

rate enhancement. A *phosphatase*, which catalyzes the hydrolysis of phosphate dianions, magnified the reaction rate by a thousand times more than even that previous enzyme— 10^{21} times. That is, the phosphatase allows reactions vital for cell signalling and regulation to take place in a hundredth of a second. Without the enzyme, this essential reaction would take a trillion years—almost a hundred times even the supposed evolutionary age of the universe (about 15 billion years)!³

Implications

Wolfenden said:

‘Without catalysts, there would be no life at all, from microbes to humans. It makes you wonder how natural selection operated in such a way as to produce a protein that got off the ground as a primitive catalyst for such an extraordinarily slow reaction.’¹

Actually, it should make one wonder about the faith commitment to evolution from goo to you via the zoo, in the face of such amazingly fine-tuned enzymes vital for even the simplest life! And natural selection can’t operate until there are *already* living organisms to pass on the information coding for the enzymes, so it cannot explain the *origin* of these enzymes.

References

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A new candidate for Leviathan?

Peter Booker

Chapter 41 of the book of Job in the Bible describes a creature called Leviathan. Leviathan was massive and terrifying, and apparently could breathe fire. God describes Leviathan to Job, as an example of something which He created which is beyond mankind’s ability to compete with.¹ A number of creatures have been proposed as candidates for Leviathan.

Leviathan—*Tyrannosaurus rex*?

The massive size and terrifying teeth described in Job could lead one to propose that Leviathan may have been a theropod (flesh-eating) dinosaur such as *Tyrannosaurus rex*. However, verses 31–32 say of Leviathan:

³¹ ‘He makes the depths churn like a boiling caldron and stirs up the sea like a pot of ointment.

³² ‘Behind him he leaves a glistening wake; one would think the deep had white hair.’

This clearly describes an aquatic creature. Psalm 104:25–26 also confirms that Leviathan lived in the sea:

²⁵ ‘There is the sea, vast and spacious, teeming with creatures beyond number—living things both large and small.

²⁶ ‘There the ships go to and fro, And the leviathan, which you formed to frolic there.’

Clearly *T. rex*, which was land-dwelling, cannot have been Leviathan.

Leviathan—*Kronosaurus*?

The book *The Great Dinosaur Mystery Solved!*² suggests that Leviathan may have been something like *Kronosaurus queenslandicus*. However, there are problems with *Kronosaurus* (or its larger pliosaur kin, such as *Mosasaurus*) being the Leviathan of Job.

These extinct creatures were all wholly marine reptiles. Due to their great size, they would have lived in the deep ocean. They would not have been opponents for land-dwelling humans armed with swords, spears, darts, arrows and slingstones, which Leviathan was.

Verse 30 says of Leviathan:

³⁰ ‘His undersides are jagged potsherds [broken, generally sharp, pottery fragments], leaving a trail in the mud like a threshing sledge.’

Pliosaurus like *Kronosaurus* had flippers and not legs, so they could not stand or move along on the land, and could not leave trails in the mud at the water’s edge, as would, say, a crocodile.

Leviathan—the crocodile?

Long-agers are offended by the notion that the Bible might be describing creatures which, according to their belief system, died millions of years before people appeared on the scene. So the identification of Leviathan as a still-living creature suits modern long-age tastes. (This probably also helps drive the common [mis]identification of Behemoth as an elephant or hippopotamus, rather than a dinosaur. However, the tail of these extant creatures can scarcely be compared to a cedar tree, as is the tail of Behemoth.)

The NIV has a footnote to Job 41:1 suggesting Leviathan is ‘possibly the crocodile’. Crocodiles are normally associated with rivers and lakes, not the sea, as Leviathan is. However, some crocodiles (e.g. Australia’s estuarine or saltwater crocodile, *Crocodylus porosus*) do spend time in the sea.

Like crocodiles, Leviathan had scales. Verses 15–17 in the KJV read:

¹⁵ ‘His scales are his pride, shut up together as with a close seal.

¹⁶ ‘One is so near to another, that no air can come between them.

¹⁷ ‘They are joined one to another, they stick together, that they cannot be sundered.’

However, a crocodile’s scales, while tough, can be sundered by a weapon. (The NIV refers to ‘shields’ rather than scales.)

Verse 25 could also very easily refer to a crocodile:

²⁵ ‘When he raises himself up, the mighty are terrified’

A crocodile raises itself from a prone position on its stomach onto its legs to walk, run or attack. But although a rising crocodile would cause most people to be afraid, it can be killed by a warrior with weapons, so perhaps a ‘mighty’ warrior need not be terrified of one. An ordinary crocodile also seems to lack the size and invincibility clearly indicated in the Bible’s description of Leviathan. And certainly no existing crocodile breathes fire!

The real Leviathan?

