usually share the earth with their children if they are present, especially to encourage young children to grow faster. Mothers also feed it to babies and toddlers from the age of 8-10 month as a growth supplement, especially if they are not putting on weight, or to combat diarrhea.

The need for mineral supplements for pregnant women in this region is especially pronounced not only given the frequency of pregnancy, blood losses linked to birth, hard physical work, diets of poverty (lacking meat) and the disease burdens of malaria, intestinal parasites and so on (Hunter 1984), but is associated also with the very low mineral content of the soils and thus of the crops grown on them. The soils in this tropical African region provide an especially nutrient-poor habitat, and for two reasons. First, high rainfall over millions of years has leached out the critical elements from the soils, turning soils acid too, further lowering mineral availability (Ahn 1974). Second, the underlying geology of the borderlands of Guinea, Sierra Leone and Liberia is particularly ancient, being on an Archon (an Archean craton), the most ancient of Earth's lithosphere where the upper crust has been stable for more than 2.5 billion years, and where the highly weathered soils have therefore also not benefited from any geological rejuvenation (Begg et al. 2009).

The challenges of mineral nutrition in these soils extend to wildlife as well as people. Herbivores and frugivores face mineral limitations if their only source of minerals is plant resources and many practice geophagy (Klaus and Schmidg 1998; Oates 1978). Animal

geophagy sometimes focuses on termite mounds, sometimes on wasp nests (e.g. Krief et al. 2015) and for many on certain 'licks' or the plants that grow on them (Klaus and Schmidg 1998). The latter are often associated with intrusions of much more recent plutonic rocks, especially dolerite dykes, that have made it to the earth's surface through fractures in the ancient Archon; fractures that have resulted from plate tectonic movements. When such mineral-rich dolerite dykes weather, they enrich the soils, swamps and the vegetation influenced by them, and these rare sources of minerals often attract animals from long distances (Klaus and Schmidg 1998). Farming on dolerite-enriched soil also addresses human mineral depravation and probably suppresses geophagic desire (Kibblewhite et al. 1984). As Klaus and Schmidg (1998) note, the mineral-rich 'keystone resources' that attract wildlife are often known to hunters who stake out the licks and geophagic termite mounds that animals frequent. They are known too to herders who visit the licks with their cattle or who mix into cattle feed or water either termite earth (Iroko 1982: 64; Van Huis 2003: 377) or (among Sudan's Nuer pastoralists at least) wasps nests (Huffman 1929) to improve cattle health and milk yield. Insect clays also benefit farmers. Among Kissi farmers (as throughout much of the continent) termites and their soil transformations are also thought to render their fields fertile. As Fairhead and Leach (2003b) and Iroko (1996) review, farmers in many African regions observe that crops and vegetation grow more vigorously near termite mounds and choose field locations and crops accordingly. In some instances farmers purposefully encourage termite activity through mulching (albeit in many places also evicting crop-destructive species, even when making use of the mounds). Agronomists attribute the benefits of termites on soils to improved mineral enrichment, soil structure and hydrology.

Geophagic consumption of termite earth is widely reported across the continent. The consumption of mud dauber/potter wasps nests has been documented much more rarely, but

this does not mean it is rare. Such documentation as there is extends from the Congo basin to Sierra Leone (DeFoliart n.d.; Hunter 1984; Adriaeus 1951). The use of wasps' nests to assist birth practices seems to have been carried over with slavery into the New World (Young 2011: 55).

3.2 Other uses of insect earths

To date the impulsion to eat insect earths has been associated with mineral benefits to pregnancy and growth, or with the antidiarrheal and anti-toxin properties of Kaolins. Recent evidence suggests further properties of insect earths. Both termites and mud daubers appear to develop associations with ectosymbionts (especially *Streptomyces* bacteria) located or nurtured in the earths they manipulate that have antimicrobial (antifungal and antibacterial) activity (Poulsen et al. 2011; Kumar et al. 2012; Madden et al. 2013; Chouvenc et al. 2013; Zhang et al. 2013; Soohyun et al. 2013). Wasp earths have been found to be associated with *Streptomyces* that appear to be 'antibiotic-producing symbionts, potentially helping defend their wasp hosts from pathogenic microbes' (Poulsen et al. 2011). For termites the fecal material of which their mounds are built also seems to encourage the growth of certain *streptomyces* that protect their nests against pathogens in an ectosymbiosis defensive mutualism (Chouvenc et al. 2013). *Streptomyces* have many properties (Procopio et al. 2012) and these insect-earth bacteria are now being researched as a valuable source of novel antimicrobials (Poulsen et al. 2011).

