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Raymund Schwager: Integrating the Fall and Original Sin with Evolutionary Theory

JONATHAN CHAPPELL

Abstract *Ever since Darwin, the attempt to reconcile the historical Fall and Original Sin with evolutionary theory has been one of the most intractable problems facing theology and science. Whilst there have certainly been numerous efforts to tackle this problem, the attempt by Raymund Schwager to develop a synthesis between the two is worthy of careful attention because it offers by far the most systematic attempt which has heretofore been made to harmonize the Fall with evolution. However, while Schwager's solution is both innovative and challenging, it nonetheless has consequences which are problematic for both science and Christian theology.*

Key words: Raymund Schwager; Religion and science; Evolutionary theory; Original sin and evolution; Problem of evil

Though there have certainly been numerous attempts to address the problem of the Fall and Original Sin in the light of evolution, *Banished From Eden: Original Sin and Evolutionary Theory*,[1] by the late Jesuit theologian, Raymund Schwager (1935–2004), is worthy of careful attention because it offers by far the most comprehensive and systematic attempt that has hitherto been made to reconcile the historical Fall with evolutionary theory.

Michael Ruse observes in his book, *Can A Darwinian Be A Christian?*,[2] that the most intractable question of all for the Christian believer is the ''theodicy'' problem: if God is truly omnibenevolent, how could He create a world so replete with pain and suffering? Since Christianity's inception, theologians have appealed to the account of the Fall in the opening chapters of Genesis for an answer to this apparent conundrum. As Genesis 1 affirms, the world was indeed created good by God, and its wondrous complexity and beauty stand as perennial testimony to the essential goodness of God's created order. Mankind, although created good, has nonetheless rejected God, and that rejection resulted in the Fall that is the source of our pain and suffering. The account in Genesis 2 and 3 thus holds that the etiology of this suffering lies with our first ancestors' violation of God's will. Expelled from the terrestrial paradise of Eden, human beings were condemned to an existence of toil, suffering and mortality. It is therefore we, not God, who are responsible for human suffering, and our

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amphibious nature, created in God's image and yet fallen, derives from this pivotal primordial event.

Darwin's theory of evolution by natural selection has, however, cast serious doubt upon the historicity of the Fall and original sin. In contrast to traditional Christian thinking about the origin of suffering, the theory of evolution holds that natural evil and pain are an inevitable and necessary part of the mechanism of natural selection. *Pace* the doctrine of the Fall, Darwinism tells us that biological death, painful mutations, and the struggle for survival are integral to the whole evolutionary process. The ''nature red in tooth and claw'' vision of Darwinism has thus created an acute and enduring problem for Christian theology.

Original sin, the Enlightenment and the problem of evil

In *Banished From Eden*,[3] Schwager begins his audacious attempt to reconcile original sin and evolution by acknowledging that human beings are responsible for much of the evil that exists in this world. The crucial question, however, is: What is the source of this inclination towards violence and conflict? Schwager argues that, in its urgent concern to exonerate the good creator God of responsibility for evil, the religion of Israel gradually developed the idea that an original sin had occurred at the dawn of human civilization. Furthermore, via the work of St Paul and St Augustine, who systematized a peculiarly narrow concept of ''original sin,'' such ideas also exerted a powerful influence over centuries of European history and culture.[4]

However, major dissatisfaction with the doctrine began to be expressed in the eighteenth century, when Enlightenment thinkers, such as Jean-Jacques Rousseau, repudiated the claim that human beings are inherently flawed. The sense of crisis surrounding the traditional doctrine of original sin was intensified, Schwager claims, by the theory of evolution, which raised serious questions concerning the legitimacy of literalistic readings of Genesis. As a result of these various objections, Schwager claims that the doctrine of original sin poses considerable difficulties for many contemporary Christians. The key challenge for modern theology, then, Schwager maintains, is how to present the doctrine of original sin in a form that is intellectually respectable in the modern age.[5]

Two aspects of original sin

Before embarking on an exploration of these issues, Schwager emphasizes the importance of clearly distinguishing between two elements that constitute the Church's dogma of original sin: 1) *peccatum originale originans* (i.e., the ''Fall'')—which refers to original sin as the first sin committed by the first humans (Genesis 3); and 2) *peccatum originale originatum*—which refers to the ensuing *consequences* for the whole human race of that first act of primal disobedience.

The importance of the historicity of the primal Fall

In his consideration of *peccatum originale originans*, Schwager recognizes that the early chapters of Genesis have, particularly since the rise of critical historical scholarship in the nineteenth century, been regarded as largely mythological. However, while Schwager acknowledges that it is important to affirm that the narrative contains elements which should clearly be construed in symbolic terms, he argues that, in order to retain a coherent theodicy, it is necessary to account for the origin in time of moral evil, and this commits us to ascribing a historical nucleus to the Fall.[6]

For Schwager, this means affirming that the *peccatum originale originans* must have come from a singular, freely willed act of disobedience that occurred at the dawn of human civilization. But just how, from an evolutionary perspective, could such an event have come about? Schwager admits that any attempt at historical reconstruction will necessarily be speculative. However, he argues that it is possible to sketch primordial events by means of what he calls ''aetiological retrospection''[7] from later experiences and from the uncovering of sin through Christ.[8]

The nature of the Fall

Although Schwager is keen to uphold the historicity of the fall, he recognizes that the theory of evolution has radically undermined the traditional (Augustinian) reading of Genesis, which spoke of the complete graced integrity of the first human couple. Thus, in a major concession to evolutionary theory, Schwager embraces the modern view that the first *Homo sapiens* were not free from natural physical death, and he asserts that Genesis only claims that they were free from violent death.[9]

In support of this contention, Schwager points out that, in Genesis 2:17, God declared the first humans would die if they ate from the Tree of the Knowledge of Good and Evil. However, when the punishments are given, following the first sin, what is notably absent is death. Adam does not die; if fact, according to Genesis 5:3, he went on to live for 930 years.

