Anthropocenes
HUMAN, INHUMAN, POSTHUMAN

Cahn, L. (2023). Collaborating with a Pest? Recounting an Encounter Between Moles and Archaeologists. *Anthropocenes – Human, Inhuman, Posthuman*, 4(1): 3. DOI: https://doi.org/10.16997/ahip.1435

RESEARCH

Collaborating with a Pest? Recounting an Encounter Between Moles and Archaeologists

Livia Cahn

This piece is about a close encounter between the mole and archaeologists. This is nothing new. Archaeologists are accustomed to taking the "disturbances" that moles produce into account in their working assumptions. Indeed, archaeologists tend to agree with other soil practitioners such as farmers and gardeners that moles are a pest for perturbing soils. The market is abrim with all sorts of pungent flower bulbs, devices that emit vibrations, gas, or explosives that flood, pinch and trap moles. This piece centres on a very specific context, a research group based at Ghent University studying the site of a medieval settlement north of Bruges where archaeologists work with the shards of pottery contained in the soils moles bring to the surface. In their research, the assumption that moles are a nuisance is suspended by engaging molehills in a new but low-tech scientific practice. This piece tackles the wider question of what a pest is by enrolling the practice of these archaeologists into a history of multi-species social science perspectives. It thinks through the dynamics of categories that species come up against and slide in and out of (Haraway 2008). It is, therefore, a piece about more than human species. It is also a piece about soils. The soils that emerge involve many different species and not just humans but other living beings including moles, worms, badgers, insects, and plants. Lending attention to soils brings with it socio-cultural associations, tools such as sieves, and legislations about animals and archaeological digs. Densely inhabited and littered with remnants of human activities and histories, we might call these multi-species social soils.

Keywords: multispecies; soils; reconsidering pests; uncanny collaborations; environmental humanities

Introduction

By burrowing tunnels and shaping mounds, moles move soils. This piece is about the workings of the common European mole (*Talpa europaea*) and its ambiguous cohabitation with humans.[1] The mole's pointed nose, slender figure, long claws, and dark coat are most familiar from illustrations. Sighting a live mole is rare since they tend to stay buried underground. This is a quality the European mole shares with its relatives of the family *Talpidea* and it limits what we, as humans, know about it. Indeed, we are far more familiar with the heaps of soil (aka molehills) that they bring to the surface than the mole itself, without perhaps imagining what sorts of evidence they hold. In children's books, moles are awarded unprecedented levels of tenderness.[2] The mysterious nature and friendly allure of the mole doesn't prevent it from getting on the wrong side of many people. Indeed, a lot has been written about the disruptive nature of moles. Mostly, it is their heaps that dominate discussion. It's not the size of their mounds as much as their recurrence that causes clashes with other soil movers such as farmers and gardeners, as well as geologists and archaeologists. This reminds us that humans are far from the only beings to shape their environments by shifting soils. To different extents, earthworms, ants, tree roots, and moles are all soil movers.

A chief element that contributes to the contempt moles face is that they are very difficult to constrain. Like rabbits, they blatantly escape human control (see Mougenot & Strivay). In this sense, they resemble an invasive species. Invasive species lists tend to identify species that are subjected to eradication measures, yet moles slip through the net of such categories. They are, however, sometimes featured in lists that attempt to limit the suffering animals are subjected to. This is nothing like the protection that endangered species are granted. In the UK, for example, the Animal Welfare Act from 2006 protects moles from being put under 'unnecessary suffering'. In Brussels, strictly speaking, the *Ordonnance du 29 août 1991 relative à la conservation de la faune sauvage et à la chasse*, also protects moles. Yet both in the UK and Brussels, moles are not exempt from all sorts of extermination programmes. In many situations, moles are considered pests; they are trapped, chased, and poisoned.[3] The category of pest is

Rachel Carson Center for Environment and Society, Ludwig-Maximilian University, Germany
livia.cahn@rcc.lmu.de

more tenuous than that of 'invasive species'. Considering the mole through the prism of a pest is fertile ground for thinking through the dynamics of categories that species come up against and move in and out of.

This paper relates a close encounter with moles in the context of an archaeological site that signposts a peculiar relation to this animal. Surprisingly, on a grassy field in Belgium, at the site of a medieval settlement north of Bruges, a team of archaeologists began to work *with* moles. Moles already have a peculiar history of having been drawn into a lucrative industry when they were exploited for their fur by the fashion industry in the 20th century. Framing the encounter with the mole through the lens of 'work' is put forward as a way to question the categorisation of moles as pests. In this recent case, set just north of Bruges, the possibility for the earth-moving workings of moles and archaeologists to come together goes against the usual pejorative associations archaeologists have of moles. Without overturning the negative connotations entirely, the encounter sketches out a reconsideration of the mole and thereby challenge the human-centred categorisation of attributes which result in certain species being considered pests. The complexity of maintaining neat categories helps analyse a reshaping of patterns of relation.