Healers across the African continent have long used insect earths in their pharmacopeia, and we can now hypothesize that this draws on the newly discovered antibiotic and antifungal properties of their ecto-symbionts. As van Huis reviews, termite soil is applied (with other leaves) on wounds and inflammations in Chad and Uganda at least (2003: 371). Boils, ulcers

and pustules are treated by smearing a paste of termite soil on top of the wound from Zambia to The Gambia, Sierra Leone to Sudan. Its application 'matures the wound more quickly, so the pus would come out' (2003: 373). Mud dauber earth is used to treat wounds in Liberia (2003: 374). Extracts from the wasp-earth are used to treat sinusitis in Mozambique where healers boil mud dauber nests in water, and when cooled apply the decoction topically (in ears and nose) and orally - a spoon taken for three days (2003: 374). The recently observed antifungal property of these soils is perhaps also drawn on when, for example, mud dauber nest earth is used against ringworm in Uganda (van Huis 2003). In some instances, the properties of these soils are enhanced by placing them in lemon juice or palm oil (Iroko 1996). Despite this tradition of ethno-medical usage of insect earths, potentially for their antimicrobial qualities, there is a dearth of ethno-pharmacological research on their efficacy which is a potential lacuna and a pharmaceutical research opportunity given current research imperatives to discover new antimicrobials.

3.3 Insect earth and the infusion of power

Whilst nutritionists consider the properties of these soils in terms of minerals, medics in terms of antimicrobials, and agronomists in terms of soil structure and nutrients, how are the qualities of these soils and the capacity of insects to produce their effects understood by those consuming, medicating or farming with them? How do they understand the work of these insects that, they consider, infuse into earth qualities that support human reproduction and crop production and which thus support the central human ambitions of fecundity, health and prosperity?

There are prosaic explanations concerning the qualities of these soils, such as 'it heals', 'it alleviates diarrhea', 'it improves pregnancy', 'it helps birth delivery', but there are also other

modes of explanation concerning why these soils have such properties that lie in ecological dimensions of ‘religious’ thought, or rather a collapse of this distinction, as many so-called religious practices, as Morris (2004) observes, are endeavours to control the natural forces that shape prosperity. An entry-point into this are the creation ‘myths’ across the continent in which both these insects feature prominently, and crucially where they feature among the rare creatures created prior to people. This elevated status places them as creatures (a) upon which people depend, (b) that are hierarchically ‘elders’ to people, and (c) that as witnesses or assistants in the creation of people, have knowledge of how the creator enacted such creation – and which if people could learn or harness, would itself confer on them extraordinary powers.

Here are two such creation accounts in which mud daubers feature, the first from Burkina Fasso and the second from Senegal:

> 'God first created the earth from soft mud, then the chameleon and harvester ant, then water and fish, then the cat, the dog, the toad and mud daubing wasp. Only then did He create the first person: it was a blacksmith' (Le Moal 1980).

> 'In the beginning, as God continued his creative work, to guard his secret, he asked his audience to turn away or be blindfolded or face a penalty. All conformed except the mud dauber wasp, which hiding its eyes with its claws, left a space to see what God did to create life. It thus succeeds in defiling the divine secret. But God noticed. To punish his disobedience, he squeezed its body at the waist so thin, that it could neither hold a pregnancy nor pass (give birth to) offspring. Henceforth the wasp was doomed never to know the joy of birth and give rise to descendants through its bowels. But as

> it acquired the divine know-how it builds its nest in which, away from prying eyes, it creates life, it recreates new wasps from wormlike larvae of other insects that it picks up outside and introduces into its nest' (Ndiaye and Clément 1996).

In the latter version, the wasp has divine knowhow concerning the creation of life. In a further variant of this myth, the creator confers the ability to reproduce in this painless way because of the wasp's loyalty, and gives it dominion too, over birds and reptiles and the secret of fire (Frazer 1930). Fire is no ordinary secret – associated as it is across the continent with sex, fecundity and political power (e.g. Moore et al. 1996).

