What can we do with soil micromorphology in archaeology?

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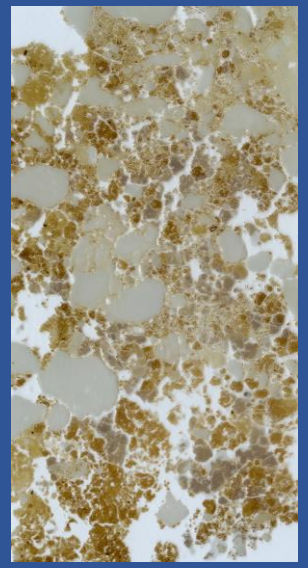
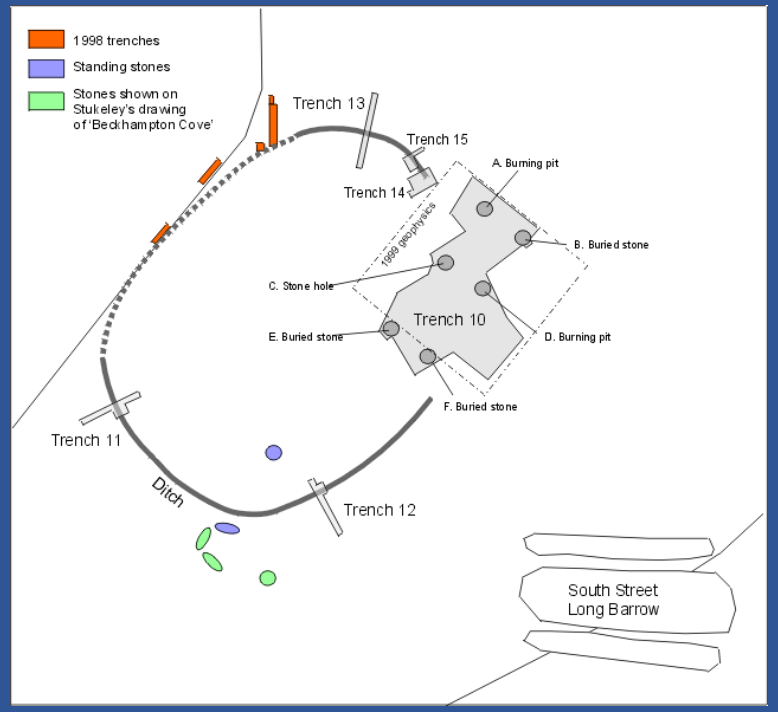
Oct 21, 2019 UW Geoarchaeology class presentation

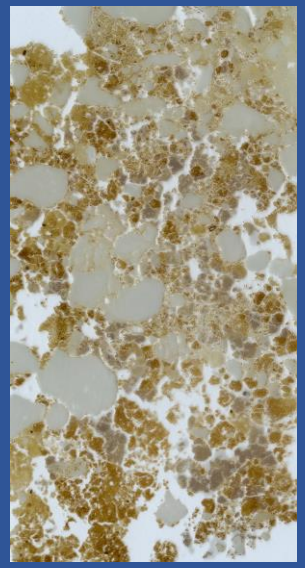
Understand archaeological contexts and their histories

- Use of space and land use – and changes in these over time
- Changing environments (local through global, depending on context)
- History of monument/site construction (‘micro-excavation’)
- Identification of materials and contexts not visible to the naked eye / not understood in the field

