

DOES BELIEF IN HUMAN EVOLUTION ENTAIL *KUFR* (DISBELIEF)? EVALUATING THE CONCERNS OF A MUSLIM THEOLOGIAN

by Shoaib Ahmed Malik  and Elvira Kulieva

Abstract. Nuh Ha Mim Keller, a contemporary Muslim theologian, argues against the compatibility of evolution and Islam. In this article we intend to critically evaluate his position in which he advances three separate arguments. First, he criticizes the science of evolution. Second, he demonstrates the metaphysical problems with naturalism and the role of chance in the enterprise of evolution. Third, he contends that evolution and the creationist narrative in Islamic scripture is irresolvable. Given these points, Keller concludes that believing in human evolution takes one outside the fold of Islam (*kufri*). After reviewing each of these points we argue that his claims are unwarranted because of other possibilities which Keller may have not considered. In effect, we argue that believing in evolution doesn't necessarily or definitively entail *kufri*.

Keywords: disbelief; evolution; human evolution; islam; Nuh Ha Mim Keller; *kufri*

The discourse on the interaction of evolution and Islam has been steadily growing in the past few decades and reveals a complex history and landscape. Historically, surveys show a mixed reception among Muslim scholars in the Arab world (Ziadat 1986; Elshakry 2013), Southeast Asia (Nadvi 1998; Riexinger 2009), and Turkey or what was known as the Ottoman Caliphate prior to 1924 (Hanioglu 2005; Kaya 2011; Bilgil 2015).¹ The contemporary setting has been no different. Recent reviews indicate that the debate is still ongoing with partisans on all sides and with no clear consensus in sight (Guessoum 2016; Malik 2018, 15–20). Among the anti-evolution advocates are well-known writers such as Seyyed Hossein Nasr and Harun Yahya, which is a pen name for the individual known as

Shoaib Ahmed Malik is an Assistant Professor, College of Natural and Health Sciences, Zayed University, Academic City, Dubai, UAE; email: Shoaib.malik@zu.ac.ae. Elvira Kulieva is a postgraduate student, College of Islamic Studies, Hamad bin Khalifa University, Education City, Doha, Qatar; email: ekulieva@mail.hbku.edu.qa.

Adnan Oktar. Both of them are united in their strong criticisms against evolution as a scientific theory (Yahya 2001; Nasr and Iqbal 2007). In their point of view, evolution, or macroevolution to be more specific, is somewhat of an unproven assertion with no clear evidence to back it up (Yahya 2001; Nasr and Iqbal 2007, 154, 61–79). In other words, they are creationists. While they share this point on the science, they do argue somewhat differently on other aspects. Nasr has an issue with evolution due to the metaphysical worldview he occupies. He adopts some kind of a Neoplatonic framework within which essences are fixed and cannot undergo change (Nasr 2006, 183). Thus, the idea of species evolving into others—and thus essences undergoing change—is completely alien in his framework. By contrast, Yahya may not have a problem with accepting the general possibility that God could have created Adam or humans through evolution but he puts more emphasis on Quranic verses and relevant hadiths which indicate instantaneous creation (Yahya 2003, 94–121).

A voice that belongs to same camp as Nasr and Yahya but is somewhat unappreciated is Nuh Ha Mim Keller. Keller was born in 1954 in the northwestern United States, where he studied philosophy and Arabic language at the University of Chicago and UCLA (Khan 2009, 151). In 1977, he converted to Islam and dedicated his subsequent years to absorbing what is known as traditional Islamic learning. He studied extensively with renowned Islamic scholars in Syria and Jordan, where he finally settled (Hermansen 2009, 36). With his studies combining the various dimensions of Islam, Keller became a significant authority in Islamic theology, jurisprudence, and Sufism (Hermansen 2019). He has written and translated several works including one of the first ever Islamic legal works, *Umdat al-Salik* (Reliance of the Traveler), to be translated into the English language and which also gained certification from the well-known Al-Azhar University (Keller [1991] 2008). Moreover, in 1996, he was designated as a Shaykh of the Sufi Shadhili fraternity which added even more credentials to his name (Hamid 2016, 81–82; Hermansen 2005, 494). Keller became commonly known in the 90s through his apologetic articles against the Salafi-Wahabi movements in USA and UK, as well as due to his public lectures and debates promoting what he calls “traditional Islam” (Hamid 2016, 81–82). Due to his active travelling and appearance of his materials on various websites such as on his own untotheon.com (previously qibla.com; www.sunnipath.com), and reprinting them on others within similar Islamic outlook as seekersguidance.com and masud.com, the number of his followers quickly grew and he currently has a large community of several thousand people (Hermansen 2009, 36). Apart from those who are in his Sufi community and follow him as a Sufi Shaykh, he is considered an authority even beyond the Anglophone sphere as many of his articles have been translated into other languages for example Arabic, Russian, and Urdu. Being a representative of the first generation of Western Muslim who

extensively studied what is promoted as the historical Muslim orthodoxy, Keller's views in general and on evolution in particular are quite influential. In 2020, he was included in the Honorable Mentions in *The 500 Most Influential Muslims*—an annual publication ranking the most influential Muslims in the world (Schleifer 2019, 91).

In this article we are concerned with a book that he wrote recently by the name of *Sea without Shore – A Manual of the Sufi Path* (Keller 2011), which contains a particular chapter where he argues against the compatibility of evolution and Islam. As far as the authors are aware, no one has ever critically evaluated this work. We believe this is important to carry out for several reasons. First, while it is true that other anti-evolution advocates such as Nasr and Yahya are better known in the discourse, this does not mean that Keller is unknown or unheard of.² For example, Keller is mentioned in recent reviews which outline the spectrum of opinions on evolution and Islam (Guessoum 2016; Malik 2018, 15–20).³ Furthermore, in a particular review of anti-evolution advocates one can see the mention of Keller alongside Nasr and Yahya (Ibrahim and Baharuddin 2017). These suggest that Keller has an important standing in the growing discourse of evolution and Islam. Second, and somewhat an extension of the first point, this is the third time Keller has printed this work. It was first published as an online article in 1996 (Keller 1996) and was then published as an independent book three years later (Keller 1999).⁴ This possibly suggests a high demand in the readership and wide circulation of his ideas.⁵ Third, Nasr's and Yahya's thoughts have been critically evaluated before whereas Keller's haven't. For instance, Bagir (2005, 49) criticizes Nasr's attempt of evaluating evolution through the particular metaphysical system he occupies, even questioning whether it is considered as *the* Islamic worldview; and Guessoum (2011a, 315–20) extensively criticizes Yahya's scientific misrepresentation of the science of evolution on which he rests his case. We acknowledge that some of these critiques do have some overlap with what we present here, but we believe that Keller makes some distinctive arguments that are idiosyncratic to him, as we shall shortly see, which in turn makes our critique somewhat novel. Fourth, Keller is distinctive in that neither Nasr nor Yahya are established theologians. Nasr is undoubtedly acknowledged as a very respected academic but is foundationally a professor of Islamic studies and perennial philosophy after having left his initial background in physics. Nasr is also a well-known Sufi master and has authored several articles and books on the topic (Nasr and Jahanbegloo 2010). By contrast, Yahya (or Oktar) is merely an apologist without any traditional theological training (Solberg 2013). As mentioned earlier, Keller comes from an orthodox/mainstream background in Sunni Islam. He is an Ash'arite theologian, trained in the jurisprudence of the Shafi' school, and follows a Sufi outlook (Mathiesen 2013). This specific background makes Keller distinctive in comparison to Nasr and Yahya.