For Schwager, the solution to this puzzling situation is to be found in Chapter 4 of Genesis, which reveals that the type of death that results from sin is violent. The effects of sin unfold ''as rivalry between brothers and reach their pinnacle in murder.''[10] Following the mimetic theory of René Girard,[11] Schwager claims that, as the narrative of Cain's murder of Abel makes clear, it is envy that leads to fratricide.[12]

In a further attempt to place his thesis within an evolutionary framework, Schwager argues that, as creation is an ongoing process, the process of the constitution of humans was not fully completed with hominization.[13] He contends that, under the guidance of divine inspiration, ''humans developed out of a group of higher animals,'' and were ''led experientially to an intensive, yet provisionally still implicit, elimination of limits on the horizons of consciousness''—a process

that would have led eventually to the explicit apprehension of full human consciousness.[14]

However, when the members of the group absorbed that experience, they shied away from both the intensity of communication and its mysteriousness. Rather than allowing themselves to be transformed by the mysterious Presence, they clung to the instincts of their violent (animalistic) past, and used the gift they had received as a means of self-assertion.[15] The invitation to cooperation thus took a negative turn, and was characterized by negative communion (which took the form of what Schwager, following René Girard, calls a ''scapegoating mob'') in which members of the group itself became victims.[16]

Variations on primordial sin

How might this primordial scene be more precisely described? Schwager proposes three alternative scenarios, in which ''he positions himself at the moment of hominization and looks from there backwards into evolution and forwards into salvation history.''[17]

First variant

The intense experience that accompanied self-transcendence in the moment of hominization occurred during the sexual union of two animals. Such a new mystical experience *should* have resulted in a gradual ascent towards noetic illumination. However, this did not occur, and instead led to the ''divinization'' of sexuality.[18]

Second variant

The birth of the new illumination of consciousness that accompanied hominization took place during intensive forms of common feeding.[19]

Third variant

On a particular occasion, ''while jointly hunting or engaging in a kind of 'war of the chimpanzees','' [20] the unified group was struck by an awe-inspiring premonition in the face of the stricken prey or victim. Unfortunately, a negative development commenced, and killing itself was increasingly experienced as an awe-inspiring, fascinating (sacred) act.[21]

Schwager concedes that it is impossible to determine with any certitude which scenario is closest to historical reality, and argues that it is likely that, as part of a long-term process, all three elements played a significant role in the *peccatum originale originans*.

The *peccatum originale originatum* or the transmission of original sin

After attempting to establish that the *peccatum originale originans* was an historical event that resulted from a singular, freely willed act of disobedience on the part of a group of early human beings, Schwager next addresses the issue of the *peccatum originale originatum*, the mechanism by which the enduring effects of the Fall are transmitted (in the form of ''original sin'') to all subsequent human generations. As a Catholic theologian, Schwager is mindful of the fact that the Council of Trent (1545–1563) officially promulgated the dogma that original sin is transmitted via generation/reproduction (*propagatione*) and *not* via imitation (*imitatione*).[22]

From an evolutionary perspective, however, such an antithesis between nature and freedom is, Schwager argues, rather problematic. It is therefore necessary, Schwager insists, to challenge this (false) dichotomy between nature and freedom—one which, he maintains, has no basis in modern science. The work of René Girard is, he argues, crucial for establishing the point that there need be no necessary division in our understanding of how original sin is transmitted between reproduction (nature) and imitation (freedom).

Moreover, this view concerning the role of imitation is, Schwager maintains, supported by evidence from modern evolutionary theory, which suggests that ''all information in a living cell is stored in the DNA molecule, and the ability of this molecule to create copies of itself belongs to the basic character of living processes.''[23] Even the capacity to imitate is developed, after several intermediate steps, out of the fundamental ability to copy. Furthermore, for Schwager, the capacity to imitate shapes the lives of the higher mammals—the apes in particular—and is, he argues (quoting from Bresch), ''the unconditional prerequisite for the beginning of language.''[24]

This new capacity for imitation reveals, Schwager argues, the possibility of transmitting ''earlier events'' not simply by means of the genetic code, but directly from one member of the species to the other and, successively, from one generation to the next.[25]

A new meaning of ''hereditary transmission''

In developing his thesis that reproduction and imitation should not be perceived as dualistic opposites, Schwager also enlists the support of other scholars, such as A. Tomatis,[26] whose theory, Schwager claims, illustrates the ''unity of the bodily and spiritual components in linguistic communication . . . and posits this process as beginning in the mother's womb, indeed already in the process of procreation.''[27] Tomatis argues that, since human beings in the earliest stages of their embryological life are highly susceptible to environmental influences, it is plausible to conclude that disturbances at the beginning of their development have a particularly powerful effect.[28] In the initial process of communication, he argues, aggressive elements have an impact on further growth and may even ''enter into'' the physical and psychic structure of an organism. Schwager argues,

following Tomatis, that ''evil migrates thus from generation to generation, and so it is understandable that people may speak of 'hereditary transmission'.''[29]

