

Hunting Lessons: how forager kids learn(ed) to hunt (Seminar)

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Hunting played a key role in human evolution, including in the development of human life history. As a complex skill, hunting likely involved a long learning period to develop competencies. Archaeological evidence of learning this skill includes hunting gear, butchered prey, and art, yet many of these data would be lost to time because the elements are either organic and don't preserve, or are intangible. Ethnographic data can help us to fill in these gaps including how children and adolescents might have developed embodied skills which would have allowed them and their communities to survive and thrive.

In this talk leading archaeologist Annemieke Milks gives an overview of some relevant archaeological and ethnographic records of the hunting activities of forager children and adolescents, and explore commonalities and divergences. While the ethnographic data are significant, particularly in understanding the importance of play, practice, teaching and language, the archaeological record has its own unique stories to tell, which may not have perfect analogies amongst recent foragers.

<https://www.youtube.com/watch?v=6TsAD5AM0qg>

It's a great delight for us to have Dr. Anna Milks here, who's postdoctoral fellow, at, reading University and really famous for her work on middle ene weaponry, wooden artifacts, that are famously, seen at shenanigan, including these amazing throwing sticks of potential throwing sticks.

She's also, I mean, something that's particularly relevant for us is the interaction that Anna has put forward between archeology and ethnography, really you put putting archeology into ethnographic context.

Tonight she has placed us in a position of honor calling us the Radical Archeology Group, for this seminar, which we are very happy about and that's about the first time that's happened in our 40 odd years of history, but we are very honored for that.

So even though, and because specialism is particularly close to seem weaponry, and we do hope to hear about that, the focus tonight is the archeology of children, which, she's done a lot of work with beautiful articles and tonight talking about hunting lessons, how forager children going to visit, children today, aka, who of course our colleague, jar Lewis, probably knows very well, and working out, learning from them how they learn at Hunt.

So I'll hand over to you.

Thank you, very much Camilla.

It's really, great to be here and yes, I, I did notice just before I came, but in my pre-coffee state this morning, I called this the Radical Archeology Group.

So, but it, it's a anthropology group and it's really, nice to kind of try and bring together, some of the work on archeology and, ethnography that I've, I've tried to do

throughout my research, story and I think before I get started with the, the research, itself, I just kind of wanted to tell you a little bit about my background only because that is actually specifically what drove me both to look at ethnographic data when we look at the archeological records.

also to do a lot of the experimental archeology work that I've done.

and the curiosity that I've developed from, from studying weaponry to trying to think about children skills and development of skills.

So I came into archeology fairly late.

I used to be a professional musician and I had to give it up because I had an accident.

just, I was in the middle of a sort of, my sort of third year of an orchestra job post after my postgraduate studies and I think I felt that if I needed to give up something that I'd done since I was 2, 3, 4 years old, I worked extremely hard at and absolutely loved that I needed to do something else that was gonna be interesting, curious, and, and would continue to, to bring passion and it does still absolutely do that for me.

I don't think I'd appreciated that.

I was also choosing a career that would be equally difficult to get and keep a job, have a good salary, whatever, but it's been a good choice and I, and I do actually love it.

But as someone who'd spent maybe decades working from early childhood, working towards something that was very, very skill, skill-based, not knowledge based, but very skill-based and very physical, when I got into archeology and started studying, weaponry and, and or the earliest use of weaponry, my sense was that there were quite a number of archeologists and publications that were kind of, dismissive of the skills, let's put it politely, and maybe a little bit overconfident in their own skills, picking up a weapon and throwing it or using it.

and so this was something that kind of, rubbed me the wrong way, but partly because we had also a history of strike action in the US around, or orchestra pay and things like this and usually when you'd have this kind of strike action, you get comments from the public around like, well, how hard can it be? What you do is like, it's really hard.

So I think I could do that or I could pick up a, a violin and do that job, what's the big deal? And of course, you can't. That's the whole point.

particularly with something like Strange Tour piano.

You, if you haven't started it in early childhood, middle childhood at the latest, it's too late.

You can't pick it up in adolescence even.

It's too late for you to develop the kind of motor skills and, and the physical skills to, to be able to be on par with the people who started when they were 3, 4, 5 years old.

So, I, I ended up here at UCL, which had this graduate diploma, which allowed me to kind of come into archeology with no background, knowing nothing.

I didn't know what poly lithic was.

I knew absolutely nothing.

and then do a master's here as well in the archeology and, and anthropology department.

So I was in IC archeology and PAL anthropology.

and I wasn't completely sure, but by that point I knew I went to see human evolution and then took a little bit of a break and then came back and did my PhD.

So UCL is really my original poem and I, and I, absolutely loved, my studies and I did the PhD in particular, I, my master's dissertation had been in Ian Upperly spheres, which hadn't been really my concept at all.

It was just kind of a dissertation topic that was handed to me, which was very grateful for, because I knew nothing, as I mentioned.

so I ended up doing some experiments with that and then that, that kind of led to the PhD where I looked at these earliest weapons in the archeological record.

I'll show you a little bit about them today.

You can grow me at the end if you want.

'cause I'm not focusing so much on, on the use of those weapons and the woodworking studies that we've done.

But I'm happy to answer questions.

And, yeah, as I said, as, as part of that, there was a lot of, it was a bit of ethnographic kind of review of the use of earliest wooden spears by a lot of experimental archeology where we worked with javelin athletes.

I worked with military personnel to try and understand, what skill use of these earliest weapons look like.

So in the last couple years, that's kind of led me in a new direction, which, is partly a result of, wanting to understand the development of skill, as I said, in learning to hunt.

and there are some amazing, a whole array of amazing publications out there.

Now, I point specifically to April Noel's new book, on Ice Age, growing up in the Ice Age.

It's fantastic. It's a really beautiful book.

she really is the, the kind of the master of archeology of, of, ine and ine childhood.

but I've done this kind of light touch review, which was published, last year, as part of, the Journal Hunter Gather Research as part of a special collection that April herself, was editor on and that's basically what I'm gonna go through.

What, what some of the archeological and ethnographic evidences today and that kind of also came out of a review that I did with some colleagues, a few years ago on the arch.

What is the archeological evidence as a whole, for hunter gatherer children, specifically focusing on homo sapiens.

that ha happened to come out just before April's book, which, I think does some big sort of similarly, but in much greater depth.

So I'm not going to, get too deeply into what we mean by childhood and adolescence.

the, the main thing to, to say, which most people cover in, in publications on, on archeology of childhood is that childhood and adolescence are incredibly variable, socially, biologically, culturally.

So there's not no strict kind of age bracketing that we can do.

I, I followed, April Noel and, and Jenny French's, kind of bracket, brackets here.

one of the, one of the interest, so I think what's interesting now where I'm kind of thinking about why do we wanna bracket this is because early childhood, say around three to six years, and adolescents seem to be periods, of life history development, which appeared to be unique to homo sapiens.

So other mammals and primates will have these juvenile infancy and juvenile periods, what some people are playing maybe juvenile now rather than the middle childhood.

But that early childhood adolescence seemed to be key, for our species.

So the question is that a lot of people are starting to look at and, and think about is, not only why did, does, did those specific stages exist, but also when did in the middle place sustain probably, and with which species of homo did they first emerge? so, and then in terms of thinking about childhood and hunting, so, we've, together with my colleague Shana Love Levy, was published a few papers now looking at, the fact that hunting itself is a very complex skill.

There's lots of kind of scaffolding that goes on the, the biota themselves, for example, as an example, will describe hunting as one of the most complex, things that they do.

Whether that's just the men's speaking, I'm not sure.

But, but it is considered to be, a skill that takes a long, period of development, to learn and does start, in early childhood.

The archeological evidence is, I would say it's so relatively spar.

So I, I am gonna go through what I think the archeological evidence might be of learning how to hunt.

but not everybody would agree that that archeological evidence in each case would point to children or childhood.

So there's still debates about what the archeological evidence means.

and I'm just going to take you across vast time and space, in, in, in the talk.

So all things considered over hundreds of thousands of years is relatively sparse.