It is then no surprise to see that Keller is heavily quoted and discussed in David Solomon Jalajel's (2009) theological evaluation of evolution from an orthodox (Sunni) perspective in his book, *Islam and Biological Evolution: Exploring Classical Sources and Methodologies*. Furthermore, Keller's assertion that certain elements of evolution can lead one to *kufr* (disbelief)⁶ may have much more sociopolitical weight than either Nasr or Yahya (at least in the Sunni Muslim landscape). Finally, Keller touches on an array of points which cut across various domains—the scientific, metaphysical, and hermeneutic—in an accessible manner, which we believe reflect the general concerns of Muslims (Mabud 1992; Nadvi 1998; Al-Qadri 2001; Al-Haddad 2011). This provides an excellent opportunity for a holistic evaluation of antievolutionary narratives when reviewing Keller's work. Our evaluation isn't meant to be exhaustive, but will touch upon the main contentions that trouble Muslims when it comes to evolution. Given these points, we feel that this evaluation is necessary, timely, important, and will contribute toward the discourse.

Accordingly, this article provides the first critical evaluation of Keller's thoughts on the relationship between evolution and Islam. A secondary goal here is to suggest possibilities which Keller might not have considered wherein there are prospects of compatibility between evolution and Islam, some of which are even possible within Keller's own theological framework. Whether these suggestions should be taken up or whether there are strong(er) alternatives is left to the reader to decide. On points where we think Keller is factually inaccurate we resolutely point out the mistakes. Finally, the authors want to make it clear that they don't take or defend any particular stance on the evolution and Islam spectrum in this article. This is strictly an evaluation of Keller's chapter wherein the authors criticize his work by pointing out ideas which he might have neglected or where he may have erred.

The article is divided into two parts. The first part is a summary of Keller's main contentions against evolution. The second part is an evaluation of those contentions.

KELLER ON EVOLUTION AND ISLAM

In 1995 a biologist by the name of Suleman Ali was stirred by a local pamphlet within which it was claimed that evolution is synonymous with *shirk* (associating partners with God, the highest magnitude of sin in Islamic thought) or disbelief. With this plight he sent a fax to Keller asking for his understanding on the compatibility of evolution and Islam (Keller 2011, 350). It is in response to this query that Keller advances his critique of evolution. Keller raises several issues with evolution but for simplicity they can be broken down to three different categorical criticisms. The first is the science. Keller admits that he felt evolution was unchallengeable but

changed his opinion after having read Charles Darwin's *Origin of Species*. He raises two specific points in this regard. His first issue is with the falsifiability of the theory of evolution:

The ninth chapter [of Darwin's book] . . . made it clear, from what Darwin modestly calls the "great imperfection of the geological record," that the *theory was not in principle falsifiable*, though the possibility that some kind of evidence or another should be able in principle to disprove a theory is a condition (if we can believe logicians like Karl Popper) for it to be considered scientific. By its nature, *fossil evidence of intermediate forms that could prove or disprove the theory remained unfound and unfindable*. When I read this, it was not clear to me how such a theory could be called "scientific." If evolution is not scientific, then what is it? It seems to me that it is a human interpretation, an endeavor, an industry, a literature, based on what the American philosopher Charles Peirce called abductive reasoning, which functions in the following way:

- (1) Surprising fact A.
- (2) If theory B were the case, then A would naturally follow.
- (3) Therefore B.

Here, (1) alone is certain, (2) is merely probable (as it explains the facts, though does not preclude other possible theories), while (3) has only the same probability as (2). If you want to see how ironclad the case for the evolution of man is, make a list of all the fossils discovered so far that "prove" the evolution of man from lower life forms, date them, and then ask yourself if abductive reasoning is not what urges it, and if it really precludes the possibility of quite a different (2) in place of the theory of evolution. (Keller 2011, 351–52)

From these statements it becomes apparent that Keller believes evolution is an all absorbing theory which doesn't seem to have any internal falsification criteria. The reference to Karl Popper suggests that Keller has something like Sigmund Freud's and Alfred Adler's psychological theories in mind which were able to explain any data set because they were too broad and vague according to Popper ([1963] 2002, 43–77). We mention these two—Freud and Adler—specifically because these were thinkers and ideas that Popper reviewed and contrasted with other more substantial scientific theories—like Einstein's theory of relativity—when he developed his famous falsification criterion in the demarcation of science and pseudoscience (Popper [1935], 2002, 57–73).⁷

The second scientific issue which Keller has with evolution is the lack of evidence for macroevolution. In a rhetorical fashion, Keller conveys his doubts:

Is the analogy from micro-evolution within a species (which is fairly well-attested to by breeding horses, pigeons, useful plant hybrids, and so on) applicable to *macro-evolution*, from one species to another? That is, is there

a single example of one species actually evolving into another, with the intermediate forms represented in the fossil record? (Keller 2011, 352)

In both points it seems clear that Keller believes evolution isn't epistemically robust. For him, the theory is only probable and therefore uncertain and seems to be masked on to the data rather inferred from it.

