

Netflix, 2023:
UNKNOWN: Cave of Bones
&
Peer Reviews

CHARLES J VELLA, PHD, 2023

Recommendations

- ▶ Watch Netflix's documentary: "Unknown: Cave of Bones" for its presentation of the interior of the Rising Star Cave sequences
- ▶ Berger is religious in his presentation of his ideas
- ▶ Also watch YouTube "Homo Naledi Burial? A Public Peer Review of the Evidence" by zooarcheologist Flint Dibble
- ▶ Very technical but worthwhile critique

Homo naledi was claimed to be artistic, make tools and bury its dead, but warring experts now ask, where's the evidence?

- ▶ Last month Lee Berger claimed that they had discovered burials, carved symbols and tools made by an ancient species of small-brained humans. The finds, in South Africa's Rising Star cave system, suggested *Homo naledi* displayed sophisticated behavior almost a quarter of a million years before modern humans began making graves and art,
- ▶ “We now face the prospect that a creature before humans was contemplating an afterlife. It completely changes how we have to think about human evolution,” said anthropologist Lee Berger

An afterlife??

- ▶ Peer reviews of the *H. naledi* study appeared.
- ▶ These papers are “imprudent and incomplete”, announced one last week. “These claims are inadequate, incomplete and are largely assumption-based – rather than evidence-based,” warned another, while a third dismissed the papers because they “do not present convincing evidence”.
- ▶ As a result, Berger’s team has found itself at the center of a scientific storm. “I have no issue with the idea that non-*Homo sapiens* species disposed of their dead, but I do have an expectation that there is robust scientific evidence to support such statements before scientists go on massive media campaigns regarding these ideas,” said paleoanthropologist Andy Herries of La Trobe University in Melbourne, Australia.

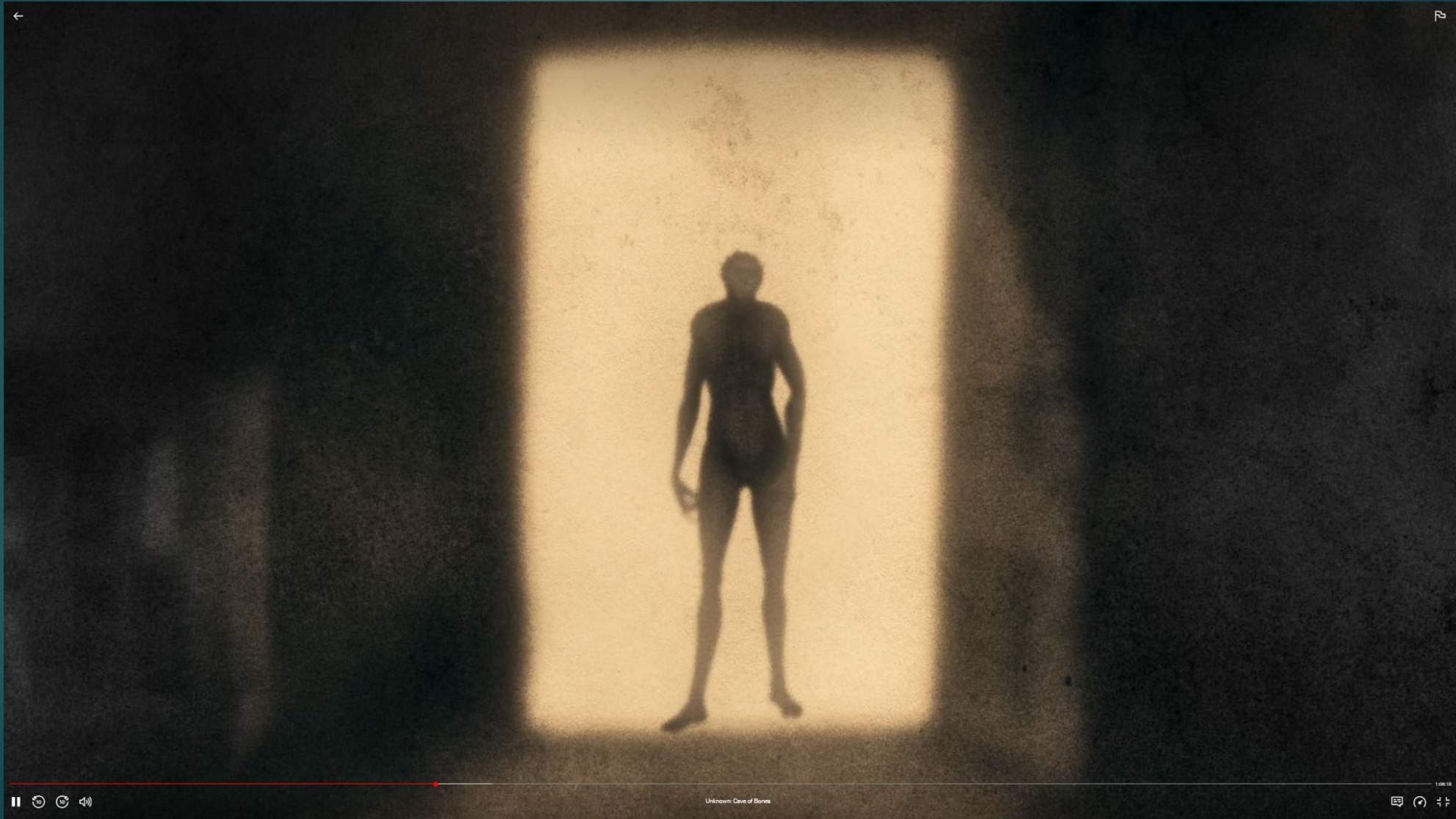
Netflix

- ▶ To push a notion that is so unsubstantiated that it has met with rejection by the scientific community is irresponsible,” Paige Madison said.
- ▶ Exaggerating the intellectual prowess of *H. naledi*, as featured in a recent Netflix documentary, could detract from study of the site in future, added Prof Chris Stringer of the Natural History Museum, London. “Rising Star is such a great site and the *naledi* material is so wonderful that there was really no need to over-egg the pudding,” he said. “It’s going to cause problems of credibility in future, which may even affect funding for more work.”
- ▶ Other interpretations of these findings have not been adequately explored, detractors argue. “The consequences of rushing publication with such a significant unsubstantiated find will likely result in perilous ramifications,” said one reviewer.

Critique

- ▶ “Rather than engaging with concerns, the team appears to be denying problems with their methods and analysis and are attacking peer reviewers’ motives in an attempt to undermine their criticism,” said Madison.

