

Soft tissue, proteins and ^{14}C in dinosaur remains

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CREATION SUPERCONFERENCE
END - 5TH OCT 2018, SUNSHINE COAST, AUSTRALIA

Soft tissue, proteins and ^{14}C in dinosaur remains

- Why is this issue important?
 - Two timelines and two worldviews
- What is the evidence?
 - Physical
 - Optical
 - Chemical
 - Geographical
 - Historical
- What are the implications?
- Conclusions

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What do you call a one eyed dinosaur?



Answer : Doyouthinkhesaurus ?

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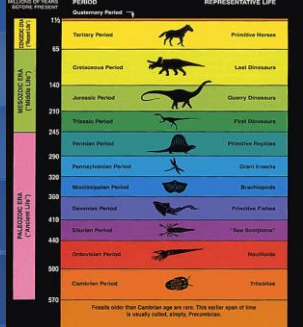
What do you call a one eyed dinosaur's dog?

Answer :
Doyouthinkhesaurus Rex

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The modern secular worldview



- Geological column fossils laid down over millions of years?
- A record of suffering, disease and death...
- All this *before* Man evolved?

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The modern secular worldview:

Dinosaurs extinct *millions* of years ago
Dinosaurs and Man *did not* co-exist



Pittsburgh International Airport

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The modern secular worldview

- 'Time is in fact the hero of the plot... given so much time the 'impossible' becomes possible, the possible probable and the probable virtually certain. One has only to wait: time itself performs miracles'
- 'The Origin of Life' G. Wald, 'Physics and Chemistry of Life', p. 12 (1955) Nobel laureate 1967 – Physiology
- 'the present is the key to the past' [Uniformitarianism]
- Charles Lyell



The Biblical worldview

- 'In the beginning God created the heavens and the earth'
- Genesis 1:1
- '...for in six days the Lord made the heaven and earth the sea and all that in them is...'
- (Exodus 20:11, GOD writing)



The Biblical worldview

- The Lord Jesus Christ said:
 - '...from the beginning of the creation God made them male and female' (Mark 10:6)
- The apostle Paul taught:
 - '...wherefore as by one man sin entered into the world and death by sin; and so death passed upon all men for that all have sinned' (Romans 5:12)



The Biblical worldview: summary

- Creation-from nothing– in 6 literal days
- Adam and Eve made '...in the beginning' (Mark 10:6)
- Creation was 'very good' (Gen 1:31)
- Death and suffering after sin (Rom 5, 1 Cor 15)
- The **chronologies** of the Bible (Gen 5,11 Luke 3) teach that earth was created thousands of years ago



The big issue... which worldview is correct?

- "If I cannot trust the Bible on page 1...how can I be sure about the rest?"
- Is there any scientific evidence **against** millions of years?



Scientific evidence inconsistent with millions of years

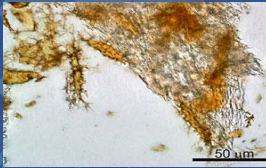
1. Soft tissue in un-fossilised dinosaur bones
2. Original biochemistry in fossils worldwide
3. ^{14}C in dinosaur bones
4. Dinosaur sightings and carvings



Tyrannosaurus bataar dinosaur fossil



1. Soft tissue in dinosaur fossils: physical evidence:



- Soft-tissue preservation in fossils => rapid geological processes

Dal Sasso, C. and Signore, M. Exceptional soft-tissue preservation in a theropod dinosaur from Italy. *Nature*, 392:383-387, 1998

Pliable blood vessels and cells, proteins molecules visible in dinosaur bone. **Not consistent with 65+ million years**

Scientists recover T rex soft tissue: 70-million-year-old fossil yields preserved blood vessels', www.msnbc.msn.com/id/7285683/24 March 2005.



Dinosaur soft tissue: recent timeline...

- In 1993, blood cells found [1]
- In 1997, haemoglobin and red blood cells, in *T. rex* [2,3]



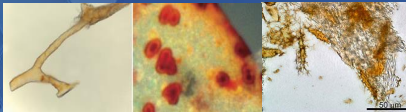
References

- [1] Morell, V., Dino DNA: The hunt and the hype. *Science* 261(5118):160-162, 1993.
- [2] Schweitzer, M., and 8 others, Heme compounds in dinosaur trabecular bone, *Proceedings of the National Academy of Sciences of the USA (PNAS)*, 94:6291-6296, 1997.
- [3] M. Schweitzer, M. and Staedter, I., The Real Jurassic Park, *Earth*, June 1997, pp. 55-57.



