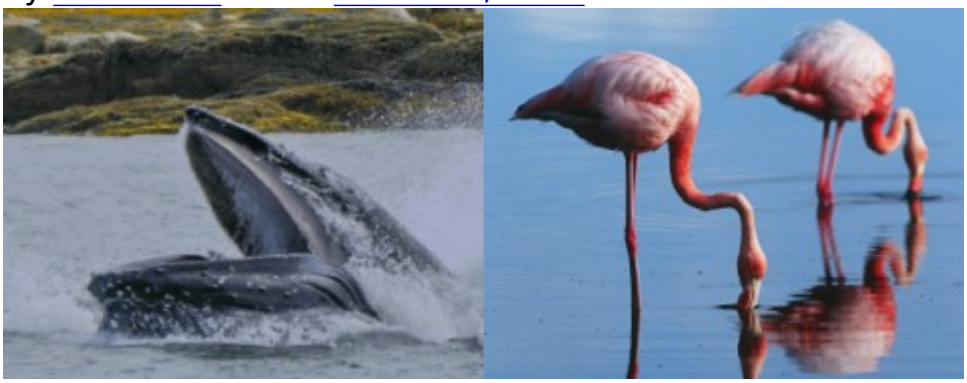
Headed toward Christ: The grand narrative of evolution

by Ian Curran in the March 30, 2016 issue



Whales and flamingoes both feed through a filtering system, an example of convergence in evolution. Thinkstock photos.

Twenty-five years ago, Stephen Jay Gould published *Wonderful Life*, a study of the Burgess Shale, a limestone quarry in western Canada that contains the fossil remains of a remarkably diverse group of sea creatures living during the Cambrian explosion of animal life in the oceans 530 million years ago. Gould argued that the immense variety of life forms making up the Burgess Shale, and their sharp differences from those inhabiting the oceans today, demonstrates the utter randomness and unpredictability of evolution. In a famous image, Gould asked us to consider what would happen if we could rewind the tape of life back to the Cambrian period and let it run again. Replaying the tape, he contends, would yield an entirely different set of organisms than what developed the first time. There is no grand plan, in other words, to evolution. There is no music that we are predestined to hear. Humanity is an accident. Evolutionary science can discover “the essence of history,” and “its name,” Gould proclaimed, “is contingency.”

The view that the history of life on earth—which includes, importantly, human history—has no overarching plot, direction, or goal is widespread among evolutionary biologists and contemporary intellectuals. The 19th century held sweeping visions of inevitable historical progress and a glorious destiny for the human race. But the unprecedented violence and horror of the 20th century has undermined such confidence.

After the devastation of World War I, artists and intellectuals in the West began to despair of locating objective meaning to history as a whole and sought meaning elsewhere: in private life, or in aesthetic experience, or in modest political efforts. Secular philosophers like Karl Popper decried any “belief in historical destiny” as “sheer superstition.” Critics of Western colonialism pointed to how the idea of progress was used to justify Western domination of supposedly backward cultures and races. Christian theologians like Karl Löwith and Reinhold Niebuhr engaged in sharp polemics against modern philosophers of history, accusing them of having an unwarranted confidence in human reason that blithely ignored the darker forces of human nature. “There never has been and never will be an immanent solution of the problem of history,” Löwith wrote, “for man’s historical experience is one of steady failure.”

We may not, in our own self-styled postmodern age, share as bleak a view of human moral turpitude. But we are still wary of naive assumptions about inevitable human progress and hubristic attempts to provide us with theories of everything. The reports of the Intergovernmental Panel on Climate Change, the spread of Middle Eastern terrorism, the persistence of crushing poverty in many parts of the world, the disturbing reemergence of racism, xenophobia, and religious bigotry in American politics, and the rise of militant secularism—to name just a few of our contemporary nightmares—do not indicate historical progress. They confront us with the very real possibility of environmental apocalypse or another world war. In lieu of grand narratives of history, we prefer what the French philosopher Jean-François Lyotard called *petits recits* or “little stories,” particular forms of understanding that keep conversations going without claiming a God’s-eye perspective on the world.