Unearthing Ruins

The group of archaeologists at Ghent University study ports, harbours, and deserted villages near Bruges, Belgium. Their work feeds into a longstanding field of research, which examines why so many villages in this area were deserted during the Middle Ages. It is thought people left these

Figure 1: Molescape. Credit: Lise Duclaux, Sabam 2023 (reproduced with permission).

villages in response to changing economic, political, and environmental conditions. One village, Monnikerede, has been studied very closely for over 40 years to reconstruct its topography at various points between 1450–1850 as accurately as possible; this is done to gain a better understanding of the demise of networks around the port of Bruges. The first 3D topographic models were made in the 1980s, based on occasional protrusions from the ground and cross-referenced with written records such as land tax registers and proto-cadastres, as well as church and city accounts (Trachet et al. 2017a). Later, modern survey techniques, such as micro topography using 3D drone surveying, artefact-accurate field-walking, and GIS-integration systems were used to create even more detailed models that went as far as showing the layout of the village and population estimates. The results of these enquiries have been published and have generated more research questions over the years. Contrary to what one might expect of archaeologists' work, the archaeologists working on this site were never able to obtain permission to conduct a dig there.

There is a consensus in archaeology that artefacts are best preserved when left buried. This position infers that archaeological digs risk damaging ancient remains. The inherent assumption is that future generations of archaeologists will always have more knowledge and more advanced techniques and tools than the generation that preceded them. This makes any dig very contentious (Bahn 2012: 8). Working on the earthworm late in his life, Charles Darwin made an early connection between soil and the preservation of archaeological artefacts, as depicted in **Figure 2**. 'Archaeologists are probably not aware of how much they owe to worms for the preservation of many ancient objects: coins, gold ornaments, stone implements etc.' (Darwin 1881: 176). This observation about the role of the earthworm in archaeology is partly the result of