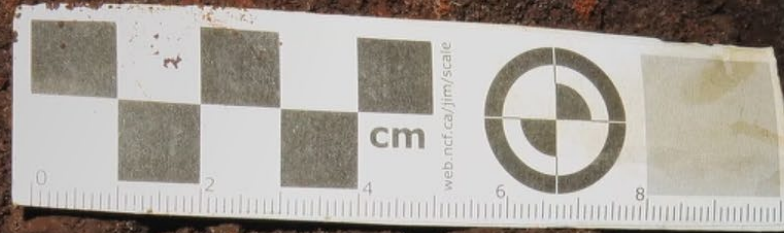
Homo naledi, Rising Star Cave



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RATED TV-PG

mild themes



**Now, we have this discovery
of at least 15 individuals...**

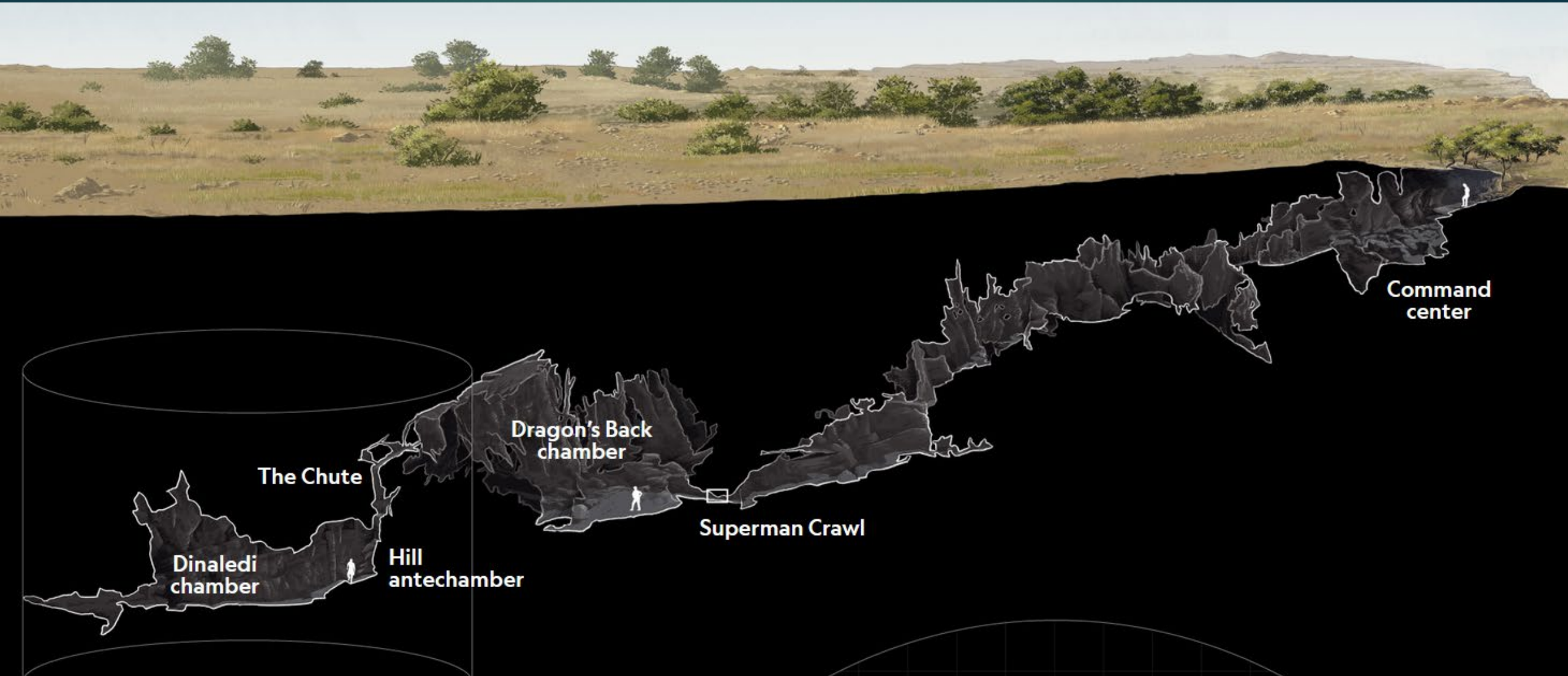


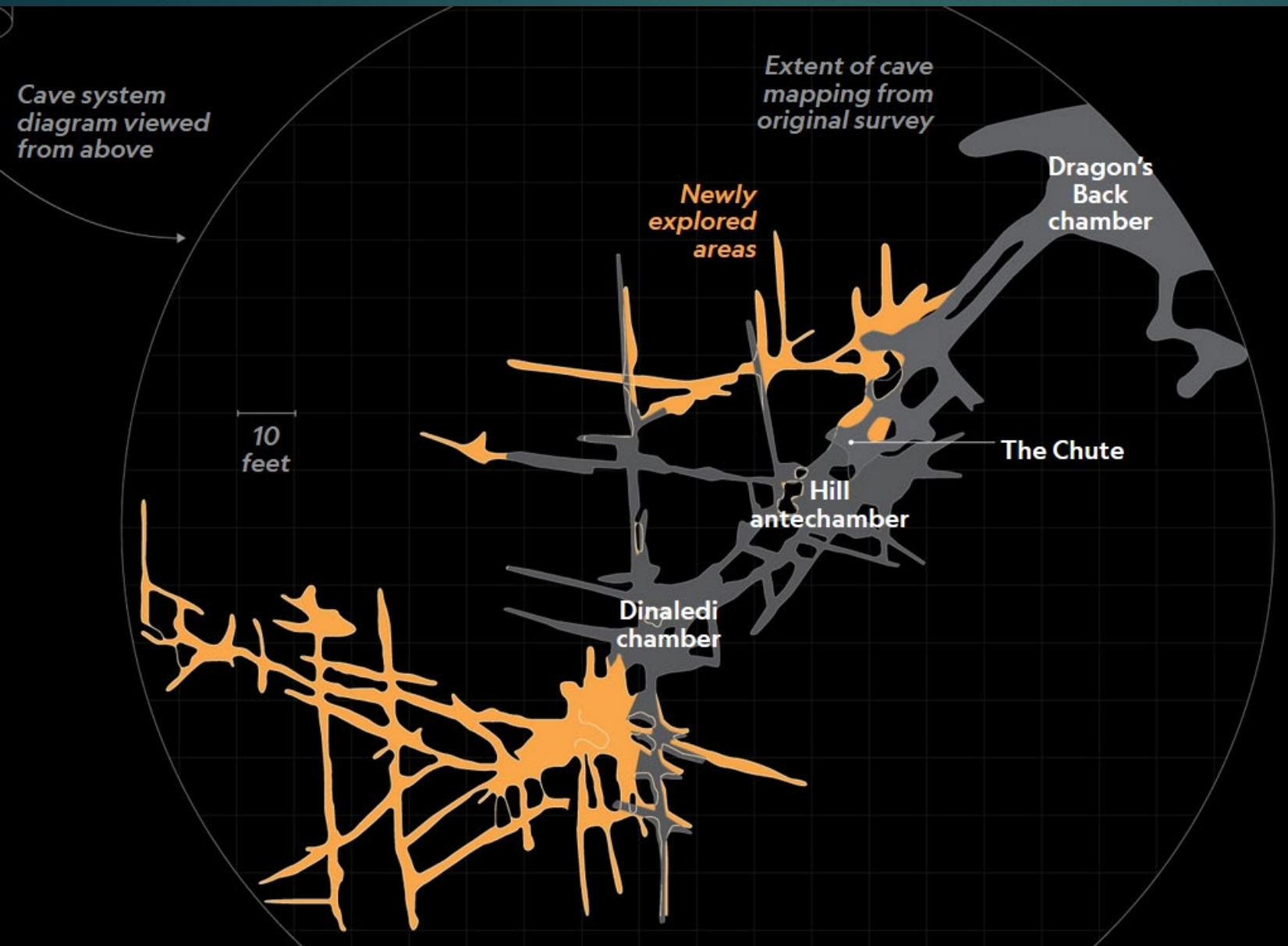
Unknown: Cave of Bones



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Dinaledi chamber, Rising Star Cave System





Berger and his team originally thought *H. naledi* could only have accessed the Dinaledi chamber through a single vertical channel they dubbed the Chute.

In 2014 they found the Chute was actually a network of cramped routes into the chamber



RISING STAR CAVE SYSTEM



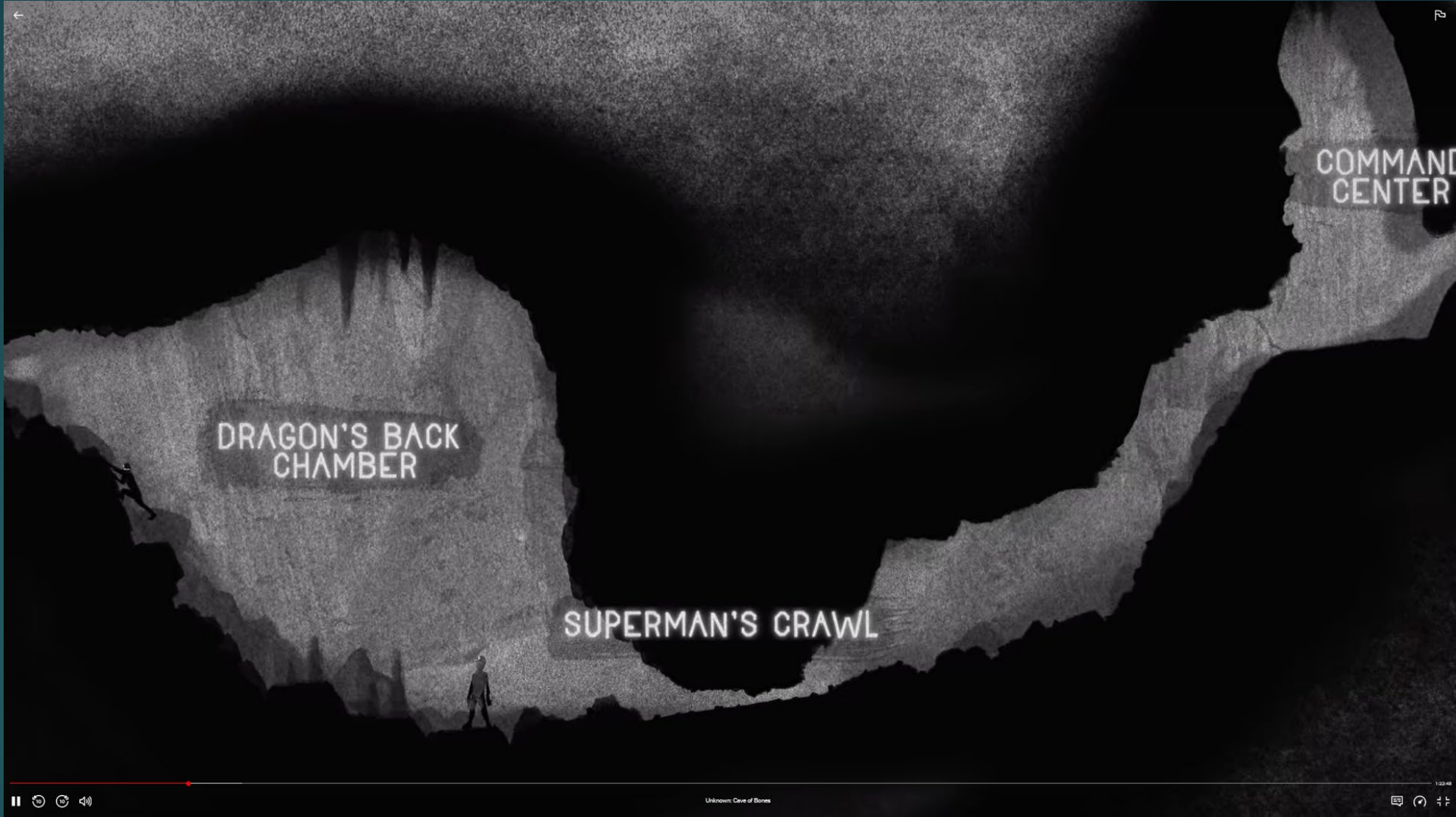
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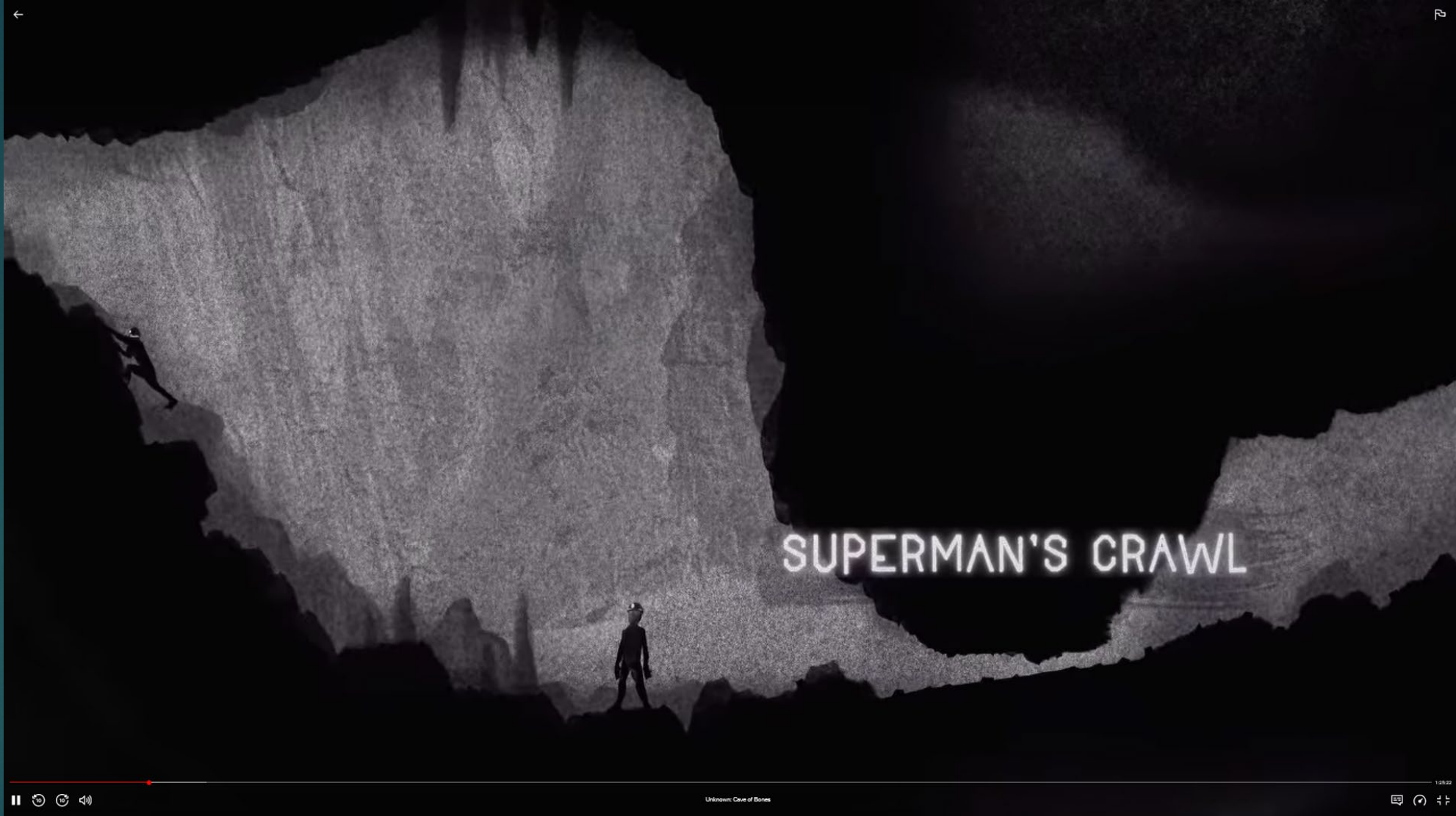
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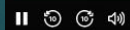
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SUPERMAN'S CRAWL

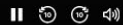
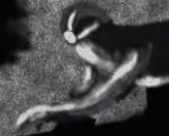