This notion further aids our understanding of how original sin is passed on because, Schwager contends, if, since the Fall, the human race has had a negative imprint on its development, this suggests that man is afflicted by a ''basic desire that from the very beginning drives beyond all individual needs and is of an unbounded, metaphysical kind''.[30] Thus, Schwager maintains, man is indeed born a victim of his primordial ancestors' violence and aggression, and, as a consequence, his ''unbounded desiring'' becomes diverted from God, its authentic purpose.[31]

Organisms of creatures as ''living memories''

Recent developments in evolutionary theory, Schwager argues, further support the hypothesis that original sin can be transmitted via hereditary means. Indeed, since the work of Haeckel, he claims, ''the biogenic principle, according to which ontogeny (= development of the embryo) recapitulates phylogeny (=history of the people or race) in a reduced manner, has played a significant role.''[32] As a result of this work, Schwager claims, ''the organisms of creatures'' are, in contemporary scientific thought, increasingly being conceived of as ''living memories''; and ''this holds in fact both for the history of the human race and the history of the cosmos.''[33]

Specifically, Schwager maintains, human beings themselves continue to be determined by events that occurred in the formative stages of the Earth; this is borne out by the work of J. Klima,[34] which holds that, as the basic structure of the genetic code is similar for all living organisms, all life which currently exists on Earth stemmed from ''a single primordial cell and extends the memory of its origin until today through this uniform code.''[36] Accordingly, ''at ever new levels we see that organisms living today have a 'memory' that extends back to determinative events and 'bifurcations' in the earlier history of the cosmos and of life.''[35] If, as this evidence suggests, human beings, like all living things, are shaped by the ''memory'' of antecedent events that become encoded genetically, then ''this conception today is more in favour of the doctrine of original sin than against it.''[37]

According to the most reliable paleontological evidence, Schwager argues, the human brain evolved over a massive timescale—perhaps almost two million years.[38] However, if measured in terms of the time period of evolution, the development of its neurologic morphology and cognitive capacity was exceedingly rapid. In fact, Schwager asserts, ''we are probably dealing here with a singular evolutionary speed.''[39] Many scientists—such as C. Bresch—believe, Schwager maintains, that such a striking phenomenon is directly attributable to human aggression, and strongly suspect that reciprocal killing was a central mechanism in the rapid development of the brain. In support of this claim, Schwager again quotes from Bresch, who states that ''It is difficult to refute the hypothesis that humans themselves through combat with one another and through destruction of subjugated groups were the most important instrument of

their own selection, which produced a rapid further development of their brains.''[40]

If, Schwager argues, violent altercations between groups served to accelerate the growth of the brain, then this indicates that the evolutionary process favored the more aggressive individuals, which, in turn, suggests that the ''inclination or disposition to kill could have thus found its way into the biological structure within the advancing evolution.''[41] This is theologically significant because it points to the fact that sinful behavior precipitated the growth of the brain and shaped the further evolution of humankind.[42]

The great strength of the synthesis of evolution and original sin developed in *Banished From Eden* lies, Schwager argues, in the fact that it ''enables us to conjoin antithetical aspects of our evolutionary world view and experience,'' thereby overcoming the modern dualism between nature and history.[43] It upholds, on the one hand, the concern for freedom and, in so doing, provides deeper meaning to the evolutionary worldview. And, on the other hand, it accounts for why modes of behavior that are deemed to be ''evil'' in the animal sphere can ''reappear among us humans in sharpened form: in the animal realm they are actually natural, but in the human realm they are evil precisely because they have their origin in freedom as well.''[44] Accordingly, Schwager insists that such evil committed by humans can in no way be minimized on account of their animal past. The only hope for Man's salvation thus lies, Schwager concludes, in the sacrifice of the God-Man on Calvary—whose gratuitous grace will serve to heal man's distorted and corrupted nature and bring him to ultimate eschatological fulfillment.[45]

Raymund Schwager: Critical analysis

While Schwager subscribes to a more traditional integration of the narrative of Genesis 3 with evolution than many thinkers would wish to do, it is clear that his synthesis constitutes a radical departure from orthodox Roman Catholic teaching on the Fall and original sin; it is thus a remarkably audacious theological offering on the part of a Jesuit theologian writing at the end of the twentieth century. Indeed, as Nikolaus Wandinger[46] observes, Schwager's harmonization of the Fall with evolutionary thought can only be attained at the cost of abandoning important aspects of the traditional Christian worldview in general, and defined tenets of Roman Catholic doctrine in particular.

Schwager's view of peccatum originale originans

The traditional view concerning the graced integrity of the first humans, which continues to be defended by the *Catechism of the Catholic Church*, is a case in point. The Catholic Church continues to hold that the first couple were blessed with primordial grace and by that grace they possessed an immediate relationship with their Creator, which freed them from concupiscence and thus endowed them

with a freedom of volition that far surpassed our own. However, in recognition of the problematic nature of such a claim in the light of evolutionary theory, Schwager concedes that the conditions in which the first humans evolved were, in all probability, anything but paradisiacal. On the contrary, Schwager argues, they were marked by the harsh laws of struggle and survival.