Dinosaur soft tissue: timeline

- In 2003, evidence of osteocalcin [4]
- In 2005, flexible ligaments and blood vessels [5,6]



References

- [4] Specifically, bones of an *Iguanodon* 'dating' to 120 million years of age contained enough of the protein osteocalcin to produce an immune reaction. Embury, G., and 5 others, Identification of proteinaceous material in the bone of the dinosaur *Iguanodon*, *Connective Tissue Research* 44 Suppl 1:41-46, 2003
- [6] Stokstad, E., *Tyrannosaurus rex* soft tissue raises tantalizing prospects, *Science* 307(5717):1852, 2005.



Dinosaur soft tissue
(a-e) *T-Rex* (65-68 mya)
(f)-(k) *Triceratops* (65 mya)
(q-u) *Brachylophosaurus* (78 mya)
all show osteocytes and hollow, supple vessels

"As arguably the most labile and easily degraded of the structures we observed, the presence of soft vessels is enigmatic..."

"Soft tissue and cellular preservation in vertebrate skeletal elements from the Cretaceous to the present" Schweitzer et al., *Proc. Roy. Soc. B*, 2007 (Fig 3)

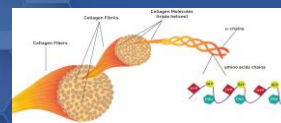
Other soft tissue
(a-e) Moa (1.2 kya)
(f-j) Mammoth (300 kya)
(k-p) Mastodon (300 kya)

"Scattered osteocytes were present within fibrous tissue and under SEM, demineralized matrix was morphologically similar to other matrix tissues particularly, the much younger mastodon ..."

"Soft tissue and cellular preservation in vertebrate skeletal elements from the Cretaceous to the present" Schweitzer et al., *Proc. Roy. Soc. B*, 2007 (Fig 2)

Dinosaur soft tissue: timeline

- In 2007, collagen in *T. rex* bone [7]
- In 2009, proteins elastin and laminin, and collagen (in a duck-billed dinosaur) [8]



References

- [7] Schweitzer, M. et al. Analyses of soft tissue from *Tyrannosaurus rex* suggest the presence of protein. *Science* 316(5822):277-280, 2007.
- [8] Schweitzer, M. and 15 others, Biomolecular characterization and protein sequences of the Campanian hadrosaur *B. canadensis*, *Science* 324(5927):626-631, 2009.



Dinosaur soft tissue: timeline

- 2012, Fragile proteins actin, tubulin, and DNA were reported [9]



- 2013 Chitin (derivative of glucose) and also radiocarbon [10]

References

- [9] Key extract from the paper's summary: "These data are the first to support preservation of multiple proteins [viz. actin, tubulin, P52, histone H4] and to present multiple lines of evidence for material consistent with DNA in dinosaurs." Schweitzer, M. et al, Molecular analyses of dinosaur osteocytes support the presence of endogenous molecules, *Bone* 52(1):414-423, 2013.
- [10] Chitink, N. et al. Discovery of 505-million-year old chitin in the basal demosponge *Vaula gracilis*. *Sci. Rep.* 3, 3497, 2013, DOI:10.1038/srep03497



Dinosaur soft tissue: timeline...

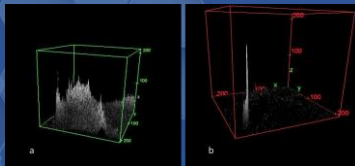


[11] Bertazzo et al, *Nature Communications* 2015
doi:10.1038/ncomms8352

2015 'Collagen and soft tissue preservation: '...more common than previously thought' [11]



Collagen imaging in ancient bone (University of Liverpool)



SHG for modern and fossil bone. Scale in microns.
a, Modern bovine femur cortical bone cross section reveals a dense lawn of collagen.

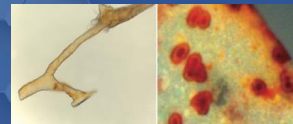
b, Cretaceous Triceratops reveals one deep and several shallow collagen remnants

"Second Harmonic Generation Imaging of collagen in ancient bone"
Thomas et al, *Bone Reports*, (2017)

<http://dx.doi.org/10.1016/j.bonr.2017.10.005>



Some ideas die hard...