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SUPERMAN'S CRAWL



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DRAGON'S BACK
CHAMBER

SUPERMAN'S CRA

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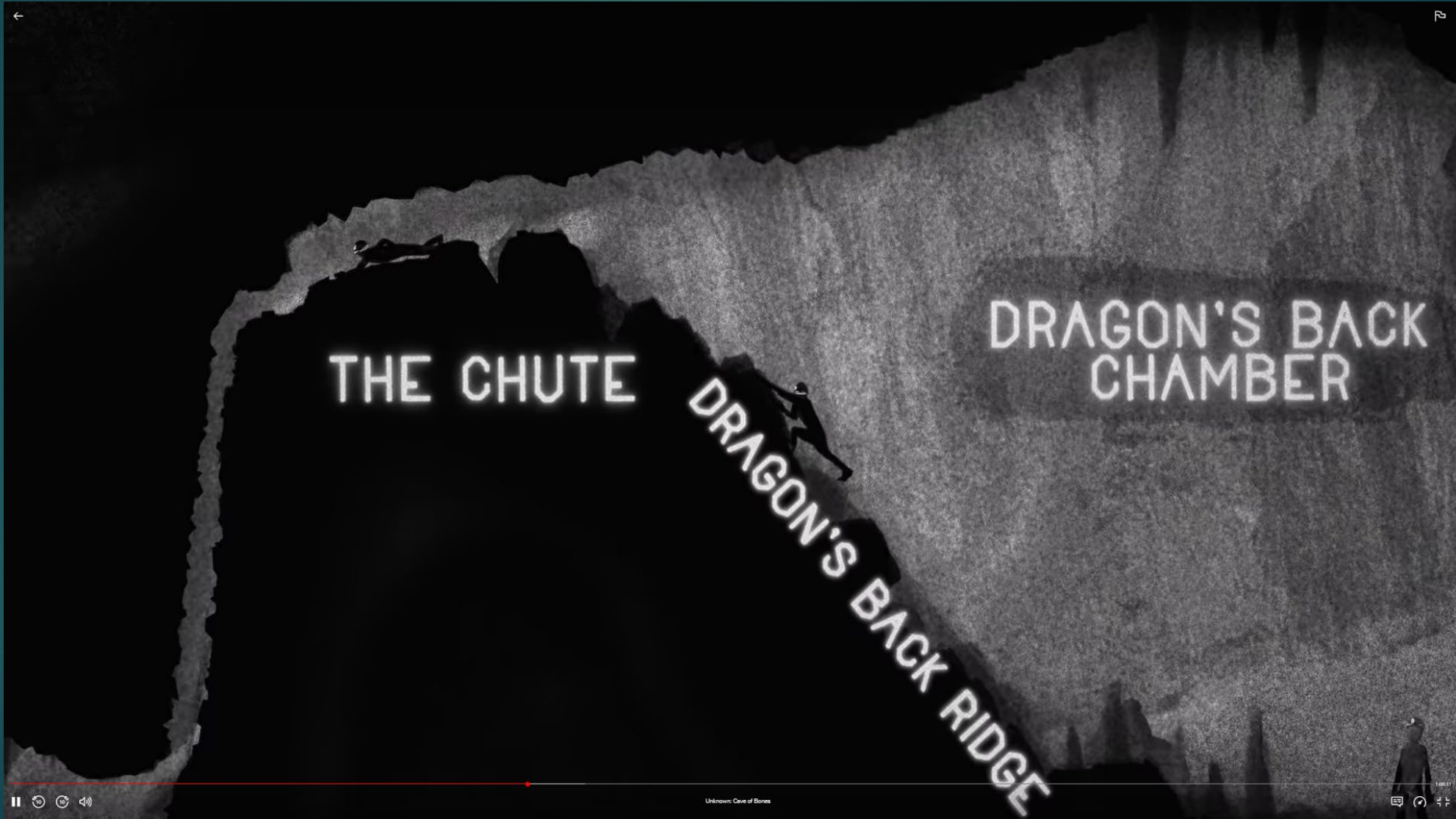
Unknown Cave of Bones





DRAGON'S BACK RIDGE

Unknown Cave of Bones



THE CHUTE

DRAGON'S BACK RIDGE

DRAGON'S BACK CHAMBER



Unknown Cave of Bones





THE CHUTE

DRAGON'S BACK P



Unknown: Cave of Bones





THE CHUTE

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DINALEDI
CHAMBER

THE CHUTE

Unknown Cave of Bones

1:14:54





Unknown: Cave of Bones





Unknown Cave of Bones



2:57



Unknown Cave of Bones



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PICTOGRAPHS



Unknown Cave of Bones





Unknown Cave of Bones



20:28



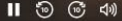


DINALEDI CHAMBER

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Unknown Cave of Bones





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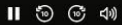


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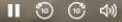




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NEANDERTHALS
60,000 YEARS AGO
GIBRALTAR, SPAIN



Unknown Cave of Bones



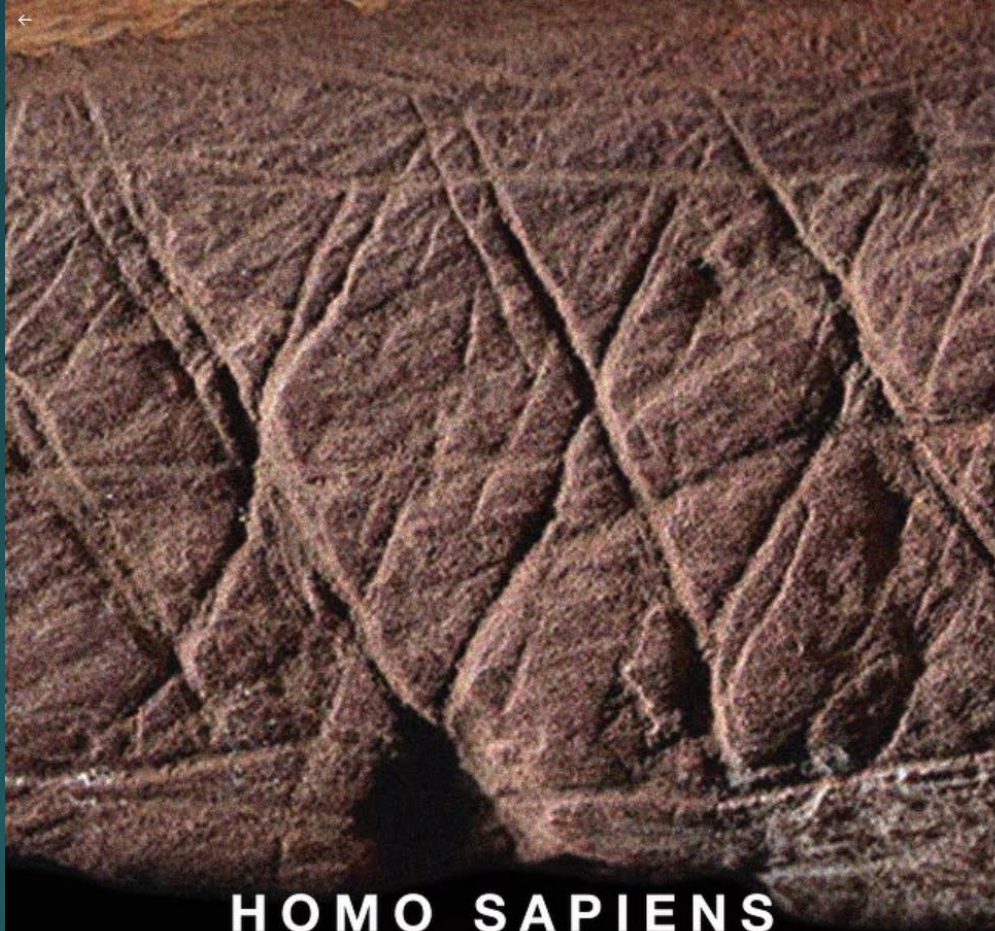
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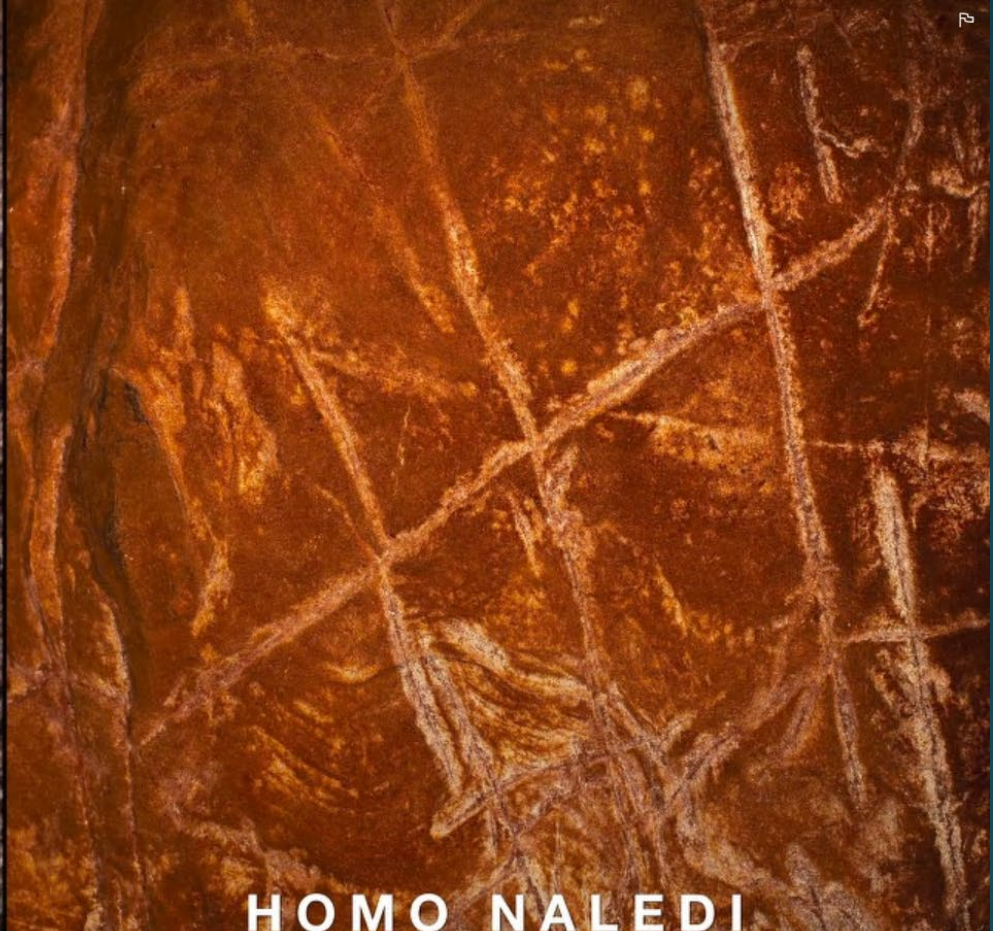
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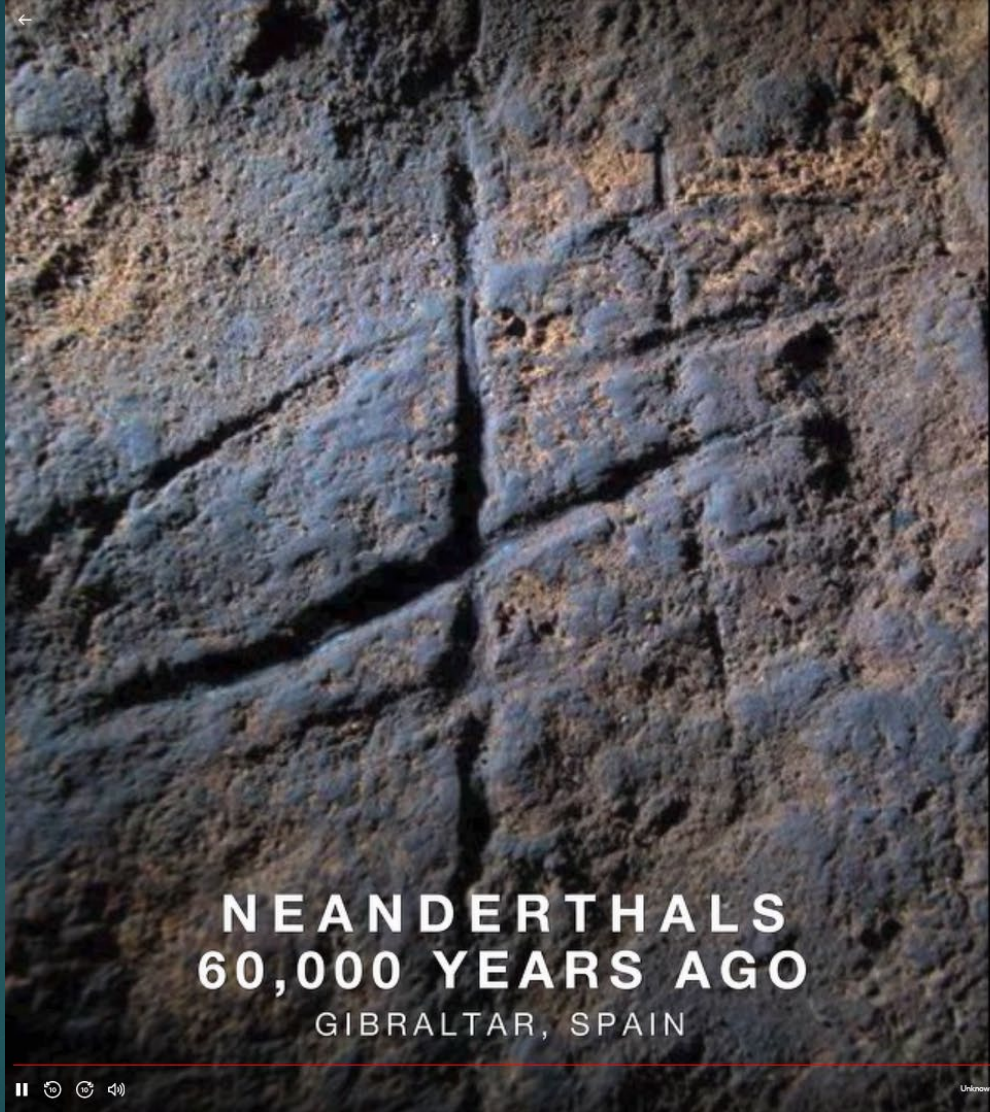
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HOMO SAPIENS
80,000 YEARS AGO
BLOMBOS CAVE, SOUTH AFRICA