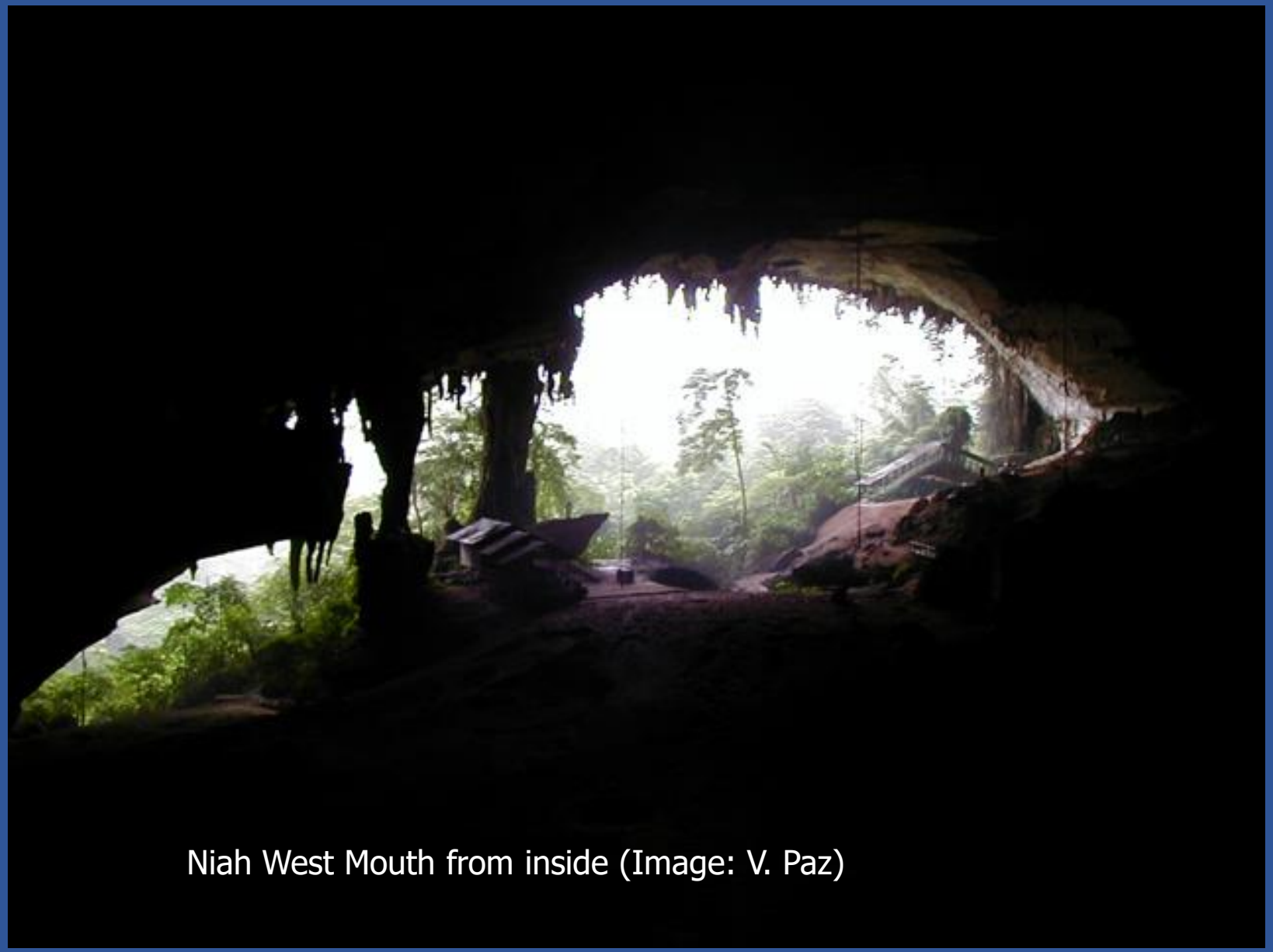


Fills of the Avebury Longstones Neolithic Enclosure ditch: typical Neolithic contexts: clean chalk backfill, ‘ritual’ deposit of topsoil, mixed chalk backfill