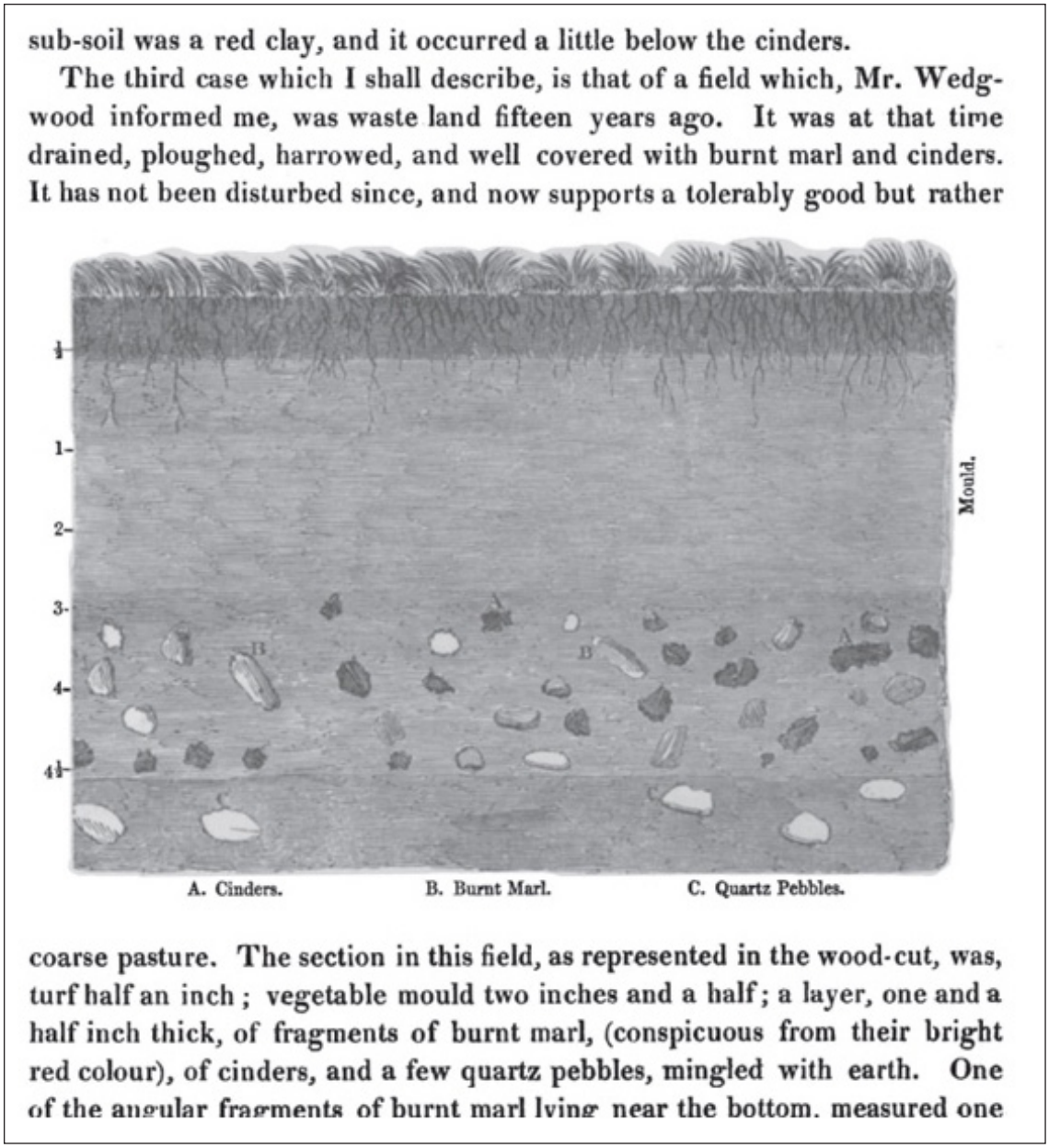

Figure 2: Topsoil that covers archaeological remains. Credit: Darwin, On the Formation of Mould (1840: 506).

conversations with his uncle, a farmer, who noticed how certain limestones that lay on the surface of his field were covered by the burying action of earthworms and their defecations, thereby folding the rocks into the lower strata of the earth. Down here, the rocks were protected from erosion and passing machines, Darwin notes.

The European Convention on the Protection of the Archaeological Heritage follows this logic that burial conserves. It was institutionalised with the Valetta Treaty signed in 1992 and clearly designates areas in which excavations are restricted in Europe, massively limiting the permissions given to archaeologists to dig. Notably, it was the Valetta Treaty that stipulated that archaeologists could not dig in Monnikerede, Belgium. Today, the site of Monnikerede is covered by grass on which cows graze. The fields here were probably never farmed nor ploughed after the village was abandoned, leaving the artefacts from that time preserved safely under layers of soil.[4]

Diggers and Soil Shifters

Both moles and archaeologists dig, often even in the same places. Archaeological sites tend to have richer soils due to their density in organic remains which in turn, have more abundant earthworm populations, and are a draw for moles. In spring 2015, on a field visit to the site in Monnikerede, the archaeologists from Ghent University recalled how they noticed a greater number of molehills in the field. Since molehills are generally considered signs of underground disturbance, the archaeologists decided to map the molehills using GPS technologies. They mapped a total of 700 molehills, some of which are captured in **Figure 3**.

Archaeologists' interest in what lies beneath our feet requires them to reckon with moles, namely because archaeologists' primary working assumption is that older layers of soil lie deeper below the surface, a phenomenon they call 'stratification'. A coherent and dated picture is much easier to piece together when components of the past stay in place. The preservation of intact layers is crucial in enabling archaeologists to interpret what they find.[5]

The mole digs down, but it primarily digs its corridors horizontally, in line with the ground level and about 5–10 cm below the surface (Mellanby 1971: 120–131). These corridors allow the mole to move through the underground and catch grub, much like a spider that catches passing winged insects in its web. A single mole territory can cover from 250m^2 to 350m^2 of interlacing corridors in which the mole catches passing worms and underground critters. Natural history accounts describe how moles toil against the odds to carve out the corridors or their 'nets'.

Their long forelimbs give the mole the necessary force to push soil they loosen with their sharp nails. Switching forearms every two or three strokes, the mole shifts soil to move through the underground. Scientists have had a hard time trying to track how the mole navigates through the underground.[6] It seems they use their own body shape to excavate the tunnels, about 4–5 cm in diameter. Like antennae, their short stump tails point up against the ceiling of the tunnel in order stay orientated when turning.[7] They seem to track their own movements by using roots and stones as points of reference and

Figure 3: Monnikerede, March 2015. Credit: Ghent University (reproduced with permission).

urinating in strategic places such as tunnel junctions to find their way around and sending signals to others to 'keep out!' (Gorman & Stone 1990). Since the mole can hardly see, it depends primarily on touch and its olfactory organs. Indisputably, moles' movements through soil churn up layers of accumulated sediments, disturbing the archaeologists' primary working assumption that deposits can be read through time. The technical term used in archaeology to describe the ominous deformation of soil profiles that blur this layering of time is 'bioturbation'. When elements don't fit in the picture because they are too old or too recent for the context they are found in, they are said to be the results of 'perturbed' soils. These contain fragments that challenge conventional historical chronology. A mole, like humans, earthworms, ants, and tree roots can be involved in these shifts, either directly by moving soil or indirectly when their tunnels collapse or when other rodents or plant roots burrow into tunnels crafted by moles, thereby bringing about more erratic soil movements. In Monnikerede, faced with the frustration of not being able to dig, the archaeologists came to see the digging work of the moles under a new light by focusing on what the moles bring to the surface.