Mud daubers, however, do not feature in traditions so much as termites. In Dogon origin stories, when God created the universe he did it with two assistants, sometimes called his 'wives': the termite and the harvester ant (that store viable grains). Here the termite is prior to creation, extant within the 'egg of creation' and, as Griaule notes, 'the only witness to the creative thought of God' (Griaule et. al. 1991: 205). Termites assisted God, for example, when he was grappling with the problem of Pale Fox, who had stolen the seeds of his creation and taken them to earth. God sent termites and ants to watch over the fox. The ant was ordered to retake the stolen grains while the termite was ordered to divert all the humidity of the initial earth (a primordial placenta at the time) to prevent them from germinating, and to eat any grain which did germinate (Griaule et al. 1991: 208). The termite thus gains a second name, 'the water drawer of God'. This reputation dovetails with farmers' experiences in the region, who hold that termites 'bring water to the surface' (Fairhead and Leach 2003). They recognize, too, how the hollow interiors of termite mounds are cool and their dirt remains damp, and it is for this reason that people sometimes store Cola nuts in them. Termites often build mounds where they detect a water source linking them to life-

giving water. And people who seek to sink a well often choose to do so over a termite mound as they indicate where water is to be found (Iroko 1996).

Iroko reviews these traditions across the continent, showing how termites are construed as intermediaries and messengers between god(s) and people (1996: 195). Because the powers of these insects over human and crop fertility are vested by creative forces, because of the insights they have into the creator's knowledge, and because termites can mediate between the visible and invisible realm, they have acquired an extraordinarily elevated place in power associations across the continent that endeavour to tap into this source of power. Throughout the Mande speaking regions of West Africa, for example, the powers of the termite are central to the preeminent men's initiation and mask societies called *Komo*. This is nowhere better elucidated than in the work of Brett-Smith (1994, 1997, 2001, 2014, but see also Dieterlen et al. 1972; McNaughton 1979). Brett-Smith shows how the trees that are used to sculpt the Komo mask are not simply chosen for their species. What is important is that the trees chosen have grown in association with termites which infuse it with powers. Only blacksmiths are truly capable of sculpting Komo masks, and they choose wood that has come to embody the generative power that derives from growing in a termite mound – or at least having traces of termite activity. They might even prefer to sculpt wood 'riddled with termite damage' for this reason (Brett-Smith 1994). That termites infuse the wood to be used for sculpture with their power fits within a wider aesthetic in which ritual objects are not simply carved and 'finished' but acquire power over time (as people do) through absorbance or infusion over the years of all that is said and done in their presence; all that is poured over and infused into them (Brett-Smith 2001). The sculptor effectively gives birth to the Komo mask that then continues to grow in power. Yet this aesthetic of accretion and infusion of power begins before its 'birth', whilst growing pregnant in the ground; a pregnancy infused

with life-force by termites and that is rendered visible by the earth's swelling into a mound around it (Brett-Smith 2014). At the end of their life cycle, sculptures that eventually acquire too much power for their keepers to withstand can only be safely destroyed by placing them on a living mound to be devoured by termites (Brett-Smith 2001).

Such accretion is not unique to sculptures. Certain living trees acquire these powers and in particular, the Iroko tree (Odum, *Melisia/Chlororphora excelsa*). When associated with termites, this tree uniquely precipitates a white calcite (calcium carbonate) deposit inside its tree tissue, visible under the bark. Termites thus transform the lower trunk of such trees into calcium-rich stone (Cailleau et al. 2011). The termite's calcitization renders it hard to cut, protecting the tree from being felled. As standing trees they become focal symbols of fertility and birth in the region. The powers are recognised by the *djinn* spirits that frequent both termite mounds and the trees that termites infuse with their power (and by other animals many of which are said by those in the region to make use of termite mounds, such as pythons, and pangolins, and by animals said to give birth there, and that acquire protection from predation as a result at their most vulnerable moment). As Brett-Smith details, to fell such a tree one must usually dislodge a djinn that has made it their home – which is very dangerous work. When taking office, those presiding over Komo swear 'an oath [of honesty in use of the powers for the social good] on a red termite mound', and rinse their mouth 'with a liquid containing seeds found in the fine soil taken from the interior of the mound…to invoke the fertilizing power of the ground, the original mother, as witness' (Brett-Smith 1994: 122).

Whilst the centrality of termites for directing the forces of fertility and growth is best documented by Brett-Smith for Bamana, this association is made throughout much of West

and Central Africa, as Iroko (1996) has reviewed. For example, the agro-pastoralist Fulbe of Benin (whose cultural world stretches across West Africa) choose their encampments in areas of many termite mounds, 'signalling the presence of the goddess of fertility, of fecundity and of abundance, a major preoccupation of these farming and herding people' (Iroko 1982: 54).