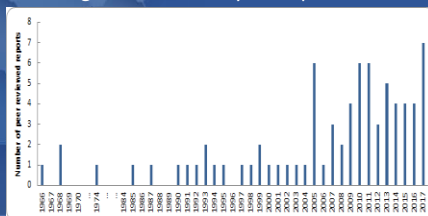


"It was exactly like looking at a slice of modern bone. But of course, I couldn't believe it. I said to the lab technician: 'The bones are, after all, 65 million years old. How could blood cells survive that long?'"

Schweitzer, M.H., *Montana State University Museum of the Rockies*; cited on p. 160 of Morrell, V., *Dino DNA: The hunt and the hype*, *Science* 261(5118):160-162, 9 July 1993.



Original biochemistry fossil publications



Beginning with dinosaur soft tissue discoveries, and with the use of new techniques research has surged



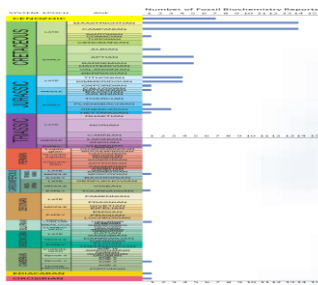
Global Distribution of Original Biochemistry Fossils



Approximately seventy original biochemistry fossil locations worldwide



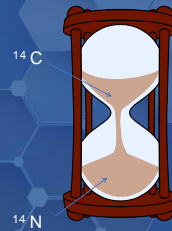
Geological Distribution of Reported Original Biochemistry in Fossils



The data show show original biochemistry *throughout the geological column*



2. Carbon dating – how does it work ?



- When something it dies it stops eating
- Carbon 14 decays without being replenished
- ^{14}C half life is 5730 years
- Typical radiocarbon years 700 to 70,000 before present (BP)
- Can be checked against known dates
- Works on bones *directly*

<http://www.howstuffworks.com>



Carbon 14 in dinosaur bones



- Maximum measureable ^{14}C age less than 100,000 radiocarbon years....
- If dinosaurs have been extinct for 65 million years there could not be any ^{14}C left...
- *But there is !*
- ^{14}C presence => evidence against millions of years



Carbon 14 in dinosaur bones...

Material Tested	RadioCarbon age
Triceratops, MT	30,890 +/-200
Triceratops, MT	33,830 +/-2910/-1960
Hadrosaur, MT	22,380 +/-800
Hadrosaur, MT	22,990 +/-130
Hadrosaur, MT	25,670 +/-220
Hadrosaur, MT	23,170 +/-170
Hadrosaur, MT	2,560 +/-70
Hadrosaur, AK	31,050 +/-230/-200
Allosaurus, CO	16,220 +/-220
Allosaurus, CO	31,360 +/-100
Acrocanthosaurus, TX	23,760 +/-270
Acrocanthosaurus, TX	25,760 +/-280

Dinosaur bone from USA (also Belgium, China and Russia) contains carbon 14

They CANNOT be millions of years old !

Table 1: Results of testing for C-14 in dinosaur bones from Texas to Alaska

<http://www.dinosaurcl4ges.com/carbon dating.htm>



Carbon 14 in dinosaur bones...

Material Tested	RadioCarbon age
Triceratops, MT	30,890 +/-200
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Hadrosaur, MT	2,560 +/-70
Hadrosaur, AK	31,050 +/-230/-200
Allosaurus, CO	16,220 +/-220
Allosaurus, CO	31,360 +/-100
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Acrocanthosaurus, TX	25,760 +/-280

Table 1: Results of testing for C-14 in dinosaur bones

Question: Are these bones definitely 35,000 years old?

Answer: No. These are 'radiocarbon years' They could be much younger !

Confirmation of ^{14}C in dinosaur bones

Bone Sample $\delta^{13}\text{C}\text{‰}$	Percentage of modern carbon ^{14}C (p MC)	Error +/-
Modern : -14.9	90.05	0.23
Medieval : -10.6	28.21	0.10
Medieval : -11.1	8.24	0.04
Dinosaur: -2.6	0.57	0.01
Dinosaur: -2.4	1.64	0.02
Dinosaur: -9.6	1.12	0.01

Upper (blue) : Modern and medieval bone: ^{14}C decreases with age
Lower (red) : Dinosaur bone: ^{14}C also present

Graphite $^{14}\text{C}/^{13}\text{C}$ ratios measured using the CAIS 0.5 MeV accelerator mass spectrometer after the same cleaning procedure



What about the fossils?