Molehill Intrigue

The soils the moles loosen as they move through the underground need to be removed if they can't be pushed up against sides of the tunnels. To do so, the mole digs vertical excavation shafts through which it throws out heaps of soil, as in **Figure 4**. The German name for mole – *Maulwurf* – is thought to come from the animal's way of 'throwing' (*wurf*) out 'rubbish' (*Müll*). This excavated matter, gathered over a surface area as large as the mole's territory, forms the familiar molehills or molescape as in **Figure 1**. The heaped soil is seemingly discarded by the mole and forms piles like a miniscule version of slag heaps, for example of tailings accumulated during coal extraction. They are the amassing of matter that is pushed out to make space below. In some cases, the molehills function as air vents too. They can also serve as exit routes for the moles' occasional trips to the overground, especially in early spring when moles tend to gather dried leaves and moss to build their nests.

During the spring of 2015, it occurred to a member of the team of archaeologists from Ghent that molehill soils could be studied. The archaeologists began sieving the soil of the 700 molehills they mapped out, the gamble being that the soils surfaced by moles contained remnants of pottery. These shards could be dated, and thanks to the moles' work, without digging on site, archaeologists were able to read the history of the site through the dated pottery shards the moles uprooted (Vanwildemeersch 2017). The shards of pottery contained by the soils the moles unearth have paved a way for a novel low-tech technique to give access to the stories the underground harnesses.

The method of dating these shards was only declared effective once the results were correlated successfully with existing data. In the face of the negative reputation and changing policies associated with moles and their burrowing behaviour, the collaboration that the archaeologists in Ghent engaged the moles in seems to break with the notions of destructive behaviour that moles are quickly attributed with, especially by archaeologists. This recasting is by no means immediate or generalisable.

Mole Work

Interestingly, one of the archaeologists working at Monnikerede referred to the shards brought to the surface as 'accidentally unearthed by *nature*' (Trachet 2017b: 503). Here, 'nature' is the animal, the mole.[8] The tendency to describe animal behaviour as 'natural' is inherent to a nature/culture divide that sees humans fall on the latter side of that equation.[9] It suggests that what the moles do is simply their 'natural thing' and that they do this 'passively' (Despret 2015: 127). However, 'nature' is not

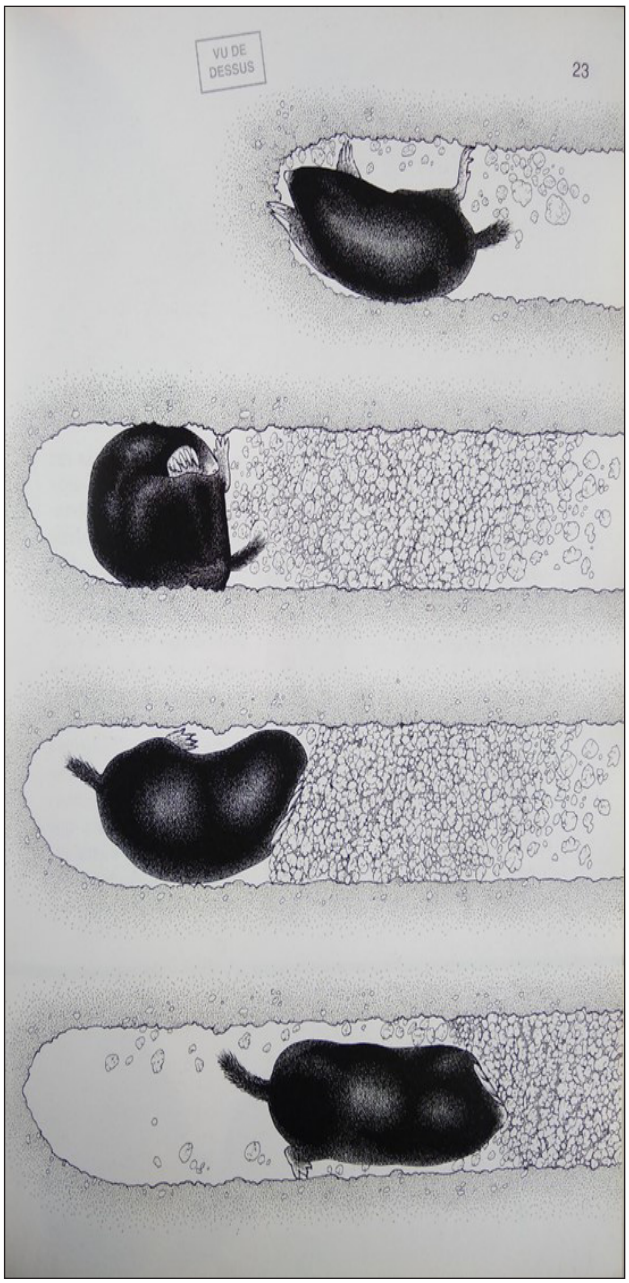

Figure 4: How moles dig. Credit: A section from Déom (2007: 23) (reproduced with permission).

always attributed in the same way to all animals (see also Despret & Porcher 2007, and Despret 2012). The badger illustrates this well.

