

we had reached the limits of enquiry. Similarly, the problems with van Fraassen's position lead me to take an orthodox Fregean position. In particular, and returning to the subject which started my interest in this, numerals are singular terms. Numerical identity statements are true descriptive statements, and so numbers — the reference of numerical singular terms — are objects.

McGinley suggests that I presented this as some obscure and particularly deep matter, to be pondered over only by philosophers. While I do not think this is the case, I do think that many of the philosophical questions about mathematics and science rest on a proper grasp of technical details in the philosophy of language. This sometimes takes the debate into areas of complexity, the necessity of which is not always immediately apparent.

Why should it matter anyway, whether statements of science or mathematics are truth evaluable or not? Trying to answer this question goes deep into exploring the relationship between the subject, call it X, be that mathematics, physics, or science in general, and the philosophy of X.

In a previous paper,⁷ I attacked foundationalism as the guilty component to many philosophical positions which fail to cohere with biblical thought. Foundationalism is the approach to knowledge that crucially expresses itself in the work of Descartes, and is taken up in the work of all foundationalists since. Foundationalism says that to know something involves knowing how you know it. Before we can claim scientific knowledge, we must — according to the foundationalist — give a philosophical explanation of the reliability of the methods and practices which we use to gain that knowledge. This has recently been labelled 'philosophy first', and is one clear way of answering questions about the relationship say, between science and philosophy of science.

It says that philosophy of science comes first, settles the important questions, and raises the issues which scientists should then investigate.

While this view was prominent one hundred years ago, few professional philosophers accept it today. It is generally recognised that we stand too close to our standards of evidence-evaluation to be able to then evaluate those standards in turn. We cannot, contra the foundationalist, justify justification, unless we step somehow outside of our own cognitive processes. On this non-foundationalist view, neither philosophy nor science and mathematics come out tops. Each is informed by its interaction with the other. Neither takes conceptual priority, and each has a substantial part to play in our understanding of God's Creation — the world around us.

This rejection of foundationalism is related to, but separate from, a view that I hold, which says that we have no innate grasp of numbers, something I tried to argue for in my previous paper. McGinley argues that I am a covert foundationalist because I talk of a realm of mathematical objects. Typically, mathematical platonists, or realists as they are also called (those who think there are real, but non-physical mathematical objects) hold that these objects are discovered and exist independently of us. I disagree. I think that our knowledge of mathematics is tied to our knowledge of language and to the extent that language, at its very best, can be objective, so is mathematics.

The irresistible metaphor is that pure abstract objects, conceived as by the Fregean:

*'... are no more than shadows cast by the syntax of our discourse. And the aptness of the metaphor is merely enhanced by the reflection that shadows are, after their own fashion, real'*⁸

In sum, I think there is much to be gained from taking instrumentalism seriously — both in what

McGinley calls its 'Copenhagen' sense, and as an interpretation of pragmatism — but in the end I do not think it provides a full account of science or mathematics. Other non-foundational approaches are available. In particular, the interpretation of the modern Fregeans, that numbers are objects — shadows of syntax — and that statements of mathematics and science are genuinely truth-apt.

References

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Did mountains really rise?

In a recent article Charles Taylor argues that Psalm 104:8 says that mountains rose and valleys sank.¹ A major point in his argument is that

in the Septuagint *'the nouns "mountains" and "valleys" are both in the nominative (subject) case'*. It is, however, more likely that both nouns are in the accusative (object) case, which, for neuter nouns, is identical in form with the nominative. The verbs 'to ascend' and 'to descend' may both govern such a direct accusative, as is shown by the Septuagint of Numbers 21:33 and Isaiah 38:8. Taylor's translation of the Septuagint of Psalm 104:8 is, in fact, contrary to the view of some Septuagint scholars who have written on the subject.²⁻⁴

Furthermore, since the Hebrew word 'valley' is feminine and the verb 'descend' is in the masculine, Taylor's translation of the Hebrew requires breach of grammatical agreement, which, though possible when the verb precedes the subject, is improbable. Moreover, the subject of the masculine plural verbs 'pass over' and 'return' in the following verse is the 'waters', which have had a boundary set for them (compare Jeremiah 5:22 in Hebrew). Thus it is most natural to suppose that the waters are the main topic from verse 7 through to verse 9 and that Psalm 104:8 does not deal explicitly with tectonic activities.