Above: Fossilised jellyfish

- Fossils: form by sudden death followed by rapid burial (e.g catastrophe)
- Found in sedimentary rock layers (laid down by water) worldwide
- 95% of all fossils are marine (e.g. shellfish)
- 4.75% are algae and plant fossils
- 0.2375% are invertebrates (e.g insects)
- 0.0125% includes all vertebrates (e.g. dinosaur skeletons)



Rapid sedimentation in catastrophic conditions



- How long did Engineers Canyon take to form?

- A- 30000 years
- B- 300 years
- C- 3 years
- D -3 days

- Mount St Helens, USA



Sedimentary rocks can form rapidly...



- The Cliff face (left) was formed on three separate days over a 2 year period 1980-82

• S.A. Austin, (2009), 'The dynamic landscape on the north flank of Mount St Helens' Geological Society of America Field Guide, 15, pp349-356



What does the Bible say?

• 'And behold, I even I, will bring a flood of waters upon the earth to destroy all flesh, in which is the breath of life, from under the heavens everything that is in the earth shall die'

Genesis 6:17

• Local or global ?

• Genesis 7:19 '...all the high mountains under all the heavens were covered'.



What about the Flood ?

- The Lord Jesus Christ taught:

• '...as it was in the days of Noah...and the flood came and destroyed them all' Luke 17:26-27

- The Apostle Peter said:

• "The world that then was being overflowed with water perished" 2 Peter 3:6



What about the fossils?



Tsunami, Boxing day 2004 – 250,000 killed

- The fossil record is best understood as a result of a world wide flood that destroyed the continents and land dwellers (*Eyewitness account: Genesis 7*)
- There are hundreds of flood stories in different civilisations around the world



Dinosaurs in history...



Dinosaur carving in Cambodian temple 1186 AD (Ta Prohm) Evidence that dinosaurs and humans coexisted

- <http://www.bible.ca/track/track-cambodia.htm>



Dinosaurs in history...

'One day, when Regulus, a Roman consul [3rd C. bc], was fighting against Carthage, a dragon suddenly crept up and settled behind the wall of the Roman army. The Romans killed it by order of Regulus, skinned it and sent the hide to the Roman senate. When the dragon's hide was measured by order of the senate, it happened to be, amazingly, one hundred and twenty feet long, and the thickness was fitting to the length.'

Dio [Cassius] Roman historian



The Works of St. John Damascene, Martis Publishing House, Moscow, 1997



Dinosaurs in the Bible?



Sauropod dinosaur

"Look now at the **behemoth**, which I made *along* with you; He **eats grass** like an ox. See now, his strength *is* in his hips, And his power *is* in his stomach muscles. He moves his **tail like a cedar**; The sinews of his thighs are tightly knit. **His bones are like beams of bronze**, His ribs like bars of iron. He is the first of the ways of God; ..."

- Bible - book of Job 40:15-19



World's biggest dinosaur: Argentinosaurus



Discovered in Argentina in 1987
Plant eater

Length: 39 m long (122 feet)
Height: 7.3m (24 feet)
Weight: 90 tons
Thigh bone : 2m
Circumference: 1.18m



Conclusions

- Secular worldview → belief in millions of years of evolution...
- Biblical worldview → recent creation (from nothing), no death before sin, a worldwide flood which laid down the fossils...

These two worldviews cannot be reconciled !

- Recent research has reported original biochemistry in fossils throughout the geological column, in sedimentary rock (laid down by water) and are found worldwide.



Conclusions

- Dinosaurs are now probably extinct, but there are eyewitness accounts from history and dinosaur carvings

- Soft tissue, fragile proteins, blood and bone cells containing radiocarbon in un-fossilised dinosaur bone...

"When you think about it, the laws of chemistry and biology and everything else that we know say that it should be gone, it should be degraded completely"

Dr Mary Schweitzer, Nova Science Now, May 2010

- **You can and you should believe your Bible as intended by its Divine Author**



The message of the Bible...