But grand narratives have not gone away. We continue to believe in the power of democratic ideals and scientific knowledge to transform the world for the better. Civil rights, social welfare, and religious tolerance are by no means adequate or universal, but real gains have been made in the last hundred years. The popularity of magazines like *Wired* and *Scientific American* attests to the American fascination with technology. Imminent breakthroughs in energy, artificial intelligence, nanotechnology, genetics, life extension, and space flight promise to deliver us from what we previously regarded as intractable marks of our finitude. Such technological optimism fuels cultural and political optimism: despite the many signs of “steady failure” in our world, no one to the left of King George III would rather live in 1716 than 2016. There is more to history than sound, fury, and mere contingency.

Simon Conway Morris's magisterial new book, *The Runes of Evolution*, presents a biologist's case for optimism about the human prospect. The author, a professor of earth sciences at Cambridge University and a professed Christian, was one of the original researchers to study the Burgess Shale in the 1970s and is a leading authority on its fossils. In an earlier publication, *The Crucible of Creation*, Conway Morris claimed that Gould had exaggerated the differences between the fossils and later phyla of the animal kingdom and took issue with Gould's idea that replaying the tape of evolution would lead to a significantly different set of biological outcomes. Conway Morris maintained that both genetic limitations and environmental pressures cause life to follow predictable lines of development. Far from being an accident, the human person (or at least some very similar example of a highly reflective, morally complex, and self-aware creature) is an inevitable product of evolution.

More recently Conway Morris has turned his attention to studying the phenomenon of convergence in evolutionary history. Convergence is the process by which life forms possessing different genetic markers and arising through independent lines of development acquire the same bodily structures. *The Runes of Evolution* provides hundreds of pages of examples of convergence in a variety of both present-day and extinct species. These include obvious features like the eye, arms and legs, teeth, skin, gonads, and brains. But there are also stunning parallels in the evolution, for instance, of the filtering systems of whales, sea birds, flamingos, sponges, and pterosaurs; the foraging techniques of woodpeckers and lemurs; the adhesive toe pads of tree frogs and gecko lizards; the defensive toxins of fish, birds, frogs, and snakes; the swimming and diving techniques of myriad ocean dwellers; and even the carnivorous behavior of certain plants (which include more than just the Venus flytrap).

Events in the history of evolution that appear to be marks of contingency, such as the extinction of the dinosaurs or the transition from sea to land, turn out to be largely predictable. They result from inherent genetic constraints on the kinds of biological creatures that can realistically arise and limits on the number of particular forms that can successfully cope with the earth's environment. Everywhere living beings discover similar adaptive solutions to the problems they face in the struggle to survive. Aquatic creatures developed the ability to breathe air at least 38 separate times in the history of evolution. All of the major steps in the evolution of human beings—multicellularity, tissues, sensory systems, immune systems, eyes,

limbs, and brains—are convergent.

Furthermore, Conway Morris demonstrates that the more elusive properties of consciousness itself are indelibly written into the pages of evolutionary history. The complex nervous systems of higher mammals depend on genetic and cellular mechanisms that came into existence a billion years ago. A third of the genes behind the development of brains in animals, for example, also occur in plants and yeast. Conway Morris believes that the evolutionary roots of intelligence run deep: we see the “glimmerings of mind” not only in the higher mammals but also in birds, insects, some fish, and even slime molds (which have displayed the ability to navigate a maze). A number of species exhibit the capacity to play, use tools, communicate in sophisticated ways, and mourn the dead. They stand on the brink of reflective thought. The materialist notion that the mind is an accidental and insignificant product of the evolutionary process does not fit with numerous examples of intelligence in the animal kingdom. Life from its origins is hardwired for the emergence of some kind of reflective consciousness.