Badgers also dig in soils that archaeologists have an interest in studying. Being a bigger mammal, badgers dig deeper and thereby have the capacity to disturb archaeologists' readings of stratifications far more than moles (Jowit 2004). Since the badgers dig deeper than moles, the soils badgers bring to the surface when building nests (known as setts) are potentially even more revealing than those found in molehills. But badgers are also considered a wild animal and are thus protected by The Council of Europe's Convention on the Conservation of European Wildlife and Natural Habitats (1979). This saves the badger (though not the mole) from being subject to eradication programmes. It also means that when faced with soils moved by badgers, archaeologists cannot disturb badger setts. This would breach wildlife protection acts. It confronts archaeologists with the prickly assumption that privileges wildlife preservation over historical digs. The soils raised by one animal are treated differently than soils raised by another animal, according to their entanglement with legal frameworks at national and supranational levels.

Just like some animals are considered more 'natural' than others, Porcher (2014) argues that some animals are more easily understood as working; she cites messenger pigeons, plough horses, rescue dogs, show dogs, and sniffer dogs. These can carry notes, lug heavy equipment, sniff out drugs, or perform tricks. They are rewarded by humans for the work they do for them. The moles in Monnikerede are not considered workers, and yet moles have a curiously close association with work. In a skim through the socio-cultural history of moles, they are often used to signify 'work'. Marx used the figure of the mole to represent the revolutionary proletarian. He used the 'old mole' to describe the revolution that surfaces from the burrowing of tunnels, pushing history forward: 'We recognize our old friend, our old mole, who knows so well how to work underground, suddenly to appear: the revolution' (Marx 1970: 12) and 'the old mole that can work in the earth so fast, that worthy pioneer – the revolution' (Marx 1856). Deleuze also mobilises the mole – in juxtaposition with the snake – as a metaphor to describe the changes in regimes of power that Foucault theorises. At the turn of the century, Foucault understands the shift from societies of discipline to societies of control as a shift from structures of enclosure (of institutions such as hospitals, schools, prisons, factories, and families) to the incipient or serpent-like nature of a post-extractivist capitalist system of control. According to Deleuze: 'the loops of the snake are even more complicated than the tunnels of a mole maze,' which points to underlying associations with moles (and snakes):

> The old money mole is the animal of confinement, but the snake is the animal of control societies. We've gone from one animal to another, from mole to snake, in the regime we live under, but also in our way of life and our relationships with others. The man of discipline was a discontinuous producer of energy, but the man of control is rather undulatory, put in orbit, on a continuous beam. In both cases the mole mobilised is associated with toil, toil of the proletarian, toil in prison (Deleuze 1990).[10]

The semantic associations with molehills and moles are further infused with toil and hardship. In French slang, the term *tauper* (from *taupe* – mole) is used to refer to someone who works a great deal and is synonymous with *bosser* (to work) that comes from the word bump. Bump in the landscape, like the molehill? Even in English, a group of moles is referred to as a 'labour' of moles. Like an army of ants, a swarm of bees, a float of crocodiles, a paddling of ducks, a parliament of owls, or flight of swallows, these nominations arise from physical characteristics of animals observed by humans. There are obvious limits to these metaphorical associations of work that tend to map human worldviews onto other species. The team from Ghent often had to defend their 'mole method' that was severely questioned by peer archaeologists. They did so by specifying that their ambiguous working relation with the mole did not involve training and releasing 'a mole-squad onto the field'.[11] The moles were already there, digging, and more to the point, are very hard to eradicate.

The Mole as Pest

A lucrative industrial pesticide, strychnine, first synthesized in 1954, displaced more traditional mole deterrents and mole catchers. Already in the Middle Ages, spells were apparently cast on moles by cutting up and burning red herring and placing it in pieces on the tips of molehills (Borrell 2017).[12] Strychnine has the secondary effect of rippling fast through food chains because it doesn't break down in animal tissues. If owls, foxes, or snakes (moles' primary predators) dig up a poisoned mole and eat it, they too are poisoned. The persistence of this pesticide in the food chain soon raised animal-welfare concerns, although not directly addressed to moles. In the UK, strychnine was banned in 1963 (Baker et al. 2016: 1). Moles, however, were exempted from the ban because no ready substitute existed to limit their spread. Until recently, dipping worms in strychnine was still the primary method of managing moles. It took until 2006 for strychnine to be banned for sale in the European Union (Parker et al. 2011).