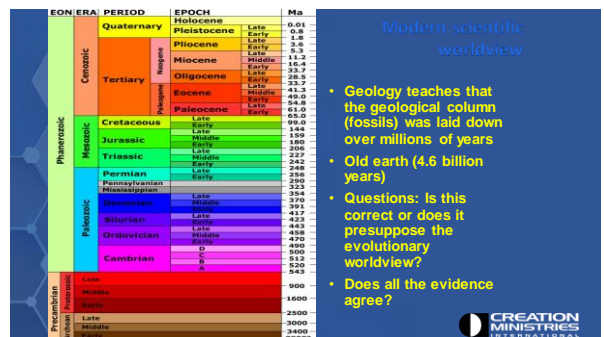


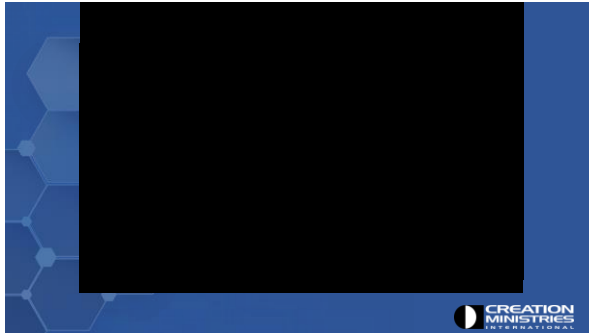
- 'For GOD so loved the world that He gave His only begotten Son, that whoever believes in Him should not perish but have everlasting life'
- *The Gospel of John 3:16*



Acknowledgements

- Friends at the Institute for Creation Research (Dallas, TX) for provision and permission to use the 'That's a Fact' video clips (www.icr.org)





Resisted by early Christians....

- Augustine opposed:
 - '...that history which says that the world has continued many thousand years...'
- he taught that by Scripture's authority Man's creation was:
 - 'as recently as within this 6,000 years'

• Augustine "The City of God", XII, ch 13



An 'old earth' is not new....

- 'The Indian complete cycle or *Mahayuga*, lasted 12,000 years... each of the years in the *Mahayuga* lasted 360 years so that a single cosmic cycle, spanned 4,320,000 years. A thousand of these cycles constituted a *kalpa*.'
- 'Age of the World - from Moses to Darwin' F.Haber p.13, Johns Hopkins press, (1959)



An 'old earth' is not new....

- 'Plato referred to a 'complete year' when all the eight orbits of the heavenly bodies finished their revolutions together; and... the *magnus annus* passed into medieval thought as a period of 36,000 years'
- *ibid.* p.14



Resisted by early Christians....

- Theophilus of Antioch (115-181) rejected Greek and Egyptian views of an old earth maintaining a creation date of 5529 B.C
 - '...nor is there a spontaneous production of all things, as Pythagoras and the rest dreamed...'
- Theophilus to Autolycus, Book II, Ch 26 'The Ante-Nicene Fathers' (New York, 1893)



Resisted by later Christians....

- 'It cannot be denied... that the almost universal view of the Christian world until the 18th Century was that the Earth was only a few thousand years old....'

• 'Christianity and the Age of the Earth' D.A. Young p. 25 (1982)



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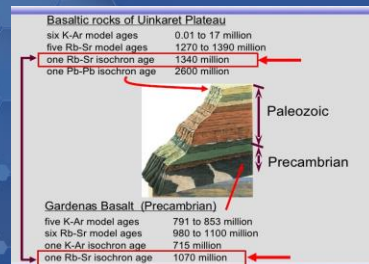
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What about Radioisotope dating ?



Radioisotope dating: discordant results

- "The aa flow [from the eruption of Hawaii's Mt. Kilauea in 1807] was dated with no fewer than sixty isochrons, using a variety of techniques, for a total of over 300 samples. [...] Fully half of the isochrons had to be discarded because they had a negative slope. Other isochrons exhibited other problems [...] The remainder were fully in line with historic observation. This is consistent with the results obtained at Hvolsvöllur [in Iceland]."



Mount Kilauea

- Thorsten Freysson, "Proceedings of the XX Conference on Comparative Volcanic Stratigraphy," Reykjavik, 1988.



Titanosaurs

2011 Argentina
7 Titanosaurs found in
massive fossil graveyard
Vegetarian