So I'll, I'll kind of follow the headings of the paper, itself broadly throughout, but I'm gonna talk about the archeology first.

and then at the end, I'll kind of go through where I think ethnography helps us to kind of expand our thinking and tell new narratives, and explore what's, what, what's possible and what's possible in the past.

So we can ask various questions of things like, about children's hunting gear, their toys and their tools, debates that, that, archeologists would have around this.

Include what what does it mean to have something that's miniature.

So the classic interpretation of miniatures might have been something symbolic, figurines, things like that, miniature projectile points.

But in the last 20, 30 years, you've started to see some nice papers exploring whether or not those miniatures could have been toys or even functional hunting tools and then what is the difference between a toy and a functional tool? It might not be a very clear category.

So that's another thing that we, we are, we tend to ask in, in the archeological realm.

and so to what extent also are there tools and toys, if they're functional tools in particular, are they scaled? cause maybe if we look at equipment scaling, we can see in the ecological records, something that might be a kid's, a kid's object, and does engagement.

so I also say what age might they begin hunting and in what, in what ways? And does that depend on the hunting technology? So does it depend if you're looking at spear use or spear throw use or bone arrows, probably.

and then what materials are used for the, the kids hunting toys and tools? So I'll start with, an obvious category of, hunting pit for kids, which are miniature examples of miniature, projectile points.

There's actually some really, it's a nice range, particularly from the Americas and these cases are actually all, from the Americas, more or less, not the Dorsey cultures much.

But, when we are thinking about miniatures, there are various issues, as I mentioned. miniature projectile points could be functional adult tools that are equipped with tiny, tiny points for some reason, depending on the type of prey you might be hunting.

They could be, kids tools, they could be a toy, they could be, have some other symbolic function, and it can be very difficult to, to tell the difference.

So various arguments that have been used to, to argue for these being kids culture are that, you have things like a braided edges, which might make, the projectile points less, less dangerous if the kid was using it.

that's another, another area where I think it's worth, worth discussion if it's a functional tool versus a toy.

some papers have focused on the fact that you have kind of durable materials, and in some cases, like with these many raccoon heads, and the al grips, I'll show you in a moment, the materials themselves, if they're particularly hard to work and difficult to craft, might signify that these are functional tools rather than something that somebody invests a lot of time in, making, making a toy for a child.

Another way that we might kind of identify them as being kids, material culture is if they're very poorly made and we think, well, that's not particularly, that's not a particularly beautiful projectile point amongst an assemblage that has a lot of really nicely made projectile points that might signify kids learning how to make their own equipment and their own toys as well.

Another area, around the weaponry itself are these kinds of examples of miniature, tools that might've been used to make weapons.

So, for example, baton paese.

So not everybody agrees that baton PAE from the upper paleolithic were, were used for arrow shaft or spear shaft for shaft smoothing.

there's also some really nice work that's been done by Sylvia Bello and, CLA Lucas at the, British Museum looking at these saying actually they were probably, tools for things like rope making and organics.

we're not completely sure, but there's this beautiful example I think of this miniature that home passe from compared with an a normal sized one and so either way, we have this kind of miniature, potentially, shaft smooth tool and here's another one, small shaft smoother, which is from the same, assemblage as these, these tiny projectile points here and so, dah looks at those and says maybe we've got evidence here of kids' material culture.

I think this is another fantastic paper that came out in 2019, by who were looking at, scaled Whalebone add lateral grips from the site and as I mentioned, again, you've got a material here that is difficult to work, is durable, and a whole range of different sizes and they looked at hand sizes and they, although there is definitely the potential there that you've got hand, ADA grips that would fit female hands, there were enough within the assemblage that were probably too small even for adult female hands as to be kind of more associated maybe with younger hands and what I think where I think there's maybe quite a lot of room for archeologists to explore here is around these, this equipment scaling in relation to things like, hand size and grip strength of, of kids and adolescents.

We really haven't, haven't done that kinda work, in, in great detail yet.

So here's my little specialty, yes, is Camilla, rightly pointed out.

These are the, the fears that I did my PhD on.

They're also, an earlier example from quack Tin on Sea, which is broken from Marina's to stage 11, so shining in is an absolutely extraordinary site for anybody who doesn't know it.

From marine ice to stage nine, about 300,000 years ago and at this site, it was discovered in the 1980s you have a whole range of, wooden weapons as well as now I think it's over 50 butchered horses and other butchered, fauna, but primarily a focus on, on hunting horse in multiple seasons over a long period of time.

this paleo lake that probably had lots of other, attractions for, for subsistence, not just hunting, it probably had, lots of very good food source, plant food sources.

there's a nice, PhD and few papers, by Lin Bigga and Bri Orban who explore that might have non-animal sources that been available at the Kelly Lake.

and amongst, amongst the spheres you will see here, in a paper that we published just this last year, you'll see a range of different sizes.

Now, not all of these are complete.

some of them are, are, are not, are, are a bit broken, but the, the spheres that you see here are mostly complete.

we see all kinds of different things going on.

So Sphere 10 was probably larger, longer, initially, but it did, it's been broken at the tip and recycled.

but you nevertheless should be able to say that Sphere six is absolutely massive.

It's, I think it's over two and a half meters long.

whereas Sphere 10, and sphere three are much thinner, and are are much probably lighter weight weapons.

sphere two is the one that I did almost on my experiment to work with to keep things consistent because it's the sort of average, like whether or not we can see kids hunting at shunning is something that I think is really difficult to say.

but there is some other evidence that shining in that might point to that.

but in addition to the very large two and a half meter long spears, we also have now a category of other weapons, which is these throwing sticks.

also, also the evidence at the site.

This is an example of one of the turning sticks that we analyzed in detail to kind of explore the, the woodworking processes.

and, and that's exactly this one.

So you can see that there's, there's some quite small s at the site as well.

and again, even in the middle lysine, people would've needed to learn how to hunt.

Now, whether or not they're engaging in hunting in the sort of a attacking a, a, a horse herd at a lake shore site, which could have been potentially quite dangerous sort of scenario, is less clear.

But throwing sticks are well known as weapons that, that are used by children.

They can be used for hunting smaller game and a, and birds as well.

So potentially we could think about whether or not, although we don't have clear evidence of that kind of hunting of small prey or, or, birds at sheen, there are some other contemporaneous sites where we do see exploitation, whether it's hunting or, or something else, Baltimore cave insane for example, where we kind of see this exploitations by, by the hominins, with these, alternative species if we, if we want to pull them that.

So we, we discussed in, in the paper on that, analyzing that drawing stick in detail.

We discussed the potential for that being a tool that could have been used by children and adolescents in, in learning to hunt and engaging in the hunt in maybe different ways before they, began to hunt with the, the larger wooden spears.

You can ask me anything about that later.

There's a lot to say about shunning in always I could do multiple talks about that. so toy weapons and hunting gear, in burials.

So this is another maybe category where we could think about children being associated with weapons or weapon components.

burials are more complicated as anybody who engages with the archeological records, would know, because we don't always know that what someone's buried with was, first of all, you need a really good clear association to be sure that they were buried with that, that object.

but we can also be sure that those aren't kind of more symbolic or social functions around objects that get, associated to that individual, whether or not that means that was their piece of kit or it's, it's, it's complicated.

but, so these are kinds of some of the, the questions.

And, and, as I'll show you, one of the studies that I thought was very nice looked at the association of projectile points in the Americas, with burials and they there are infants who are buried with gentile points, so clearly the infants aren't hunting.

so however maybe we can think about, that association in other ways.

So one of the things I tried to do in the paper, there's not much evidence from what I could see, from the review and from from Maple book as well, associating, weaponry with burials.

and in this case it was mainly basically archeologically, it was spheres and spear throwers where we could see archeological evidence, but much, less that I could see.

in terms of, of association of bow and arrow technology, that's kind of a different pattern in a way, particularly in infancy to what we see ethnographically, where we see more association with infancy and bow and arrow technologies.

but there are some nice examples, and I'll touch on a couple of them.

So this is actually, this was a, a very nice paper, published by Randall House and colleagues a few years ago, exploring, a couple of burials at this Peruvian site, one of which was a female burial made the news, might have seen it, at the time because, they found this female, they reckon she was about 19.