That termites bring the power of growth and increase - of life - is explicit further south-east on the continent, for example among Bwiti / Fang speakers in Gabon who relate that:

> 'God first divided the sky and the earth, the land from water, the four cardinal points from each other, and made the umbilical cord linking sky and earth. He then created termites - the first animal to increase the earth. Other animals, and eventually man, followed. He charged termites with eating all that is on earth except spirit, turning it into earth… Termites are the elders of all creatures, they furnish the essence of nature, before angels, before all. The termite is the first mason of masons. One says also that God gave a small part of his brain to make the earth, and he confided this to the termites who would knead it... It was the dirt which was in the hands of God, and which fell when God rubbed his hands which gave termites. Things of God are not wasted' (Bureau 1971, my translation).

The bodies of the dead, too, may 'belong to termites' (Dieterlen 1951: 73) that eat their oil, their body and leave behind the white, calcareous bones. Among Bwiti, God instructed termites to eat all the things of the earth except the spirit, which is forbidden to eat' (Bureau 1971).[i] For these reasons, the natural development of a termite mound over a grave can be highly auspicious, indicative of the moral qualities of the dead and those seeking prosperity use such graves as altars (Iroko 1982: 68-69; 1996).

Whilst the centrality of termites to power associations is best documented for Bamana Komo masks, these practices are not restricted to Bamana, or indeed to Komo, but extend throughout much of Africa. Where these are documented, however, it has usually been in a rather haphazard way, in part because these issues are at the heart of closed power and fertility associations and are thus often guarded secrets. Yet researchers discerning snippets of the religious and political significance of termites have not appreciated the ecological logics and everyday experience and practices of the pregnant, the farmer and the wounded when considering the experience of their powers and the logics that derive from them.

These logics are important to many other dimensions of the social, natural and classificatory order. These relate to central aspects of social and political life. First, for example, they help comprehend the way twins are conceived of across the continent. This is best documented in the way Dogon of Mali classify termites and ants, and their linkage with certain trees. For Dogon, certain termite mounds (*amma*) are synonymous with God and altars to God (Calme-Griaule 1965). Dogon classification places plants in 24 categories which each draw correspondences with particular animals (Dieterlen 1952; Griaule 1961). Termites (and ants) are classified together, and in correspondence with a particular group of trees known as *téguzu*. These are principally figs[ii], but more importantly, they have a special quality of being *kunyo*, that is, they give fruits without previously having had visible flowers. This concept is applied, in Dogon thought, also to a woman having successive children without menstruating between them - a menstruation being likened to a flower. Dogon consider such children to be twins, and the fruit produced by these trees thus to represent twins. Within this classification - the Dogon order of things - twins are thus linked overtly and directly with termites and their fecundity. Merely sitting in the shade of these *téguzu* trees can give ordinary people the extra

vision with which twins are accredited: the ability to see djinn spirits (Dieterlen 1952). That this is not unique to Dogon is suggested by McNaughton's insights into the Wasulu chapter of the *komo* society network, which called itself *Torofere*, meaning 'the flower of the Ficus tree.' He asserts that 'the name constitutes a way of praising the branch because the *toro* tree flower can never be seen; only its fruits are visible' (1979: 10). This may well be, but a rather more profound significance of this name may be inferred from the importance attributed above to Ficus trees, termites and twins.

That these logics shape the political order has been revealed in our attention to the Komo societies that shape it. A hint of the wider importance of termites to political relations further afield in the Mande worlds can be discerned even in the names of some villages, for example, of 'Sigipolozu', the chief town of the once prosperous and powerful Waima Toma people living in Forest Guinea. In the nineteenth century, they controlled the interior around the great trade path from Musadu to Monrovia (Fairhead et al. 2003b). 'Sigi-' here refers to the '*tala*, termite mound, and '*-polo*' to the earth. The village name means 'the village from which other villages obtain the termite earth'. This name identifies the town as the most powerful village, and might refer to the origin of a sort of termite mound that was installed around villages, and whose soil was used in the construction of fortress walls to prevent enemy penetration (Toupou 1989). It might refer also to the source of the masks (and their powers) of the men's initiation society.

Both Mondjannagni (1975) and Iroko (1982) note how termite mounds can be seeded (in Benin at least), stressing how this is a specialist and generally secret endeavour:

> '[I]t is this land chief who established the first relations with the land divinity and who installed on this land the divinities of his people. This pact takes the form, among the Aïzo [southern Benin] for example, of burying a piece of termite mound containing or not the termite queen mother. At the place chosen, one pours some millet or maize flour, mixed with palm oil. If, at the end of a few months, the termite mound reconstitutes itself, it signifies that the pact has been favourably registered by the land divinity, in such a case it is the definitive settlement under the authority of the chief of the people who proceeded with the rites of the pact, and who is by this fact the veritable chief of the land, that is to say, the land tenure priest, intermediary not only with the land divinity, but also between all the other divinities and the member of the new community. It is he who is charged with distributing to members of the community, periodically, the new land to clear following precise directions, as a function of the space already occupied by chiefs of surrounding land' (Mondjannagni 1975: 163, my translation, cf. Iroko 1982: 55).

