

# Paleontological Note on *Homo naledi*

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## Abstract

The recently described *H. naledi* is based on exceptional material (hundreds of well-preserved specimens from a single, very small provenance, representing nearly every bone in the human body and at least fifteen different individuals from both genders and a wide range of ages). Distributed between two sedimentary units separated by flowstone, the bodies represent a death assemblage, deposited over at least months of time. The lack of other vertebrate remains, perimortem trauma, vertebrate predation or scavenging, human cutting or burning, combined with the difficulty of accessing the burial site, argue against the *H. naledi* being killed or brought in either by non-biological processes or by predators or scavengers. The best explanation for how the bodies got there is that humans, using artificial light, carried the bodies along challenging cave passage to deliberately deposit them there. Small CVs, combined with the uniformity of variable and unusual morphological characters suggest that all the *H. naledi* were probably from one family. The *naledi* are probably a family unit recently dispersed from Babel, who used this isolated cave passage as a burial chamber for the duration of their residence in the region. The mosaic nature of characters exhibited by the *naledi* are consistent with fossil human morphologies being non-adaptive morphologies expressed from latent genetic material and fixed by genetic drift in small populations dispersing from Babel.

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## Introduction

Two recent papers have reported on the biology (Berger et al. 2015) and geological context (Dirks et al. 2015) of a new hominin discovery, *Homo naledi*. The purpose of this paper is to provide a young-age creationist paleontological interpretation of the remains.

## Preservation

Most fossil hominids are poorly known. Several species are not only known from only one specimen, but from individual bones of individual specimens (such as the cranium or the mandible). Even of the species known from multiple specimens, many have little representation for most of their skeleton – especially for most of their post-cranial skeleton. The case of *H. naledi* is quite different. Berger et al. (2015) created the *H. naledi* taxon from 1550 specimens (1413 bone specimens and 137 isolated dental specimens). A number of the bone specimens were articulated or

readily re-articulated, making a total of 737 partial or complete anatomic elements (including a hand lacking only the pisiform bone and a foot lacking only the medial cuneiform and the four lesser toes). The raw numbers of skeletal and dental elements (from Dirks et al. 2015) indicates there are at least two young children (2 lower left deciduous canines and 2 upper right deciduous molars), at least one young adult (based on adult teeth with basically no wear), and at least 8 adults (8 lower right adult canines, aside from the one without any wear). Based on the size of teeth and their frequencies, Berger et al. report that the bones represent at least 15 individuals. Among the bones, every bone of the body is represented at least once, with the exception of one wrist bone (the pisiform), some of the skull bones, and some ribs and vertebrae (Dirks et al. 2015, Table 1). In fact, every bone is known from more than one individual except in the case of the ribs after the first rib, the vertebrae after C1 and C2, the sternum, the fourth and fifth metacarpals, the distal pedal phalanges, and the triquetral wrist bone (and, again, the pisiform and some skull bones not represented at all) (Dirks et al. 2015, Table 1). In fact,

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every bone is known from at least three different individuals except in the case of the vertebrae, the ribs, the sternum, the pubis, metatarsal 3, most of the wrist bones, several of the ankle bones, the distal finger bones, and the toe bones (and, again, some skull bones not represented at all) (Dirks et al. 2015, Table 1). Aside from Neanderthals and modern humans, no hominid population has as much bone material as is known from *H. naledi* – and what has been collected so far is only a small part of the bone material available from the site. This is truly an exciting find. What I reported about *H. floresiensis* (‘that most of the objections creationists raise in regard to paleoanthropological fossils (e.g., insufficient material, multiple provenances, poor preservation) do not apply to this specimen.’: Wise 2005) is even more true for *H. naledi*. Since the *H. naledi* bones come from one small, nearly undisturbed room in one cave, there is not only abundant material, multiple specimens, and good preservation, but there is a single provenance for the material – and no paleoanthropologists have modified the bones.