HOMO NALEDI
250-300,000 YEARS AGO
RISING STAR, SOUTH AFRICA

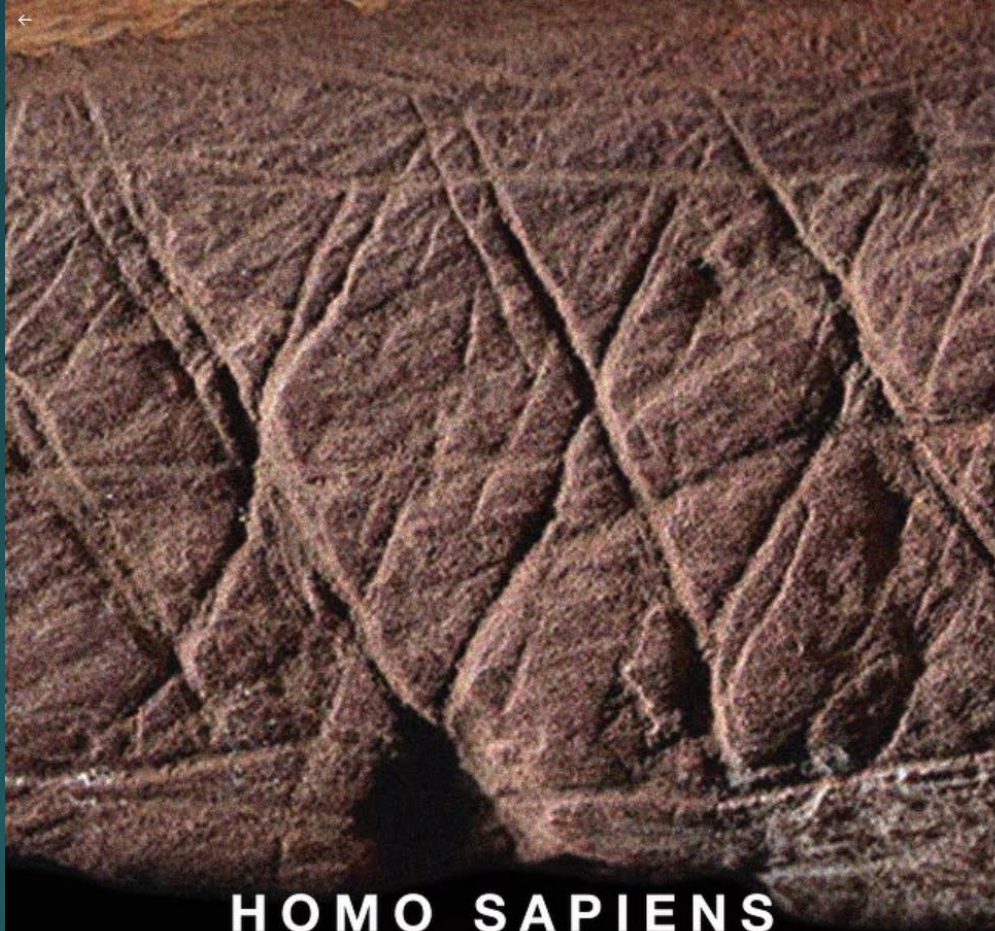


NEANDERTHALS
60,000 YEARS AGO
GIBRALTAR, SPAIN

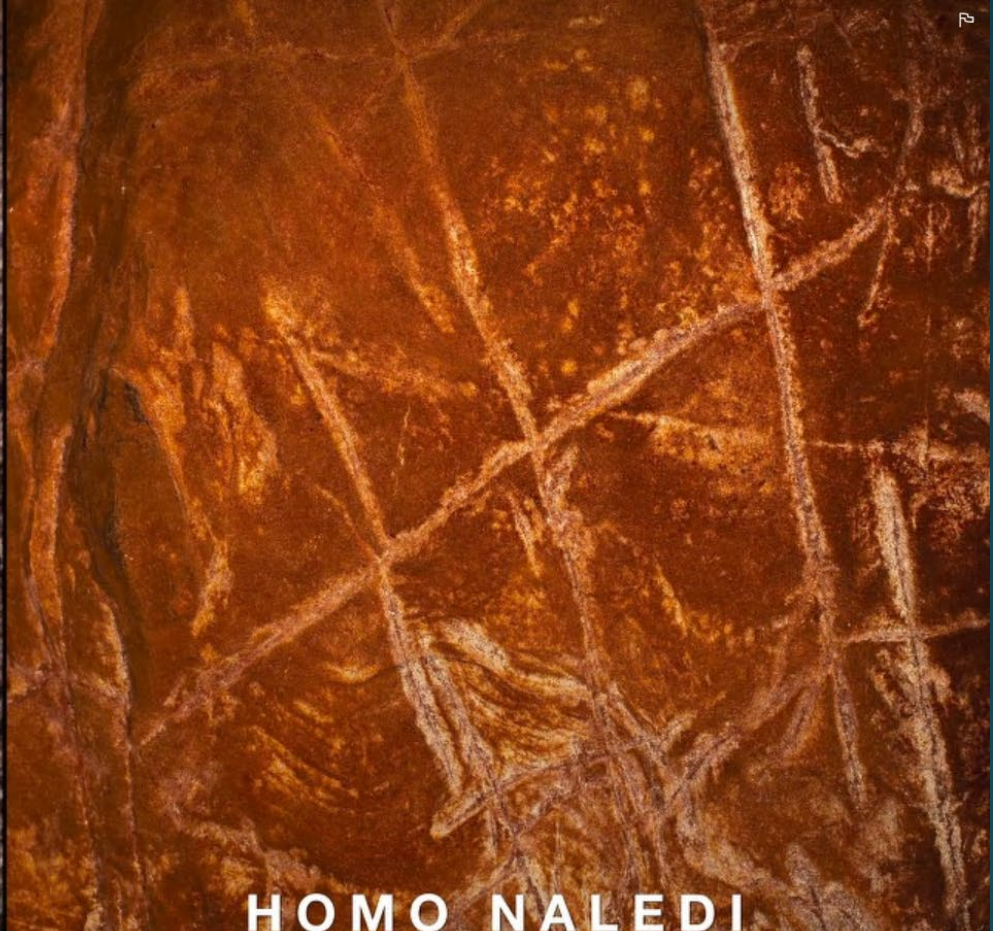


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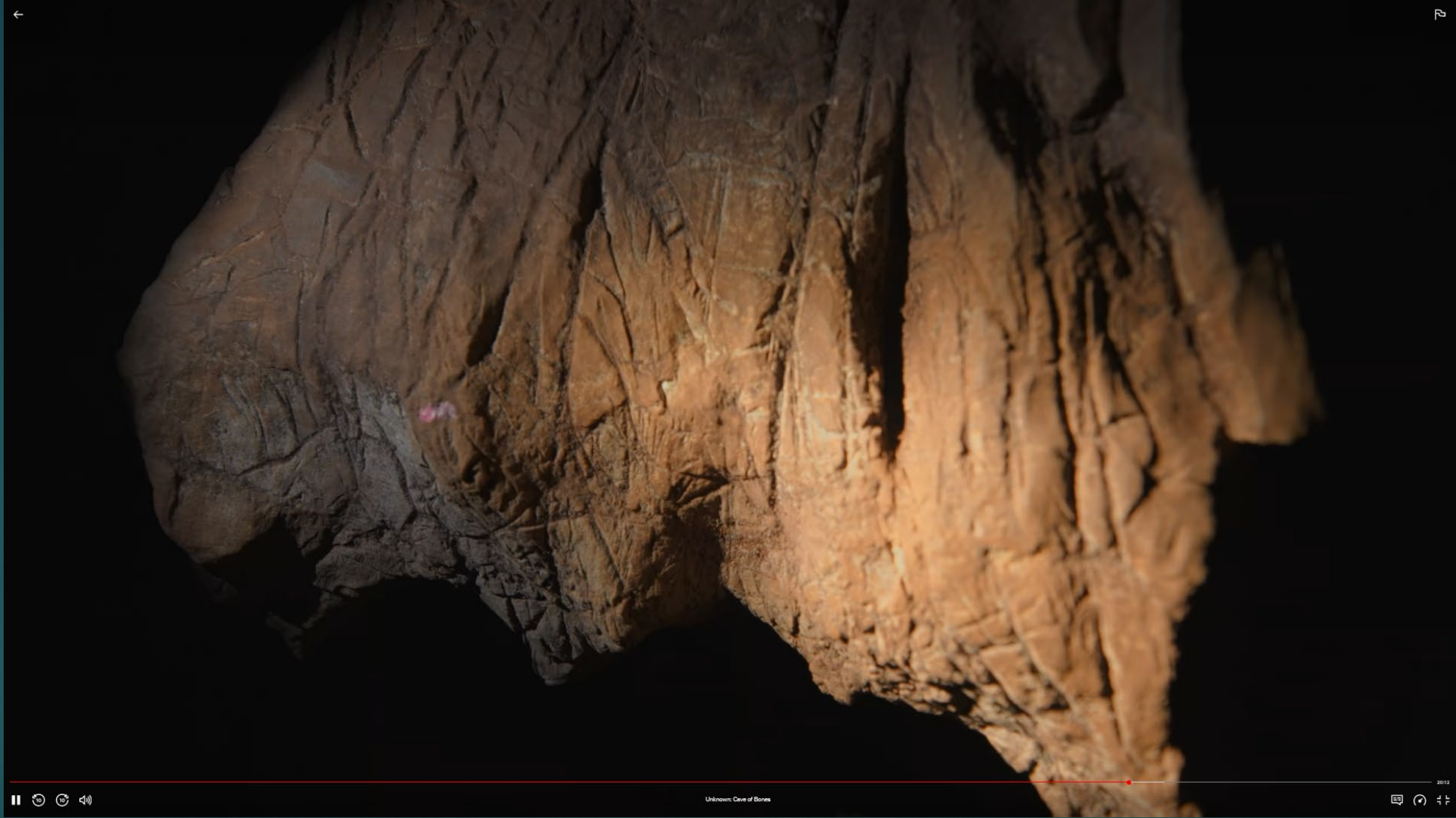