It is clear that such a concession to evolutionary theory on the part of a Catholic scholar constitutes a major shift in theological thinking—and one that would not, for example, receive the approbation of conservative modern Catholic theologians such as Edward Holloway,[47] who are keen to uphold the Church's traditional doctrine concerning the paradisiacal nature of Eden, no matter how problematic such a claim may be in the light of evolution. Furthermore, Schwager's synthesis undermines orthodox Catholic doctrine in another important respect. His claim that the first (pre-lapsarian) humans experienced natural physical death by virtue of their animal nature and continuity with all other living things, clearly conflicts with the first canon of the Synod of Carthage (418 A.D.), which states: ''If any man says that Adam, the first man, was created mortal, so that whether he sinned or not he would have died, not as the wages of sin, but through the necessity of nature, let him be anathema.''[48]

However, as biblical exegetes such as James Barr[49] have argued, Genesis 3 actually supports Schwager's interpretation. The Genesis story, Barr contends, is not that Adam and Eve were originally immortal. If they were, the story would not include the statement (post apple) that if they ate from the ''Tree of Life,'' they would then be immortal. So the narrative, Barr holds, is precisely that there is a test, failing which Adam and Eve were excluded from eating of the ''Tree of Life,'' and thus allowed to die. Thus, if one combines the evolutionary insights of Schwager with the biblical exegesis of Barr, it seems that a reasonable reading of the intent of the text is as follows: those first morally accountable were subject to a moral test. Had they passed, they would then have been kept from death. However, they failed and so were not kept—and so the pre-Fall state of things (including death) continued rather than being radically revised. Such a reading of the story seems compatible with the text and also with the facts of pre-human evolution and natural conditions.

Moreover, Schwager's position concerning the natural death of pre-lapsarian man also finds support from modern Catholic theologians receptive to evolution, such as Karl Rahner. In his book, *On the Theology of Death*, Rahner contends that the first human beings would have experienced some form of ''corporeal terminus,'' even prior to the Fall.[50]

So far, so good. However, Schwager's theory of *peccatum originale originans* is also vulnerable to various objections, one of the most serious of which concerns his insistence that pre-lapsarian man was immune from violent death, and only became subject to (and the victim of) such forms of aggression *after* the Fall—a claim which, he maintains, finds biblical support in the narrative of the fratricide detailed in Genesis 4, an act that (biblically) constitutes the first murder in human history. While on a theological level, such a claim is an understandable attempt on the part of Schwager to uphold some sense of the idea (so crucial to Catholic doctrine) that the Fall possessed a concrete, physical dimension, which altered not

just internal human consciousness but the external natural world itself, it is nonetheless highly problematic in the light of evolution. For instance, it conflicts with much of the data of paleontology, which, scholars such as Donna Hart and Robert W. Sussman[51] claim, clearly indicates the presence in the EEA (Environment of Evolutionary Adaptation) of a multiplicity of carnivorous predators (such as saber-tooth cats) that would, in all likelihood, have contributed to the violent deaths of early *Homo sapiens.* Furthermore, evidence from anthropology and archeology suggests that aggressive traits, which led to violent conflict and death, existed as a perennial feature in the life of the very earliest hominids.[52]

Furthermore, Schwager's claim on this point is also in danger of conflicting with his own stated assumptions concerning the natural conditions in which pre-lapsarian man evolved. For example, it is difficult to reconcile his contention that *Homo sapiens* only experienced violent death *after* the Fall with his repeated claims throughout *Banished From Eden* that the environment in which early man evolved was itself characterized by the harsh laws of survival, competition and struggle, and that one of the tasks of early man was to overcome these *pre-existing* animal tendencies in human life.[53] Indeed, Schwager frequently states throughout the book that the consciousness and behavior of pre-lapsarian man was shaped by animalistic impulses (such as selfishness, aggression and violence). Moreover, in his ''third variation on primordial sin''[54] he states quite explicitly that pre-lapsarian *Homo sapiens* were engaged, not only in hunting other animals, but in a brutal and ferocious ''war of the chimpanzees'' with *each other*—and cites Jane Goodall's tome *The Chimpanzees of Gombie* in support of such a claim. The work of other scholars, such as Voland,[55] is similarly enlisted by Schwager to substantiate his contention that the violence exhibited by the earliest humans is comparable in both scale and complexity to the brutality shown in battles between chimpanzees, which, he claims, is without precedent in the animal world.[56]

Thus, in one key respect Schwager clearly contradicts himself: he first asserts that violent death was a *corollary* of the Fall; however, in later passages, he states that the conditions of violent competition and struggle (which would almost certainly have resulted in violent death) were part of human life *prior* to the Fall. Such inconsistencies, unfortunately, only serve to vitiate the plausibility of Schwager's overall account, and make it much harder for him to claim biblical support (from Genesis 4) for his thesis.