The sensation of pleasure that infuses the body when people consume insect earths acquires meaning within these much wider fields of significance. Indeed the physiological kick that these earths give provides a sensation of what in the Mande cultural world in West Africa is construed as the vital power (*nyama*) said to inhere in every action, every task, everyone and everything that is part of the forcefield of human interaction (McNaughton 1988). In this it is akin, too, to other physiological sensations of vital power that can be felt and become manifest, whether in sexual practices or in the sensations that can be stirred up by speech, music, gifts, hunting and war.

4. CONCLUSION

This paper has focused on the ecological works of termites and mud daubing wasps that support human fertility and healing, and has alluded to the assistance they also provide to farmers and hunters across sub-Saharan Africa. In tracing how they are understood in and through their entangled human ecology we can appreciate better how these insects have acquired elevated status over people in many African worlds. In many instances these are animals that in the 'great chain of being' lie above us humans, having an intelligence that we strive to discern and that give ritual specialists their social and political powers. They have an enviable proximity to the divine.

To date, termites and mud-daubers have been studied (if at all) in the social and natural sciences from a human positionality that ignores this, and that assumes humans to be at the top of the pile, and these lowly, often annoying insects somewhere near the bottom. From this perspective the cultural significance of these insects is cast either within the realm of fables, folklore and tales, or as symbolic, allegorical and mythic, or as the content of 'religious beliefs'. Residing, hidden in these analytical lenses and lexicons, is the legacy of our own 'great chain of being' that since European Classical times has presumed the creator placed humans atop all other animals, with only angels and demons above them. These lexicons and lenses overlook (and demean) the privileged ontological status accorded to these creatures across much of the continent. They rip many African representations from the experiential and biological world that imbues them with the sense and coherence that we have discerned here.

Instead, this paper has taken as its subject matter not people and their societies and cultures, but instead a complex of which human socialities are but one component in intertwined more-than-human socialities (Tsing 2013). These multispecies complexes have perhaps

'coevolved' - if one takes a socially passive Darwinian frame – or could be understood as having emerged from more active, intersubjective engagements, if we take a more humanist line and accept both human and termite agency and intelligence (Haraway 2008). Here, however we have preferred to examine this entanglement as 'co-produced', following and out of respect for the creationist framing of the social worlds described.. But however we envisage it, these approaches sit firmly within and exemplify the emerging anthropological tradition of 'multispecies ethnography' that takes such intertwined existence as its subject of study, not simply 'humans' and their 'culture' and 'society'.

It could be argued that the paper has overstretched its case, spinning together disjointed footnotes into a fabricated coherence, cherry-picking traditions from far and wide across eras to discern a spurious pan-African tradition. This is not the intent. The aim has been rather to draw attention to the very real ecological importance of termites and mud daubers to human life in certain places and at certain times. Geophagy, termite-inspired farming and insect-clay healing are not practiced everywhere. The aim is to open our eyes to the ways that such intertwined existence has come to be understood in some places and at some times, infusing the arts not only of Bamana sculpture, as we have seen, but of architecture too as termites infuse life's fertilizing and protective forces into the termite plaster of a dwelling's very walls, imbuing it with the same forces as a Komo sculpture. We have traced the significance of these earths for understanding the possibilities and practice of social hierarchy, and this applies not just to men's initiation societies. The *Sokonö* who presides over the women's initiation society of Meliandou in a very real way gains authority by enabling the pregnancies of her initiates and the reproduction of the human world through her preparation and distribution of wasp earth.[iii]

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NOTES

[i] Termites are thus like the worms of more temperate climes (and worm casts in more temperate parts of South Africa are the focus of geophagia (Meel 2012).

[ii] These tree are Ficus capensis, Ficus lecardii, Ficus glumosa, Ficus patyphylla, Ficus umbellata, *gegudu*, and *ga*. Within Dogon, apart from the properties examined in the text, these tress cannot be used as fuel (Calme-Griaule 1965).

[iii] These insects are not the only creatures to acquire such pre-eminence in accounts across the continent of 'the beginning' and to have been witnesses to human ancestor's creation within them. We would do well to examine more closely our multispecies relations with the particular ants, chameleons, pythons, fish, and other species that, as our elders, populate so many accounts of creation.