Second, Keller raises metaphysical issues with evolution. Metaphysically, evolution is problematic because of the underlying naturalism and the randomness that governs the process. There are two particular assertions that Keller believes leads one to leaving the fold of Islam:

[B]elief in macro-evolutionary transformation and variation of non-human species does not seem to me to entail *kufi* (unbelief) or *shirk* (ascribing co-sharers to Allah) unless one also believes that such transformation came about by *random mutation* and *natural selection*, understanding these adjectives as meaning causal independence from the will of Allah. You have to look in your heart and ask yourself what you believe. From the point of view of *tawhid*, Islamic theism, nothing happens "at random," there is no "autonomous nature," and anyone who believes in either of these is necessarily beyond the pale of Islam. (Keller 2011, 359–60)

Third, Keller believes that the creationist account found in Islamic scripture clearly contradicts human evolution. Keller acknowledges the distinction between the evolution of man and evolution of every other species.⁸ For him the latter is possible but not the former, i.e., he advocates the position of human exceptionalism. He makes two points in this regard. His first point is that Adam was created in heaven and therefore not on Earth:

Regarding . . . whether the Qur'anic account of creation is incompatible with man having evolved; if evolution entails, as Darwin believed, that "probably all the organic beings which have ever lived on this Earth have descended from one primordial form, into which life was first breathed" . . . I apprehend that this is incompatible with the Qur'anic account of creation. Our first ancestor was the prophet Adam (upon whom be peace), who was created by Allah in *janna*, or paradise,⁹ and not on Earth . . . (Keller 2011, 355)

His second point is that the process of creation is also of special significance which marks an important distinction between Adam (and humans by extension) and the rest of the biological world:

but [Adam was] also created in a particular way that He describes to us:

When your Lord said to the angels: 'Verily, I am to create a man from clay; So when I have formed him well, and blown into him a-kindling of My spirit, fall you down to him prostrate.' So all the angels bowed down to him as one; Except Satan: he waxed proud, and was of the utter disbelievers. He said, 'O Satan, what prevented you from bowing down to what I created with My own hands; Were you too haughty - Or too exalted?' He replied, 'I

am better than he: You created me of fire, and created him of clay' (Qur'an 38:71-76).

Now, the God of Islam is transcendentally above any suggestion of anthropomorphism, and Qur'anic exegetes like Fakhr al-Din al-Razi explain the above words *created with My own* [lit. "two"] *hands* as a figurative expression of Allah's special *concern* for this particular creation, the first human, since a sovereign of immense majesty does not undertake any work "with his own hands" unless it is of the greatest importance . . . I say "the first human," because the Arabic term *bashar* used in the verse "Verily, I am to create a *man* from clay" means precisely a human being and has no other lexical acceptance. (Keller 2011, 355)

Thus, he concludes:

All of which shows that, according to the Qur'an, human beings are intrinsically – by their celestial provenance in paradise, by their specially created nature, and by the *rūh* or soul within them – at a quite different level in Allah's eyes than other terrestrial life, whether or not their bodies have certain physiological affinities with it, which are the prerogative of their Maker to create. (Keller 2011, 356)

Having summarized Keller's thoughts, let us now evaluate each of these claims in the next section.

EVALUATING THE CRITICISMS

Science of Evolution

There are four points that can be mentioned with regards to Keller's scientific concerns of evolution. These include (1) the gaps in the fossil record, (2) lacking of awareness of other sources of evidence, (3) the problem of falsification, and (4) overreliance on Darwin for understanding evolution. Let us review each of these in order.

The first problem with Keller's scientific contentions has to do with the probability associated with the evidences. The fossil record is gappy from which evolution seems to be a massive and unwarranted inference or generalization. This is why he mentioned abduction in relation to this point. Any other theory could in fact explain the same fossil record. Keller wouldn't be wrong to think this way. Scientists themselves recognize that the fossil record is gappy and even provide explanations for why this may be. Bone and tissue preservation can occur in a very limited number of conditions, which is why even if there were any initial biological specimens that were buried or fossilized they could have eventually eroded or decomposed (Berra 1990, 31–51; Futuyma and Kirkpatrick 2017, 432–35). Moreover, from the samples which we do find the number we obtain in their fully fledged form is somewhat rare. Usually parts of the biological specimens are found, e.g., finger bones, which further limits the kind of

data we can get from the fossil record (Futuyma and Kirkpatrick 2017, 435). So, the gaps in the fossil record are not surprising for scientists and instead have scientific reasons for their existence (Padian and Angielczyk 2007). Despite the difficulties and complexities associated with the fossil record, we have still been able to obtain intermediate fossils which were unknown before. Examples include the *Tiktaalik*, an intermediate species between fish and land animals, and *Pakicetus*, a semi-aquatic animal that was a biological precursor to the whale (Rogers 2011, 18–25).¹⁰

The second issue with Keller's scientific disputations against evolution is his lack of awareness of the other sources of evidence which support the theory of evolution. While the fossil record on its own may be somewhat dubious if taken in isolation (van den Brink, de Ridder and Woudenberg 2017, 463), there are however *independent lines of evidence* which corroborate the theory of evolution. Evolution is now supported by genetics, biogeography, homology and many other distinctive fields (Futuyma and Kirkpatrick 2017; Rogers 2011). The fact that independent sources of evidence lead to the same conclusion, better known as consilience of induction (Ruse 2008, 25–51), gives us strong epistemic support that evolution is true. As an analogue in Islamic theology consider the field of hadiths. While the Quran is, Islamically speaking, believed to have been preserved without error (Usmani 2007; Al-Azami 2003; Qadhi 1999), the same cannot be said of hadiths (Brown 2011; Siddiqui [1993] 2008).¹¹ This is why there is a whole independent discipline within which hadiths are analyzed for their veracity and integrity (*usūl al hadith*). One important principle within this domain is the idea of corroboration. If there are several individual hadiths that corroborate the same message, then the epistemic status of the content of the hadiths becomes stronger (Brown 2011, 92–95). This is the same principle used to substantiate the theory of evolution.

On the problem of falsification, it seems that Keller is mistaken. Evolution is absolutely falsifiable (Isaak 2007, 21). One example could be to find a complex species in a stratum within which it shouldn't exist. To make this clearer, the theory of evolution states that as we go further back in time the complexity and biodiversity of the species decreases. In other words, the fossils we expect to find in older strata should be simpler than the ones in more recent strata. The theory of evolution could be refuted in the scenario where a complex species which should have been found in recent strata is found in an older one. Put simply, finding a rabbit prior to the Cambrian explosion could be a game changer (Sober and Elgrin 2017, 46). However, even in such a scenario it would not be inconceivable to think of a cataclysmic event where the stratum buckled causing buried fossils to be displaced from their original subterranean settings (assuming there is scientific evidence to back this up) (Isaak 2007, 133). Moreover, in such a scenario one would have to find alternative explanations for the other evidence from genetics, biogeography, homology and other fields that points

toward the same direction. This is not to say that evolution is insulated from criticism, but rather the evidence for evolution is so overwhelming that finding a single anomaly wouldn't necessarily entail an immediate refutation of the entire theory. Evolution has significant epistemic inertia, and thus one would have to revise a lot to account for all the available evidence that can't be sweepingly forsaken for just a few anomalies as is common in science.