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2. Brenton, L.C.L., 1851. *The Septuagint with Apocrypha: Greek and English*. Samuel Bagster & Sons, London, p. 760.
3. Lust, J., Eynikel, E. and Hauspie, K., 1996. *A Greek-English Lexicon of the Septuagint, Part II*, Deutsche Bibelgesellschaft, Stuttgart, p. 230.
4. A further issue is that in Classical Greek neuter plural subjects govern singular verbs. Taylor implies that the supposed neuter plural subjects here have plural verbs, which is perfectly possible in post-Classical Greek such as that of the Septuagint. I am very

grateful to Dr Andreas J. Kostenberger for performing a GRAMCORD search of the Septuagint for me showing the relative frequency there of singular and plural verbs with adjacent neuter subjects.



More on mountains

Dr Charles Taylor is a scholar of highest repute. Yet his mountain uplift view¹ has implications that go far beyond a single Bible verse, involving a partial meeting of ways — however unintended — with the staple evolutionary explanation for Flood evidences. It cannot, therefore, pass without comment on apologetic, biblical, and empirical grounds.

Apologetically, the world-wide evidence, from the highest mountain ranges, for the Flood is as awesome as it is universal. Japanese author Kyuya Fukada writes, in a major photographic study of the Himalayas:

*'Fossils of marine life ... are found above 8,000 metres in this area. They bear out the theory that the Himalayas were once submerged The layers of limestone that now cover all of Mt Everest above 8,000 metres were once under water.'*²

It is likewise, in kind, for all the great mountain ranges of the world. In every case — as with the recent major dinosaur find in Bolivian Andes limestone, at an

altitude of 2,800 metres (9000 ft)³ — *'marine fossils are buried with obvious land-based creatures'*, calling into question the notion of submarine uplift, which by definition would only have involved marine life.

This universal testimony, from Earth's mightiest mountains, of their once having been covered with water, and that at a time of biological complexity comparable with today's, is one of creationism's most powerful apologetic tools for the Deluge. It should not be blunted by a diluted view of pre-Flood topography. When Moses wrote that *'all the high mountains under the entire heavens were covered'* (Gen. 7:19 NIV), he was writing from a post-Flood perspective, where *'high mountains'* meant just that — *'high mountains'*, essentially as they are today. While this does not rule out some *localized* post-Flood up-warping, it hardly justifies a broad-brushed extrapolation to account for the totality of modern mountain formations. Why sell the family silver of creationism for the mere assumption of uniformitarianism, particularly when the latter is hardly owed any favours!

But it is when we look closer at the biblical record that the notion of post-Flood mountain uplift becomes even more suspect. Moses shows that nearly 2½ months elapsed from when the Ark first rested on Ararat until the surrounding mountain peaks became visible (Gen. 8:4, 5). That is, more than ten weeks of continually subsiding waters before even *'the tops of the mountains were seen'*! Why such a long time, unless the *'mountains'* of then, were as the mountains of now?

Regarding the solitary passage in Scripture on which the 'uplift' view could conceivably be based, namely Psalm 104:8, the text is far from conclusive.

(a) The context, as Dr Taylor concedes (*'actually, much of Psalm 104 seems to refer to creation itself'*),

is speaking of Creation. Hence, 'You laid the foundations of the earth' (v.5) is a clear Creation reference. It is hardly sound exegesis to take a passage which all parties agree is primarily a Creation context, and apply it to Flood or post-Flood mechanics.