A new candidate which meets the features described in Job much more precisely than the candidates described above is *Sarcosuchus imperator* (flesh crocodile emperor), commonly called ‘SuperCroc’. It was first discovered

in 1966, and is said to have lived in the middle Cretaceous period. There is an article about *Sarcosuchus* in the December 2001 edition of *National Geographic* (pp. 86–89), which has some descriptions that remarkably parallel those of Leviathan in Job.

Job 41 is quite clear that Leviathan had exceptional scales, scales that could not be penetrated by spears, arrows or darts:

¹⁵ ‘His scales are his pride, shut up together as with a close seal.

¹⁶ ‘One is so near to another, that no air can come between them.

¹⁷ ‘They are joined one to another, they stick together, that they cannot be sundered

²⁶ ‘The sword of him that layeth at him cannot hold: the spear, the dart, nor the habergeon.

²⁷ ‘He esteemeth iron as straw, and brass as rotten wood.

²⁸ ‘The arrow cannot make him flee: slingstones are turned with him into stubble.

²⁹ ‘Darts are counted as stubble: he laugheth at the shaking of a spear.’

Sarcosuchus had remarkable

scales. In fact, the wording in *National Geographic* has remarkable parallels to the KJV’s wording:

“‘Gorgeous armor’” mused paleontologist Hans Larsson, examining a stack of foot-long bony scutes that looked like roofing tiles. These would have provided an impermeable shield over SuperCroc’s neck, back and tail.²³

Scales ‘... that cannot be sundered ...’ (KJV), and ‘... an impermeable shield’ (*National Geographic*).

Leviathan had huge jaws and terrible teeth:

¹⁴ ‘Who dares open the doors of his mouth, ringed about with his fearsome teeth?’

The *National Geographic* article says of *Sarcosuchus*:

‘It’s SuperCroc’s skull that is unparalleled. More than a hundred teeth jut from narrow jaws that must have been adept at snagging fish. And unlike any other croc, living or extinct, SuperCroc’s skull gets wider toward the front end, which is armed with a deadly row of enlarged incisors. . . . Our most complete skull is just shy of six feet.’²⁴

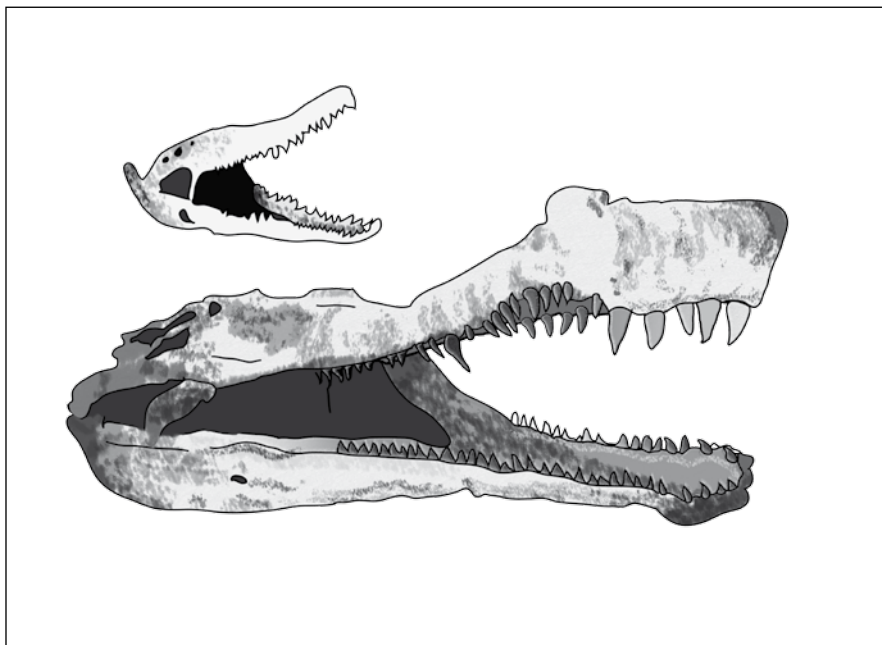
Then we come to a very interesting possibility. Comparing the skull of *Sarcosuchus* to that of an ordinary crocodile, we see that not only is it *much* bigger, but also that *Sarcosuchus* has a bulbous structure on the end of its snout. The author of the *National Geographic* article, Paul Sereno, speculates about the purpose of this structure:

‘The swollen end of the snout houses an enormous cavity under the nostrils, meaning this croc may have had an enhanced sense of smell and a most unusual call.’²⁵

This may shed new light on some otherwise cryptic passages in Job 41.

¹⁸ ‘His snorting throws out flashes of light; his eyes are like the rays of dawn.

¹⁹ ‘Firebrands stream from his mouth; sparks of fire shoot out.