Schwager's claim that evolutionary-transmitted original sin must have come from a singular, freely willed act of disobedience is also problematic from an evolutionary perspective: such a literal, historical reading of the Fall is clearly difficult to square with the notion of a gradual emergence of human consciousness and moral awareness. Indeed, this kind of literal reading also raises problems theologically; for, as Reinhold Niebuhr argues, ''When the Fall is made an event in history rather than a symbol of an aspect of every historical moment in the life of man, the relation of evil to goodness in that moment is obscured.''[57] Niebuhr's non-historical interpretation reflects the near consensus in twentieth-century theology, which has been to take the Fall, not as describing a change that actually took place, but as describing a static ontological view about the inherent imperfection of human beings.

A further difficulty, as Fraser Watts[58] observes, is that Schwager too readily assumes that Genesis 3 is about sin, despite the fact that sin is not mentioned in the text. In contrast to Schwager's interpretation, Watts argues that a far more plausible reading of the text in the light of evolution would 1) place the emphasis in Genesis 3 on the development of the knowledge of good and evil, and the growing sense of separateness between God and humanity; and 2)see Genesis 3 as describing broad evolutionary trends in story form, rather than referring to any singular event that took place in the course of evolution.

Schwager's argument would also seem, at least tacitly, to endorse polygenism—a position that clearly conflicts with papal teaching. In the encyclical *Humani Generis*, for example, Pope Pius XII examined evolution and did not exclude it as a possibility. However, he rejected polygenism in favor of monogenism, on the grounds that the unity of the human race, the universality of sin and therefore the need for salvation cannot be defended unless the whole of humanity had descended from Adam and Eve.[59]

Schwager's view of peccatum originale originatum

While Schwager's attempt to develop a detailed and systematic theory of original sin that takes specific account of current theories of evolution is certainly an ambitious and creative one, there is little doubt that his thesis concerning the *peccatum originale originatum* is by far the most controversial aspect of the synthesis of science and theology offered in *Banished From Eden.* Nonetheless, one must commend Schwager's admirable attempt to overcome what he perceives as the false dichotomy between history and nature, which has been current since the Enlightenment, by insisting that the stain of original sin is transmitted by the dual processes of imitation *and* generation.

Transmission of original sin via imitation

The first element of Schwager's mechanism of inheritance—via imitation—is relatively uncontroversial and, in many respects, quite plausible. Indeed, since its formation in ancient Greece, the Western philosophical tradition has followed the thought of Aristotle as articulated in the *Poetics*: ''man is distinguished from other life-forms by his capacity for imitation.''[60] It is now held as axiomatic in the behavioral sciences that all forms of human learning, and, in particular, the acquisition of language, occur via imitation; and Schwager, through his utilization of the work of René Girard,[61] persuasively argues that our concept of imitation should be expansive enough to include *desire.* That is to say, in addition to such things as language and external gestures, desire is also conditioned by our imitative human nature. Moreover, as Michael Kirwan[62] observes, Girard's investigation of desire enables Schwager to address a wider anthropological question: Why, of all living things in creation, is man apparently the most violent and prone to conflict? Girard's answer to this question—that such desires are

conditioned by cultural and social interaction—supports the first element of Schwager's mechanism of inheritance of original sin (by imitation), inasmuch as, for Girard, the mimetic adoption of another's desire is the primary determinant of human action.

Schwager's notions concerning the role of collective memory in society have also found considerable support from contemporary anthropological theory. Paul Connerton,[63] for instance, treats memory as a cultural rather than an individual faculty, and provides an account of how practices of a non-inscribed kind are transmitted in, and as, traditions, which often have their roots deep in antiquity. While most studies of memory as a cultural faculty focus on inscribed transmissions of memories, Connerton, by contrast, concentrates on incorporated practices, and so questions the dominant idea that literary texts may be taken as a metaphor for social practices generally. He argues that images of the past and recollected knowledge of the past are conveyed and sustained by ritual performances and that performative memory is bodily. Connerton's emphasis on the significance of bodily memory as an essential aspect of social memory thus lends support to Schwager's contention that the collective knowledge of the human species is transmitted from one generation to the next through a process of imitative mimesis.

Similar support can be found in the sociologist Pierre Bourdieu's notion of *habitus.* In his influential monograph, *Outline of a Theory of Practice*, Bourdieu perceives *habitus* as ''the durably installed generative principles'' that produce and reproduce the ''practices'' of a given society or social group;[64] the concept can be understood as denoting a set of acquired patterns of thought, behavior and taste. These patterns, or ''dispositions,'' are the result of the internalization of culture or objective social structures through the experience of an individual or group.[65] Bourdieu borrowed the notion of *habitus* from Marcel Mauss, who defined it as those elements of culture that are embedded in the bodily or daily practices of individuals, groups, societies and nations. It entails the totality of learned habits, tastes, bodily skills and behaviors (in addition to other non-discursive forms of knowledge) that are ''taken for granted'' within a specific social group.