Gardeners' and farmers' manuals remain a particularly good source of information about how to disturb and deter moles. Like archaeologists, farmers and gardeners are those most likely to bump up against their heaps (see Dralet 1880; Mellanby 1971). Moles are also accused of bringing rocks to the surface that can damage farming equipment. In spring, when they are particularly active, they move fast and readily through ploughed soils, disturbing recently sown plants to catch the earthworms that do precious soil work for farmers.[13] Farmers and gardeners also accuse moles of damaging root crops, which is more of an issue during autumn and winter.

Still today, all sorts of pungent flower bulbs are sold to repel moles, as well as devices that emit vibrations, gas, or explosives that flood, pinch, and trap moles

(Nicholls 2008). These exemplify the extent to which moles are considered a bother, which is nothing new, but neither has it made it any easier to regulate them. The number of techniques the market proposes to eliminate moles seems to suggest just how difficult it is for humans to impose their wish on mole movements. Moles are incredibly difficult to deter, as they have particularly long eardrum bones to perceive distant sounds and vibrations, helping them shelter from enemy dangers. However, most of their protection is secured by staying underground.

Beyond eradicating them, even harder still is domesticating a mole: 'Many have kept moles for a short period, a few have kept them for as long as a year, but as far as we know no one has yet reared a litter in captivity' (Crowcroft & Godfrey 1960: 123). Even a flourishing industry for mole leather failed in domesticating moles. The mole's propensity to fight with fellow moles also made it very hard to harness, train, or keep them in captivity in great numbers (Gorman & Stone 1990). Not only do moles escape control, but mole hunters were faced with the conundrum that the best quality mole leather is hunted in winter when mole fur is denser and that moles are most active in spring when they come out of hibernation and their hills give away signs of their whereabouts. This produced situations in which humans were not in control of the terms on which encounters with moles took place. The unwieldy presence of moles is both one that is hard to eradicate and seemingly difficult to intervene in. The relation between moles and the group of Ghent archaeologists addresses the irony that what moles do (and that humans struggle to do) is not necessarily a nuisance.

Moles as Tools or Colleagues

In Monnikerde, moles went on bringing soils to the surface, unobstructed by the European treaty in place to limit the damage done by archaeologists digging and the guidelines that minimise the harm incurred by humans on moles. Here, the possibility of suspending the association between moles and pests reframes the encounter with the mole as troublemaker co-existing with the *possibilities* it generates. It has the copious effect of thinking the landscape as intensely more than human. Although archaeology is focused on the human past (see Sykes 2014), on this site, moles collaborate in the telling of a human history while proposing better ways to think about shaping the future. This might require a rethinking of categories, challenging pre-conceptions, and rewriting certainties. As one of the archaeologists points out, molehills provide 'small peepholes into the history of a site,' making visible the shards that archaeologists alone cannot access when they do not have permission to dig.[14]

One of the archaeologists explains: 'we are always opportunistically searching for potential sources of subsoil information. It is our task to record every soil-disturbance that reveals information about our past as if the archaeological record is a book that can only be read once.'[15] This necessity to build a discipline on the traces of such subtle remnants shows the resourcefulness of archaeologists when it comes to finding historical evidence. In this case, it involves other species' movements. Interestingly, the archaeologists from Ghent qualify the method involving moles as 'cheap and efficient', two adjectives that chime with a capitalist trait of extracting a maximum market value which, in this context, sounds like the work of an animal can be reduced to that of a new tool, while the mole's presence and digging predates the archaeologists' interest in the soil they surface.

Much like any tool, interpreting the soils the moles bring to the surface sets certain limits that has the effect of reshaping scientists' practices. When working with the soils the moles bring to the surface, the archaeologists not only depend on the moles to dig. Moles require a very high-energy consumption to dig. An average mole weighs between 72–128 grams, and to survive, a mole needs to incorporate about 60 grams of food in one working day. Their main source of energy is earthworms. To find enough food, they use their tunnels to catch passing worms. Contrary to the mole, the worm digs vertically. As the earthworm digs down, it might come across a horizontal mole tunnel and fall prey to the mole residing there. One worm weighs 2.5 grams. To meet their daily energy consumption, mole tunnels therefore need to catch an astonishing 24 worms. Moles can also supplement their diet with other insects and bugs (Gorman & Stone 1990: 43). They do store food, as in some cases, even with the expansive corridors of their territories, they cannot catch enough food. This is especially so during the winter when worm populations drop. Moles primarily store *Lumbricus terrestris* worms. These account for 90% of worms stored by moles but less than 25% of free-living earthworms in the areas surrounding moles. This is probably because they keep better (Skoczen 1961: 25). The worms that are gathered for storage have their heads bitten off by the moles so they won't escape. In the winter, the mole can feed on its food stores and therefore digs less.[16] This also means that the archaeologists do not benefit from shards being surfaced. Mole hunting and, thus, digging is most practiced in spring. Archaeologists must consequently adjust the moments in which they do their field study in close accordance with the changing seasons and activities of moles. This requires getting to know the moles' behaviour. Indeed, in attending to moles, a proximity and familiarity is formed that invites a curiosity about the lives and behaviours of others. Despite the 'exploitative' framing of the 'mole method', one of the archaeologists recalls how he began to learn to distinguish between soil dug up by younger and older moles. Another member of the team wondered whether or not the sieving of molehills practised by the archaeologists was of consequence for moles.