## Geology

The geologic context of *H. naledi* is provided by Dirks et al. (2015). All the *H. naledi* specimens are from 15 meters of passageway in a cave that varies between 0.25 to 2 meters in width. The passageway has been named the Dinaledi Chamber, and is located in the Rising Star Cave System, in the Cradle of Mankind Heritage Site, Gauteng Province, South Africa. In a straight line, the Dinaledi Chamber entrance is 70 meters from the entrance to the cave system on the far side of a room in the cave system known as ‘Dragon’s Back Chamber’. Once in the Dragon’s Back Chamber, one must climb up a 15 meter diameter rock fallen from the ceiling of the cave and then drop 12 meters down a narrow shaft into the ceiling of the Dinaledi Chamber. Cavers have found no other entrance into the chamber, nor any evidence of any former entrance now blocked. Two facts suggest that the 15 meter boulder currently isolating the Dinaledi Chamber from the adjacent Dragon’s Back Chamber was in place before the hominin bones were deposited there. One is that the two chambers have a different type of sediment fill (the Dinaledi sediment is finer and lacks muscovite that is found in the Dragon’s Back sediment). The second is that the oldest sediment containing *H. naledi* bones is in a pile directly beneath the current entrance into the Dinaledi Chamber, suggesting the bones came into the Dinaledi Chamber over the top of that boulder and dropped down through the current Dinaledi entrance. This not only suggests that the boulder has been in place from *H. naledi* time to the present, but that the current vertical shaft entrance into the Dinaledi Chamber has also been the only way in for that entire time.

Dirks et al. (2015) describe several sedimentary units in the Dinaledi Chamber. The oldest sediment, preserved as remnants in disparate locations throughout the Chamber, is an unfossiliferous orange mud (what Dirks et al. refers to as ‘Unit 1’). The next oldest sediment (what Dirks et al. refers to as ‘Unit 2’) is a darker mud containing clasts of the orange mud as well as a few *H. naledi* bones. Unit 2 is preserved as remnants under and near the current entrance to the room, dipping away from a point under the entrance shaft. This suggests that Unit 2 sediments entered the room from the current entrance shaft. Atop Unit 2, in places,

are some flowstone deposits, and atop those flowstones, in places, is another sediment that Dirks et al. refers to as ‘Unit 3’. Unit 3 is nearly identical in lithology to Unit 2 and contains the vast percentage of the *H. naledi* bones. Unit 3 is distributed more or less uniformly across the floor of the entire Chamber. Finally, younger than Unit 3 is a generation of extinct flowstone, followed in turn by active flowstone deposits. Although at least some of Unit 3 is derived from Unit 2, the articulated remains in Unit 3 – especially body parts that rapidly disarticulate upon decomposition, such as hands, feet, and mandibles from maxillae – suggest that Unit 2 and the flowstone that followed its deposition preceded the deposition of most of Unit 3. This means that the *H. naledi* remains were not deposited in the Dinaledi Chamber in one depositional event. They must have been deposited in the chamber over some period of time – enough time, at least, for flowstone development to occur between older and younger depositional units. Dirks et al. have not provided enough information to determine how long that has to be, and attempts to date the flowstone with uranium series dating has been frustrated by the dirtiness of the flowstone. The time involved depends much upon water flow rates in the cave, but at the very least *H. naledi* deposition has to be spread over some months or years of time.

## Faunal Associations

As pointed out by Dirks et al. (2015), a unique aspect of the *H. naledi* locality is the monospecific nature of the site. Besides the bone and teeth material assigned to *H. naledi*, there are only two other types of vertebrate remains known from the Dinaledi Chamber – rodent fossils and six bird bones. The bird bones, all very possibly from a single bird, were found arranged on a rock on the floor of the Dinaledi Chamber, apparently laid there by a caver who entered the Dinaledi Chamber sometime before Berger’s team of excavators got there. The taphonomic history of the bird bones is distinctly different from any of the hominin material. Not only do they lack the staining found on many of the *H. naledi* bones, but they are encased in calcite unlike any of the hominin specimens. It seems, then, that the bird bones are not associated with the hominin remains at all and were brought in from some unknown location by that caver or cavers. In the case of the rodent material, a narrow side passage of the Dinaledi Chamber has red mud in it (like Unit 1 in the main part of the chamber) with thin lenses of silt running through the mud. The silt contains current ripples and ‘abundant rodent remains’. It seems that water has flowed into this side passage from time to time carrying tiny rodent remains from some other chamber of the cave system – probably through a fissure in the rock that did not permit material any larger than skeletal or dental elements of rodents. Although this particular facies (what Dirks et al. refers to as ‘facies 1a’) is not in any direct contact with either Unit 2 or Unit 3, fragments of rodent teeth are occasionally found in Unit 3 sediments. It is most likely that these fragments are reworked facies 1a deposits, occasionally washed down from the higher side passage into the main Dinaledi Chamber. Consequently, the *H. naledi* fossils seem to be the only vertebrate remains originally buried in Unit 2 and Unit 3 deposits of the Dinaledi Chamber. This means that the *H. naledi* remains almost certainly did not fall into the chamber from some currently unknown sinkhole on the surface above the

cave, for if they did, then other vertebrate remains would likely be found with *H. naledi* in the same sediments.