Evolution, to be sure, proceeds by fits and starts. Species arise and then disappear, and the history of life on earth is marked by far more failures than successes. Species can be destroyed by predators, disease, climate change, or, as in the case of the dinosaurs, a wandering comet. But despite the elements of chance and contingency in evolution, Conway Morris perceives an intelligent, law-like process at work, a deep structure unfolding in the emergence of living beings who eventually come to apprehend the very mathematical forms which made possible their evolution. The dawn of self-awareness in the universe, manifest in human intellectual reflection, moral action, and spiritual experience, is a promise woven into the fabric of life from the beginning.

Conway Morris’s exploration of the phenomenon of convergence in biological evolution is rife with implications for Christian theology. It lends credence to a Christian view of God’s providential action in history, and it supports an ecological view of the interdependence of all things in God’s creation. It also fits with a scriptural account of a story-shaped world.

The history of life on earth, as many writers on theology and evolution have observed, has a narrative character to it. Theologian John Haught identifies three basic components to a compelling plot: an element of novelty or surprise, a principle of order that shows the connections between events in a story, and a sufficient

amount of time for the drama to unfold. For Gould and the majority of contemporary biologists, the rise of new life forms through time is governed by chance and is always a surprise, with no apparent meaningful pattern or direction. For creationists, who cling to a pre-Darwinian belief in the special creation of all living beings, life is completely predictable, manifesting an absolute order imposed by its Creator. But neither pure flux nor pure stasis makes for a good story, and neither fits with the picture of evolutionary history that Conway Morris envisions. If he is right, the emergence of life is the product of both law and chance, necessity and possibility, and, for believers, the interaction between the providential intentions of a creative God and the free response of God's creatures.

Mainline Protestant, Catholic, and Orthodox Christians simultaneously affirm both the scientific account of evolution and the Christian faith that the world is God's creation. We are less clear about how to align the universal story of life's emergence with the particular story of God's self-disclosure in Israel, Jesus, and the church. We believe that God is the author of all of history, but what does God's active presence in an evolving creation have to do with God's redemption and sanctification of the world in Christ? Are these radically different processes or stages in an unfolding divine plan?

Whether we consider the vast span of cosmic time or the near term of human civilization, the Christian reckoning of history is traditionally centered on the life, death, and resurrection of Jesus. The time prior to Advent is an extended preparation (13.8 billion years, at current estimates) for Christ's coming; the time following Easter comprises the expectation of Christ's return. Salvation history is unified by promise and fulfillment: the promise of the Law and Prophets fulfilled in the person of Christ, who redeems the world from sin and death; and the promise of Christ's redemption fulfilled in the divinization of the whole creation at the end of time.

Literary critic Erich Auerbach demonstrated a number of years ago the ways in which the classical Christian view of history depends on figural or typological interpretation. In the writings of Paul and church fathers like Tertullian and Augustine, the people, events, moral norms, and ritual practices of the Old Testament are explained as "a shadow of what is to come" (Col. 2:17), prophetic anticipations of Christ, the church, and the history of salvation. The Latin term *figura* identifies prophetic moments in Old Testament history that hold the promise of future fulfillment. Thus Adam is a figure of Christ, the Law a figure of Grace, and Israel a figure of the church. The events of the New Testament, moreover, are

figures of an eschatological future.

The *figura* is not, however, an invention of the human imagination. It is more than a mere play of words, more than a symbol. The *figura* refers to real, concrete history, containing both its own significance and a deeper latent meaning to be manifest in the future. Just as we speak about the promise of a young artist, musician, or athlete, an inherent potential that we hope to see realized as he or she matures, so may we speak about a promise in the human historical project, a destiny that awaits the human race as it comes of age.

This promise, of course, may escape us at first. “We had the experience but missed the meaning,” T. S. Eliot writes, “and approach to the meaning restores the experience in a different form.” Christians have classically affirmed, in Auerbach’s words, “that earthly life is thoroughly real, with the reality of the flesh into which the Logos entered,” and yet also “that with all its reality it is only *umbra* and *figura* of the authentic, future, ultimate truth, the real reality that will unveil and preserve the *figura*.” A deeper, more intensely spiritual reality simmers beneath the cool surface of ordinary, secular history, waiting to be manifest as the heat and light of Christ. In the theology of the Middle Ages, figural interpretation was extended to extra-scriptural cultural epochs, particularly the classical period of Rome. It can, then, in principle be employed to incorporate the universal history of the world within the Christian story of salvation. All of cosmic and human time is comprehensible in terms of figure and reality, promise and fulfillment, hiddenness and manifestation.