It is striking that the scientists from Ghent are far from talking about the moles as working colleagues. Indeed, they recount that their work was severely questioned by peer archaeologists who referred to them, mockingly, as 'mole archaeologists', and surely also because of the negative association the discipline has with moles.[17] Remarkably though, around the same time that the Ghent archaeologists were conducting analysis of microscopic shards that were surfaced by the digging action of the

moles, various labs in the UK, Germany, and Denmark were engaging with similar mole methods (Chlaib et al. 2014; Sapir & Faust 2016). It seems like a reframing of what the moles can do in archaeology and a re-centring of scientists' attention is possible. Letting go of the familiarity of metric measurements that tend to inform archaeologists' digs, this lively encounter with moles manifestly still requires improvisation, compromise, and a lot of unknowns. Anna Tsing brings our attention to collaborations with 'friction', borne out of a finite multiplication of understandings and points of view, grounded in a very peculiar encounter in Monnikerede where the archaeological method became entwined with the moles' practice. These are fertile grounds for 'productive confusions'. Collaboration and trouble are not necessarily irreconcilable. As Anna Tsing posits: 'Collaborations do not necessarily need difference to be erased' (2005: 247). Collaborations are possible with another species, on very different terms, by very different means, and with different ends.

The example of moles and archaeologists seems to make this point. While moles bringing soil to the surface may not be considered work, it does, for that matter, put the archaeologists to work. The soils are first mapped and then sifted; the resulting shards are analysed and interpreted. Furthermore, it is thanks to the data gathered in this way that the site seems likely to be secured as archaeological heritage. This protects the land from urban development and allows archaeologists to continue their enquiry on the site and the moles to keep on digging.

The Deep End

The recent archaeological practice of sieving mole heaps points to the importance of the soil's moles bring to the surface as they run through tunnels without ever messing up their velvety furs. In this interaction between archaeologists and moles, surface and depth are thrown into disarray. The surface that is hostile to moles is as inaccessible as the depths are to archaeologists in most places. By bringing together archaeologists and moles, soils are not necessarily difficult to access, and digs are no longer as prohibitive. Although digging (also by a mole) continues to be a threat to the perseveration of an archaeological site, the perception of the digging done by moles seems to become less damaging when these soils are then studied by scientists.

The practices of the gardener, the farmer, the mole-poison salesperson, and the pelt tailor all run in parallel with the lives of other species. The possibilities of entanglements with moles go far beyond catching, skinning, or exterminating them, and these, too, are constantly recomposed when a legislation, a fashion, or a custom changes. As anthropologist Tim Ingold puts it: 'beings do not propel themselves across a readymade world but rather issue forth through a world-in-formation, along the lines of their relationships' (Ingold 2006: 13). As beings in interaction with other beings, moles are active in a mutual shaping of a densely inhabited world. Also changing are the possible relationships to the moles and their workings. Forging new relationships with living beings also traces novel outlines for the kinds of stories we might be able to tell about them when getting to know them in ways that circumvent overarching categories that can blind careful narrations. This is not to say a mole is never a pest, and the fact that the mole can cause damage is not undone by the interactions that the situation in Monnikerede made possible. But narrating this encounter shines a light on how categories are made and the possibility of overturning them.

To provocatively invert the equation, the very human practice of building from the ground up in sub-/peri- and urban developments is probably what has the most sweeping effect on moles and archaeological ruins, too. Much more than the sales of poison, traps, and repellent bulbs altogether, the decline of unconstructed areas suitable for mole habitats in Europe is going to decrease mole population numbers. Framed by the wider question of the nuisance of a pest, considering the archaeologists in Monnikerede, one might ask after all, who is more of a nuisance to whom – the mole to the human or the human to the mole?