In fact, not only are other vertebrate bones and teeth unknown from the *H. naledi* sediments, but Dirks et al. (2015) report the absence of even trace evidences of other vertebrates from Units 2 or 3. There are neither gnaw marks, nor tooth puncture marks, nor tooth score marks, nor evidences of trampling, nor even evidences of gastric corrosion. The only non-*H. naledi* fossil evidences are shallow furrows on the hominin bones consistent with the feeding trails of snails and adult and larval beetles – probably invertebrate scavengers feeding on the *H. naledi* carcasses after those carcasses were deposited in the Dinaledi Chamber. The only animals evidenced in the *H. naledi* sediments are the hominins themselves and invertebrates feasting on their bodies. The fact that there is a minimum of 70 meters of somewhat challenging travel in the cave to even get to the shaft dropping down into the Dinaledi Chamber – and 50 meters of that in the complete darkness of deep caves – provides adequate explanation for why no animals other than *H. naledi* and scavenging invertebrates made it to the cave chamber before the fossils were discovered a few years ago.

## Taphonomy

Berger et al. (2015) and Dirks et al. (2015) provide few clues about what killed the *H. naledi*. Most of what we know is a list of things that did not kill them. Dirks et al. (2015) carefully examined the *H. naledi* bones for anything that might provide a clue about their fate. None of the fractures sustained by the bones show any evidence of perimortem fracturing. All breaks appear to have occurred long after death, during the decomposition process. Not only does this argue against catastrophic death for the *H. naledi*, but it also argues against any catastrophic transportation soon after death. It is unlikely, for example, that a flood event either killed the *H. naledi* or washed their bodies into the Dinaledi Chamber after their death. The absence of vertebrate tooth marks on any and all bones argues against the bodies being killed by predators, or even hauled into the cave by predators or scavengers. The absence of cut marks by stone tools and the absence of any evidence of burning on any and all bones argues against the bodies being killed by humans, or being cut up or roasted by humans (e.g., for food).

The age distribution of the *H. naledi* specimens provides further insight into their fate. Of the minimum of fifteen specimens distinguishable in the material, Dirks et al. reports that the age categories of thirteen can be distinguished – 3 infants, 3 young juveniles, 1 old juvenile, 1 sub-adult, 4 young adults, and only one old adult (the lattermost identified as female by Berger et al. 2015). The three infants, in particular, suggest that this is also not a ‘caving trip’ of a bunch of (for example) young adolescent boys gone awry. In fact, the age distribution appears to be a bit more biased towards the young than would be expected if this were a ‘normal’ community of individuals overcome in some sort of mass catastrophe. This, combined with the fact that *H. naledi* bones are found in at least two different sediments of different age suggests that this is not a ‘life assemblage’ (formed by the mass death of a population), but is actually a ‘death assemblage’ – an accumulation of a population’s dead over a prolonged period of time.

Once the bodies got to the Dinaledi Chamber, they appear to have remained in the chamber and decomposed in place. The presence of articulated bones from structures that decompose and disarticulate rather quickly after death (such as a hand, a foot, and a mandible/maxilla association), suggests that the bodies have not experienced much transport after being deposited in the Dinaledi Chamber at death or soon thereafter. This is confirmed by no evidence of abrasion of bones, even at sharp break points. At the same time, there is evidence of some disturbance of the material. Although there is no evidence of breakage by being crushed (or trampled), most of the long bones and skull bones are cracked and broken, consistent with drying out and fracturing in exposure to the air. Although there is no evidence of radiation damage that comes with exposure to the sun, nor the damage that comes with freezing and thawing, there is considerable evidence of alternate soaking and drying. This is quite consistent with all the decomposition of the bodies occurring in the dark, uni-temperate, but alternating wet/dry, climate of a cave. Long bones oriented at high angles to the ‘normal’ horizontal repose of bodies and articulated anatomical parts from multiple individuals comingled, suggest that as bodies were decomposing, body parts are disarticulating from the remainder of the body and falling into cavities developing beneath the bodies. The staining on individual bones also evidences multiple subaerial exposures and multiple partial burials of those bones (each partial burial leaving a ‘bathtub ring’ at the sediment/air contact). This suggests that after the flesh decomposed off the bones, many of the bones were moved around a bit, probably falling into openings eroded beneath them, then being buried in those openings by fine sediment being brought in by water, then being re-exposed by further erosion, etc. These interpretations are consistent with three other facts about the sediment in the Dinaledi Chamber. First, the sediments enclosing the bones (Units 2 and 3) are mud clast breccias, constructed of chunks of older sediment surrounded by more recent mud, suggesting a continual process of older dried mud breaking apart into chunks by drying, falling into openings eroded beneath the chunks, and being buried in fine mud brought into the chamber from time to time by water. Second, the remnants of the oldest sedimentary units are not only found on the floor of the chamber, they are also found in protected nooks high up on the chamber walls. This suggests that the chamber has been, at times, full or nearly full of sediment, which has been later carried away by water flowing through the chamber. Third, the extremely high concentration of bones on the chamber floor suggests that much of the fine sediment that once enclosed the bones has been eroded away, leaving most of the bones behind. Thus, as Dirks et al. conclude, once the *H. naledi* bodies were deposited in the Dinaledi Chamber, they have remained in the chamber, decomposing and experiencing minimal disturbance as water over the years has alternatively brought sediment into the chamber and winnowed away sediment from the chamber.