HOMO SAPIENS
80,000 YEARS AGO
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HOMO NALEDI
250-300,000 YEARS AGO
RISING STAR, SOUTH AFRICA



Unknown Cave of Bones



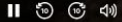
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Classically burials





250,000 YEARS AGO



Unknown Cave of Bones



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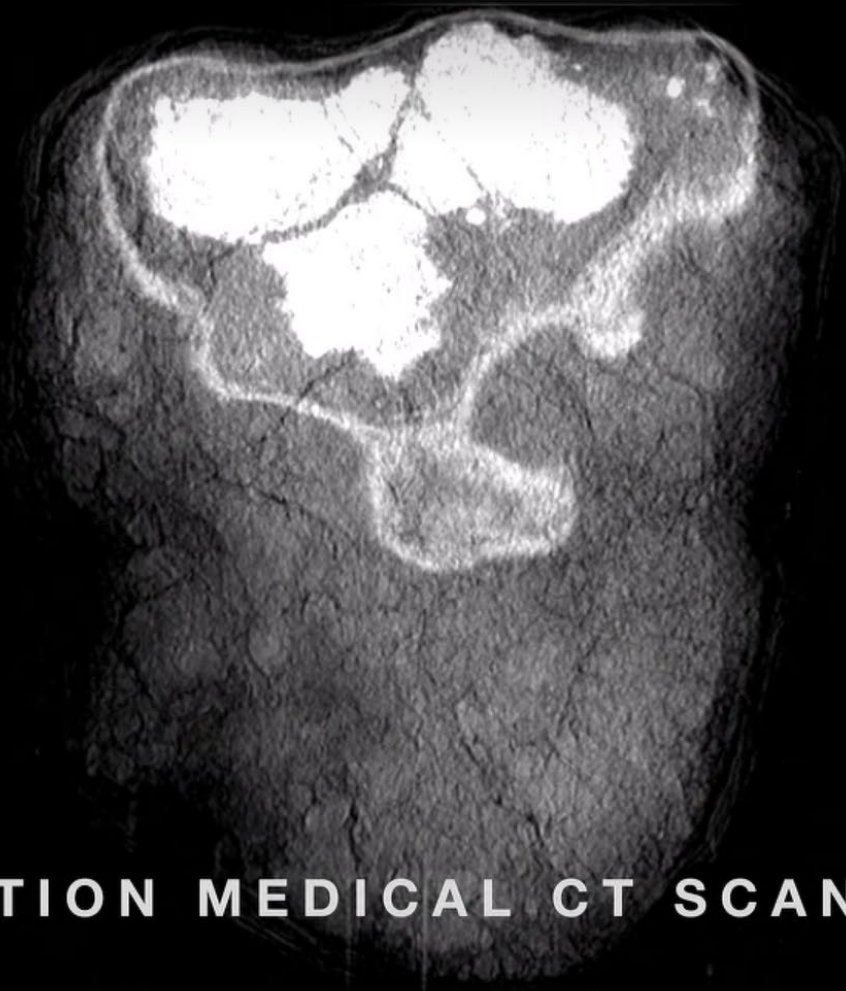






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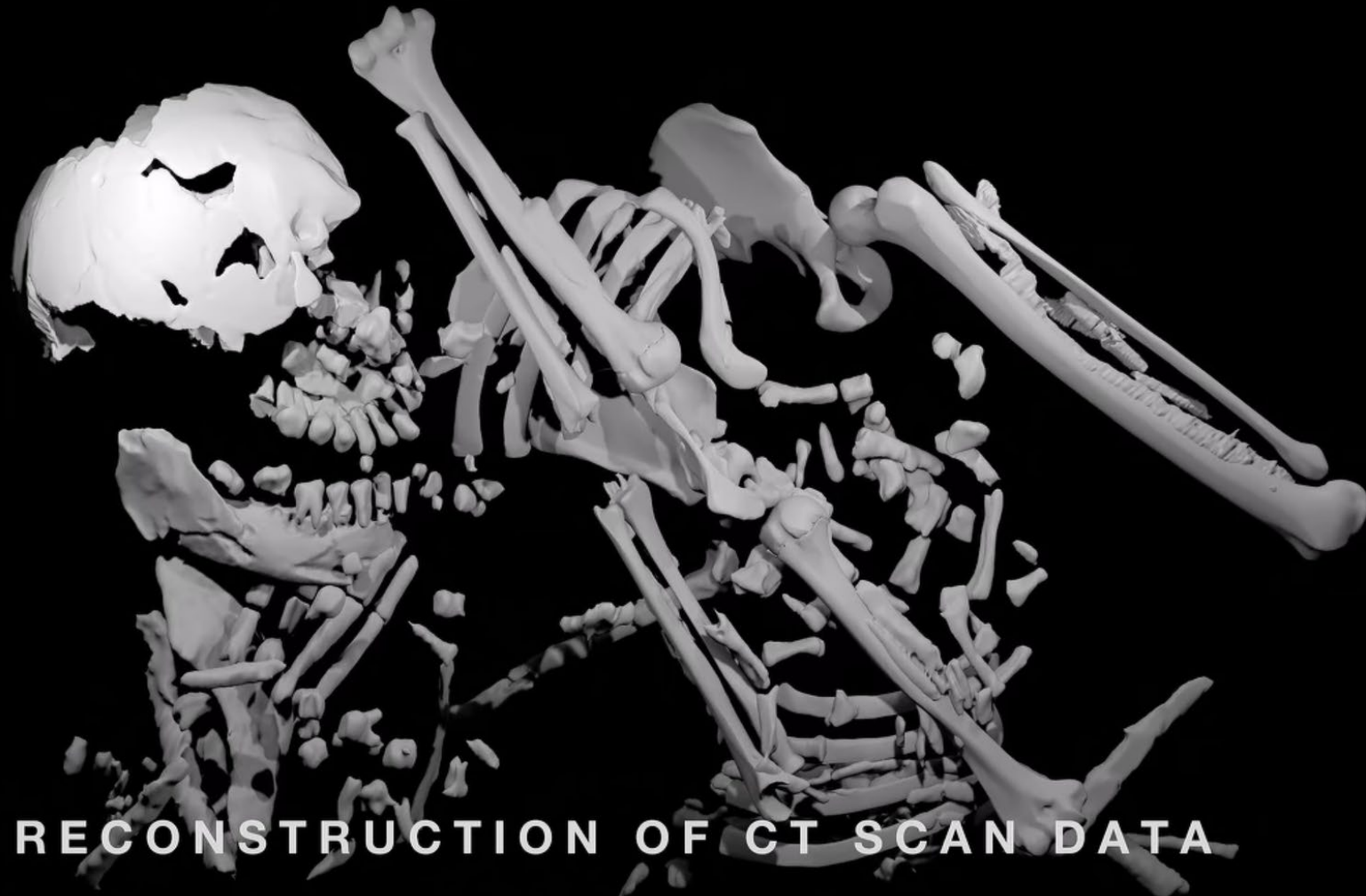
LOW RESOLUTION MEDICAL CT SCAN