Notes

[1] It is an offshoot of a collective research project on urban soils conducted at the University of Saint-Louis Brussels and Université Libre Bruxelles (ULB), funded by Innovris (Brussels Institute for Research and Innovation). See https://ecobxl.hypotheses.org for more information about the research collective with Benedikte Zitouni, Chloé Deligne, Noémie Pons-Rotbardt and Nicoals Prignot. Throughout the four years of the project (2015–2019), moles kept coming up, and writing this paper gave me the opportunity to enquire further thanks to the team that organised 'The Crab at the End of the World? On Invasive Species, Salvage Economies and the Arts of Living on a Damaged Planet' in May 2018 in Bruges.

[2] I'm thinking here of the playful mole that appears in cartoon series 'Mole' (1957–2002) originally produced under the name of 'Krteček' by the Czech animator Zdeněk Miler and which spread across Europe from there. There is an inquisitive mole in Holzwarth & Erlbruch (1994), a cute mole in Britta Teckentrup's How big is the world? (2007), and a tireless mole in Luis Murschetz' Der Maulwurf Grabowski (2008), to name just a few.

[3] See here more of Lise Duclaux's work on the moles that reside in the royal gardens in Laeken, Belgium and the tolerated attempts to eradicate them http://liseduclaux.be/.

[4] Interview with Jan Trachet and Maxime Poulain, Department of Archaeology at University of Ghent, 18 December 2019.

[5] Conversation with Yannick Devos, Centre de Recherches en Archeologie et Patrimoine, Free University, Brussels, Belgium on 6 November 2017.

[6] See for example, astounding footage of these movements, David Attenborough's video 'Unearthing the Mole' (1989).

[7] Bemusement about moles' skills is nothing new. A brief note by baffled Arthur Bruce from 1793 points to the mole's capacity to swim (Bruce 1798)!

[8] In the California and Arizona desert, a similar connection is forged between archaeologists and another furry animal, the packrat (Neotoma devia), a small rodent that has recently stuck its nose into scientific papers (Van Devender & King 1971). Their way of building nests (known as middens) out of diverse material gathered in the desert is especially interesting for archaeologists because the packrats' urine preserves organic matter incredibly well. The material is used to piece together the paleo-environmental history of sites. At high elevation and despite strong weathering, the analyses of packrat nests are sometimes found to contain plant material that is tens of thousands of years old.

[9] Archaeology (like anthropology) has a record of putting human history into the limelight. Noemi Sykes (2014) points out that by limiting its study to human history, archaeology can entrench a severe nature/culture divide by only gathering evidence of human culture, thereby misleadingly assigning culture exclusively to humans. See here also Tim Ingold's (2007: 6) musing on moles' culturally extracted material culture (as opposed to culturally constructed).

[10] Authors' own translation of: Les anneaux d'un serpent sont encore plus compliqués que les trous d'une taupiniùere … La vieille taupe monétaire est l'animal des milieux d'enfermement, mais le serpent est celui des sociétés de contrôle. Nous sommes passés d'un animal à l'autre, de la taupe au serpent, dans le régime où nous vivons, mais aussi dans notre manière de vivre et nos rapports avec autrui. L'homme des disciplines était un producteur discontinu d'énergie, mais l'homme du contrôle est plutôt ondulatoire, mis en orbite, sur faisceau continu.

[11] Private communication with Jan Trachet, archaeologist at the University of Ghent, 13 August 2018. Especially in communication with the broader public, see for example: https://www.vrt.be/vrtnws/nl/2017/09/19/het-geheime-wapen-van-de-archeoloog--de-mol/.

[12] Things were already ambiguous around this time; there are records of moles' hands (or fore feet) being prized by farmers that kept them as talismans for good luck to ward off toothache and epilepsy.

[13] I refer here to conversations with Farmer Tijs Boelens from Degroentelaar farm in Pepingen, Belgium.

[14] Personal communication with Jan Trachet, Department of Archaeology at University of Ghent, 29 June 2019.

[15] Interview with Jan Trachet and Maxime Poulain, Department of Archaeology at University of Ghent, 18 December 2019.

[16] If the mole doesn't find its way back to the worm storage before the end of winter when the soil temperatures rise again, the worm's nerve endings will form again, and the only partially ingested worm can get away (Gorman & Stone 1990:22).

[17] One archaeologist recalls how the damage moles do is still part of undergraduate training programmes.

Competing Interests

The author has no competing interests to declare.

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How to cite this article: Cahn, L. (2023). Collaborating with a Pest? Recounting an Encounter Between Moles and Archaeologists. *Anthropocenes – Human, Inhuman, Posthuman*, 4(1): 3. DOI: https://doi.org/10.16997/ahip.1435

Submitted: 24 March 2023 **Accepted:** 06 July 2023 **Published:** 11 October 2023

Anthropocenes – Human, Inhuman, Posthuman is a peer-reviewed open access journal published by University of Westminster Press.