## Human

The only substantial taphonomic question remaining is how the bodies came to be deposited in the Dinaledi Chamber in the first place. It is important to note at this point that the Dinaledi Chamber is rather difficult to access. The very shortest distance

to the entrance shaft of the chamber from the outside world is not only along 70 meters of cave, it is also up and down over tens of meters of vertical relief, and back and forth through narrow winding passageways ('steep climbs along narrow fractures and tight passages'). With this in mind, there seems to be no possible way for any non-biologic process to get the bodies into the chamber. The lack of perimortem trauma, the age distribution of the specimens, the lack of any other vertebrates, the fine nature of the sediment, combined with the difficulty of accessing the chamber, seem to eliminate the possibility of both their catastrophic death and their transport into the chamber by water or gravity. The lack of evidence of tooth damage, tool damage, trampling damage, occupation of the cave, combined with the difficulty of accessing the chamber, seem to eliminate the possibility of the bodies being carried in by predators or scavengers. This conclusion is reinforced by the darkness of at least 50 meters of the cave passage leading up to the Dinaledi Chamber. The inner passages of caves contain no light whatsoever. It isn't just that caves have little light. They have none. Most animals that enter a cave remain near the entrance of the cave where there is at least some light from the outside. Aside from humans (who carry their own artificial light), no large vertebrate (capable of carrying something the size of *H. naledi* bodies) is known to travel into the dark inner passages of a cave (cave rats are just about the largest animals known to go into the dark regions of caves, and they do it by following their own urine trails through the dark portions of the cave). All this means that the only reasonable explanation for how the *H. naledi* bodies got into the Dinaledi Chamber is that they were carried there along a difficult path by humans carrying artificial light. Most likely, then, the *H. naledi* themselves are humans, and the Dinaledi Chamber was a burial chamber where the *H. naledi* people interred their dead. It would seem that the conclusion that the *H. naledi* were human is almost inescapable. Even Dirks et al. conclude that the *H. naledi* deliberately placed their dead in this inaccessible location. This is in spite of how difficult this conclusion is for them to accept. Chris Stringer (2015) summarizes their dilemma well when he says '...they also recognize that the intentional disposal of the dead bodies is a surprisingly complex behavior for a creature with a brain no bigger than that of a *H. habilis* or gorilla.'

But there is more. The coefficient of variation (CV) of the *H. naledi* specimens is extremely small. The CV of almost any morphological feature of nearly all organisms is somewhere close to 15%. Consequently, CVs sufficiently greater than this suggest that more than one species is being sampled. In the case of *H. naledi*, Berger et al. reports three CVs – a body mass CV of 9%, a lower first molar CV of 3.2% ( $n \geq 7$ ), and an upper first molar CV of 2% ( $n \geq 7$ ). This suggests that not only are the *H. naledi* specimens of the same species, they are from the same population of humans, and probably the same close family. This is confirmed by Berger et al.'s claim that the dental and cranial morphologies that normally vary in present human populations either show no variation at all in the *H. naledi* specimens, or they vary only slightly. It is further confirmed by Berger et al.'s claim that the *H. naledi*-unique morphological traits, such as those on the first metacarpals ( $n = 4$  lefts and 3 rights), the femora ( $n = 5$  lefts and 9 rights), the molars ( $n = 7$  LM1; 7 RM1; 7 LM2; 5 RM2; 3 LM3; 1 RM3; 2 ?M3; 6 LM1; 7 RM1; 5 LM2; 7 RM2; 2