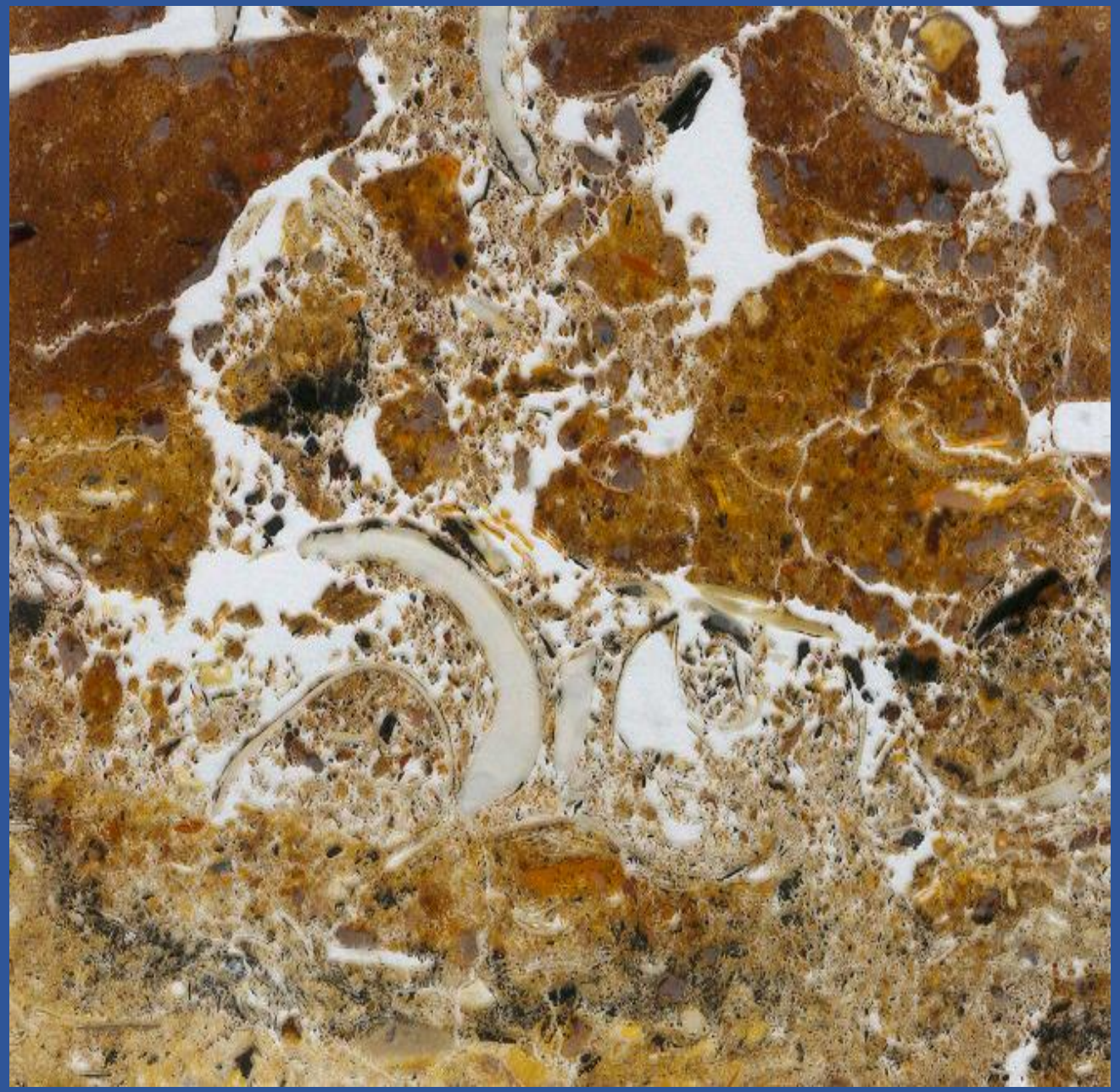
Soil micromorphology interpretation: Rendzina stand-still horizon (not turf deposit) & earthworm sorted ditch fills before final (overlying) ditch fill. Avebury Longstones Enclosure ditch was not ‘quickly’ ‘ritually’ backfilled, but stood open for a long time before it was finally backfilled