So I've included her in this talk, because she was a teenager and we think of her as an adult.

But in our kind of exploration, thinking about adolescence, adolescence is a long period of time and whether or not she was considered an adult by her, her community is something that can be a little bit challenging to know.

But I think in, in, in a biological sense, we could think that this person is still becoming an adult in at least biologically.

So she, and very intriguingly, she had this kind of a whole kit associated with her in the burial very clearly, including these projectile points that are associated with spear throwing, with hunting big game.

So this made the news, we talk about gender at the end, or this kind of, suggesting that in the Americas, at least in the, in, in the time periods, there is actually a very strong association between projectile points and female burials.

So they did a really nice review, of the archeological evidence of burials and the association with hunting tools and basically the, the statistical probability looked like it was unlikely that this was a, a kind of chance association and that we can look, we can think about the, the record, archeological record is pointing to, females, engaging in printing, as I mentioned back here.

What's interesting here is that as part of that review, they both, and, and cd b association with the projectile points in infancy.

So I thought that was a really, a really interesting, kind of maybe sociocultural association without it being children actually learning to hunt yet.

So, SGE, in Russia is another, really interesting, archeological site, dating two, mid upper lithic and I'll focus here on these two sub-adults, which have been the subject of lots of, different, publications and most recently by Mary Lewis that I, and colleagues and Mary is in my department at reading.

And, so we have two males, buried together in this particular burial at the site.

the male on your left is, was about 14 years old at death, and the male on the right is about 11 years old, at death and so Mary and April and colleagues, just re just, aged these skeletons as best they could within a framework that Mary's developed.

So what's interesting for me about this is that they have, 16 mammoth ivory spears associated to this double burial.

and these vary in length from very short, 27 centimeters, which to my mind is not a sphere, but another type of, weapon, probably a possibly a throwing stick.

but I haven't found, very good analyses of the weapons themselves from youth ils, to 2.47 meters, which is this sort of similar, length to the Sian spheres and most of those ivory spheres appear to be associated with the younger boy, but the longest one, seems to be associated with the older boy as well as, post the grave goods.

and there are some sort of pathological, abnormalities, including, sort of, bowing of the legs of one of the boys, which, house I think explored as being, potentially, signifying, difficulties with, with, engaging in hunting, but also mentions that there are high levels of activity, on, on the skeleton, suggesting that potentially they, they were actually quite engaged, physically engaged and maybe they, they were already hunting, at this stage and what I thought, so one, one of the other interesting things about the spears is these aren't, although these could be symbolic in terms of the burial, broken bits of similar ma mammoth ivory spears are found, at the site suggesting that these were definitely hunting tools that they were, that the community were using.

but just for some reason they're associated, in the burial and there's actually an extra, if you think about it, 16 mammoth ivory spheres is a huge thing.

That's a, that's a huge investment in time to make, something, something like that and to, and to put, put into that burial.

So Michelle Langley, has done some brilliant work, I think on, archeology of childhood and weaponry in particular.

So Michelle herself started with, kind of osseous projectile studies, particularly upper paleolithic osseous projectiles and she's done a couple of really nice papers, looking at whether or not we might see kind of repurposing of broken and used weapon components.

so looking at these kinds of, osseous subjective points from, these French sites from Ate and Ash.

so she sees these kinds that some of them are, are perforated, and then some of the perforations are really badly done and other perforations are really beautifully done.

So she discusses the kind of the possibility that the kids themselves are, might be doing some of the perforating, because it's not very, very perfectly done.

and then you see kind of these kinds of, broken, broken projectile points that do indicate, they kind of reworking, reworking them just like we see at shunning in recycling of the, of the broken weapon points and some of them are really nicely recycled and repaired, and some of them are really badly done.

So she kind of explores the idea again, that kids are kind of learning the materials, learning the objects, and engaging with the materials, that in that way.

So another area that, may be a little bit more challenging to think about, archeologically and art is obviously hugely debated, the, the purpose of art, but there's some really nice work done, on the, the, the potential for art serving as, functioning as visual props for storytelling.

So April herself has done some very nice papers, recently exploring that and then there's other, kind of connected, theories around whether or not art might have functioned for, for, as sort of holding ecological information about animals.

So I'll just very, very briefly mention some of those, those ideas.

so, and also the studies that have, have shown in the recent years that children are present in caves, they are engaging with cave R.

so, Jessica CUNY Williams, has published quite a bit on finger fluting and looking at the sizes of finger fluting and showing that kids were probably engaging, in, in parietal art hand prints as well of infants, as well as children and adolescents, in caves, footprints, and other, other ways of seeing kids in these cave contexts, I think shows us that they're engaging with the art and part of what they call, communities of practice.

So kids are, are there exploring, seeing, and probably being brought into this, community and learning about, there's a potential that, that these are kind of learning, learning, resources for kids, learning about hunting, learning about animal pelts.

so this is something that, Dale Guthrie explored already back in 2005 in a book on, on, on cave art and there's some issues, I think with Dale Guthrie's interpretations, particularly around gender, that a lot of people's work has had in, in subsequent years have shown that girls and, and women are part of cave art and part of caves and the ing caves making the art.

but the, but the actual core of the concept, which is that these maybe not ice age blackboards, as I say in the paper, but, something a little bit more kind of less didactic and a little bit more kind of a community learning environment that we might still be seeing that the kids here, I love this because I picked this out because you can see that the finger feedings are crossing over these kinds of engravings depictions of animals in the cave walls.

So you can see that direct engagement of kids with, with the animals, depictions of animals, and again, back, to Michelle Langley's work, within that context of thinking about kids in material culture, she also, explored, o biliary arts and the potential for either, the fact that figurines, which we often think of as symbolic, could they have been

kids' toys rather than symbolic objects and or could some of the broken or, discarded adult figurines been engaged with them by children in a sort of second phase of use.

So she talks about sort of the polish and of, with a lot of handling of some of these objects and, and the fact that they're broken.

What I think is also worth pointing out is that, some of these, some of these figurines are not just about prey animals, but they're about dangerous animals in the environment.

So cave line and, and bears, animals that kids and, and adolescents would've needed to know quite a lot about in order to stay safe.

So it's important to think about weapons not just as a hunting tool, but they're really important tool for, self-defense as well and she looks at, she, she looks at the kind of footprints around these sculptures of bison, in, and from bass.

so this is all upper ic, material culture.

and, and I think she makes a really strong case for the consideration of children in terms of engagement with, with animals as depicted, by the, by adults in the community and what about the, human fossil records? So move away from art, and acknow, which is the study of tracks and footprints.

So I was quite light touch on this in my paper.

I'll confess I didn't get into great detail, but some of the questions we might ask, and do ask archeologically are around things like whether or not we can see trauma patterns, to help us think about age and gender, with respect to hunting.

So there's been quite a long history of thinking about trauma, whether those trauma patterns actually indicate, much of anything in terms of nand withal versus hobo sapiens, and also age and gender, and also how do we interpret the presence of sub adult footprints, at hunting sites.

I'm kind of slightly, slightly grouping the fossil record and the, and the tracks here, but, with the fossil record as well, how do, might have pathologies interfered with children and adolescent hunting activities? I already touched on that was, and at what age, sorry, I'll just go back.

Alright. at what age might have kids actively hunted in peer groups, and one where they have learned to hunt alongside adults? So that I'm, I'm, I mentioned that on this slide because there's a physiological component to kids growing up and being able to actually handle a given technology.

So think about bone arrow technology.

there's a lot of fine motor control, but it's a much view, it depends on the, the bone arrow, but you can have quite small scale bone arrow technologies and personal spheres.

You might need a certain light and, and, physiology before you can handle an adult sized, tools.

Am I doing wrong here? Sorry. Okay.

So in terms of patterning and trauma, I won't get into in great detail.

TriCast did some, some interesting studies, back in the, the 1990s and argued that there were kind of different trauma patterns between Neanderthals and homo sapiens and suggesting that Neanderthals were experiencing particularly high levels of trauma that suggested that they were what kind of a lack of projectile technology, a lack of the ability to, to hunt at distance.