The other mistake made by Keller is his overreliance on Darwin's formulations or writings. What he fails to acknowledge is that in Darwin's time the data from the fossil record was somewhat scant at least in comparison to today (van den Brink, de Ridder and Woudenberg 2017, 462–63; Pigliucci 2002, 217). By now, 150 years later, the fossil record is stronger than ever, and from it we have much more data that supports the theory of evolution (as mentioned before). Furthermore, several developments came after Darwin which have since completely solidified evolution as a scientific enterprise. For example, Darwin wasn't aware of genetics (Ruse 2008, 17–22; McGrath 2011, 150–54). This development came a few decades after the demise of Darwin. The merging of Mendelian genetics with Darwin's theory of evolution came to be known as the modern synthesis or Neo-Darwinism which further reified the theory of evolution (Futuyma and Kirkpatrick 2017, 4–21).¹² The broader point to take from this is that the scientific world has moved on since Darwin. While much credit is due to Darwin for his conception of the broad principles of evolution, the scientific corroboration and substantiation of evolution has gone much further than Darwin could have ever conceived (Bowler 2009). Thus, resorting to Darwin to understand how evolution is substantiated in the twenty-first century is somewhat obsolete.

Metaphysics of Evolution

In this section we focus more on the philosophical points which Keller discusses. There are only two points which are pertinent to Keller's "human evolution is disbelief" conclusion which we will be reviewing. The first is Keller's understanding of evolution as a naturalistic enterprise and the second is the way he understands randomness or chance in relation to evolution. We have deliberately named this section the "metaphysics of evolution" because we believe these concerns are primarily metaphysical in nature rather than epistemological or ethical. This doesn't mean that there aren't epistemological or ethical (and other philosophical) issues with evolution,¹³ but only that they haven't been considered here because of Keller's specific criticisms. Having clarified this point, let us review each of Keller's contentions in order.

Naturalism. As seen earlier, Keller seems to think that evolution (*via* natural selection) entails that God's hands are cut off from the natural

world. Keller highlights the problems associated with consciousness if it is the product of evolution. He argues that since it is assumed by evolutionists that “human consciousness” “is also governed by evolution” then, all “categories such as number, space, time, measurement, logic, causality and so forth are mere physiological accidents of random mutation and natural selection in a particular species” (Keller 2011, 351). This allows him to say that “every statement within the theory thus proceeds from the unreflective, unexamined historical forces that produced ‘consciousness’” (Keller 2011, 351). In effect, Keller expresses his skepticism of evolution because of the implications it may have for the integrity of human consciousness. A similar concern was raised by the American philosopher Alvin Plantinga, who also questions the implications for the validity of human cognition if it resulted from the process of evolution (Plantinga 2011, 311).¹⁴ However, Plantinga doesn’t believe evolution on its own is the problem; his full argument includes that it is impossible to believe in scientific evolution strictly from a naturalistic perspective because it is the conjunction of the two that undermines the validity of consciousness. As an alternative, Plantinga suggests that if one accepts evolution from a theistic perspective, i.e., not naturalistically, then the issue dissolves.

To make our concern of this particular section clear, there are two distinctive points that need to be untangled. First, there is the epistemic concern of the conjunction of naturalism and evolution, which, if true, possibly undermines the veracity of consciousness as highlighted both by Keller and Plantinga. Second, there is the metaphysical question of whether naturalism itself is true or not. We are specifically interested the second question because if it can be shown that evolution doesn’t have to be interpreted in absolute naturalistic terms, then it simultaneously eases the tension in the epistemic department. Plantinga also makes this distinction clear in his book, *Where the Conflict Really Lies*. When criticizing the epistemic problems with evolution and naturalism, he launches his famous evolutionary argument against naturalism (EAAN; Plantinga 2011, 307–50).¹⁵ When trying to assess naturalism in and of itself as a metaphysical position, he distinguishes between *philosophical* naturalism and *methodological* naturalism to show how Christianity can easily accept evolution under the latter but not the former (Plantinga 2011, 168–77), and this is exactly what we are trying to suggest is possible when viewed through an Islamic lens.

At this point it may be useful to distinguish between the two types of naturalism. Philosophical, metaphysical or ontological naturalism (hereon referred to a PN) implies the denial of the existence of supernatural entities (Draper 2005, 279). This denial proposes alternative answers to the inquiries which traditionally occupied the domain of religion, e.g., Is there a Creator? Is there a life after death? and so on. From the perspective of philosophical naturalism, the answers to all these questions is in the

negative because there is only the natural world which is restricted in time and space dimensions and it is the ultimate place for seeking any answers. Methodological naturalism (hereon referred to as MN) implies that scientists solely focus on natural entities and do not try to connect it with the supernatural. In other words, under the umbrella of MN science is strictly the methodological study of natural world leaving aside the question of whether there are any supernatural entities (Draper 2005, 279). Thus, with MN one can be a theist and a scientist while this option is ruled out with PN.

Returning back to Keller, he asserts that for believers the material world is separated from the supernatural through a “seamless veil of light manifesting the Divine through the perfection of creation” while for those who allow the possibility of evolution (which, recall, in this context means naturalism for him) in relation to Adam it is “a perfect nexus of interpenetrating causal relations in which there is no place for anything that is not material” (Keller 2011, 357). It seems, then, that Keller fails to make the useful distinction between PM and MN.¹⁶ By contrast, Plantinga only sees a problem when additional “philosophical gloss”—i.e., interpreted through PN—is added to science, namely when it is thought that “evolution is undirected, unguided, unorchestrated by God” (Plantinga 2011, xii). If evolution is viewed through the prism of MN, then God is not necessarily cut off from the natural world, and thus allows for the possibility of theistic-friendly interpretations of evolution like intelligent design or theistic evolution (Scott 2009, 53–76).¹⁷

Chance. Evolution is usually associated with “random” mutations, which can become a terminological trap as it fixes the mind on various negative connotations, particularly when it comes to divine action, e.g., “God plays dice.” Hence it is important to spell out by what we mean by the term. The meanings of chance are polyvalent, and linguistically it is synonymous with “accident, randomness, uncaused, fortune or fortuity, happenstance, likelihood (or probability), unpredictability, coincidence, spontaneity and serendipity” (Johnson 2015, 1–2). Contrary to these meanings, the antonyms of chance include “determinism, necessity, caused, predictability, skill, free will, purpose, design and uniformity to name a few” (Johnson 2015, 2).