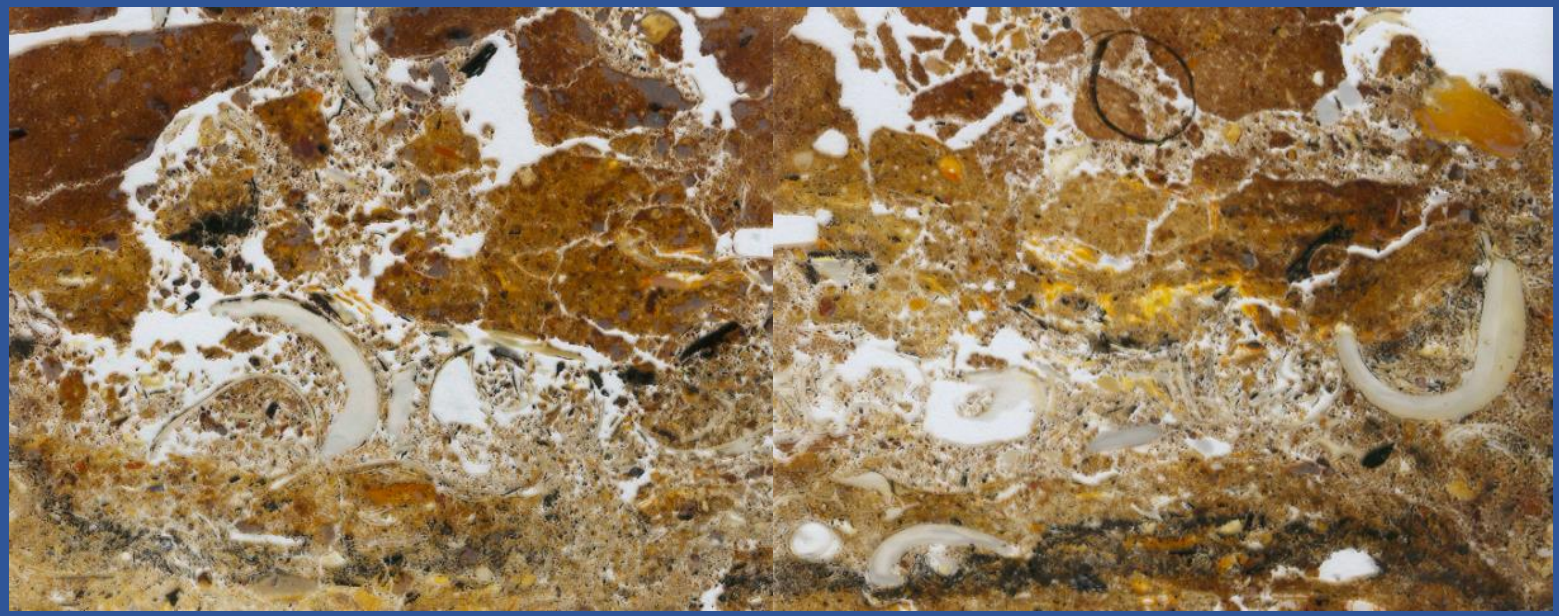


Niah West Mouth from inside (Image: V. Paz)

Niah Cave, Borneo

‘Patches’ of snails associated with the cemetery were interpreted as either natural (burrows) or ritual deposition (of meals eaten as part of funerary or memorial meals)





In thin section, the molluscs were clearly part of a ‘hearth’ type of deposit, and some showed ‘sooting’, suggesting the idea of a meal deposit was more likely.

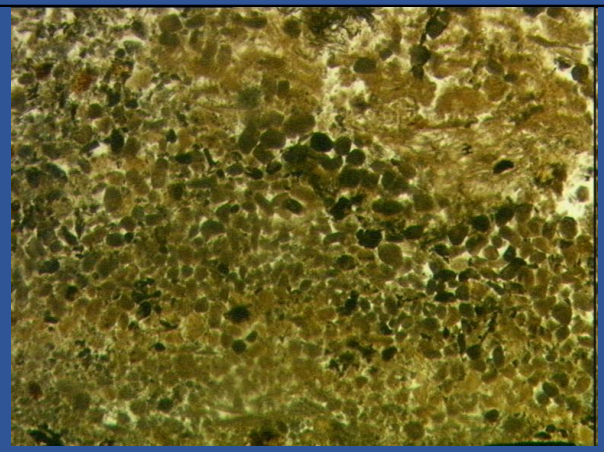
Also, unseen in the field, there are repeated burning episodes seen in the same locations, suggesting that this activity was ritualised (and perhaps did not always involve feasts of snails).