He kind of walked that back, later and here's a, a more recent study, the buyer and colleagues, which actually found there to be not much difference in the trauma patterns between Neanderthal and upper paralytic, homo sapiens, so that you don't kind of see a significant difference in terms of the predicted, trauma prevalence.

But what I thought was interesting from thinking about learning to find is that there does seem to be, they did seem to find a difference between, age and gender.

but oh, gender is, apologies.

Gender is Jenny Francis next, younger Betty.

But they, they found the difference in the trauma patterns where you had, Neanderthals may be engaging in hunting, at a younger age.

And, the catalytic, in, in contrast, alytic humans were, were, experiencing trauma more in adult phases and from a pathological perspective, there are, there, there are some kind of indications that potentially, pathology could impact, children's ability to learn and be engaging in country in a sort of, in contrast with what might be a kind of normal, normal, life history pattern and this, came, was something that was discussed very briefly in Mary Lu's paper that I just mentioned, looking at, a propell, European alytic adolescent when they looked at Romeo two who had a, a skeletal dysplasia and this was suggested, by Tilly, that could have limited, his engagement in these upper propelling big finding activities.

So potentially there's something around there, that, that pathology might've gotten the way in some cases of learning how to hunt and then, then finally, in another study thinking about this, these, these demographics of, of death, this paper by Jenny French and April Noel looked at, Ian Burials and found that, although 71% of the burial, adult burials are male, only 59% of the adolescent burials are male, and they, kind of engage in the potential in this paper that there was therefore a greater engagement by the adult males in the, the big game hunting.

That was a risky kind of activity leading to death and that there was maybe some, a, a kind of a limit or, or a limit on the adolescent engagement with basically ing until they had that maybe the physiology and the skill, to, to do the most dangerous type printing.

Okay, so onto the footprint, this is actually something that I didn't, engage with much in my paper, much to my annoyance after it was published.

but there's a fantastic, site, white Sands National Monument, New Mexico, and I haven't got a huge amount of time, so I'm gonna rush through it unfortunately.

But they're, they look at the kind of the demographics of the tracks and footprints of this, and the engagement between the, the human footprints and footprints of, this giant sloth.

And, there are these really interesting examples where you have sloth plus human cracks, and they very, very briefly mentioned in there that potential that those footprints were an adolescent who was kind of yeah, tracking, tracking, and stepping in the footprints of, of this giant sloth.

So I think that's really, and you can see here also they've done a kind of a guess at kind of the age, bracketing of the footprints in general at the site, not just the, the ones associated to the giant sloth.

So I think there's some interest there in terms of human footprints.

I'm taking you back to Shonen now, a long way back again to 300,000, years ago where, colleagues published, year before last, a whole host of different, footprints at this paleo lake, including three possible prominent footprints.

and they, surmised that two of the three footprints were probably juveniles, but they found the interpretation that these juveniles might have been engaged in the hunting problematic, partly because of how we think about hunting in the, in the, the lycine.

We think of it as an adult activity.

We think of it as a male activity.

so for me, this, this was a little bit like, oh, well why, why, why might these prominent footprints of juveniles not be engaging in hunting in some way at the site? Of course, they might've been foraging as well.

but I think that, that there's some potential there to explore, not just when you see children and juveniles in settings to kind of leap to an assumption that they're there with a community, group and being protected, but also potentially learning how to hunt, and learning how to forage.

Okay. So, in the second half of the paper, I explore how maybe ethnography can help us to fill in a lot of the gaps that we have archeologically.

So we have challenges, which I'm sure you could see from the archeological record sparks evidence, how do we interpret the evidence? so I kind of did a little bit of a review of reviews of, of this subject.

and there's some really fantastic, review papers out there.

Particularly, I relied particularly heavily on Catherine McDonald's, review, which is really fantastic.

paper, ham Whitaker's, chapter and ages and abilities book was also really interesting.

But I do think there were some kind of newer findings that were, were warranted some exploration as well.

so back to Michelle Langley again, who explores in a different paper, with, lister how kind of miniature weapons ethnographically feature a lot in the material culture of children.

and they also look at how there are kind of child specific weapons, which I thought was really interesting.

and a good point.

Kids have different kinds of weapons and, and we see that with the Baca as well.

the kids have reed spheres that don't, they're not hunting with large iron tip spheres. They're hunting with, with a child specific type of weapon and you might be learning the, the skills you need to learn with those weapons, but they're kind of different types of types of things than the adults are using Ton.

in this other review, which was a different sort of review paper, Felix Rita and colleagues looked at 54, different foraging communities, record with the, with records of children's object use in play.

and they found that weapons were actually the most frequent object that have been reported in terms of children's material culture ethnographically and then when they do mention gender, when these states do mention gender, the weapons do appear to be exclusively, they say in this paper exclusively used by boys.

So I tried to kind of think about what we see ethnographically that's quite a small, small print, but it is in the paper, where we might start to kind of see patterning in terms of these ages and stages and ethnographic associations with material, material culture of, of the weapons themselves.

So there's a slight difference, I think, with spheres of bow and arrows as I mentioned already, which is that in infancy I didn't see any examples of association of of infants and spheres, whereas you do have some examples ethnographically, where kids might be given, not kids.

Infants might be given bow and arrows, as a gift in infancy, as a sort of a charm.

So this might start to receive these kinds of gifts and we can see, and I didn't see anything like that with spheres.

weirdly I saw very little about spear throwers ethnographically.

So whilst I see spheres and spear throwers archeologically, there wasn't very much, about spear throwers and children ethnographically.

So we have this kind of difference here that I think would be interesting to try and fill in that gap.

and then in early childhood ethnographically, we see kids starting to do role playing. They'll spear their spear things like invertebrates.

First we see this with the bath and the butterflies and their grasshoppers with their spheres first, target oriented games and, starting to accompany older children on peer, peer hunting groups.

and, similarly with bow and arrows, so things like hunting, small game like birds and lizards and then in middle childhood they start to, kids with spears start to more actively engage in the spear hunting.

initially hunting small game.

They'll use traps to, to hunt birds, but also, without traps so that the bayaka kids will hunt rats, and find, locate the rat nest and hunt the rats using their spears and then the spear throwing and handling practice begins, with using these kinds of simplified, wooden spears and sticks with bow and arrows.

We see, kids in middle childhood starting to hunt larger game using either smaller sized bone arrows or even, adult sized bones and they start to hunt alone.

So I thought that was a different, an interesting difference between bow and arrow and spear use.

Whereas the spears seemed to be kind of more a group communal peer hunt, peer group hunting activity, the bone arrows, the kids can kind of go off on their own or in smaller groups and they start to hunt larger animals.

So maybe bone arrows are, are a technology that kind of support earlier engagement with hunting, which is interesting 'cause that's definitely not a technology that's associated with pre homo sapiens and then in adolescence with spear use, we see spear throwing, javelin throwing, with young adolescents, they start with lighter javelin.

So this is a particularly nice study, I think, dear Hewlett, and also so colleagues looking at, chabo hunting.

and so they will start to hunt, small game like DA or, and then the older adolescents, start to hunt medium-sized game, medium-sized game.

and they use the, the, the biotic adolescents, for example.

They'll use the same spheres that the adults use.

and, and so they're using those same materials and same types of weapons once they reach adolescents and with bone marrow technologies, the adolescents seem to start to hunt more challenging prey, at, in this age, and using more dangerous technologies like poisons and barbs.

