factors, such as nutrition or exposure to certain toxic substances, play an important role in the final outcome. Additionally, epigenetic changes, such as DNA methylation, can be inherited and can influence the outcome. In neither case is a change in the DNA sequence involved. Therefore, environmental and epigenetic factors are not detectable by GWA studies. It is possible they are more of a factor than initially believed. This may be another reason the heritability accounted for by genes identified through GWA studies is so low.

Conclusion

Scientific studies, including GWA studies, have been valuable in providing information about genes that influence various traits or diseases. They are helpful in adding to our understanding and directing future research. They can lead to diverse practical applications. One important application I'd like to highlight here is that they should naturally lead to a deeper sense of awe for our Creator.

The more we learn about the genetics, the astounding programming involved and the complex, interconnected biological networks in living things, the more apparent it is how much we have left to learn. Life is far more complex and wonderfully designed than we could have anticipated, and we have just scratched the surface in our knowledge of how things work. While we might be tempted to magnify the importance of certain biological studies, it quickly becomes apparent that, although they may be useful, they are very limited in the answers they can provide. Science is a wonderful tool that should naturally point us to our awesome Creator who created and sustains life.[11]

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Lizards moving from eggs to live birth: evolution in action?

Shaun Doyle

Lizards reproduce in an amazing variety of ways. Some lay eggs (oviparity) and some bear live young (viviparity). Most species rely primarily on egg yolk for nutrition during embryonic development; a few have next to no yolk and rely completely on a placental connection to the mother. Some lizard placentas even compare with the complexity of mammalian placentas. Some species can vary the timing of birth. There are a rare few species that even have variety in their reproductive mode.

Viviparity in lizards has many modes, but one thing they all have in common is that they give birth to live young. Moreover, despite the variety in placental morphology, there is no such thing as *aplacental* viviparity among squamates either. Blackburn comments:

> "The skeptical reader should note that no known squamate—*not one*—exhibits either matrotrophic oviparity (the ancestral pattern for mammals) or aplacental viviparity, the ancestral pattern traditionally assumed for viviparous squamates [emphasis original]."[1]

This is no help for evolution because it shows there's no evidence for the traditionally assumed ancestral condition for viviparous squamates. Even evolutionary critics of this model, such as Blackburn, have to postulate unlikely punctuational 'jumps' to avoid it, where both viviparity and placentation evolved together.[1]

National Geographic recently reported on one of the rare few species that have differing reproductive modes between populations—one of only three in the world—the yellow-bellied three-toed skink *Saiphos equalis*.[2,3]

Like other viviparous lizards, *S. equalis* shows a degree of placentation. The embryos receive active gas exchange and nutritional support from the mother while in her oviduct. However, it is not as extensive as one sees in other skinks that show obligate viviparity, e.g. *Mabuya* spp.[4]

Evolutionary misdirection

The researchers documented changes in eggshell thickness between different populations of *S. equalis* in relation to the different reproductive modes exhibited in different populations.[3] The likely causes for this are alterations in the eggshell structure and the timing of calcium supplies from the mother when they compared the oviparous and viviparous populations are compared.[5]

However, *National Geographic* portrayed these skinks as evolving from egg-laying to live birth:

> "Evolution has been caught in the act, according to scientists who are decoding how a species of Australian lizard is abandoning egg-laying in favour of live birth."[2]

This is mere misdirection to preserve the evolutionary illusion; there's no evidence *S. equalis* is *abandoning* oviparity. No oviparous populations of *S. equalis* are currently showing signs of changing reproductive mode. There is a difference in reproductive mode between populations that appears to be related to differences in climate, but individual skinks are stable; they don't change reproductive mode throughout their lifetimes even when climates change.[6]

Even *if* some populations of *S. equalis* were genuinely making a transition from one reproductive mode to another, the species *as a whole* is not moving in that direction; only certain populations are.

Is there another explanation?