The ashy guano: a riddle wrapped in a mystery…

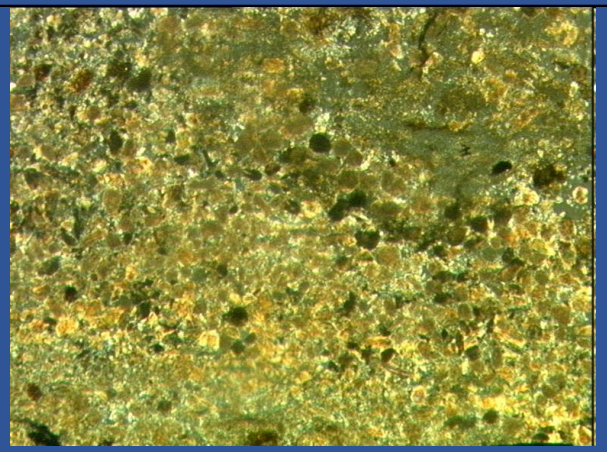
Niah 358 – Area B, ashy guano and ?surface 2072/2075

Niah 359 – Area B, ashy guano and yellow-brown

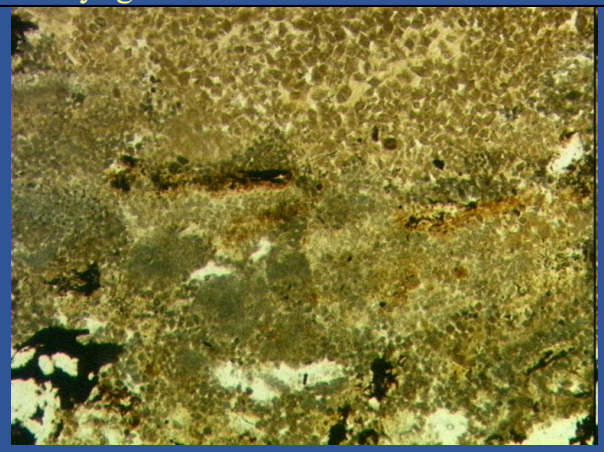
Niah West Mouth 'ashy' guano layer (upper pictures) and Traders' Cave modern wood ash (lower pictures) (frame width *c.*1200μm)