There's a lot of nice, I think, new studies that have started to look at the process of teaching and learning as well.

and my colleague, Shayna Vy and I, we've worked together on quite a lot of different, types of, of studies, specific things around the, the Baca and how they learn to hunt.

we've done some experiments, which I'm still working on analyzing the video footage of, but it, we will publish that from hopefully this year.

and what we kind of, what we kind of can say as an overview is that learning of hunting skills does start an infancy.

and it seems to progress through then through child and adolescence, as I mentioned in in that table that I've just gone through detail.

and that social learning, including in peer groups is really, really important for learning, to hunt, at least with spheres.

and, and that social learning tends to occur before the more like individual one-to-one teaching that happens with, with the adults and kids seem to acquire their skills in lots of different ways, through observation, through their peer group play, their hunting forays, and games that are oriented specifically around learning to throw and hit targets and that was really important to me to, to, to think about that in terms of what I mentioned at the very beginning, that development of skill and that importance of developing those skills physically early enough in childhood that you have that and so you might not have the, the, the body strength yet, but you start already to, to kind of have this engagement between brain and body, the weapon, the tool, and the object and of your, of your, your, the object of your, your kill eventually.

and contrary to the narratives that kids aren't really taught actively in forger societies, one of the really important, findings, in this paper led by Shayna, which was part of that, that study we did of bio alpha learning how to hunt, is that actually with spear hunting and with with hunting, possibly in general, which is thought to be a particularly complex, skill, there actually was quite a lot of direct teaching going on, and there was a lot of language that was going on as part of that teaching and the teaching, involved.

So we have all hours and hours and hours of, of video footage of these hunting forays, and we see demonstration and practice going on in these hunting forays, these teaching forays between the adolescent and the adult.

So they go out in a pair and they'll learn to hunt with the spear in this way and there's lots of, this, the teasing going on, that sort of thing as well.

But there's definitely direct teaching, and, and instruction and, and involvement of language in, in that, teaching.

So that's something that, I thought was a particularly interesting thing that came out of that specific study because it kind of goes against the narrative that, that, there isn't teaching John Lewis.

Yes. so, and then, what I think we still don't understand so much is that kind of the relationships between experience and body size, strength and age, and how those might relate to the, the specifics of weapons scaling, weapon type, but also the type of prey that you might be hunting in the environment.

So these are kinds of things that are, are, are as a part of, some of the research that I'm trying to do now.

These are just, that's just a very quick slide of, some of the images from those studies around this spear throwing study that we've done.

I'll give you a little spoiler alert, which is that the Baca, are much better at hitting a target than my javelin athletes were when I had them throwing, starting in spheres.

So, that's probably not just the spheres because these are all so heavy and long spheres, but there's skill that they've developed over, over many years and being embedded within a community of practice.

So back to that concept of the art making also weapon weaponry and hunting, I think could also be something we think of as a community of practice.

danger. I'm, I, I'm, I'm nearly done.

So this is a, this is a one to kind of make sure that we, we talk about a little bit.

I know you want me to, to talk about gender and I will at the end.

but I think, this, this is really interesting to me.

So there was just a paper that a colleague who's done some really nice studies around, split napping and, there's quite a lot of studies around Flint napping and whether or not we can see material culture of childhood and learning how to flip nap.

So I haven't talked about that at all today cause that's not hunting specifically might be learning how to make hunting deer, but it foot napping is, is all kinds of other tasks as well.

and this colleague sent this paper round to, to myself and to Shayna, and some other archeologists saying looked at this, this, particular assemblage and here's our paper.

this might be kids in these kinds of small projectile points and, SHA Shayna sort sent me a private email because some of, some of the replies by the archeologists were, shall we say, not particularly polite, but very dismissive of the idea that kids might ever be engaging in anything that might be dangerous.

So as in a sharp object and so for the anthropologists in the room, this would sound ridiculous because of course that's a very western, idea that kids, that people worry about kids in sharp objects.

so, Lance's done some nice work on this, hasn't it? There's a great pic that that famous picture of, of the child with the machete.

so there, what I found in the review backs up that Lance's work and other people's work, which is that they're not that concerned about the objects, right? The things that they're concerned about with their kids and learning, learning to hunt and going out and hunting for are things like, snakes, predators getting lost, not having access to water, weather conditions, stuff like that.

Those are the things that they're concerned about in terms of scaffolding the hunting and learning how to hunt.

They're not so concerned about the, the material culture itself.

and one of the other interesting things I thought was, around this danger was that the environment itself probably had, has an effect on the age at which children in a given society are kind of allowed to join adult hunting expeditions and that's particularly the case for large game hunting.

and then they, the, those kinds of risky scenarios and I think it's, it's, McDonald talks about this in particular in her paper, risky scenarios, maybe mitigated than more in, in a, in a risky environment through things like object and role playing near the camp.

These are some of my, kind of questions now.

This is data that's just coming out of the field, sort of getting texted to me in middle, piecemeal notes that I'm gonna need to translate.

which is kind of trying to understand better who makes, who makes kids tools, who makes kids hunting weapons, do they make them themselves? are they different? This seems to vary cross-culturally.

It's not very well documented, but weapons do have often significant organic components, so we wouldn't necessarily see it archeologically.

which is where I think the ethnographic record can help us think about that, that kind of organic component.

Our kids weapons more ephemeral than adult weapons possibly.

but, we do see again, that they, they, they do use both toy toy weapons and they use these functional weapons.

So how can we tell archeologically what the difference is? It's, I think that might be a challenge, not necessarily an insurmountable archeological challenge.

cause there are things we can do with things like use wear and, and macro fracture analysis, of these potential kids tools.

but yeah, so they are often different, not just in scale, but also design material.

I've run out of time, so I'm just gonna wrap up real quick, which is to say that kids, do they focus on different prey animals a lot of the time, so they, as I, as I mentioned, in, in the earlier slides.

So here are some examples of some of the, the animals that they might, be learning to hunt with and I don't start with hunting, hunting the large game, and here's the promised, the promised ending, which is this, that kind of the complex relationship between thinking about there've been a lot of debates in the last couple years with various papers and analysis of the ethnographic data around, female hunting, in the ethnographic record.

so what I found in looking at, at the review papers and, and, and, and engaging with this in terms of child children, which is that, it, it, it does vary cross-culturally as we know the engagement of hunting by men and women and also with girls and boys.

There is that strong association between boys and toy weapons, as I mentioned, and Rita's review, Rita and colleagues review, but girls play at hunting.

they do play at hunting, and they do hunt in peer groups and with adults in some communities.

and so in one of, shayna's review papers comparing Bapa and Za, it does show that although boys will engage in hunting play more than girls, the girls play at hunting more than the boys will play at house and I thought they don't actually talk about that in the paper, but I thought that was really, when I looked at the, looked at the results in that table, I thought that was interesting.

You know, that there is, there is a sexual division of play that mimics the, what, what is happening in, in the adult, sphere, but maybe girls kind of cross into that boundary of hunting more than we think they might be doing even in those communities and as I mentioned, I think we still have a poor understanding of both women and girls hunting and the associated material culture with, with that.

But I, I stand corrected if, if, I think you mentioned a, a good, some, some good papers on, on that, already.

So I will leave it there and just, invite the, the debate.

But I just thank you very much for inviting me and also I just mentioned a few of my colleagues who helped me with this, this paper and Cynthia Great.

Audience questions

Thank you so much. A fantastic review of all the areas education.
Just the point about Joe's, had to, boys, sorry.

I mean yes. I had to mention there of, mean boys don't play house for girls play hunting.

Mm-hmm. I mean, critical point to me seems to be that, hunter Galler, immediate hunter are always bride service don't Have, are always Right.

They bride service uhuh, but boys don't get married. Yeah.

They don't have conjugate rights at all for a woman.

Okay? You gotta earn those, you gotta earn their, their their sexual access Okay.

By providing me. But that doesn't work unless the, unless the, the girl plus her mother can say no okay.

At any time, and then have divorce, be there guys being useless or lazy.

That's, that's it. No sex and that in turn means that women can motivate the guys by totally access the safes.

Mm-hmm. And then of course you have the fact that that's regarding us management of the hunting.

Mm. Because it is, so what, what I'm saying is that girls are always well to grow up.

They're, I mean, they're preparing to hunt. Mm and then they in, they will be really hunting because they're managing, they're motivating stuff, Which you mentioned a bit before I gave the talk, which I think is a really interesting point about that management of the hunt.

Something that I really hadn't kind of considered before, Never find going on without some kind of magic.

Yeah. And the hunting magic is all about sex. Yeah and essentially it's about not having sex before the hunt.

Yeah. And then if the hunt fails, especially Mary, tell me all about this.

If, if, if the guys going around an elephant something and something the elephant kid kills the hunter, well, who's been having sex and they blame the women, yeah.