With a bit of theological imagination, therefore, it is possible to discern the story-shaped world of the Christian faith prefigured in the evolutionary history of life on the planet. The concept of inherency, by which earlier, simpler organisms in the tree of life contain the genetic blueprints of later, more complex forms, is a biological correlate of figure and fulfillment. The inevitable cycle of birth, growth, decay, death, and new birth—glimpsed in the seasons and in the lives of individual organisms, species, ecosystems, and epochs of biological history—anticipates Christ’s life, death, and resurrection.

The temptation is to see the history of life as a history of death, to characterize nature as primarily “red in tooth and claw.” Such a view, however, ignores the role that beneficent, dependent relationships have played in the evolution of living forms. Life depends at least as much on cooperation as it does on competition. The very possibility of complex, multicelled organisms depends on cooperative, mutually

beneficial relationships between single cells. The evolution of complex nervous systems, particularly in mammals, has enabled the simultaneous development of social instincts, sympathetic emotions, and altruistic behavior. This is not yet the moral law, and much less the sacrificial love of Christ. But the material seeds of what becomes the substance of the spiritual life are produced within the soil of evolution.

If the evolution of physiological characteristics, such as eyes, limbs, and brains, is convergent, might the evolution of human cultural behavior (e.g., ritual, kinship, moral norms, religious beliefs and practices, and complex forms of social and economic organization) be convergent as well? Robert Wright, who teaches science and spirituality at Union Theological Seminary, answers with an emphatic yes. In *Nonzero*, Wright draws upon anthropology, evolutionary psychology, economics, and game theory to explore convergences among human cultures. He demonstrates that agriculture arose independently at least five and perhaps as many as seven times; writing three times (in the Near East, China, and the Americas); and urban civilizations six times (in Mesopotamia, Egypt, Mesoamerica, South America, China, and India). Those cultural forms survive which prove to be adaptively successful and contribute to human flourishing. The development of human cultures also reflects the increase over time of cooperative ("non-zero-sum") relationships and the growth of social complexity.

Wright is sensitive to charges of ethnocentrism and is wary of reducing significant cultural or religious differences to a one-size-fits-all formula. Nevertheless, he discerns in human history a progressive direction, however slow, unsteady, and prone to reversals and missteps. The development of cooperative relationships, first between individuals in small communities, then between communities, and eventually between large societies and nations, makes the emergence of a global, democratic, and even peaceful society a likely, if not inevitable, outcome of biological and cultural evolution.

Löwith and other theological critics of modernism regard such unfazed confidence in human progress as an abandonment of the alternative Christian narrative of salvation, which necessarily transcends secular understanding and depends on a hope that can only be realized when human history comes to an end. The Christian vision of the good life emphasizes the pursuit of holiness; the practice of prayer; the value of family and community; the cultivation of virtues like simplicity, generosity, fidelity, and love; and striving after justice. This vision is deeply at odds with the drift of our present culture toward materialistic excess, unbridled individualism, sexual

anarchy, paroxysms of rage, and indifference to deeper spiritual aspirations.

But Christ is the Lord of creation and history as well as the head of the church. As the fate of our planet hangs upon decisions we are making right now, correctly discerning the redemptive presence of God in the wider movement of cosmic and human history is important for our survival. Modern dreams of political emancipation and scientific progress are not antithetical to the gospel. The evolution of life toward greater biological complexity, and of human cultures toward greater social complexity and cooperation, bears the promise of God’s coming reign. The proper Christian response to the failures of modernity is not to tell smaller stories but instead to remind the world of bigger ones. The essence of history is not contingency, but the convergence of all things toward the crucified and risen Christ. We have reason to be hopeful.