In relation to Keller’s understanding of chance, the main problem seems to be things coming out of nowhere or disorder, i.e., without predictability. However, even here Keller’s views ignore several nuances that can aid the discussion. It is possible to look at chance from two philosophical perspectives. The first is the epistemic chance which reflects our lack of knowledge of a system, so it seems “chancey” to us. This can be divided into two types. The first is when we are *uncertain* (hereon referred to as EC₁) about a system. For example, we know that coin toss can be either heads or tails, but why it is heads or tails in a specific toss is uncertain. If

we had all the information of the coin toss, e.g., the physics of the coin and the environment, then it could be possible to determine what side the coin would land on in a particular toss. Another kind of epistemic chance is an *unknowable* one (hereon referred to as EC₂). Here we are referring to when it is impossible for an agent to have epistemic accessibility for a given event. For example, as human agents we can never claim to know what Julius Caesar wore in the 37th last hour of his life. We don't have any historical documentation that tells us this information and given that time travel is impossible (at least for now), this insight will be permanently inaccessible to us. Both, EC₁ and EC₂, are fundamentally reflections of what we can know.

Another perspective on chance is ontological and can also be viewed from two perspectives. The first kind of ontological chance (hereon referred to as OC₁) is when something doesn't have a prior *physical* cause. So, things popping in and out of physical existence without a prior physical cause would be interpreted as chance-like phenomena. Another version of ontological chance is when there is no *physical and no metaphysical* cause (hereon referred to as OC₂). In this perspective chance is no longer solely an operational feature of the physical world but the metaphysical one too. In a very strong form it can even mean God doesn't know the prior causes of things or how things are to unfold and thus are indeterminate even to God. OC₁ and OC₂ are positions of what reality is fundamentally like.

Before we can utilize these distinctions to interpret Keller's issue with chance, we first need to make apparent his creedal school which will have great import for this discussion. Keller belongs to the creedal school known as Ash'arism which comes under the rubric of Islamic orthodoxy in Sunni Islam (Keller 2011, 128). This school is well-known for its broadest allowance of what is possible for God to do (at least in comparison to the other creedal schools in Sunni Islam). In short, God can create or command anything that is logically possible. Thus, so long as it is not contradictory, God can choose to do it (Malik 2019a, 16–23). Furthermore, Ash'arites are well-known occasionalists. This is a divine action model within which there is only one primary causal agent which is God. So, He knows absolutely everything, universals and particulars, and controls everything (Jackson 2009, 75–98). Accordingly, it is God sustaining the laws of nature from one moment to another, atom by atom in every place (Corner 2005, 169–72). Given these theological precepts, it is then possible for God to create three-headed human beings, a rainbow colored moon, create a monkey into thin air from nothing, annihilate a planet from existence momentarily or even stop the universe existing for a few moments. It is not of our interest to go further than this or defend this position but only to highlight the relevant points.

Given Keller's theological worldview, it is then easy to see that EC₁, EC₂ and OC₁ are entirely unproblematic. EC₁ and EC₂ are reflections

of human ignorance and therefore nonconflicting. Just because *we* (as in humans) can't determine the particular cause for a natural event doesn't mean that God doesn't know too. We have stochastic laws alongside chaos theory which are indications of our limited capabilities in understanding any given system *in toto* (Polkinghorne 1995; Polkinghorne 2001). So when a mutation occurs, evolutionists don't necessarily know why it occurred or when it occurred on a *specific* occasion, but they usually have a range of possible explanations, e.g., copying error in the genes. The main area of contention seems to be when evolutionists claims that a mutation can be advantageous, disadvantageous, or neutral and it could be open to moving in any direction depending on the dialectics between genes, species and their environments through extensive periods of time. This openness in the evolutionary paradigm gives evolution the chance-like appeal. Again, this could be categorized under EC₁ or EC₂, i.e., reflects human ignorance. Consider Sweetman who says:

We overlook the fact that for every effect that occurs in biology, there is a specific cause for this effect, including every supposedly ('chance' or 'random') mutation, and for every environmental change, right back to the beginning of time. Evolutionary theorists sometimes forget this, or ignore it, when they are talking about the process of evolution. (Sweetman 2015, 124 25)

So while the evidence of evolution seems chancy to humans it doesn't entail God doesn't know what He is doing. It could easily be that God orchestrates the entire process, i.e., has complete knowledge and control over it, but executes it in a way that appears indeterministic to us.

As for OC₁, and given Keller's occasionalism, it is also unproblematic since God isn't bound by any natural law fixation. It is completely possible for God to create a new species from no prior physical material and even dissolve a species into nothing thus making it seem "chancy" to us. But it's not that chance is *just* apparent, it is also ontologically real in the physical plane. In this framework it is still completely plausible that God knows and controls everything in this scenario. It is similar to a graphics animator who can pop things into existence from nothing from one frame to another. The animator knows how the animation is to proceed as a whole even though there are instantaneous "disruptions." The only real difficulty arises is when chance is understood as OC₂, at least for Keller. This kind of chance wouldn't work with Keller's outlook because it makes for a god who is limited and doesn't know how creation proceeds or operates. So for example, consider Polkinghorne who in the context of quantum mechanics, which also shares an indeterminate structure as evolution (at least according to the Copenhagen interpretation), says:

I believe that God who is the creator of the world of becoming must be a God who possesses a temporal pole as well as an eternal pole. Because the

future of such a world is not yet formed, even God does not yet know it. This is no imperfection in the divine nature. God knows all that can be known but the future is still inherently unknowable. (Polkinghorne 1995, 156)

Keller wouldn't be able to appreciate such a position because the idea of God not knowing the future would be a severe breach in the Ash'arite paradigm. Arguably, however, this is beyond the purview of science if evolution is interpreted under the auspice of MN.¹⁸

Given the nuances of chance mentioned here, evolution could be compatible even with Keller's own theological worldview except for when chance is taken as OC₂. However, it seems this is the interpretation which Keller has restricted himself to when evaluating evolution.