They're not being strong enough of it.

Then of course, in addition to that, we have all the symbolic stuff, which is had, for example, a girl when she menstruate, she's, she's shot her first ever shot.

Yeah. And, and, and, and, and again, dur talked about all that.

So they, all these symbolic things to make it not that surprising to find that it symbolically and in burials Yeah.

We may not relate it to the hunt, necessarily.

Wouldn't try this in the archeology because it doesn't mean they're physically doing the hunting that's managing the hunt.

Yeah. It's like normal To hunting.

So I think that's, I mean, I think that's a really nice example of where the ethnographic record can help us sort of start to not definitively interpret the archeological record in the deep past, but help us to consider the things that don't, might not leave a material culture signature, for meta techonomic reasons, or because they just don't have a material culture element that we're gonna see archeologically.

and I think the, the thing that I kind of, I, I had a little bit more of a discussion about it in the paper initially, and quite rightly, one of the reviewers sort of pointed out that it's a much bigger, it's a much bigger discussion that's had a lot of engagement already.

so I took it out, but I do in, in the paper by having, having a think about where the ethnographic record, where we, where we need to be careful and not say that just because we don't see something ethnographically doesn't mean that in the deep past it is over vast waves of time and especially when we're talking about pre homo sapiens, other things that absolutely been occurring.

And so it's not big, it's not for me that the ethnographic record tells us what, what the past, what happened in the past, but it helps us to kind of reevaluate and explore these kinds of alternative and invisible aspects and in fact, that was the theme really, of the, of the collection of papers on children and childhood that April, edited was around that kind of the invisibility, the sort of secret lives of children.

What are we not seeing archeologically? I Think it's absolutely wonderful to have the emphasis on that stage, those processes of learning, particularly looking at spears, looking at the, I've watched that with the boilers, with the, with the za can see that and of course, what, what happens for the za, I mean, the definition of adult for a boil or going into initiation with the za is mnet is, is killing an evernet animal.

Okay. That with being able to, with the great big heads of bones, which is an unusual power bones.

Yeah. That that, that they can kill an animal in that category.

Right. And that means he gets the chance to marry, if you don't call it, and Bri do bribe service for Yes.

The girl with his choice he can get.

But, it's also worth mentioning, adding to what Chris is saying, the famous examples with, the Kalahari groups that, well, where a girl in her menstrual heart, one of her acts is that she takes a bow and arrow to shoot a mask of Ken's ball.

Oh, okay. and that is meant to be the only time she touches a bone.

Poison. Poison.

A poison poison mean, it, it, it has the implication of the, the taboos between months of love and poison.

A poison which are very much found with the HUD as well, which suggests they've got antiquity in into manufacturer poison.

so yeah, that, that is a typical example of a symbolic, which then gives great luck to those frozen arrows.

but she's not gonna touch any of the other poison errors and where it will go near them again.

Yeah. and yet the classic example, which Jerome tells also where the women are, this is a great elephant hunt where the women are going into trance and, and singing in trance and have this kind of across the forest vision of where is the elephant? And then they tell the men, that's where to find the elephant, go and get it.

Oh, wow. That's called, that's called a women's hunt.

Women's hunt. A women's hunt can organize.

That's interesting. Yeah. Obviously the whole process Yes.

They generated. Yeah. And it's really, it really worked.

It couldn't think, it works.

I dunno what that dasher thinks, but yeah.

Can I just pull up the, topic of something more intangible? And I, I think it's what pops up occasionally what we presenting, but it's the concept of teamwork.

Yeah. When you showed the picture of the double barrier.

Yep. The thing I thought about was it looked like to me, like I said, golf clubs and, that which might be a bit of a, a lead, but, that golf clubs, did you say golf clubs?

Yeah. I mean that you have a whole variety of different levels.

You look at ball around a bit of green. Yeah.

And, but also that, when, well, when wools start hunting, they go out in a structured pack.

They don't just go out as a mo the, the packet will just disrupt way and you keep the, the younger ones near the back so they don't screw things up.

Yeah, yeah. and, but, but that also asides humans.

You don't want your kids running around lobbing spears every time they see something.

So my guess would be that in, well, you may be able to tell me this.

In hunting boots when they go out, they use the younger nails, basically the spear carriers.

Mm. So you have skilled one with going out and being like your Yeah, I've got the name of the group who act, really act super accurate at throwing to the front one. Send me another, They'll me another.

So the, the, that's a really interesting idea actually and I think, the, the classic interpretation of lysine hunting spheres is that it's a large, that it's a communal group activity.

I think it's important to mention that ethnographically, it's a little more complicated than that, and it's very environmentally and prey specific.

so if you are hunting specific types of prey for whom a group hunting and the environment itself, that works.

So the interpretation around hunting at shunning in, for example, is that you have a, a group of adult males.

and some people would say only thrusting, I didn't get into this at all today.

And, and others like myself, think that at least some of the spears, were designed in such a way as to, to enable a kind of different sorts of, hunting, hunting strategies.

So distance as well as as contact and I think that what's what you're suggesting in terms of thinking about age and maybe stages of where you might be within a group hunting context, if you are hunting with spears in the group, might not always be the case.

but if you are that, that the younger or that might be kind of a graduated engagement in terms of location, but also maybe the, the particular object.

So I kind of hinted at that a bit with the, with the very speculative idea that some of these smaller weapons that shining in could have been adolescent or maybe even middle childhood tools where they're engaging and observing hunt.

This doesn't show show kids, but, one of, Paris' other images of reconstructing the hunting environment.

So they, you can see here they're hunting birds, but they're also, depiction of a woman hunting with the throwing sticks, not with the spears, but with the throwing sticks and I think the, the possibility that they're, they're in the environment, in the, in a community sense hence the, the, the connection with the footprints and kind of, not just back in a kind of home home camp type area, but actually here at the activity site and there's a very nice, painting as part of a public, a book for the public, which is published on the site, which published in German, which depicts, the lake.

It depicts women throwing the spears at the horses and an old man teaching the children how to make them, which I thought was a kind of, at least it might not be all wrong years ago.

We don't know. We don't know.

But I think what was good about that was the engagement of the, of the children with the manufacturing phase of the, the tools and the fact that they're present in that activity site, as we can see with the footprints and, and potentially with weapons.

It's huge. It is speculative to think about, about childhood in, in through the weapons scaling itself.

But I think it's you you say it might be wrong, but we don't know that about gender and hunting and the deep past.

We don't know that. We just don't, we can't know that about at, at the moment from an archeological perspective, we can't know that. And Certainly if you're talking about very Yes. So if I'm gonna be radical here in the radical archeology talk, I'm going to say that just because you see that in amongst contemporary hunter gatherers doesn't mean that women aren't engaging in big hunting in the past. We don't know that We think, and, Lacey have the onus of proof on them to say, oh, the agenda division of labor started 9,000 years ago.

It's a little bit tough that Yeah.

Yellow had a there about then. Well, yeah.

In terms of female energetics and so we reproductive there are difficulties.

Why would you there, there's also what ves for the core of the Eastern Kalahari the women's attitude hunting's boring, let men do it.

They wanna be social on their foraging trips.

They don't wanna be creeping around in the difficult push necessarily.

Fair enough. But my Yeah, but focusing back on kids Yeah, no, focusing back.

I do, I do, I do like, I do like the, the idea that you have a kind of community of, of practice and learning and engagement of, of children and adolescents within the

environment, within not necessarily as you pointed out during that direct the direct, spearing of the large animals, until they, they have maybe the physiology, the physiological capability as well as the the, that you don't, you don't wanna risk children's lives in too young and in Kind of, yeah. I would say that the most important thing if you're hunting a big game as it all ag it and counted, is to know when to away.

Yeah. We've got some comments Yes.

To come back. Yes. We've got comments and we've got, as Ian said, Matt Charles asked you how many ideas on the evolution of childhood, who Charles trolls, which Charles, it might be our trolls, shall we put a gallery? You can see now is any, is Eleanor or Ian? Yeah. Just, Now we Can't, does anybody online want to question? So Charles asked, do you have any ideas? Charles, Do you wanna speak? I Did ask them to to put if they wanna say it out loud, But sorry, I've been muted, but, I'll, I'll put the video on.