The fossilized remains of *Sarcosuchus imperator* (flesh crocodile emperor) were discovered on 24 October 2001 in the Tenere Desert of Niger in North Africa. In this illustration, the *Sarcosuchus* skull dwarfs the 50-centimetre skull of a living adult Orinoco crocodile (*Crocodylus intermedius*).

²⁰ ‘Smoke pours from his nostrils as from a boiling pot over a fire of reeds.

²¹ ‘His breath sets coals ablaze, and flames dart from his mouth.’

This passage from Job has correlations with the enduring legends of fire-breathing dragons. Could *Sarcosuchus* have breathed fire? Here we have an organism with an unexplained bulbous snout, under which is an enormous cavity. Could its function have been to produce fire? We can see in the existing natural world an example of a highly exothermic metabolic process, in the bombardier beetle. If such a tiny organism can produce such heat from mixing chemicals in a tiny chamber, it is surely conceivable that a large structure such as the ‘enormous’ cavity under the bulbous snout of the *Sarcosuchus* could actually have been part of a biological mechanism to produce flames and smoke.

Job is quite clear that Leviathan was a large and terrifying enemy.

⁹ ‘Any hope of subduing him is false; the mere sight of him is overpowering.

¹⁰ ‘None is fierce enough to rouse him.’

Sarcosuchus meets this description. *National Geographic* says:

‘... we estimate that a mature adult *Sarcosuchus* grew to about 40 feet long. Its weight? As much as ten tons.’⁵

A creature of this size would certainly make a human feel overpowered at the sight of him. When *Sarcosuchus* rose up from a prone position onto its legs, it would indeed make even the mightiest human afraid, and retreat before him. It would also make the depths churn like a boiling caldron and leave behind a glistening wake (verses 31–32) by creating a massive trail of turbulence and bubbles as it plunged into the water and swam.

As we noted earlier, verse 30, describing the jagged potsherds beneath Leviathan, and the trail in the mud, argues against *Kronosaurus*

being Leviathan. However, it fits crocodylians such as *Sarcosuchus*.

Leviathan was described in verse 33 thus:

³³ ‘Nothing on earth is his equal—a creature without fear.

³⁴ ‘He looks down on all that are haughty; he is king over all that are proud.’

In the *National Geographic* article, *Sarcosuchus* is depicted fighting a large dinosaur. It would indeed have been fearless, and a king among living things.

Conclusion

There are some remarkable parallels between Leviathan, as described in Job, and *Sarcosuchus imperator*. I believe that *Sarcosuchus* is the best candidate yet proposed for Leviathan. I would like to suggest that publishers of future creationist literature should also stress the remarkable parallels between Leviathan and *Sarcosuchus*. (I note with approval that in the just-printed new book *Dragons of the Deep*,⁶ AiG’s Dr Carl Wieland comes to the same identification of Leviathan as this article—each of us independently of the other.)

Indeed, Bible footnotes could credibly state, ‘Possibly the now-extinct giant crocodile *Sarcosuchus imperator*’.

References

1. As space precludes reprinting the whole of Job chapter 41 here, I would suggest that prior to reading this article the reader reviews that chapter in their Bible. Here I have quoted from both the King James Version (KJV) and the New International Version (NIV).
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The astronomical theory of the Ice Age becomes more complicated

Michael J. Oard

Uniformitarian scientists believe that there were 30 or more cycles of glacial advance and retreat during the past 2.5 million years of the most recent ice age.¹ It is generally believed that these cycles are controlled by oscillations in the orbit of the earth according to the astronomical theory of the ice age or Milankovitch mechanism.² This mechanism is based on small radiational (sun heating) changes at mid and high latitudes caused by three cycles in the earth’s orbital geometry: the 100,000-year eccentricity cycle, the 41,000-year tilt cycle, and the 19,000- to 23,000-year precession cycle.

Prior to 900,000 years ago (uniformitarian timescale) the ice ages cycled according to the 41,000-tilt frequency, then for some unknown reason, the cycles apparently switched to the 100,000-year eccentricity period—a cycle with almost no radiational change on the earth.³ As identified elsewhere,⁴ there are many other difficulties with the astronomical theory of the ice ages.

A recent quantitative estimate of the Milankovitch radiational forcing for climate change has demonstrated that the eccentricity cycle is no different from chance.⁵

‘Evidence cited to support the hypothesis that the 100 Ka glacial/interglacial cycles are controlled by the quasi-periodic insolation [solar] forcing is likely indistinguishable from chance ...’

Moreover, the other Milankovitch cycles contribute no more than 20% to the variance in climate records.⁵ In contrast to such extremely weak variation, the Ice Age was a dramatic event, suggesting the uniformitarian scientists really do not have the answer to the Ice Age and its many subsidiary mysteries.⁶ However, regardless of the facts, numerous textbooks have trum-