Hermeneutics and Evolution

Keller believes that human evolution is problematic because he believes it is clear from Islamic scripture that Adam was created in heaven and not on earth. Moreover, Keller believes that the language of the relevant verses—particularly the verse which mentions that Adam was created from God's two Hands—indicates some kind of proximity in the creation of Adam, which makes him distinct from other creations. However, neither of these are *definitive* reasons for denying evolution.

As a start, it may be helpful to note that classical exegetes debated over the nature of the garden from which Adam fell. According to the classical exegete Ibn Kathir (2018, 350–59), the majority sided with the heavenly interpretation while a minority sided with the earthly interpretation. Keller seems to advocate the heavenly interpretation as if it's *the* position on the matter.¹⁹ This doesn't seem to be the case. Ibn Kathir, for instance, himself didn't commit to any particular position, possibly indicating a non-committal stance. Furthermore, other well-known exegetes such as Ibn 'Ashur also acknowledged the different opinions with the heavenly interpretation being dominant. However, he stated that these positions rested on likelihoods rather than certainty, and one's position on the matter doesn't affect one's doctrine, i.e., this isn't a matter that is theologically binding (Ibn 'Ashur 1984, 428–31). Accordingly, adopting a non-heavenly interpretation doesn't seem to warrant the strong charge of *kufi*. That said, we concede that these are preliminary observations and perhaps further investigation is necessary to reach any firm conclusions on this particular issue.

For the point on God's hands we have two counterarguments. First, given Keller's occasionalism where God is the primary cause of everything, what sense does it make to speak of proximate and remote creative acts? This remains unclear. Second, Keller is mistaken to think that *mere* mention of God's hand(s) is exclusive to Adam. There is another verse where God

mentions His Hands in the plural form (*jam'*) in reference to livestock: "Do they not see that We have created for them from what *Our hands* have made, grazing livestock, and [then] they are their owners?" (Quran 36:71) (italics our own). In another place God's Hand is mentioned in the singular form (*mufrad*) with respect to His allegiance: "Indeed, those who pledge allegiance to you, [O Muhammad] – they are actually pledging allegiance to Allah. The *hand of Allah* is over their hands" (Quran: 48:10). Given this point, the claim of Adam's exclusivity as a special creation is lost *if it is only* based on the *mere* mention of God's hand(s). However, to give credit to Keller, the mention of Adam's creation with respect God's Hands in the dual form (*muthanna*) is exclusive to Adam.²⁰ Whether the specificity of the dual form has any particular bearing in terms of the Arabic language and/or when interpreting Adam is unclear. However, even if this option carried with it some kind of exclusivity, it is still not obvious how this would contradict human evolution.²¹

As far as we can tell, the basis for the uniqueness of Adam (and humans) has been interpreted to be the soul, which is what demarcates him from other beings (e.g., see Chittick 1989; Al-Ghazali 2010; Coppens 2018). Even Keller alludes to this:

The locus of this attachment and this knowledge is not the mind, but rather the subtle faculty within one that is sometimes called the heart, sometimes the *rūh* or spirit. Allah's special creation of this faculty has been mentioned above in connection with the Qur'anic words and breathed into him of My spirit. According to masters of the spiritual path, this subtle body is knowledgeable, aware, and cognizant, and when fully awakened, capable of transcending the opacity of the created universe to know Allah. (Keller 2011, 361)

Interestingly, the late Israr Ahmed—a well-known Pakistani medical doctor-turned-exegete (Arien 2019)—links this point to the creation of Adam in the context of evolution and the mention of God's hands. In his view it is reasonable to think that one advanced member of the *Homo* species was chosen within whom the soul was infused into and became Adam (Ahmed 2013, 45–46). He suggests that when God mentions creating Adam with His two hands, it possibly alludes to this moment where the soul was infused into the physical template of Adam, which could easily be consistent with evolution (Ahmed 2013, 47).²² Given this possibility, simply relying on the verse which mentions God's two hands to deny human evolution is not necessarily a robust argument.²³

Placing aside the debate over the location of where Adam was created (heaven or earth), and the point of Adam's uniqueness in conjunction with the verses related to God's hands, we point out two alternative interpretations that do not share Keller's disagreement with evolution that are currently available in the literature.

The first approach—call this Option 1—proposes that evolutionary readings can in fact be found in the Quran. Unlike the previous interpretation however it relies on an earthly reading of the garden. An example would be Guessoum who seems to have employed if not adopted Mohamed Shahrouf's *bashar-insān* distinction.²⁴ In simple terms, they rely on the distinction between *bashar* and *insān* which for them means two very different stages in human evolution. When these words are analyzed in their various contexts within the episode of Adam, they suggest that *insān* is used when connotations of abstraction, comprehension and intelligence are implied. By contrast, *bashar* is used prior to the creation of *insān*, i.e., entities without sophisticated mental capabilities. In effect, *bashar* is synonymous with either homo or hominid while *insān* is the modern human being (*Homo sapiens*). They also mention other details that completely fall in line with evolution such as relying on an earthly creation of Adam (Guessoum 2011a, 313–14). An alternative approach that doesn't employ the *bashar-insān* distinction is suggested by Basil Altaie. He believes that certain verses can be read cohesively which suggest an eventual development of man through evolution (Altaie 2018, 121–46). Regardless of the details, what unites these thinkers is that they see evolution as being readable in the Quran.

The second approach—call this Option 2—is the suspension of judgment (*tawagquf*). Jalajel argues that when a scripture is silent on explicit details, then what can be interpreted is open to possibilities with all of them being equally probable speculations. Jalajel's conclusion—not to be confused with his personal opinion but one based on his study of the understanding of orthodox scholars—is that classical scholars would not make *tawagquf* about Adam being created without parents, since they have enough textual evidence to indicate that he had no parents. However, they would have to make *tawagquf* about human evolution occurring before Adam's appearance, since the texts are silent on it. This separates the story of Adam from the question of human biological origins. Thus, it no longer matters whether Adam had parents or not, because he does not have to be the first biological human specimen. If one adopts this position, one can comfortably be a Muslim and believe in human evolution because they are logically consistent with one another (Jalajel 2018, 2009).²⁵ This view could be consistent with Keller's position if he permits the distinction between human exceptionalism and Adamic exceptionalism (by which we simply mean that Adam was excluded from the process of evolution due to a miraculous creation).