Unknown Cave of Bones



37:19



3D RECONSTRUCTION OF CT SCAN DATA

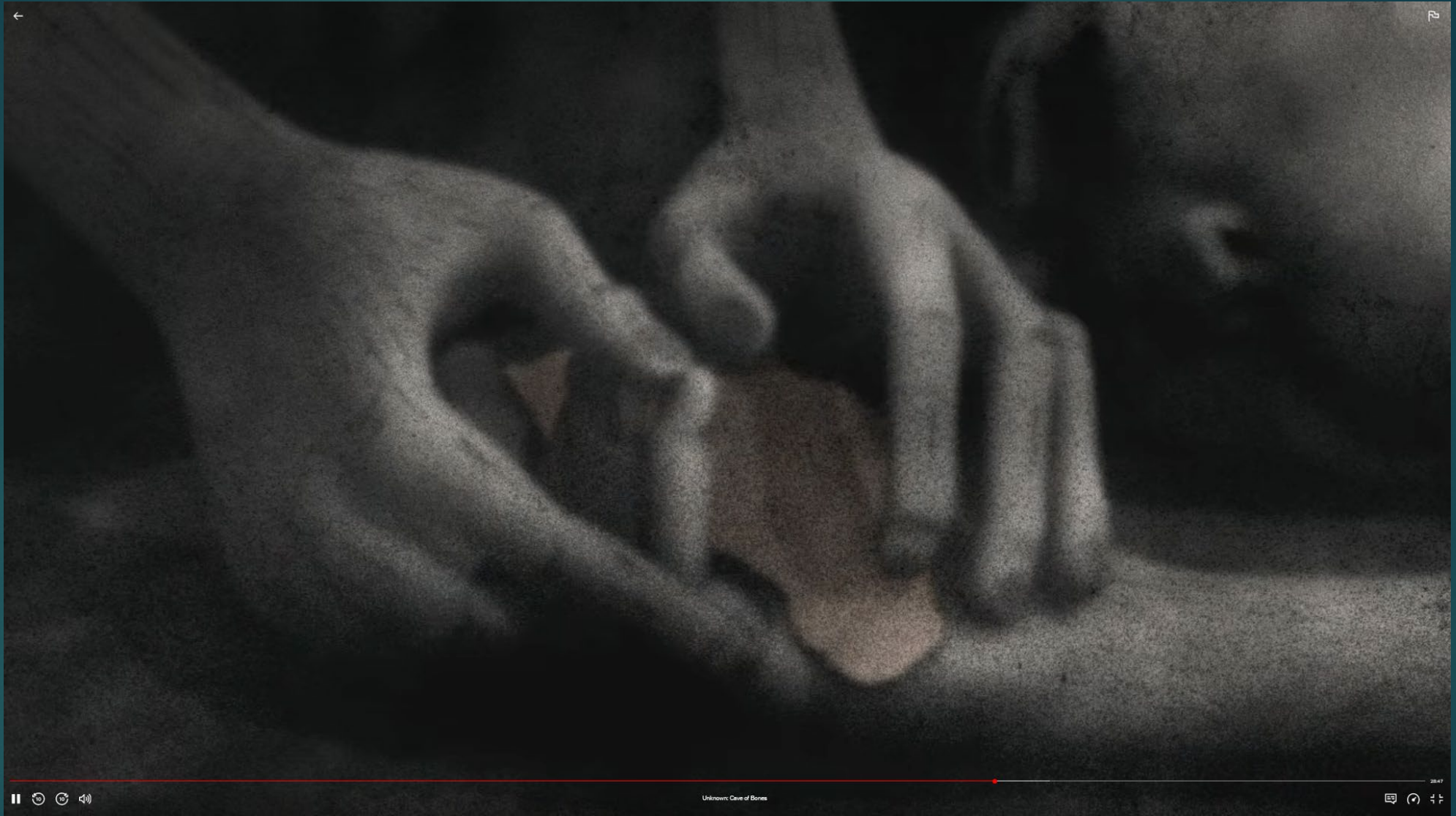


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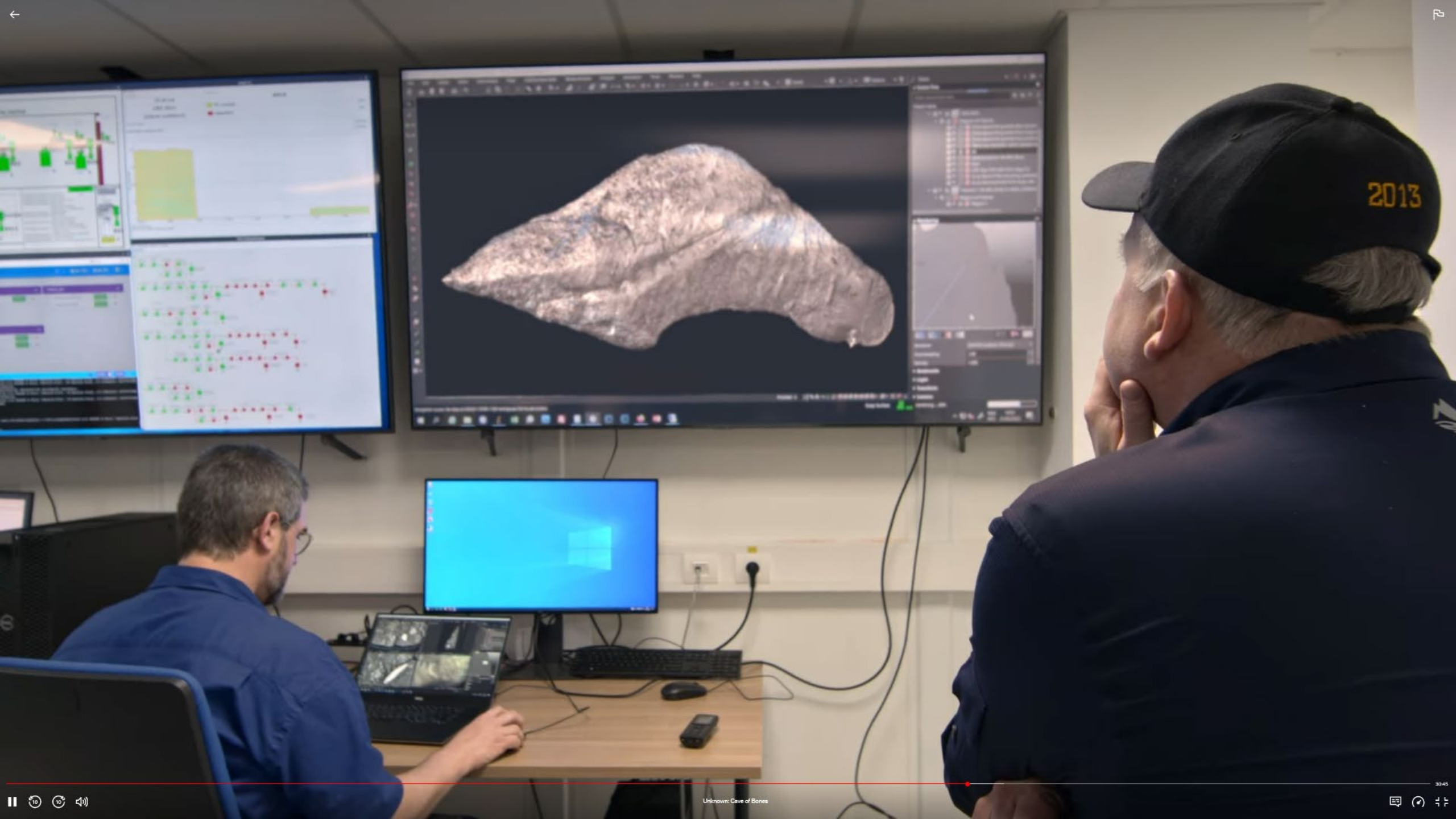




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HOMO SAPIENS
80,000 YEARS AGO
BLOMBOS CAVE, SOUTH AFRICA



HOMO NALEDI
250-300,000 YEARS AGO
RISING STAR, SOUTH AFRICA



THE FOSSIL HOMINID VAULT



Unknown Cave of Bones





Initial rejection of studies

- ▶ Berger's team initially submitted its findings to a leading journal (which he declined to name), but they were ultimately rejected after a review process that dragged on for around six months.
- ▶ “That was a little bit frustrating for us,” says Berger.
- ▶ The authors had had a good experience publishing the initial descriptions and dating of *H. naledi* in *eLife*. So they decided to resubmit the results there under a publishing model that the journal rolled out earlier this year.

eLife: Vetted but not endorsed, neither accepted nor rejected

- ▶ The Berger research was accepted by the journal eLife Sciences, which has a unique model: first the paper is published before peer review, then peer reviews are posted publicly.
- ▶ The studies are a high-profile test of eLife's new publishing model, in which it no longer formally accepts papers, but instead publishes them alongside peer reviewers' reports.
- ▶ Science is an imperfect process: *eLife's* publishing model has created a loophole that allows unsupported studies to stand. It is an example of disinformation on the internet.
- ▶ The attributions of markings to the Homo naledi and layout of the remains to intentional burial, however, was met with skepticism by peer reviewers.

Critiques

- ▶ “I want to understand how the *H. naledi* fossils got there. They are very important fossils, and critical to understanding human evolution,” says Jamie Hodgkins, one of the study’s four reviewers for *eLife*. However, “there just wasn’t any science in the paper ultimately”.
- ▶ “I don’t see an anatomical connection, I don’t see a hole or a pit that has been intentionally dug,” says María Martínón-Torres. “These hypotheses have been sold with a very strong media campaign before the evidence was ready to support it.”
- ▶ Not one of the burials provides compelling evidence of a deliberately excavated pit. Indeed, the shallow cavities may not be dug pits at all, but natural depressions where the bodies accumulated and were later disturbed by trampling, or partial cave collapse.

Critiques

- ▶ The alleged burials also fail to meet another fundamental criteria for deliberate burials: anatomical alignment of the body and articulation of skeletal remains.
- ▶ But perhaps the biggest barrier to confirming the status of the findings is that so far none of the alleged burials have been fully excavated. It's therefore impossible to assess the completeness of the bodies, their original position, and the limits of the purported pits.
- ▶ Scratches/"engravings": In the absence of dating, it's simply spurious to claim the engravings were made by *Homo naledi*, rather than by another species (and potentially at a much later date)

Critiques

- ▶ On the markings, one reviewer wrote, “The evidential bar for [this claim] is necessarily high, and I don't believe that it has been cleared here ... It should be considered possible that Homo naledi made the engravings in the Dinaledi cave system. The problem is that other explanations [namely, that they were left by post-Homo naledi human ancestors] are not precluded.”
- ▶ Another reviewer added, “[The claims] made here seem entangled, premature and speculative. Whilst there is no evidence to refute [their conclusions], there isn't convincing evidence to confirm them.”

Critiques

- ▶ The reviewers levied a variety of criticisms. Many pointed to insufficient evidence that the spatial displacement of the bones was a result of deliberate burial practices and not natural processes — with the analysis lacking consideration of joint disarticulation during decomposition, integration of geology and sedimentology into the interpretation of the finding, and rigorous elimination of other hypotheses for the bones' arrangement such as erosion and sediment slumping.
- ▶ The first reviewer wrote, “In its current form the paper ... does not meet the standards of our field ... The working hypothesis is that the features are intentional burials, and the authors seek to support this hypothesis throughout rather than test it.”
- ▶ Another reviewer wrote, “There is a significant amount of missing information in the study presented here, which fails to convince me that the human remains described represent primary burials.”

Peer reviews: Intentional burials article

- ▶ When these reviews that call into question the validity of the findings were released, many expressed their **frustration with how the research was widely promoted before the review process.**
- ▶ **Review 1:** Evidence for the deliberate burial of the dead by Homo naledi," does not meet the standards of our field. The paper is hard to follow. It lacks key citations, contextual background information to inform the reader about the geological and depositional structure of the caves, and concise understandable descriptions of the methods and the significance of the results.
- ▶ The working hypothesis is that the features are intentional burials, and the authors seek to support this hypothesis throughout rather than test it.

Reviews

- ▶ The starting null hypothesis should be that the bodies were naturally covered in sediment. Intentional burial requires extraordinary circumstances and requires multiple lines of solid evidence to support the hypothesis
- ▶ An analysis also needs to start by testing a null hypothesis, not deciding on the conclusion and setting out to "prove" it.
- ▶ **Review 2:** I feel that there is a significant amount of missing information in the study presented here, which fails to convince me that the human remains described represent primary burials, i.e. singular events where the bodies are placed in their final resting places. Insufficient evidence is provided to differentiate between natural processes and intentional funerary practices. In my opinion, the study should include a section that distinguishes between taphonomic changes and deliberate human modifications of the remains and their context, as well as reconstruct the sequence and timeline of events surrounding death and deposition.
- ▶ My main concern is that the study does not apply or cite the basic principles of archaeoethanatology, which combines taphonomy, anatomy, and knowledge of human decomposition to interpret the arrangement of human bones

Reviews

- ▶ study lacks a description of the relative sequence of joint disarticulation during decomposition and the spatial displacement of bones
- ▶ **Review 3:** So bodies lying on the surface and slowly covered by the formation of the deposit and slowly moving towards the drains could perhaps account for the pattern observed, meaning burial is not needed to account for articulations. unless the team can provide some process that would have otherwise disarticulated these skeletons after the bodies arrived here and decomposed, their articulated state is not evidence of burial. As it is now, I did not see the argument in support of a burial pit.
- ▶ I will note that literature for bone movement is poorly cited.
- ▶ There is no evidence here of a pit (at all). And what if the body was stuffed down the chute and was resting on a slope and covered with additional sediments from the chute (or additional bodies) as it decomposed? It seems that this should be the starting point here rather than imagining a pit.

Reviews

- ▶ The starting point of any discussion of deliberate burial has to be the demonstration of a pit. And I don't see it here. It might just be that the figures need to be improved. But I am skeptical because the team has taken the view that these finds can't be excavated.
- ▶ In short, my view is that they have an extremely interesting dataset. That *H. naledi* buried their dead here can't be excluded based on the data, but neither is it supported here. My view is that this paper is premature and that more excavation and the use of geoarchaeological techniques (especially micromorphology) are required to sort this out (or go a long way towards sorting it out).

Reviews

- ▶ **Review 4:** Missing data. PC analysis is wrong. Results are not replicable as currently reported. No micromorphological analysis of sediments
- ▶ There is no mention of infilled sediment from a pit and how this relates to the skeleton or the slope of the floor. It is therefore extremely unclear what the authors are meaning to describe without any visual or micromorphological supplementation to demonstrate a "bowl-shaped concave layer".
- ▶ There does not appear to be any intentional arrangement of limbs that may suggest symbolic orientation of the dead. Thus, skeletal cohesion is not enough evidence to support the hypothesis of an intentional burial.
- ▶ The authors state that "the spatial arrangement of the skeletal remains is consistent with primary burial of the fleshed body" without providing any evidence, qualitative or quantitative, that this is the case for either burial.

Reviews

- ▶ In addition to a lack of evidence to support the claims of intentional burial, this paper was also written extremely poorly
- ▶ As an opening statement to introduce Dinaledi Feature 1, the authors state the interpretation and working hypothesis as fact before the authors present any evidence. This is known as "HARKing" and "gives the impression that a hypothesis was formulated before data were collected". This type of writing is pervasive throughout the manuscript and requires extensive editing
- ▶ Moreover, as this text demonstrates, the authors' word choice is indicative of storytelling for a popular news article instead of a scientific paper. I highly suggest that the authors review the manuscript carefully and present the data prior to giving conclusions in a clear and concise manner.

Reviews

- ▶ Moreover, the writing structure is inconsistent. Information that should be included in results is included in the methods, text in the results should be in discussions, and so forth. This inconsistency is pervasive throughout the entire manuscript, making it incredibly difficult to adequately understand what the authors had done and how the results were interpreted.
- ▶ Finally, the "artifact" that was described and visualized using CT models is just that - a digitally colored model. The object in question has not been analyzed. Until this object is removed from the dirt and physically analyzed, this information needs to be removed from the manuscript as there is nothing to report before the object is physically examined.
- ▶ Overall, there is not enough evidence to support the claim that Homo naledi intentionally buried their dead inside the Rising Star Cave system. Unfortunately, the manuscript in its current condition is deemed incomplete and inadequate, and should not be viewed as finalized scholarship.