LM3; 4 RM3), the lower premolars ( $n = 7$  LP3; 6 RP3; 3 LP4; 4 RP4), and the lower canines ( $n = 7$  lefts and 8 rights) are found on every known specimen (numbers of specimens are from Berger et al. 2015, Supplementary File 1). Not only is it reasonable to assume that the *H. naledi* are human, but that they are all from a small population or family unit. This small population lived in the area of the cave for an extended period of time – at least months, and probably years – and used artificial light to carry their dead along a difficult path deep into the cave to carefully inter them in the Dinaledi (burial) Chamber.

## Mosaic

Every fossil hominid species described so far is comprised of a complex mosaic of characters. This author, for example, has previously noted this for *Ardipithecus ramidus* (Wise 1994), *Australopithecus anamensis* (Wise 1995), and *Homo floresiensis* (Wise 2005). *Homo naledi* is no exception. As Berger et al. (2015) claims, *H. naledi* is most similar to small-bodied *H. sapiens* populations in the structure of its cranium and mandible, its body structure and body mass, its hand and wrist design (for human manipulative ability), and its foot, ankle, and leg design (for the walking gait of a human). Yet, *H. naledi* also has several australopithecine-like features, such as a pyramidal ribcage, flared hips, and a shoulder and long curved fingers optimally designed for climbing. And then there are features similar to various combinations of other *Homo* species (brain size between *H. floresiensis* and *H. habilis*; high thin skull like *habilis* and *sapiens*, but unlike *H. erectus* and *H. floresiensis*; molars that increase in size towards the back of the mouth as in *H. habilis*, but not *H. erectus*, *H. floresiensis* or *H. sapiens*; small teeth like *H. floresiensis* and *H. sapiens*, but not *H. habilis* and *H. erectus*; a flexed occipital like *H. erectus* and *H. floresiensis*, but not *H. habilis* and *H. sapiens*, and so on). Finally, there are characters unknown in other species, seemingly unique to *H. naledi*, such as fingers even more curved than australopithecines, and a dental morphology more simple and gracile than any other species. *H. naledi* possesses such a mosaic of characters that no matter what age will ultimately be placed on the specimens (they are currently undated), *H. naledi* will only further confuse any proposed evolutionary tree of hominins.

## Diversification

Wise (1994) suggested that all australopithecine species were generated by rapid, post-Flood intra-baraminic diversification within a single ape baramin. This occurred, he suggested, by the sudden expression of latent, non-adaptive, genetic information – possibly even pre-programmed species morphotypes. Such a process would explain the stasis, abrupt appearance, high diversity, and frequent homoplasy (and mosaic nature) of australopithecine species. Wise (2005) suggested a similar process generated a diversity of human morphologies following human dispersion from Babel. This occurred, he suggested, through a time sequence of three processes: (1) unique combinations of characters getting sampled by each human population dispersing from Babel – i.e., the founder effect; (2) unique characters suddenly appearing in each isolated human population – due to the sudden, independent

expression of latent, non-adaptive genetic information; and (3) the rapid fixing (in a few generations) of non-adaptive differences in small dispersing human populations – due to genetic drift. Such a process would explain the abrupt appearance, high diversity, high disparity, and frequent homoplasy (and mosaic nature) of human morphotypes.

The *H. naledi* remains seem to fit into Wise's (2005) suggested mechanism of human diversification. Although *H. naledi* has not yet been dated, it is found in a cave system that dates from the uppermost Pliocene and younger (Dirks et al. 2015). *H. naledi* thus dates well within the Pliocene-to-Recent time range of other claimed hominins. This means all hominins substantially post-date the Cretaceous/Paleogene boundary, our best estimate for the location of the Flood/post-Flood boundary in the biostratigraphic column (e.g., Whitmore and Garner 2008). All hominins, then, date from centuries after the Flood and most – and probably all – date from post-Babel times (Wise 1994). The *naledi*, in particular, given that they are not only human and post-Flood, but also found at a considerable distance from Babel, must date from post-Babel times as well. *Homo naledi* also continues the pattern already observed in earlier hominin finds and explained by Wise's (2005) mechanism of human diversification: (1) *H. naledi* appears abruptly (i.e., no known transitional series provides a continuous link between it and any other morphology); (2) *H. naledi*, being unique, further increases both the diversity and disparity of known hominins; and (3) *H. naledi* expresses yet another unique mosaic of characters.