To be clear, these are only provisional alternatives just based on points that Keller raises.²⁶ There are a plethora of verses and hadiths which haven't come under our analysis which may be considerably shift the plausibility of either position. For now, all we have intended to demonstrate is that there

are hermeneutic attempts which don't necessarily lead to the rejection of human evolution that violate the text, at least when read apparently and cursorily.²⁷

Having all said this, it could be argued that Keller's position is backed by *ijma'* (scholarly consensus). This is a valid form of theological proof and holds strong weight for grounding one's creedal and jurisprudential positions in Sunni Islam (Hasan 2009; Kamali 2008, 228–63). Thus, going against scholarly consensus can have theological repercussions, e.g., the charge of disbelief, which may partially explain the sensitivities some Muslims may have with reconciling Islam with evolution. Without necessarily going into technicalities like the quantification and qualification that make up scholarly consensus, it is important to point out that currently human evolution is seen as in opposition to orthodoxy according to *some* Sunni clerical circles. As an example consider the comments by the theologian, Salman Younas (2016): “As for evolution, *the dominant—if not consensus—viewpoint among scholars* is that it is in direct contradiction of the primary texts affirming an original and direct creation for Adam who was the first human being” (italics our own).²⁸ Or consider Haitham Al-Haddad (2011), another theologian, who makes a similar claim:

It is commonly believed that the Qur'an and the ahadith (Prophetic traditions) are the only sources of Islamic authority, yet we find that one of the primary causes of an individual's theological (and legal) deviancy is the attempt to fully understand the divine texts by his/herself, with complete disregard for the profound understandings and well-substantiated views of hundreds of thousands of Muslim scholars from around the world who have contributed to the vast corpus of Islamic scholarship over the last 1,400 years. The irony of such disregard is that Muslim proponents of the evolution process completely brush aside Islamic scholarly consensus yet are the first to advocate the (supposed) consensus of non-Muslim scientists!

However, other reviews indicate no widespread Muslim consensus on the matter. Malik (2018, 15–20) and Guessoum (2016) for example mention several positions ranging from complete acceptance to complete rejection with partial acceptance in between. A few observations can be noted from these reviews. On the one hand, not all of these thinkers mentioned by Malik and Guessoum are qualified theologians who generally have more social and political weight in swaying the Muslim populace's opinion on such controversial and sensitive matters (Shavit 2017; Determann 2015). This in and of itself opens the question of the role of experts from different but relevant domains (science, philosophy and theology) that take part in the discourse of evolution and Islam. On the other hand, if one wants to restrict oneself to the opinions of theologians, it seems, then, that even theologians who have discussed this issue sometimes disagree. Consider Ramadan Al-Bouti and Yusuf Al-Qaradawi, both of whom have incredible standing and respect in the Muslim world in their own right. The former

rejected evolution while the latter believes some kind of space can be created for it (Guessoum 2016).

We only mention these points to allude to the fact that in addition to the scientific, metaphysical, and hermeneutic issues discussed here, the conversation is much more complicated by the social and political elements that enwrap the entire issue. Authorities of various kinds will play diverse parts in the conversation which may impact the role of scholarly consensus. At the moment scholarly consensus seems to be pocketed and localized, and not necessarily universal. This doesn't imply that opinions for and against the compatibility of evolution and Islam are equal in weight. We concede that there might be more advocates of the latter, at least from the theological circles. However, given the different viewpoints we've encountered it would be false to state that every theologian is against the (potential or actual) compatibility of evolution and Islam. It would then be unfair to suggest that readings or proposals of the compatibility between evolution and Islam go against scholarly consensus seeing that there is no clear indication of one in the first place.

CONCLUSION

Keller raises three different criticisms against evolution. We have tried to counter each of these positions with important nuances that are fruitful for the dialogue. Keller argues that the science of evolution isn't robust. We demonstrate that through the consilience of induction, evolution is the best explanation for the biological origins and diversity. Keller argues that naturalism and chance are severely problematic and could take one outside the fold of Islam. We show that if one adopts MN and interprets the chance-like interpretation in evolution as EC_1 , EC_2 or OC_1 , then there is no conflict that warrants such a strong conclusion even when judged by his own theological worldview. Keller believes that the Quran clearly indicates a heavenly creation of Adam alongside him being a unique creation in reference to God's hands, which in turn contradict the idea of human evolution. We have shown that these interpretations aren't clear enough to warrant such a conclusion. Additionally, we highlight two hermeneutic options that demonstrate the plausibility of readings that are compatible with human evolution. Finally, there doesn't seem to be any clear scholarly consensus on the (in)compatibility of human evolution and Islam. Given these points we hope to have demonstrated that believing in the compatibility of human evolution and Islam doesn't necessarily or definitively entail disbelief as reasoned by Keller.²⁹

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NOTES

1. For general reviews of Muslim perceptions of evolution see Varisco (2018) and Iqbal (2009).

2. This position, however, is being challenged by Moran (2019). Based on his survey he seems to suggest that Yahya isn't as famous as is presented in the literature. If so, this might imply that Yahya's role in the rise of creationism in the Muslim context might have been exaggerated. As Moran (2019, 852) says in his own words: "I argue that Harun Yahya has become the sole focus of many discussions due to a lack of specialist knowledge about trends in Muslim communities and a lack of high-profile alternatives. The assumption has merely been recycled until it has emerged as part of a standardized discourse. In reality, it would seem from the data made recently available that the influence of Harun Yahya on European Muslims' views of evolution has been overstated." If true, our review of Keller's thoughts could be instrumentalized to further support this line of inquiry.

3. The review by Malik (2018, 15-20) is somewhat similar to a review done in *The 500 Most Influential Muslims* (Malik 2019b). The author lists other rejecters of evolution alongside Keller including well-known scholars like Abul Ala Maududi and Muhammad Husayn Tabataba'i.

4. For the remainder of this article we will be referencing from the book.

5. While we don't have any concrete data, as a simple comparison we looked at the number of reviews Keller's book received on Amazon alongside Guessoum's book, *Islam's Quantum Question*. We specifically compared these two since both were published in 2011 and have content related to evolution and Islam, which would make for a fair comparison. At the time of writing this article, Guessoum's book received eight reviews from Amazon US and six from Amazon UK, while Keller's book received 26 from Amazon US and 35 from Amazon UK. If Amazon is anything to go by, Keller's book is doing well.