Bourdieu further developed Mauss' notion of *habitus* and broadened its application to include an individual's dispositions and convictions. It can therefore be invoked in support of Schwager's theory of the transmission of original sin via imitation, inasmuch as Bourdieu regards his notion of *habitus* as a system of durable and transposable ''dispositions'' (enduring, acquired schemes of thought, perception and action). Social agents develop these dispositions in response to the determining structures (such as social class and kinship) and external conditions (or social ''fields'') that they encounter; they are then, in turn, socially reproduced and transmitted to subsequent societal members.[66]

Transmission of original sin via generation

The second aspect of Schwager's mechanism of transmission—via generation—is, however, much more problematic. His claim that ''imitation'' is transmitted, not

simply on the basis of *cultural* and *imitative* mimesis, but through a biological process, and that the veracity of such a process is supported by modern evolutionary theory, is highly controversial. He enlists the support of biologists, such as Haeckel, whose ideas have been largely discredited by modern developmental biology. In Chapter 2 of *Banished From Eden*, Schwager argues that biological science has, since the time of Haeckel, shown that ''the biogenic principle, according to which ontogeny (=development of the embryo) recapitulates phylogeny (=history of the people or race) in a reduced manner, has played a significant role.''[67] However, while Haeckel's arresting catchphrase ''ontogeny recapitulates phylogeny'' has worked its way into popular scientific discourse, his rule has in fact long been rejected by modern biologists.

Haeckel claims, for example, that the embryos of organisms pass through stages representative of their ancestors. In other words, human embryos at one point look like fish, then like amphibians, then like reptiles, then like all kind of mammals, and finally like humans. However, as Stephen Jay Gould observes,[68] developmental biologists have shown that this is simply not the case, and have long since rejected Haeckel's rule in favor of von Baer's laws of embryology—which make the following claims: 1) General characteristics of a taxon (or phylogenetic group) to which an embryo belongs develop before special characteristics. In other words, all elasmobranches, for example, have jaws, which develop before the specific characteristics of a particular species of shark, such as the spines in *Squalus acanthias.* 2) Likewise, general structural relations are formed before the most specific structures appear. Laws 3 and 4 are particularly relevant for the question at hand—Haeckel's ''ontogeny recapitulates phylogeny.'' 3) Instead of passing through particular configurations of other definite forms (other species), embryos gradually separate themselves from them. 4) The embryo of a ''higher animal'' (or of a more apomorphic rather than plesiomorphic species) never resembles the adult of another animal form, but only its embryo.[69]

In other words, where Haeckel erroneously claims that an embryo undergoes all the ancestral animal forms of its lineage (adult fish, amphibian, etc.), von Baer accurately points out that the embryos of related species resemble each other at certain points in their development. A dog embryo and human embryo will resemble each other at certain times in their development, after which their embryonic development becomes specific to their particular species.

Schwager, however, seems quite unaware of the fact that Haeckel's rule has been abandoned by biologists in favor of von Baer's, and this leads him to advance a thesis concerning the transmission of original sin which clearly assumes the veracity that ''ontogeny recapitulates phylogeny.'' This reliance on largely discredited scientific evidence brings into sharp focus the central problem that bedevils Schwager's whole approach. Indeed, the fact that he feels that such highly contested biological ideas can be so effortlessly transposed to support his speculative theology suggests that he is not only unaware of the controversial nature of such scientific theories, but has also failed to fully grasp the true meaning of the scientific literature with which he is dealing.

An example of the latter can be seen in Schwager's use of the work of Bresch, which leads him to develop ideas and make claims that simply do not seem to be

justified in terms of the theory that Bresch himself advances. While Bresch seems to be making the perfectly reasonable claim (which would receive the approbation of many a contemporary biologist) that ''all information in a living cell is stored in the DNA molecule, and the ability of this molecule to create copies of itself belongs to the basic character of living processes,''[70] Schwager seems to assume that this assertion alone enables him to claim that, in addition to mere genetic data, ''earlier events'' themselves are genetically transmitted directly from one member of the species to the other and, successively, from one generation to the next. In this case as in many others, Schwager seems to be in danger of extrapolating far too much from a biological theory the precise nature of which it is not altogether clear he himself fully understands.

Such criticisms apply equally to his notion of the ''hereditary transmission'' of original sin. In developing his thesis that reproduction and imitation should not be perceived as dualistic opposites, Schwager also appeals to the work of other scholars, such as Tomatis, for support. In this case, the danger is not so much that Schwager is extrapolating too much from a given biological theory, as was the case with his use of Bresch; the danger here is rather that he is, once again, relying on a biological theory the veracity of which is hotly disputed in modern science. For example, in addition to arguing that human beings in the early stages of embryological life are highly susceptible to environmental influences, Tomatis goes on to assert that, in this initial process of ''communication,'' aggressive elements have an impact on further growth and may even ''enter into'' the physical and psychic structure of an organism. This, in turn, leads Schwager to assert, following Tomatis, that ''evil migrates thus from generation to generation, and so it is understandable that people may speak of 'hereditary transmission'.''[71] In this case, both the biological theory advanced by Tomatis itself (and the theological one developed by Schwager which is reliant upon it) are deeply problematic in the light of modern evolutionary theory, and it is strange that Schwager does not appear to appreciate the extent to which such ideas are frowned upon by modern biologists.