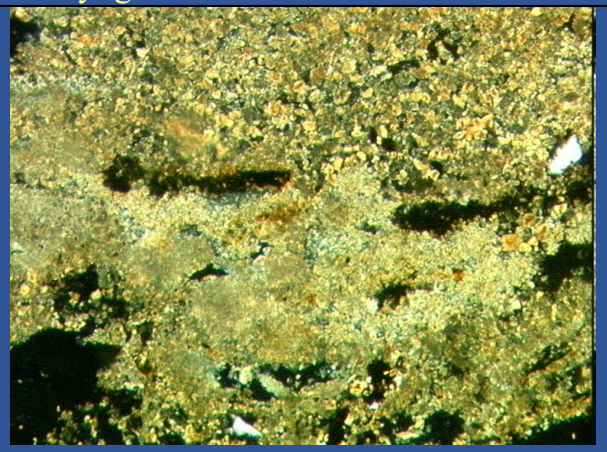
'Ashy' guano PPL



'Ashy' guano XPL



Recent ash PPL



Recent ash XPL

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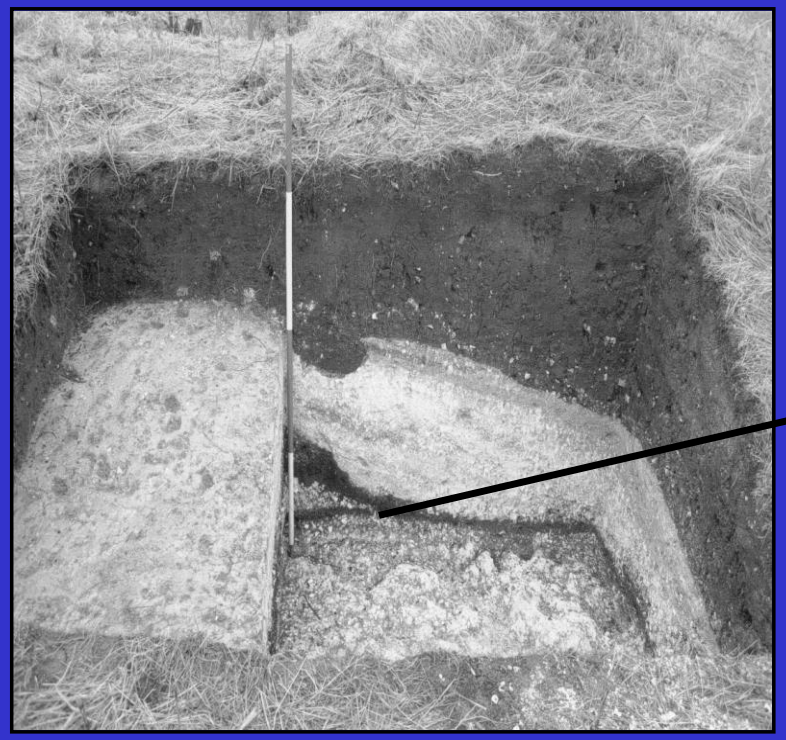
Image: Victor Paz

The ash dumps are bioturbated and influenced by water moving through the cave system; this has blurred traces of individual events, although some do still survive (layers of charcoal)

The ashy guano is a series of ash dumps – an ash midden. Similar middens in other caves (eg. Kebara 'kitchen area') are interpreted as showing 'cleanliness' on the part of cave occupants. In addition, this part of the cave can be interpreted as ***not*** being the place where burning/cooking occurred, but being seen as an appropriate place to dump hearth remains.

Is this a field?



Wyke Down Project 1998

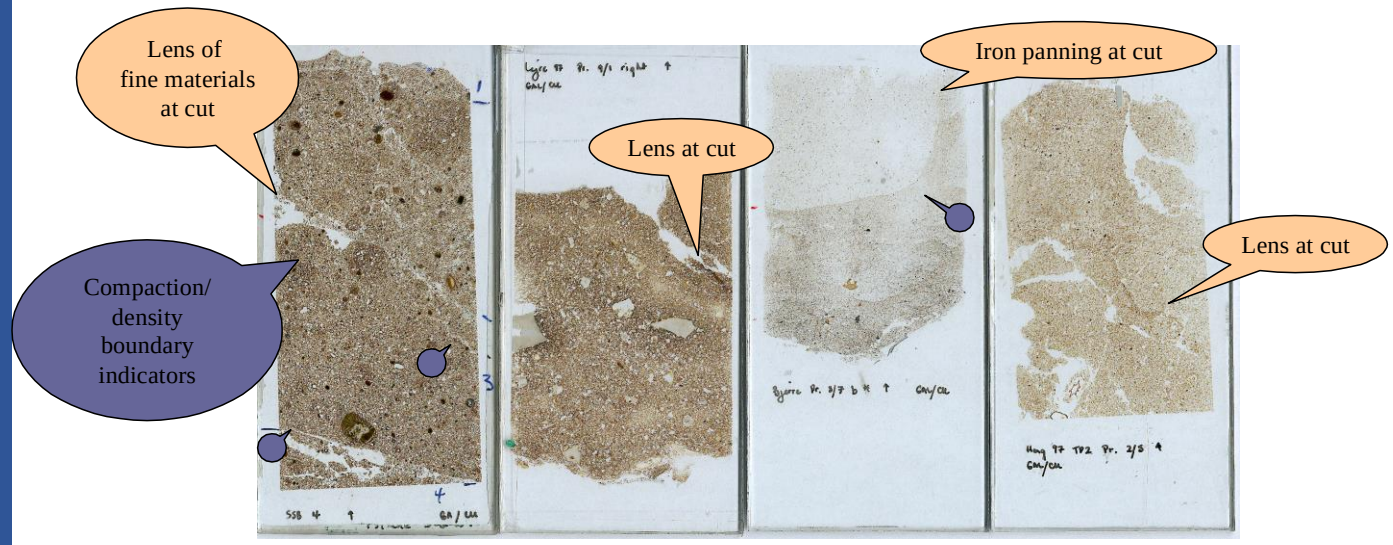
?