Reviews to Engravings paper

- ▶ **Review 1:** I think it is important to note up front that I recognize that the goal of this paper was to announce the discovery of what appear to be intentionally-made marks in Rising Star cave in South Africa. This was not meant to be an in-depth analysis or a declaration of definitive results. With this in mind, I appreciate that the authors did not try to overstate this new discovery, This is a big claim. If it proves to be true, it has the potential to be paradigm-shifting as the identification of intentional engraved marks, made by a small-brained distant human cousin 200,000+ years ago in South Africa, would completely change our understanding of where, when and who made the first graphic marks. Twenty years ago, this claim would probably have been dismissed out of hand as being too far-fetched to be taken seriously

Reviews

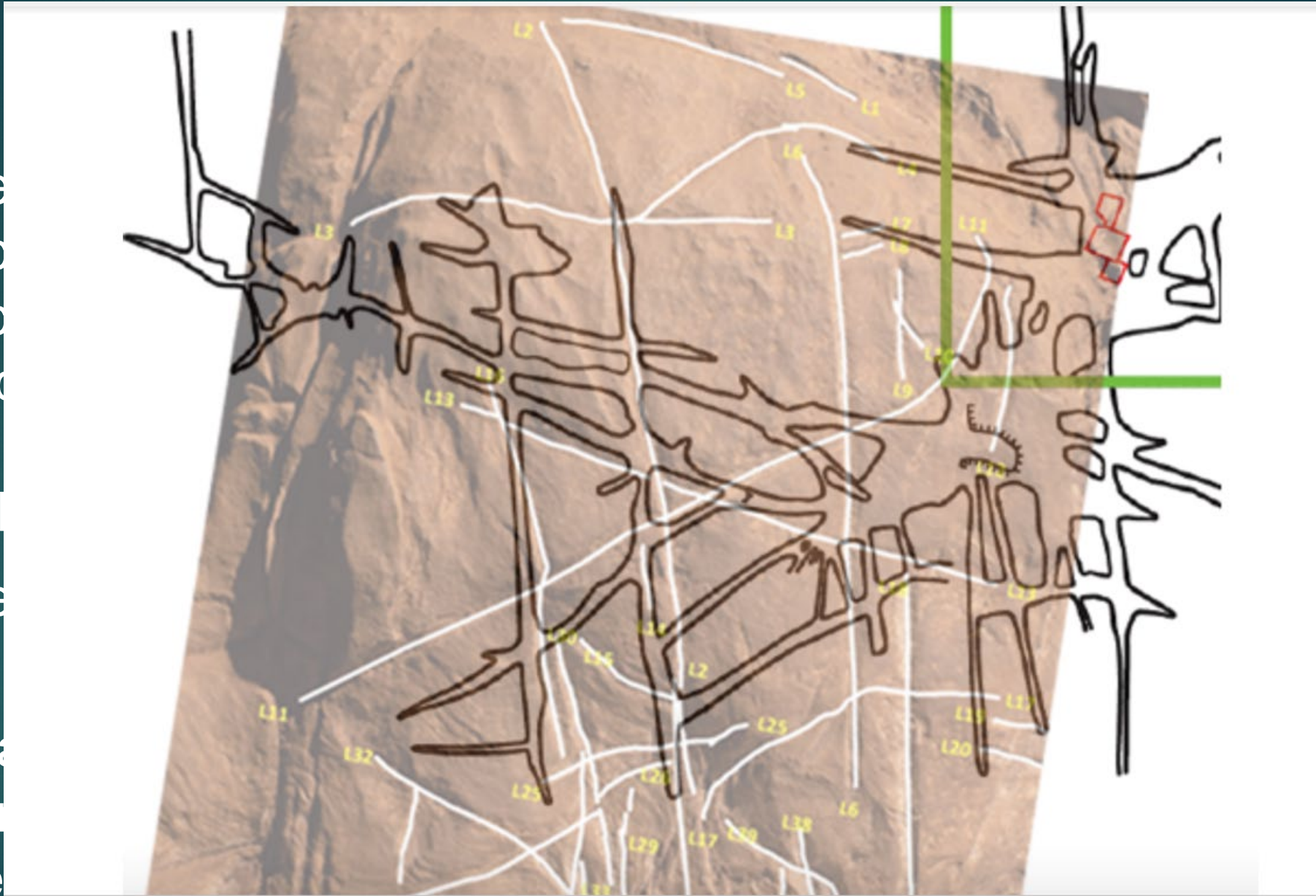
- ▶ **Review 2:** The evidential bar for such claims is necessarily high, and I don't believe that it has been cleared here. The central issue is that the engravings themselves are not dated. On those grounds though, assigning the age range of presently dated material within the cave system to the engravings - as the current title unambiguously does - is not justifiable.
- ▶ Because we don't know when they were made, the association between the engravings and Homo naledi rests on the assertion that no humans entered and made alterations to the cave system between its last occupation by Homo naledi, and its recent scientific recording
- ▶ Specifically, the present lack of physical evidence of more recent humans in the cave is considered evidence that no such humans visited the cave until its exploration by cavers 40 years ago. I don't think many archaeologists would consider that argument compelling. I can see why the authors would be drawn to make that assertion,

Reviews

- ▶ A second problem is with what Homo naledi might have made engravings. The authors state that "The lines appear to have been made by repeatedly and carefully passing a pointed or sharp lithic fragment or tool into the grooves". The authors then describe one rock with superficial similarities to a flake from the more recent site of Blombos to suggest that sharp-edge stones with which to make the engravings were available to Homo naledi. Blombos is considered relevant here presumably because it has evidence for Middle Stone Age engravings. The authors do not, however, demonstrate any usewear on that stone object such as might be expected if it was used to carve dolomite. Given that it is presented as the only such find in the cave system so far, this seems important.
- ▶ My greater concern is that the authors did not compare the profile morphology of the Dinaledi engravings with the extensive literature on the morphology of scored lines caused by sharp-edge stone implements

Reviews

- ▶ The lines intersected superficially imposed a Dinaled figure shape
- ▶ However, arguments
- ▶ I feel that engravings they were



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Reviews

- ▶ **Review 3:** The key questions are: 'are the markings artefactual or natural?', 'how old are they?' and 'who made them?', questions often intertwined
- ▶ The key reference quoted for distinguishing natural from artefactual markings (Fernandez-Jalvo et al. 2014), whilst mentioned in the text, is not included in the references. In the primary description of their own markings from Rising Star and their presumed significance, there are, oddly, several unacknowledged quotes from the abstract of one of the most significant European references (Rodriguez-Vidal et al. 2014). These need attention.
- ▶ The presumption is that the hominins passed by the marked panel frequently. I recognise the thinking but the argument is weak.
- ▶ Where are the instruments that carved the engravings? First, 'tool-shaped rock' is surely a meaningless term. The authors here seem to mean that the Rising Star Cave object is shaped like the Blombos painted stone fragment. But the latter is a painted fragment, not a tool and so any formal similarity is surely superficial and offers no support to the 'tool-ness' of the Rising Star Cave object. Does this mean that Homo naledi took (several?) pointed stone tools down the dark passageways, used them extensively and, whether worn out or still usable, took them all out again when they left? Not impossible, of course. And the lighting?
- ▶ If archaeologists took juxtaposition to demonstrate authorship, there would be any number of unlikely claims for the authorship of rock paintings or even stone tools

Reviews

- ▶ The idea that there were no entries into this Cave system between the Homo naledi individuals and the last two decades is an assertion, not an observation, and the relationship between hominins and designs no less so. In fact, the only 'evidence' for the age of the markings is given by the age of the Homo naledi remains, as no attempt at the, admittedly very difficult, perhaps impossible, task of geochronological assessment, has been made.
- ▶ The claims relating to artificiality, age and authorship made here seem entangled, premature and speculative. Whilst there is no evidence to refute them, there isn't convincing evidence to confirm them.

Reviews

- ▶ Review 4: should accept that one such risk is moving on from long-held disciplinary tenets. In this case, there has been a growing quantum of evidence – all hotly debated – for the deep antiquity of mark-making and even symbolism by species other than ourselves. I appreciate empirical studies that erode speciesism – in particular studies that open up our minds to the possibility that multiple members of the Genus Homo were capable of intentional mark-making and even 'symbolic' behavior
- ▶ Ultimately, this manuscript presents evidence that those who are pro the deep antiquity of intentional mark-making by Homo (and possibly even other genera) will find enough evidence to support; while those skeptical of such claims will find enough methodological flaws and evidential limits to refute those claims
- ▶ There is no evidence provided for dating the marks found in the cave system. They could, for example, have been made more recently than the dates claimed – and by another species (if we accept their anthropogenic authorship). The article title is this incorrect / and unsupported claim as the marks, if they are anthropic, have not been dated and are of unknown age.
- ▶ The study does not utilize either a geoscientist as one of the authorial team, or a rock art specialist.
- ▶ If the marks are anthropic in origin; they are likely to have been made by a stone tool, which would leave characteristic marks, directionality and sequencing, distinct from natural causes. It is vital this work – such as was done on the Blombos engraved ochre – is done here –

Authors Response to reviews: Lee R Berger, Agustín Fuentes, John Hawks, Tebogo Makhubela

- ▶ In the authors' official preliminary response to the peer reviews, they wrote, "We will examine what appear to be the key critical issues raised regarding the data and the analyses and how we propose to address these as we revise the papers. We will also address several philosophical and ethical issues raised by the reviews and our proposal for dealing with these."
- ▶ Ultimately the managing editor of a first journal took the decision that the review process could not be completed in a timely manner and rejected the manuscript
- ▶ CJV: Massively more citations in this response than in the 3 papers.

Berger summary of reviews

1. The evidence presented does not demonstrate a clear interruption of the floor sediments, thus failing to demonstrate excavated holes.
2. The sediments infilling the holes where the skeletal remains are found have not been demonstrated to originate from the disruption of the floor sediments and thus could be part of a natural geological process (e.g. water movement, slumping) or carnivore accumulations.
3. Previous geological interpretations by our research group have given alternative geological explanations for formation of the bony accumulations that contradict the present evidence presented here and result in alternative origins hypotheses.
4. Burial cannot be effectively assessed without complete excavation of the features and site.

Summary

1. The skeletal remains as presented do not conform clearly to typical body arrangement/positions associated with human (*Homo sapiens*) burials.
2. There is no evidence of grave goods or lithic scatters that are typically associated with human burials.
3. Humans may have been involved with the creation of either the *Homo naledi* bone accumulations, the engravings, or both.
4. Without a date of the engravings, the null hypothesis should be the engravings were created by *Homo sapiens*.
5. The null hypothesis for explanation of the skeletal remains in this situation should be “natural accumulation”.

Berger Response

- ▶ We recognize that the four eLife reviewers are not convinced that our presentation is sufficient to establish this. Interestingly, this was not the universal opinion of earlier reviewers of the initial manuscript several of whom felt we had adequately supported this hypothesis. The lack of clarity in this current version of the burial manuscript is our responsibility. In the upcoming revision of this paper to be submitted, we will take the reviewers' critiques to heart and add additional figures that illustrate better the disruption of the LORM and clarify the sedimentological data showing the material covering the skeletal remains in the hole are the disrupted sediments excavated from the same hole. We are proposing to isolate this most critical evidence for burial into a separate section in the revised submission based on the reviewers' comments.
- ▶ Our current work expands our knowledge of the subsurface and presents an alternative explanation for the disposition of skeletal remains from our earlier excavation. But we acknowledge that this new explanation is vulnerable to our own previous published proposals, and we must do a better job of explaining how the new information addresses our previous suggestions.