Great. we can't see you except Answer. No, no, no.

it's just something I'm interested in.

I know it's, not easy, but if look at the nar Omi boy, for example, I mean, he's almost adult at the age of 12, I believe.

So not much in the way of childhood then, which is sort of early homoerectus I think.

Or, I can't think of the other species name.

Erectus or Ag Augusta.

Ag, yeah. Augusta is sometimes called that.

But the question is the evolution of a childhood adolescence.

Yeah. Seen as a possibility Thing. I mean, there are, so I would, I would recommend you to April Noel's book on that who is, has a nice kind of review of, the Paleontological record in childhood.

My short answer apart from that's not my expertise, is, that my understanding is at the moment that develop that, that the question of the emergence of the longer extended childhood is at the forefront now of, of what we want to try and understand and the one of the difficulties with that is just the paucity of the, of the fossil record.

Mm-hmm. particularly with children's, remains not preserving as well due to bone mineral density and potentially differential later, later.

differential, treatment of the bodies.

What was the surname of the book growing up in the is age Right. Growing Up in the ice age Fossil archeological evidence.

Okay. Facial noelle's. But yeah. Thank you and so she, she, she goes over the fossil evidence, and that those questions around the emergency Yeah.

Of the different stages of childhood. very well. Yes.

Children play and experimentation. Yeah and how much the children around the technology and these we've seen the technology, so I'm just thinking how much would they learn? How much, how would they be developing it? And like it's more just a, There's some really, and I don't, I don't have them particularly on, on this, PowerPoint,

but there's some really nice kinds of papers looking at the importance of play in childhood.

So in terms of archeologically Felix, Regis, as well as Michelle Langley and April Noel, I've all kind of explored that importance of play.

So I didn't talk about that so much because I'm kind of focusing on the skill building. But you're right, that play is a huge, method through which children learn. and, and also experimentation.

So, in this paper, for example, led by not in this work, isn't it? She's amazing. She, she's too, keeps me on my toes that for sure.

She always has new ideas and actually she and I met here at ECL cause I invited her to give a talk here on, children learning assistance skills when we were both finishing our PhDs.

So Shana is at Durham now.

It's about in the psychology department.

So this paper here, we explore innovation and play, from ethnographic and archeological, evidence.

So this is shana's, I think next big, big, body of work.

She's just one in New York and looking at peer group learning.

But, yeah, she, so she, she is explored and a lot of other people as well explored that importance of play experimentation.

It's harder to see the archeologically not the play so much.

cause there's some nice examples of propeller they, of kids kind of going off and having their kind of secret spaces in their own little hut stuff out view adults maybe playing in, in caves and things like that away from adults.

but we do see a little bit some, some potential examples of experimenting going on in Flint, napping.

But it's really hard with the stuff that I do in terms of play and experimentation, because so much of it wouldn't preserve and I think this is one of the problem anyway, when you're looking at organics and woodworking and things like this, it's just really hard to know what are kids capable, ? But yeah, so that, that play and experimentation I think is a really important part of it.

and I didn't show videos.

We've got some really nice videos of kids doing kind of target practice and learning how to they, they hit, they throw their spears that I think's palm trails and um that they're trying to hit larger things first and, but they they're also playing at hunting when they have a butterfly they're, they're of, of hunting and butterfly.

But yeah, no, I think that's, it's absolutely true.

That play and experimentation would've been an important part of it too.

Probably not just Yeah. For the innovation as well as Two, one, we, we, there's someone on Zoom and then we'll come to Chris.

Okay. So two on Zoom, we you'll be one. Same.

Okay. Eleanor Maki, did you want to speak, Or, Ian, is it Eleanor or Ian? Ian, I suppose. Yeah, Just very briefly, you, you'll be familiar with, Malise lombard's work on, on, spear Tips.

Absolutely. Yeah. And actually I didn't mention her work, but she's done a lot around kind of cognition in childhood.

Yeah, absolutely. Yeah. Yeah.

I was wondering, what do you think of, I mean, she's putting forward this argument that, thrown spears with, with, with stone tips seem to be a very late development.

She's talking about sort of marine isotope stage six.

So that's sort of from 200,000 or 190 down to 130,000.

So yes, that's, that is actually during our speciation or the latter part of our speciation In, in Africa.

Yeah. Got any thoughts on that? yeah, different topic.

but, I do have thoughts, I have a paper coming out any day now, by my colleague, Dirk Lader, who published, on, on the Wooden Spears with, thinking about the problems associating, T-C-S-A-T-C-S-P and Wooden Spears, and the origins of throwing, which isn't quite the same as what you're asking about tipping, spears with, with stone points.

I definitely have thoughts on it that probably extend beyond, my, my ability to answer it accurately today.

But I think I would say that there's, I, I feel that in Europe, there are examples of, stone points from earlier in the archeological record bi, for example, of 200,000.

and then arguably Kati pen in South Africa, as early as 500,000 that suggest that actually the emergence of stone tipped weapons and then the question of throwing is a, is a different one, but an interrelated one that 160,000 from my mind is actually quite late.

and probably it was earlier than that.

That's my, that's my perspective. Okay.

On the basis of the, the evidence as we have it.

Any thoughts on that Ian, Kathy Pan? There's meant to be, Well, I, I think even, I mean, I think the archeologists at Catto and the, these are present currently, I think sort of considered the earliest possible spear points.

Yeah. Stone, stone spear points.

their idea was that these were thrusting spears rather than, than throwing any distance and in terms of throwing, I think what We, because they, they tested them as thrusting spears and not as swearing spheres.

So morphologically, morph symmetrically, there's no, there isn't anything that particularly rules those weapon points out as throne spheres and that's the, that's a part of the subject of the paper that Dirk and I are publishing next week.

Hopefully it should, it should be out any day now, really.

Is that you can, is that, I don't think that the ethnographic records on morphometrics of, of weapon points is clear enough to, there's too much overlap to be able to distinguish between thrusting and throwing in the archeological records.

and that goes for the wooden spears as well as other, other spears.

But that's a, that's a point of divergence and debate for sure.

but that's my, my perspective is that that's, it's really, really not that clear.

and that therefore that's not pointing to the origins of throwing or threat versus thrusting.

so I don't, I think it's a watch this space and we don't know, answer, not that I think that they were throwing at Catchup Pan, but that we can't tell that from, from the evidence as we have it.

one more at Zoom and then Chris.

So Alistair has a question, and he also just commented on what we were talking about.

He said, I've seen a current Australian traditional hunter throwing a hardly workshop and branch and hitting and killing a ball at about 30 yards as it run away from him.

That's, that's a big killer bore. Wow.

Yeah. Yeah. It was on, it was on a, there was a, there's a, he's a mixed race Australian, native man who, had been in the, Australian army in Vietnam and he did a series of programs about traditional people's techniques and he just showed a man killing a ball with a, with a, it basically a branch.

Was it, was it thrown like a spear or like a Yeah, Yeah. He just, you went with no chance and it just hit him straight in the middle.

Like a, like a Throwing stick, Alistair.

Well, yeah, it was, it was what looked like, as I said, an unworked piece of branch, basically with a, with a, with a sharpened sharpened stick, with a sharpened end.

But it wasn't formed as a spear.

It was just Betty off a tree.

I mean, it was extraordinary, but it was so accurate and it didn't fly straight.

It flew because it was, wasn't exactly straight, so it flew, it just was extraordinary.

But this is I I think that I, I wonder what I'm saying is, I dunno whether the stone pointing was critical, because you can just get very good at these things when you practice. I mean I agree with that. Alice, Also, do you want to ask your question or should I read out what you wrote in the chat? Oh, about the girls? Yes.

I, I, in current homosapiens, girls typically grow faster than boys until puberty and is this also the case with h erectus and earlier my point being that until the advent of the full, FCC suite, was established, would the bigger female children have been more likely to be active hunters? I think I'm gonna put a, I don't know, label on that, but then a very question, it's a very good qu question and point, but I, I don't have the answer to it.