It is clear that the most controversial assumption here on the part of both Tomatis and Schwager is that ''aggressive elements'' (Tomatis) and ''evil'' (Schwager) can actually ''enter into'' the physical and psychic structure of an organism, and have the ability to ''migrate'' from one generation to another by means of some kind of ''hereditary transmission.''[72] Schwager, in turn, uses these ideas in support of his contention that a singular primal act of disobedience led the human race to turn away from its God and develop violent and aggressive tendencies, which were then handed down to each subsequent generation. The ''scientific'' theories on which such assumptions are based have been largely discredited in modern biology, and most biologists are (understandably) deeply resistant to them. For instance, John Maynard Smith[73] addresses the problem which stems directly from the concepts concerning the nature of evolutionary change that both Tomatis and Schwager seem to hold. In order to illustrate the nature of the difficulty, Maynard Smith discusses a particular issue: that of the development of calluses on the skin of vertebrates. It is, he says, a property of the skin both of birds and mammals that it should develop horny thickenings in

response to pressure, and, it is for this reason that the ''sons of toil'' have horny hands. However, he observes, in some cases the skin in particular regions thickens in the embryo prior to any pressure being applied. This is the case with the skin on the soles of the feet in human beings, and also of patches of skin on the rumps of ostriches, which squat on the ground.

While, Maynard Smith argues, ''it would be convenient if this could be explained by saying that ancestral ostriches developed calluses on their rumps as a direct response to pressure when they squatted, and that the fact that this character was individually acquired in a number of successive generations caused changes in the hereditary material, or mutations, so that their descendents possessed genetically determined calluses appearing before pressure is applied,'' such a ''Lamarckian'' explanation is, he argues, difficult to accept, inasmuch as we know of no hereditary mechanism whereby acquired characters can be inherited in this way.[74] By the same token, following Maynard Smith, we know of no hereditary mechanism that would support the view advanced by Tomatis and Schwager that a primal act of aggression on the part of human beings enabled ''evil'' to actually ''enter into'' the physical and psychic structure of subsequent organisms.

Now, the ''Lamarckian'' explanation that Maynard Smith spoke of refers, of course, to the explanation for evolutionary change first adduced by Jean-Baptiste Lamarck (1744–1829). Lamarck argued, as Burkhardt[75] points out, that animals were induced to develop new habits when they were confronted with changing or new environments. Changes in habitats, he thought, inevitably led to certain organs being used more and other organs being used less, thereby strengthening the former and weakening the latter. Differences thus acquired were transmitted on to the next generation. Over substantial periods of time, this led to significant organic change.

Such Lamarckian ideas have also been sharply criticized by the distinguished biologist Jacques Monod. In his text *Problems of Scientific Revolution*, he argues, ''the old idea of acquired characters, which had been proposed by Lamarck, not only has never been verified, but in fact is completely incompatible with all of what we know of the whole structure of transfer of information. First, the spontaneous nature of mutation is incompatible with such an idea and second, we know that this sequence of transfer of information is essentially irreversible.''[76] It was discovered some years ago, Monod argues, that in some cases, the transcription step from DNA to RNA works in the reverse direction. That is, he says, nothing surprising. It is a very simple step and even by the basic principles in physical chemistry of the reversibility of microscopic events, it could be predicted that such events could occur. They do occur, in fact, Monod maintains; but it must *not* be assumed to mean that *information* from protein could possibly go back to the genome.[77]

Scientific evidence over the last century of genetic research further corroborates Maynard Smith and Monod's repudiation of Lamarckian ''acquired inherited characteristics.'' For example, three major experiments in biology (Griffith, 1928; Avery and colleagues, 1944; Hershey and Chase, 1952), clearly established that DNA—and only this molecule—carries genetic information and that this information cannot be altered by other biomolecules.[78] These experiments are

considered classics and have not been refuted by any other evidence. The discovery of the reverse transcription (the generation of a DNA strand out of an RNA template) came only as an addition later to further show that the nucleic acids are the heritable molecules of all known life forms.

Thus, as *nucleic acids* are the only heritable molecules that carry all the *required* genetic information (and no other molecules can change this information), it is clear that the heritability of acquired traits is a thesis which lacks modern scientific support.

Moreover, research in epigenetics also raises questions concerning the inheritance of acquired characteristics. Until the 1940s, many microbiologists thought that adaptations were acquired in direct response to a change in environment. However, in their classic experiment Luria and Delbruck[79] showed that the basis of mutations (the mechanism that alters DNA the most) is totally random. This led Luria and Delbruck to call microbiology the ''last bastion of Lamarckism''.[80]

Modern advances in epigenetics are focusing on the heritability of gene expression control mechanisms—such as gene silencing—and the response of organisms under stress conditions.[81] While there is evidence that heritable epigenetic changes are influenced by the environment through reactions to stress, the patterns of heritability in such cases are, however, far from stable; indeed, recent research shows that the whole epigenetic landscape of an organism is subject to constant and *unpredictable* change.[82] These findings further vitiate the claim that acquired ''aggressive elements'' can ''migrate'' from one generation to another via the DNA sequence.

Given the weight of scientific opposition to such ideas, it is, then, perhaps surprising that Schwager himself persisted in advancing a theory that bears all the hallmarks of a Lamarckian ''use-inheritance'' type of explanation. If this is true for his use of the ideas of Bresch and Tomatis, it is equally the case with regard to the thesis that he propounds in Chapter 2 of *Banished From Eden* to the effect that the organisms of creatures constitute ''living memories'' of past events, and that original sin can be said to be transmitted via generation on this account.