Not excavating fully

- ▶ Our current work expands our knowledge of the subsurface and presents an alternative explanation for the disposition of skeletal remains from our earlier excavation. But we acknowledge that this new explanation is vulnerable to our own previous published proposals, and we must do a better job of explaining how the new information addresses our previous suggestions.
- ▶ In our decision to leave material in place as much as possible, we are expanding upon standard practice to leave witness sections and unexcavated areas for future research
- ▶ We anticipate that many other researchers, including future investigators, will suggest additional methods to further test the hypothesis of burial, something that would be impossible if we had excavated the features in their entirety prior to publishing a description of our work. We believe strongly that our ethical responsibility is to publish the work and the most likely interpretation while leaving as much evidence in place as possible to enable further testing and replication

Response

- ▶ We feel that the reviewers (in keeping with many paleoanthropologists) have a clear idea of what they “think” a burial should look like in an idealized sense, but this platonic ideal of burial form is not matched by the extensive literature in archaeoethanatology, funerary archaeology and forensic science which indicates enormous variability in the activity, morphology and post-mortem system experienced by the human body in cases of interment and body disposal
- ▶ Reviewers suggest that without a date derived from geochronological methods, the engravings cannot be associated with *H. naledi*, and that it is possible (or probable) that the engravings were done in the recent past by *H. sapiens*. This suggestion neglects the context of the site. We have previously documented the structure and extremely limited accessibility of the Dinaledi subsystem. This subsystem was not recorded on maps of the documented Rising Star Cave system prior to our work and its discovery by our teams. Furthermore, there is no evidence of prehistoric human activity in the areas of the cave related to possible subterranean entrances. There is no evidence that humans in the past typically ventured into such extreme spaces like those of Rising Star.

Response

- ▶ Several reviewers took issue with the title of the engraving paper as we did not insert a qualifier in front of the suggested date range for the engravings. We deliberately left out qualifying language so that the title took the form of a testable hypothesis rather than a weak assertion. Should future work find the engravings were not produced within this time range, then we will restate this hypothesis.
- ▶ We recognize and state in our manuscript that these markings require substantial further study, including attempts at geochronological dating. But the current evidence is clearly relevant to the archaeological context of the subsystem. We take a similar stance with reporting the presence of the tool shaped artefact near the hand of the *H. naledi* skeleton in the Hill Antechamber.

Response

- ▶ We adopted the null hypothesis that the geological processes involved in the accumulation of *H. naledi* skeletal remains were “natural” (e.g., non-naledigenic involvement), and we were able to reject many alternative explanations for the assemblage, including carnivore accumulation, “death trap” accumulation, and fluvial transport of bodies or bones (Dirks et al. 2015). This led us to the hypothesis that *H. naledi* were involved in bringing the bodies into the spaces where they were found. But we did not hypothesize their involvement in the formation of the deposit itself beyond bringing the bodies to the location.
- ▶ But we recognize in hindsight that this null hypothesis approach did harm to our analyses. It impeded us from recognizing within our initial excavations of the puzzle box area and other excavations between 2014 – 2017 that we might be encountering remains that were intrusive in the sedimentary floor of the chamber. If we had approached the accumulation of a large number of hominins from the perspective of the null hypothesis being that the situation was likely cultural, we perhaps would have collected evidence in a slightly different manner.

Response

- ▶ We therefore respectfully disagree with the reviewers who continue to support the idea that we should approach hominin excavations with the null hypothesis that they will be natural (specifically non-cultural) in origins. If excavations continue with this mindset we believe that potential cultural evidence is almost certain to be lost.
- ▶ We suggest it may be damaging to take “natural accumulation” as the standard null hypothesis for hominin paleoanthropology, and that it is more conservative in practice to engage remains with the null hypothesis of possible cultural formation.

Flint and Harold Dibble

**Pour out a cold one
for my dear, old Dad**



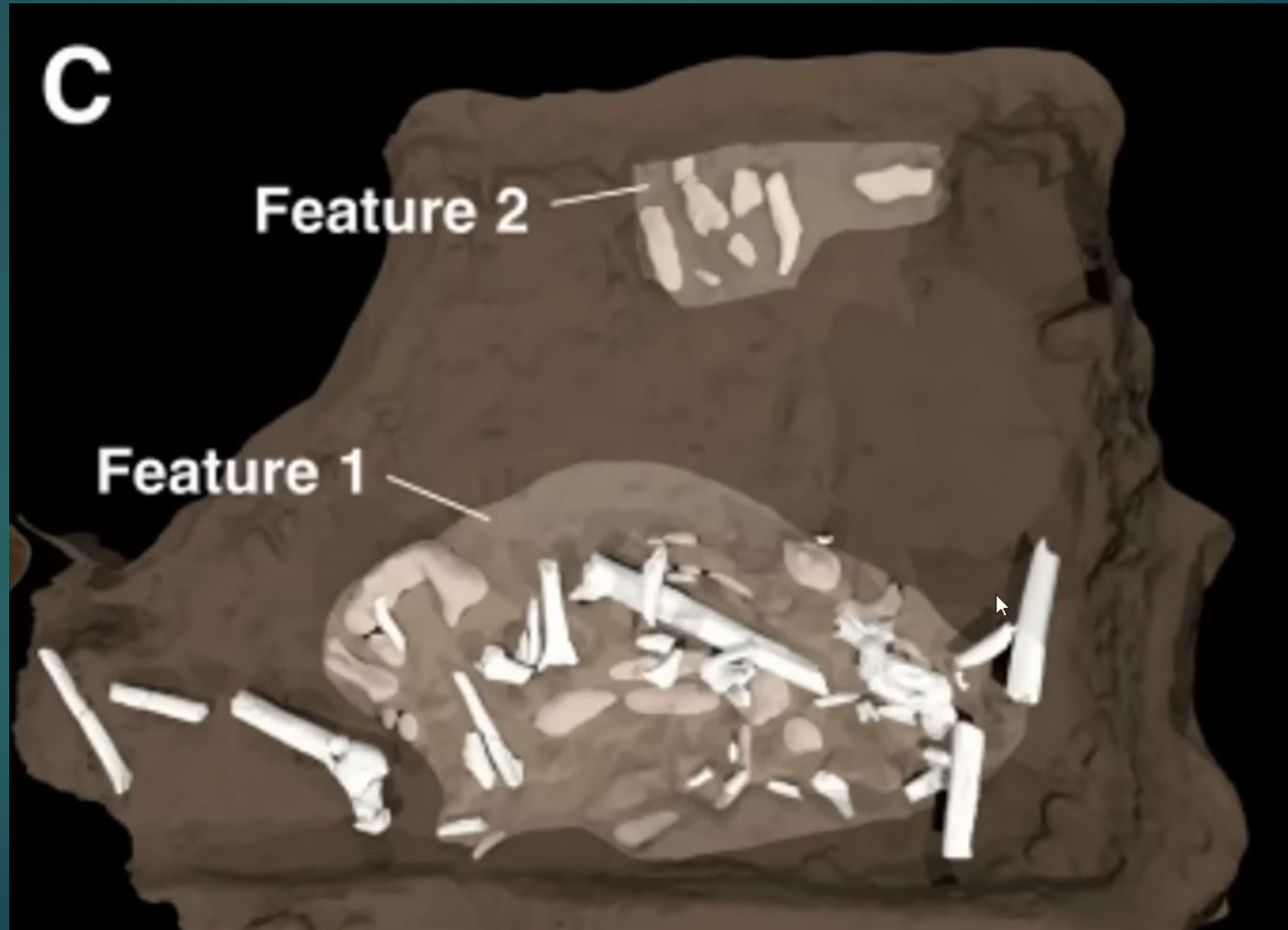
Flint Dibble, archeologist, peer review on YouTube

- ▶ Flint Dibble: experienced zooarcheologist, field director for multiple burial excavations; son of famous Harold Dibble, who disproved multiple “burials”
- ▶ Pegs found in Dinaledi chamber by 1st cavers
- ▶ Bird bones covered in calcite?
- ▶ Need dating!!
- ▶ Sediment around feature 1 is similar to sediment in Lesedi chamber: sign of fossil bearing dirt (in both chambers) not infilling of a grave
- ▶ Whether it is a human made or natural depression is unproven; needs micromorphology

Burials

- ▶ Human made or natural deposit
- ▶ Feature 1: 83 elements, an adult *H. naledi*, plus some bones of immature one; some excavated, some not; this needs extensive discussion; single individual not proven
- ▶ Is skeleton articulated or messed about, by animals or taphonomic forces
- ▶ Bolter 2018 citation: does not mention vertical orientation of bones at all;
- ▶ Brophy 2012 citation: does not discuss plunge soil method; its about teeth; method is actually from Harold Dibble!
- ▶ Matrix support info is not adequately explained

Look at image



Feature 1

- ▶ Just look at image: post depositional movement of bones outward; limbs scattered everywhere
- ▶ Totally ambiguous as to whether this is a burial
- ▶ Ignore evidence from earlier excavation: Feature 1 is right above 1 meter square 1st excavation (which has 15 indiv; vertical elements; articulated bones) = all explained by post depositional movement due to slow mud flow, not burials; contradicts conclusions of newer papers
- ▶ Now want to claim not null hypothesis of natural burial, but cultural explanation is a better fit; and now want to explain original excavation of 2015 as being cultural burials of number of bodies over each other
- ▶ Well studied phenomena of multiple burials literature is uncited

A Bibliographical Nightmare!

- ▶ Works Cited includes **only 31 citations**
- ▶ 14 are citations to the team's research at Rising Star
 - ▶ some are errors
- ▶ 4 are citations to basic methods (digital, stats, etc)
 - ▶ as noted, some are missing or miscited
- ▶ 14 are citations to other archaeological literature

- ▶ But these are not engaged with in depth AT ALL

Criteria for Identifying Burial (paraphrased from Sandgathe et al. 2011) [j

- ▶ Are the remains in:
 - ▶ .An anthropogenic or natural cavity?
 - ▶ .The bottom of the cavity?
 - ▶ .Intentionally filled sediment?
- ▶ Is the skeleton:
 - ▶ .Complete and articulated?
 - ▶ .Positioned in an intentional manner?
 - ▶ .Accompanied by grave goods?
 - ▶ .How do natural, post-depositional processes impact context & skeleton? = most important, unexplored
- ▶ Flint Dibble: Criteria are all unmet

Berger: Disagree with all 5 peer reviews

- ▶ Now reinterpret prior research as cultural burials, not post depositional movement
- ▶ **Dibble: Arguments for rejection:**
- ▶ This is a very sloppily written paper.
- ▶ The lack of bibliography is playing a game. Instead of building a secure argument with parallels to other literature on how these are burials, it's seeing what citations the reviewers suggest. Then they can adapt around reviewer suggestions. They don't argue with the current literature; they wait for reviewers to identify which literature to argue against.
- ▶ This is lazy. Why should reviewers waste time doing so much work for them.
- ▶ Rejection or major revisions

Argument for major revisions:

- ▶ The material presented is significant and has been scientifically analyzed.
- ▶ Supplemental information is overall good (could use minor improvements).
- ▶ With a significant rewrite and rework of images, this could be a good, cautious paper that honors the work of the larger team and is contextualized within broader archaeological literature.
- ▶ More cautionary conclusions until full excavations.
- ▶ Would want to see the final revisions before approval
- ▶ Science is a process: Burger undermines this reality.

Response by Berger

- ▶ Rather than engaging with concerns, the team appears to be denying problems with their methods and analysis and are attacking peer reviewers' motives in an attempt to undermine their criticism