6. We use *kufri* the same way Keller himself uses it. This includes disbelief, unbelief or having left the fold of Islam. However, to maintain consistency we use the word 'disbelief' as the only English substitute throughout the article.

7. For a critical assessment of the relation between falsification and evolution see Lee (1969).

8. To be clear, this distinction isn't novel or specific to Keller. Others recognize this difference too, e.g., Ahmed (2013).

9. Given this comment, and in the absence of any further details, we interpret Keller to believe that the place of Adam's creation is synonymous with the garden from which he was expelled and descended to Earth.

10. For an interesting and extensive coverage of the fossil record of primates, though somewhat outdated today, see Hartwig (2002).

11. We acknowledge that this position may not be shared by some non-Muslims who don't adopt the Islamic worldview. However, the point here is that within the Islamic tradition there are areas of specialization one of which includes being an expert in hadith studies (*muhaddith*). He/she is responsible for sifting out the strong hadiths from the weak ones because they impact how they can be utilized for jurisprudential and theological grounding. The Quran in comparison has no such specialization because it is considered to be narrated by so many individuals in its historical transmission that it practically can't be possible for it to be a colluded project (*mutawatir*). Thus no need was felt to verify the veracity of the Quran into formal discipline like it was (and is) for hadiths. This point is even recognized by several non-Muslim scholars. See Neuwirth (2020), Sinai (2014a), and Sinai (2014b).

12. We concede that scientists are currently debating the adequacy of Neo-Darwinism's causal mechanics (Laland et al. 2014; Wray et al. 2014). However, this doesn't entail that evolution as a whole is being called into question. Common ancestry, which we believe is the primary problem with evolution for most Muslims, will still hold weight despite the outcome of

Neo-Darwinism's status as the standard interpretation of evolution (van den Brink, de Ridder and Woudenberg 2017).

13. For an excellent resource that looks at the various philosophical problem associated with evolution see Sober (2006).

14. Our reference to Plantinga should not imply they share the same worldview. The point here is simply that both find the underlying naturalism to be a problem when accounting for consciousness. It should also be pointed out that while Keller raises the same concern as Plantinga, he doesn't offer the same depth.

15. For a detailed and nuanced exposition on EAAN see Beilby (2002). Also see Street (2006) for further details.

16. Two types of knowledge need to be distinguished in Keller's view. The first is *fann* – "technically exploitable knowledge for human life" – and the second is *'ilm* – all-encompassing knowledge which goes beyond the material world and includes non-material and Divine i.e. "reality of all matters" (Keller 2011, 363). Keller's position is that science must be limited to the role of *fann* and cannot claim be *'ilm*, because the domain of *'ilm* includes revealed knowledge inaccessible to science. The purpose of this differentiation is to point out that modern science produced by academia occupies the domain of *'ilm*, which Keller thinks is a categorical error. It could be that Keller has some kind distinction analogous to MN and PN in mind. If so, we feel this was done unsuccessfully because he generalizes all modern science as a godless enterprise, wherein evolution is *a priori* considered as a problem.

17. Keller doesn't explicitly mention this point but we feel he might also be thinking of the problem of reductionism, which is the idea that everything can be explained by reducing it to its most fundamental constituents. Given Keller's Sufi background, which entertains the idea that the soul is an immaterial reality that cannot be reduced to the material world, he might see reductionism as a problem. However, even here one can create a distinction between philosophical reductionism and methodological reductionism. See Pope (2007, 56-75).

18. But it does raise the important question of how we are to proceed with drawing metaphysical conclusions based on science. As Monton (2011) demonstrates with clear lucidity, it is possible to arrive at contradictory metaphysical worldviews based on patchy scientific frameworks. It opens the question of whether metaphysics should be dependent or independent of science.

19. This charge only holds if our interpretation of Keller's interpretation of the garden is correct. See footnote 9.

20. This point may be lost to the reader unfamiliar with Arabic. Unlike English which has singular and plural words, words in Arabic can be mentioned in singular, dual and/or plural forms.

21. Furthermore, Ash'arites interpret any verses that depict God anthropomorphically non-literally. See Kars (2019) and Shah (2012, 399-654).

22. This position has some parallel with Denis Alexander's (2008, 236-39) idea of *Homo divinus*.

23. However, we do not claim Ahmed's interpretation is necessarily tenable. We only raise this point to show an alternative interpretation of the same verse being used by Keller by a well-known interpreter of the Quran.

24. Another scholar who has the same position as Guessoum is Abdus-Saboor Shahin (1998). Others who employ the same position with some differences in their approach are Amr Sheriff (2013) and Israr Ahmed (2013).

25. Interestingly, Joshua Swamidass (2019) has developed a similar proposal with respect to the Bible.

26. We were tempted to introduce Yaser Qadhi's (Qadhi and Khan 2019) proposal as a third option. He argues that Adam and by extension humans are in reality excluded from the process of evolution because of textual indications. However, all of them had the right biology as demanded by evolution so it looks like a seamless continuation. The reason why we ended up not incorporating his proposal as an alternative is because it fundamentally negates human evolution. Unlike Jalajel's proposal, which caters for the possibility of human evolution, save Adam, Qadhi's proposal has no room for it at all. In other words, Qadhi, like Keller, is a human exceptionalist.

27. To be consistent with our neutral approach in this article, we acknowledge that even these proposals may not be robust. For a critique of Guessoum's proposal (and others who

have adopted this position) see Saeed (2019), Ibrahim et al. (2019), and Ayoub (2005). For a critical analysis of Jalajel's position, see Guessoum (2011b). As far as the authors are aware, no one has critically reviewed Altaie's book. However, we observed that while Altaie suggests an evolutionary-friendly reading of the Quran, he does miss out a particular hadith – the one which refers to the abnormal height of Adam – which he himself acknowledges might be problematic elsewhere (Bigliardi 2014, 91). Thus, his proposal as it stands remains incomplete.

28. Interestingly, in a later post Younas is a bit more tentative (2017): “the belief itself – *as it currently stands* – is considered contrary to orthodox Islamic doctrine” (italics our own).

29. Younas (2016) also reaches a similar conclusion when interpreting Keller's thoughts on evolution but approaches it with a different line of reasoning. In his perspective, Keller's judgment might be too harsh as Muslims who do hold on to evolution are simply latching on to erroneous beliefs. As long as they “affirm God's creative power and will, that Adam was a real human, and that he was in some manner created by God,” it doesn't warrant the charge of disbelief (Younas 2016).

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