Evolutionists believe this is a transition from oviparity to viviparity because of the way they interpret observations about lizard paleontology and biology. Oviparous organisms appear lower in the stratigraphic column than viviparous organisms, and evolutionists interpret this 'geologic column' as a time sequence of millions of years of evolution, so they believe oviparity came before viviparity. They believe the current variation in birthing practice in lizards is related to a general trend to move from oviparity to viviparity. As a result, evolutionists state that viviparity has evolved independently in reptiles nearly 100 times, and that squamates (lizards and snakes) account for the vast majority of such events.[2,7] *S. equalis* becomes a prime example because both reproductive modes exist within the one species, and oviparity in *S. equalis* is somewhat intermediate in form between 'normal' lizard oviparity and viviparity.

Photo from: wherelightmeetsdark.com

Figure 1. The lizards *Saiphos equalis* (pictured), *Lacerta vivipara* and *Lerista bougainvillii* are the only three lizard species known that have the capacity for both oviparity and viviparity.

There is however a another option: many types of lizard (including *S. equalis*) originally had the capacity for *both* reproductive modes, but due to natural selection most subsequently lost the ability for one or the other. This is consistent with the post-Flood dispersion of biblical kinds. Evolutionists don't generally consider this possibility because it's a process of information segmentation and loss, which gives no support to microbes-to-microbiologists evolution, and also gives no chronological priority to oviparity.

From this, we would expect to see much variation in the mode of birth/placental complexity in lizards because they originally had the information for numerous modes of reproduction. As described above, there is a multitude of reproductive methods among lizards.[1]

We would also expect most species to have only one reproductive mode because as the lizards spread from the ark after the Flood, genetic bottlenecks would have given rise to rapid diversification under natural selection. We find that most lizard species around the world are *either* oviparous or viviparous, but not both.[3,8]

We may, however, expect to see a few species that retain some potential to diversify reproductive modes—but not many, since we would expect most to have specialized as they pioneered new post-Flood environments. Since there are only three known species of lizard that retain diversity in reproductive mode (*S. equalis*,[3,9] *Lerista bougainvillii*,[10] and *Lacerta vivipara*[11]), this is also consistent with the biblical model.

Is it an intermediate form?

Viviparous populations of *S. equalis* retain eggs to the later stages of embryonic development, whereas most oviparous lizards lay their eggs much earlier.[5] Therefore, evolutionists have a point that *S. equalis* is significant for understanding mechanisms of reproductive variation among lizards because its reproductive modes fall in between the average types of oviparity and viviparity observed among lizards. However, this does not necessarily mean *S. equalis* is an intermediate form on the way to evolving viviparity *de novo*.

It is likely better interpreted as a parallel of an *ancestral* form in (at least some) lizards that had the potential for *both* oviparity and viviparity. Polarization between reproductive modes occurred, as Smith and Shine pointed out, because the reproductive form of *S. equalis* is generally not reproductively stable long-term.[1] But this points back to selection from an ancestrally larger gene pool and greater adaptability (within limits[12]) rather than the repeated *de novo* creation of viviparity, because specialization, loss of adaptability, and information loss are the commonly observed norms in biology.[13]

The only 'transition' that may possibly arise is if the skink populations are on the whole 'transitioning' from the warmer coastal climates to the colder mountain climates. The skinks from within contiguous populations don't show variety in birthing practice with changing climate. Natural selection likely weeded out the variety in birthing method in individual populations, though the individual populations are still not yet reproductively isolated from one another.

Natural selection only involves sorting (often with a loss of) genetic information, which adds nothing new. As a population becomes more specialized via natural selection, it is less capable of adapting to changing conditions in the future. The problem is that evolution requires vast amounts of *new* information to be constantly added to the biosphere.

Moreover, *de novo* creation of viviparity requires the production of new regulatory systems which could only evolve via many information-adding random mutations. However, experimental science is hard-pressed to find examples of random mutations that produce new information, where neo-Darwinism requires many.[14] We also see an inexorable trend of genetic deterioration caused by near-neutral mutations that will eventually lead to the extinction of all multicellular life.[15,16] Molecules-to-man evolution expects the exact opposite of what we see happening in biology, so the *de novo* creation of viviparity via evolution is *highly* unlikely.

Conclusions

Despite what evolutionists think they are seeing, they're really just seeing one more example of natural selection of an originally well-designed and adaptable creature, which is not microbes-to-man evolution. A biblically consistent explanation of the data is not only simpler, but fits better with what we know about natural selection and biological variation.

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