To develop understandings of issues like this, we need to rely on an excellent understanding of how soils and sediments develop and change over time, and are altered by human practices – and what 'signs' of the past are preserved into the present-day, by analogy with known modern ecosystems.

In addition, we use experimental, ethnographic, and historical analogy to help us understand how human actions 'look' in the soil.

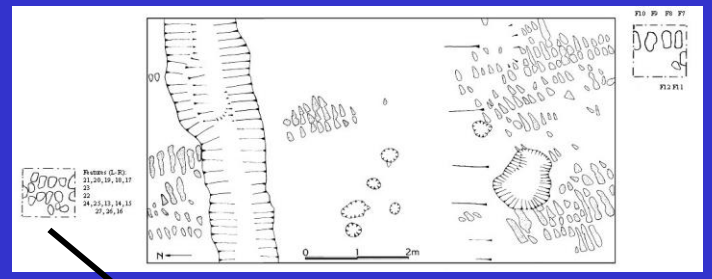
We compare macro- and microscopic 'features'.

CHARACTERISING IMPLEMENT MARKS MICROMORPHOLOGICALLY



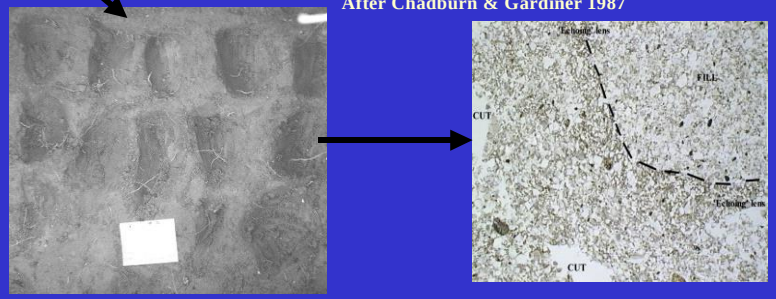
1. Experimental characteristics (lab)
2. Experimental characteristics (field)
3. Characteristics of very clear archaeological features
4. Characteristics of somewhat less clear archaeological features

E.g. How can we identify ancient arable farming in modern soil?

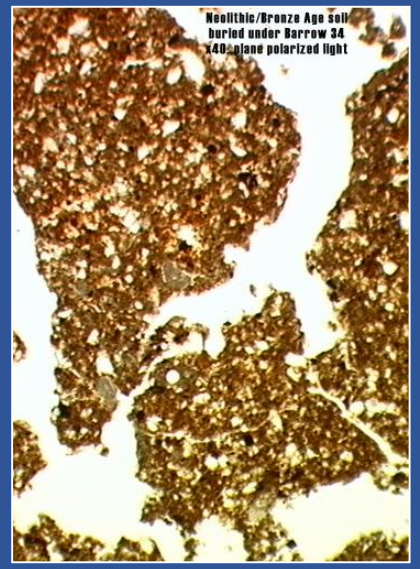


Spade marks at Hengistbury Head Site 6

After Chadburn & Gardiner 1987



Photos: H. Lewis



Soils buried under and found within archaeological monuments are widespread, and form the main source of information for ancient land-use studies. Since they are found in and under monuments, their study can also address how land-uses were spatially and temporally related to monument construction. Land use also includes activities associated with the rituals of monument construction, use and abandonment.

The barrows examined at Wyke Down show that patterns of erosion and soil change often associated with theoretical intensification of agricultural land use and settlement during the middle-later Bronze Age (based on 'funerary' and settlement monumental landscapes), appear to be seen at earlier dates (pre-barrow construction, *i.e.* during the Neolithic-earlier Bronze Age or earlier).

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Skelhøj BA round barrow – construction created anaerobic conditions; turves represent surrounding land use types & pre-barrow setting

- Turves from ploughed soils with shallow topsoil or only turf line

- Turves from thick wet pasture – mound core

- Turves from ploughed soils with shallow topsoil or only turf line

- Trampled turves & waterlain sand layers

- Buried soil with turf line and ard marks

‘Three wettings and a funeral’

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