Because so many *H. naledi* skeletal and dental remains are preserved, we have quite a long list of mosaic characters. But because so many specimens of *H. naledi* are known, we can also establish that the characters characterize a whole family or population, making us confident we are actually observing genuine morphological characters (and not abnormalities found in only one individual). This information, combined with the many unique suites of characters exhibited in other hominin and australopithecine morphologies, suggests that a very large number of these characters must not have any selective advantage or disadvantage. The presence or absence of brow ridges, thin or thick skull bones, flexed or rounded occipital bones, more horizontal or vertical orientation of the hip, straight or curved toes or fingers, large or small body size, large or small teeth, gracile or robust mandible, and a host of other characters probably have little or no impact on a human's survivability. They certainly do not define a human being. It would even seem that brain size has little importance in that regard – at least as long as it is at least as large as the brain of *H. floresiensis*, well less than half the brain size of modern human populations. At the very least, as Berger et

al. conclude, we need to cease defining humanity on the basis of individual morphological features. In fact, if we are to have ANY possibility of success in defining the humanity of fossils based upon morphological characters (and even that is questionable), it will be by means of holistic data sets and the kind of multivariate methods used in quantitative baraminology (e.g., Wood 2016).

## References

- Berger, L.R., J. Hawks, D.J. de Ruiter, S.E. Churchill, P. Schmid, L.K. Deleuzene, T.L. Kivell, H.M. Garvin, S.A. Williams, J.M. DeSilva, M.M. Skinner, C.M. Musiba, N. Cameron, T.W. Holliday, W. Harcourt-Smith, R.R. Ackermann, M. Bastir, B. Bogin, D. Bolter, J. Brophy, Z.D. Cofran, K.A. Congdon, A.S. Deane, M. Dembo, M. Drapeau, M.C. Elliott, E.M. Feuerriegel, D. Garcia-Martinez, D.J. Green, A. Gurtov, J.D. Irish, A. Kruger, M.F. Laird, D. Marchi, M.R. Meyer, S. Nalla, E.W. Negash, C.M. Orr, D. Radovic, L. Schroeder, J.E. Scott, Z. Throckmorton, M.W. Tocheri, C. VanSickle, C.S. Walker, P. Wei, and B. Zipfel. 2015. *Homo naledi*, a new species of the genus *Homo* from the Dinaledi chamber, South Africa. *eLife* 4:e09560.
- Dirks, P.H.G.M., L.R. Berger, E.M. Roberts, J.D. Kramers, J. Hawks, P.S. Randolph-Quinney, M. Elliott, C.M. Musiba, S.E. Churchill, D.J. de Ruiter, P. Schmid, L.R. Backwell, G.A. Belyanin, P. Boshoff, K.L. Hunter, E.M. Feuerriegel, A. Gurtov, J. du G. Harrison, R. Hunter, A. Kruger, H. Morris, T.V. Makhubela, B. Peixotto, and S. Tucker. 2015. Geological and taphonomic context for the new hominin species *Homo naledi* from the Dinaledi Chamber, South Africa. *eLife* 4:e09561.
- Stringer, C. 2015. The many mysteries of *Homo naledi*. *eLife* 4:e10627.
- Whitmore, J. H., and P. Garner. 2008. Using suites of criteria to recognize pre-Flood, Flood, and post-Flood strata in the rock record with application to Wyoming (USA). In: Snelling, A. A., ed. *Proceedings of the Sixth International Conference on Creationism*. Creation Science Fellowship, Pittsburgh, PA and Institute for Creation Research, Dallas, TX, pp. 435-448.
- Wise, K. P. 1994. *Australopithecus ramidus* and the fossil record. *Creation Ex Nihilo Technical Journal* 8(2):160-5.
- Wise, K. P. 1995. A note on new australopithecines. *Creation Ex Nihilo Technical Journal* 9(2):167.
- Wise, K. P. 2005. The Flores skeleton and human baraminology. *Occasional Papers of the BSG* 6:1-13.
- Wood, T. C. 2016. An Evaluation of *Homo naledi* and “early” *Homo* from a Young-Age Creationist Perspective. *Journal of Creation Theology and Science Series B: Life Sciences* 6:14-30.