Schwager's use of the work of J. Kilma is a case in point. In Chapter 2, Schwager boldly asserts, in what is a further appeal to neo-Lamarckian ideas, that Kilmer's research clearly shows that ''the organisms of creatures are increasingly being conceived of as 'living memories' and this holds in fact both for the history of the human race and the history of the cosmos.''[83] For Schwager, this means that human beings themselves continue to be determined by events that occurred in the formative stages of the Earth. The basic structure of the genetic code is, according to Kilma, similar for all living organisms: all life that currently exists on Earth stemmed from ''a single primordial cell and extends the memory of its origin until today through this uniform code.''[84] According to Schwager, this means that ''at ever new levels we see that organisms living today have a 'memory' that extends back to determinative events and 'bifurcations' in the earlier history of the cosmos and of life.''[85] Given that *Homo sapiens* are constituted by these organisms, it is therefore not surprising, Schwager asserts, that a ''doctrine'' should develop ''which holds that all present humans bear within

themselves the memory of another form of bifurcation, of a deviation from the right way in the beginning of human history.''[86] If, as this evidence suggests, Schwager claims, human beings, like all living things, are shaped by the ''memory'' of antecedent events that become encoded genetically, ''this conception today is more in favour of the doctrine of original sin than against it.''[87]

Further references to a rather simplistic Lamarckianism appear in support of the thesis advanced by Schwager in *Banished From Eden.* For example, later in Chapter 2, he argues in a similar vein (again following the ideas of thinkers such as Bresch and Kilma) that primordial violence has led to the shaping of the human brain, which, in turn, suggests that the ''inclination or disposition to kill could thus have found its way into the biological structure within the advancing evolution.''[88] This is theologically significant, Schwager argues, because it points to the fact that sinful behavior precipitated the growth of the brain and shaped the further evolution of humankind, which therefore makes it ''easier to understand why sin is ensconced in human nature itself.''[89] While Schwager may indeed believe that this is ''theologically significant,'' how *scientifically* plausible is Schwager's claim that primordial violence has determined the structure of the human brain and, in turn, ''shaped'' human nature? Once again, it seems that Schwager's claims are based on the less than plausible assumption that ''memories'' of events can become encoded within the genetic structure of an organism—in this case, the human brain.

Conclusion

As we have seen, Schwager's creative and innovative attempt to present a synthesis of theology and evolution has both strengths and weaknesses. On the one hand, while it is clear that, in his thesis concerning *peccatum originale originans*, Schwager makes some important concessions to evolutionary theory, such as his acknowledgement of Adam's mortality, on the other hand, his attempt to uphold some element of orthodox Catholic teaching on this matter by arguing that *Homo sapiens* only experienced violent death *post* the Fall remains problematic from an evolutionary perspective.

Similarly, while certain elements of his analysis of *peccatum originale originatum*—such as his Girardian thesis that the stain of original sin is transmitted via imitation in the form of ritualized mimetic acquisitiveness—are persuasive, his overall attempt to integrate original sin with evolution (and, in particular, his attempt to explain the transmission of original sin via generation) suffers from a number of key shortcomings: for instance, the radical developments in evolutionary theory on which he depends for his theory are never fully explained, and are far less widely accepted by the scientific fraternity than he seems to assume. Moreover, it is not clear how well Schwager himself understands them, and he is often in danger of extrapolating far too much from them. This is in marked contrast to his evident theological sophistication.

Perhaps the most significant weakness of all is that the evolutionary ideas on which he depends for his theological speculations are far too controversial,

and this, inevitably, detracts from the plausibility of his overall thesis. Indeed, one could draw a parallel here with the work of Sigmund Freud, whose speculative theories concerning the ''primal horde''[90] ultimately lost intellectual credibility due to his over-reliance on (now discredited) neo-Lamarckian ideas concerning ''acquired inherited characteristics.'' What is particularly interesting is that both Schwager and Freud attempted to enlist such ideas in order to support their respective theories concerning the very origins of human society. While Schwager employs the notion of ''acquired inherited characteristics'' in an attempt to account for how original sin is transmitted through the generations following the murder of Abel by Cain, Freud, in *Totem and Taboo*, used the same model in his explanation for how the memory of the murder of the father in the ''primal horde'' might be transmitted to subsequent generations in the form of the Oedipus complex.[91] Freud thus uses Lamarck in order to explain the memory of a primal ''patricide,'' while Schwager relies on similar ideas to account for the enduring effects of a primal ''fratricide.'' Unfortunately, for all of Schwager's evident theological learning, it is likely that his evolutionary speculations will share a similar fate to Freud's on account of the fact that each relies for evidential support on ideas that are now widely discredited.

Finally, in addition to the problematic nature of Schwager's thesis from a scientific perspective, his arguments raise key difficulties in terms of an attempt to formulate a satisfactory theodicy. His acceptance, for example, that the mechanism of evolution by means of natural selection is a creative process conceived and instituted by God fails to address the grave problem of predation and the suffering of innocent sentient beings (prior to the Fall) that is a natural concomitant of such a mechanism. It is also difficult to square Schwager's model of creation with the loving God revealed in Jesus Christ. In the final analysis, this means that while Schwager succeeds in providing a plausible account of the origins of *moral* evil, he ultimately fails to provide a satisfactory explanation for the etiology of *natural* evil.

Thus, while Schwager offers a synthesis of science and theology that attempts to affirm the two apparently contradictory premises of the historical Fall and evolution, the way in which he presents his solution nonetheless has consequences that are problematical for both science *and* Christian theology.

Endnotes

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Biographical Notes

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