(b) The newest English versions, all of course based on the Hebrew, highlight why caution is in order: the NIV, 'they flowed over the mountains, they went down into the valleys' the NKJV, 'they went up over the mountains, they went down into the valleys', and the NRSV, 'they rose up to the mountains, ran down to the valleys'. While all three clearly agree with each other, and with the KJV, none has any hint of the 'rising mountains' scenario, though the NKJV does include, as an alternative marginal reading, 'The mountains rose up; The valleys sank down'. Yet even here, it could just as well apply to mountain uplift in the Creation week itself, when we know that such upthrusting did indeed take place — a view also suggested by the acknowledged Creation context of the chapter.

(c) The standard Bagster edition of the Greek Septuagint, with translation by Sir Lancelot Brenton, renders the verse in question differently from Dr Taylor: 'They go up to the mountains and down to the plains'.⁴ One has no desire to lock horns with so respected a linguistics specialist as Dr Taylor. I merely make the point that it hardly seems prudent to rest an entire case on one solitary verse, about which, even among the most learned Bible translators, ancient and modern, there is such a divergence of views. Even more so when it is considered that such slender textual evidence could just as readily be explained in terms of the known mountain building of Creation week itself.

Empirical evidence, too, gives cold comfort to the post-Flood 'uplift' view. Negatively, where is there any hard data for mountains

rising today? Isolated small volcanic islands like Surtsey (Atlantic, 1963) aside, what real evidence is there for widespread tectonic uplift now — other than in the eye of the beholder? The recent proudly announced annual 'movement' of 0.6 cm (less than 1/4 inch) for the entire continent of Africa,⁵ is more the stuff of farce than serious science. Forty years ago, *Encyclopaedia Britannica* of 1959 listed the height of Mt Everest at 29,028 feet (8,848 metres). No prizes for guessing what its height is still officially listed as!⁶

The pantry is, quite simply, bare in terms of sustained and demonstrable mountain uplift phenomena today. For our uniformitarian friends, who routinely invoke 'mountain uplift' as the mantra to explain Flood evidences at higher altitudes, this is disconcerting. Is not the present, according to their view, the 'key to the past'? Yet how can this be, when there is no real evidence of sustained mountain uplift in the present?

Positively, too, the observable data are scarcely more 'uplift-friendly'. Grand Canyon is the classic case — four hundred kilometres of evenly laid sedimentary strata, horizontal or nearly so throughout. Do its famed 'Palisades of the Desert', where 1,100 metres (3,600 feet) of flat strata are exposed,⁷ point to tectonic chaos or to stability? And what of the amazing goosenecks of Utah, with their perfectly flat laminations? If there had been anything like the massive uplifts that uniformitarianism dreams about, would not the whole Canyon strata have been scrambled? Yet instead we find this remarkable overall evenness, like the layers of a birthday cake — a phenomenon reflected in strata all around the world.

To argue that only 'rising mountains' can adequately address the perceived problems associated with a global covering of present mountain configurations — as

Dillow *et al.* suggest — in my view limits God. Just as Christ's turning of water into wine at Cana, and His stilling of the storm on Tiberias⁸ — both significantly, miracles with water — overruled the laws of fermentation and meteorology, so no hydrological model can do justice to the action of God in the Flood. An economy of miracles *is* one thing, but their complete absence *is* quite another, and surely unacceptable to a creationist mind committed, *a priori*, to the involvement of God in history.

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7. Austin, S.A., 1994. *Grand Canyon, Monument to Catastrophe*, Institute for Creation Research, Santee, CA. p. 68.
8. John 2:1-11; Luke 8:22-25.

Charles Taylor replies:

I must thank Pete Williams for drawing attention to some points not covered in my article. However, I'm glad he acknowledges that, when dealing with verse, principles of gender and word order cannot be rigorously applied.

In Psalm 114 the mountains are said to skip, though not in connection

with the Flood. There the word order is different from that in 104:8, where mountains and valleys are anarthrous (without the definite article). This may indicate a difference between figurative skipping and literal ascending, since the 104:8 word order is that of prose. So if there is any significance in the word order it suggests that 'mountains' (not *the* mountains) rose, rather than the water(s) climbed up (some) mountains. In my view it's more likely that some mountains rose.