Yeah. Thank you. Thank you.

My question is quite straightforward and simple, but it it's about another obvious big controversy, really.

I mean, rather direct instructions among the Yes.

Experience directly instructing Yes.

Yeah. Experience.

I mean, it's, I wonder a bit more about it.

just about how can there be behavior, because I mean, as, Jerome Lewis is such made such a point that nobody tells anyone else what to do.

Yeah. And nobody gives direct instruction.

You so rather tell how can there be such a difference? I, I've seen your, I've seen some way you talk about how you define instruction.

So that actually was not instruction.

That was an experiment where they're just, where they're throwing.

So I have, we, so this, this, the subject of that particular study, the, the data underpinning it are focal follows, but without, an observer there.

So the adult and the adolescent, wore GoPro videos and went out on their hunting forays and all of the video footage, hours and hours and hours of all these different video footage was coded for looking for when instruction and is taking place, and exactly what form that took and I think that the argument we make in this paper is that because spear hunting is a particularly complex skill, that it is scaffolded in a different way to other skills and so you do have up until a certain age and stage much more sort of that different kinds of, of, of learning where you've got observation or storytelling or play experimentation, peer group learning.

whereas when you then, then there seems to be this kind of adolescent stage with the Baca in specifically in the spear hunting where they're learning and being taught these and they're not just being taught how, where to find the animal, but also as I mentioned, how to carry the spear, how to throw the spear, how to thrust the Spear yourself, An experience hunter, curious how Well you have to read the paper and let me know what you think Of the data. So there's some Hundred for 70 years.

I dunno if it's getting it wrong so much as, the kinds of questions we ask and how, and how and how they're being asked and how the data, data are collected.

So I think because Shana is always her, her focus and interest has always been in how children learn and forge of communities learn subsistence skills.

This is what she's done and I think largely that has been the, the, the narrative is that it's the right teaching and, and language and, and instruction is not taking place.

But part of that, I think Michelle Klein has, has done some interesting work on this as well.

Part of that depends on maybe how you think about what we call teaching.

and so some, some of that might be about categorization and what you classify as teaching, but I think it's hard to, to argue that hold the sphere like this, throw it like this.

No, throw it again like that.

Try that, that that's not teaching.

I mean, I think most of us would argue with that, but it Yes, but it, I mean, we, I mean with when you have, you have this factor of danger and when you're getting into situations that are more dangerous than drawing on this costly tuition Yeah.

Or or example Yeah.

Is quite clearly it would also be applicable with the HUDs or with use of arrow poison and so forth, and anything that's involved large and there might be a difference between spear hunting and bow and arrow hunting, because I think there are differences between these different technologies. But, But in terms of the creation of a poison and so forth, it is a, it is at a level of kind of risk or needing to have very specific knowledge for that.

Questions of the Just continue Is the what, public? not yet. but I, so I can talk to Shayna about making the videos whether or not the videos.

I think there might be ethics issues around whether or not those videos can be made public.

but we can have a conversation, right? Yeah.

So it's just many hours of work to, to do that.

But yeah, potentially, it could, it isn't, they aren't public now, but they, they could potentially be de anonymized.

Yeah.

Yeah. You mean the con in contrast with, with the teaching question? Yeah, yeah, yeah.

It's, I have it on my, at my fingertip.

It's Lingala Linga, the aka.

Yes. I, I, sorry, I'm not, it's not my, my, I don't have it at my fingertips with the specifics of the, it's in the papers if, yeah, I, but, I was, I guess I was interested in, if you've done any research into like, the differences between, children growing up in like, communities, these like communities Yeah and how they, how they, like, how like a feral child, a child that like grows up surrounded by animals raised by Muslim.

Oh, I dunno if that is, is, do examples questions about children growing up in hunting communities compared to Their Old children? Oh, children being like, I, I don't know anything about that, but it sounds very interesting.

I mean, what you would be able to do without a community, without that.

Is that your question? Effectively sort of if you were isolated.

Yeah.

No, I don't, I don't know anything about that.

So I, yeah.

I guess I was also interested in, like the, because we spoke about like how binary the roles are, but then might what, what, I don't know what whatever do, like how, and like there was a lot of conversation about hunting being interrupted, like being Yeah and like access to, Yeah. Yep.

I don't know. I don't know. Maybe like, I, I don't know the answer to that either.

I feel like I've been asked a lot of questions.

I don't know the answer to, at the end of this talk, but that's because, an archeologist and not an anthropologist.

but it's, it is an interesting question and, there, there probably people who have better, better place a lot more research needs to, I think in the word, yeah, more research needed probably space. Okay.

With you would have definitely possibility of a, a person male gendered stepping into female roles, wanting to do that.

It's accepted to do it and it's generally an acceptance from hunting gathering.

Certainly African hunting gathering society of people are different or diverse.

That's exactly, they don't make a big issue for it. Certain person that make a choice, Jerome would say that if a man feels be a woman, you can't primary, There might be, there might be, well, yeah, it's complex.

Well, it's complex. And also gender ritual is absolutely a demonstration of playing with being the other sex playing out, being the other sex happening in gender ritual context that happens with all African people that I know about and so there's a lot of sophistication in the constructions of gender among, you think it's cleta sex provision of labor, but the rituals tie around with that extraordinary.

So we get examples where if women are hunting, it happens in those s quite Extraordinary, I think arch archeologically speaking, there's certainly been more engagement with mm-hmm.

You know, the possibility that there are differences in terms of, of gender.

so a gender binary should we say? Yeah.

You know, that there's a more, and, and also, sex specific the, the idea of sex specific roles around things like, warfare and violence as well as hunting.

but it's not, yeah, it's, I it is a good question, but I don't have the answer.

Big question. there was a couple of things in just observing some of the art and symbolism.

Yes. The beautiful lion from isit Yes.

Has those arrow motifs that are just the same as shown on the bison.

the isit famous, the carved ivory knife with these, these ones, those Arab TIFs in their shoulder in the back, and the, and the, and it just reminded me so much of the b the isit phone, you get the figure of a woman going after the, the bison and she's got the, these arrows of just the same time in her backside and in the bison's shoulder and I, and I think that there's a lot, there's, there's something I didn't really Yeah.

You know, really talk about as much, but that within the varietal art as well as kind of the potential for the, the engagement between weaponry and animal, we don't have de human, human, depictions pretty often in a proply art anyway.

But I think that was kind of a, a large part of the foundation of some of Guthrie's initial ideas around that was that there could be some kind of holding of information about a target area, why you need art why you need art to explain where to fit an

animal if, But what's so beautiful about that? Is it, I mean it's our, our argument about, a woman's blood is the animal's blood, the ester it one shows exactly that.

The wound of the animal, the wound of women. Interesting.

There's like two things.

there was also in the Villa Maya, burial context, it was an some strong, beautiful ochre Yes.

In there as well. Yes. Which is Yes, re is is features a lot. And I mean It does, but it was very extraordinary, mark beautiful in amongst those anymore.

It's another question, John, we we'll wrap up on.

It is four point, the, the arrow points for things that look like Carols, they're not killed killing blows.

They, they're basically aim weak and basically stop the animals that might be poison the keep walking, but slower and then they can follow it die.

But it's a very tricky certain thing, which the More grilling I think Adam has done very beautifully.

We're looking at like leading edge of so much of this research and, and, Mary all all, But actually I didn't, yeah, I mean, I didn't talk in great detail about our research because I wanted to give the overview, but I think part of the, the research from Shana with Shayna and myself, and, and, and, other, other bits that we've tried to put together and to try and underpin some of the interpretations of weaponry with some more, some more data Is your, HDR paper accessfull on research data anywhere, because HDR is notably inaccessible for lot of People. It is. It, it is on the reading on website as an Accepted manuscript version.

Okay. Yes. That's what happened. But it's not ideal.

No, I know it's not ideal, but if people wrote to you must, because I think the, the, restrictions were No, but if people emailed emailed you personally, you could Oh, for sure.

Oh yeah, for sure. No, I could never do that.

The PDF board that, that lovely paper.

It's not so easy to get an HB no if they're not signed up for it.

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