In addition to the major translations of Europe (French, German, Italian, Spanish, Swedish) I found that the majority of English translations in my possession 'sing the almighty power of God that made the mountains rise'.¹ These include the Amplified, Revised Berkeley, Darby's, International Children's Bible, Living Bible, New American Standard Bible and Revised Standard Version.

My King James and my Revised Version had mountains rising in their margins. Those favouring the waters rising were the Good News, New English Bible and New International Version only. The African Nkore-Kiga Bible also has mountains rising, indicating that the Bible Society supports that translation, since I happen to know that the translators knew no Hebrew and little Greek.² Thus on the whole, scholars seem to favour the miraculous in this verse.

I find the two 'parallel' passages cited by Williams insufficiently similar to Psalm 104:3. Numbers 21:33 ('... went up the road to Bashan') has what Halliday calls an 'effective' subject.³ (It is animate). In Isaiah 38:8, the sun did not 'go down' ten degrees as water goes down valleys.

Is it actually *'natural to suppose that the waters are the main topic from verse 7 through to verse 9'*? In Psalm 114, the topic moves from water (verse 3) to mountains (4), to water (5) to mountains (6). It's not unusual in the Hebrew Scriptures to

switch subjects. Thus in Daniel 9, the singular subject of verse 27 is that of verse 26a, while in 26b an entirely different plural subject intervenes. There's no reason why verses 7 and 9 of Psalm 104 should not have a common subject, while verse 8 intervenes with a different one.

As to the LXX, we must remember that it is as likely to contain Hebraisms as some of the NT Greek texts. Its treatment of gender and word order cannot decide the original intended meaning.

As regards the letter from Brenton Minge, I am frankly puzzled. Most of it appears to accuse 'mountain lifters' of being uniformitarian and anti-miracle. I would have thought that the uplift of mountains and the sinking of valleys on a large scale indicates a truly great God!

I have often suggested that Genesis 1:9 and 2:10-14 (which I cannot expound here)⁴ indicates a rather different pre-Flood world from the present one. Rolling plains, no craggy mountains, a near perfect world marred only by sin.

In his fourth paragraph, Mr Minge speaks of 'submarine uplift'; however, I am talking of mountain uplift and submarine sinking, so I fail to see the connection. I don't object to mountains being covered and rising at the same time, so again no problem. As to mixing Creation and Flood, 2 Peter 3 does this as much as Psalm 104, so what is the problem? And as to 'slender textual evidence' for uplift, surely that comment applies more to a translation which adds prepositions like 'over' and 'to', which are not found in the Hebrew original. If Luther and the other scholars are correct, the present is not the key to the pre-Flood past, so again, why suggest these scholars (mostly before Darwin) were anti-creationist'?

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2. This language was the basis of my Ph.D., but I did not participate in the work of the Bible translation.
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C-decay

As the author of the paper¹ that has provoked three letters in *CEN Tech. J.* **12(2):166-168**, 1998, may I comment on their contents?

Dr Colin Gauld seems to have the wrong order of priorities in saying that theories based upon C-decay (CDK) are more important than proving CDK has occurred. He seems to minimise and even dispute whether *c* has decreased when he says that I have only 'implied' that it has decreased. I thought my article was sufficiently clear that I was certain it **had** decreased and I provided what I thought was reasonable evidence that it had done so. He continues by saying:

*'One of the reasons why the theory of c-decay has fallen into disfavour is probably the difficulty of obtaining agreement about whether the speed of light has actually decreased.'*²

Again, there is the tone of minimising the evidence I set out which I tried to make as simple as I could. Over many years, the graph of results for a true constant that you should get would be the 'funnel' shape of Fig. 2 in my article. One has only to glance at Figs. 3 and 4 to see that, firstly, they do not conform to Fig. 2, and secondly, virtually every result is **above** the present value. How much clearer can I make it? It is noticeable that Dr Gauld does not provide a single piece of