

DARWIN AND THE BIBLE

THE CULTURAL CONFRONTATION

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Intelligent Design and the Native's Point of View (Assuming the Native Is an Educated Eighteenth-Century European)

by Jonathan Marks

Jonathan Marks traces the roots of evolutionary theory back before Darwin to a series of intellectual ideas and movements extending back to the seventeenth century. Historical questions include whether there could have been people before Adam; to what degree human beings are different from other animals; is human nature "degraded"; whether life can be aligned on a great chain or hierarchy of being or is to be seen as a branching into diverse forms not arrangeable in hierarchical terms; how the relationship between cause and effect is to be understood; whether human variants or "races" derive from a single creation or many. Marks provides a description of "natural theology," beginning in the seventeenth century and ultimately offers a rebuttal of creationism and intelligent design.

Anthropology and the History of Ideas

Let's try to put ourselves ethnographically in the place of someone trying to make sense of the human species around the year 1750. We assume that new knowledge is valuable; that demonstration, experiment, and reason are the most likely ways of producing reliable knowledge; and that we limit our scope of interests to the natural world. What data and issues would be the most deserving of our attention?

1. *Could there have been people before Adam?* The first to make this suggestion was a Frenchman named Isaac de la Peyrère, in a 1655 book called *Pre-Adamites*. Perhaps, argued Peyrère, the biblical text of human origin describes only a single, local creation, the ancestors of the peoples of the Middle East. With so many diverse peoples now known, is it more reasonable to think they all descended from a common source, or that, rather, they may be the products of separate, unrecorded creative acts? Peyrère becomes a patriarch not only of biblical criticism, but of polygenism, the theory of multiple human origins (see the following text).

2. *Are humans really so different from other animals?* Edward Tyson's 1699 study of the anatomy of a chimpanzee made it abundantly clear that we are linked corporeally with the beasts. Tyson interpreted his results as the popular philosophy of his day would have it—based on the work of Descartes that our bodies connect us materially to the rest of the living world, but that our minds and souls are the portals through which we partake of the divine. The ape could not speak, much less reason, in spite of his physical similarity to a young boy—a fact rendered sensible through Cartesian dualism, but which nevertheless bridged an important gap between people and nature.

3. *Is human nature really so degraded?* The idea that people fell from grace in a primordial Eden, and are doomed to live in misery on account of it, was certainly a self-serving philosophy for the medieval clergy and aristocracy to preach. It helped ensure that people would not even bother to try to improve their lot in this world: (a good Christian should be focusing on the next world, in any event). And yet the economics of colonialism and the beginnings of the industrial evolution made upward mobility more possible than ever, and you could reasonably dream of making a better life for yourself—perhaps even to envision a world in which all citizens might be entitled to the same rights. The doctrine of progress, although ultimately flawed, nevertheless helped turn minds away from the static social world of feudalism and toward the interpretation of history in terms of social and political ferment, mobility, and mutability.

4. *Is life really one-dimensional?* The Great Chain of Being—that all species could be ranked along a single scale of increasing perfection, with us at the top—had dominated scholarly thought about nature for many centuries. In 1735 the Swedish physician-botanist Carl Linnaeus (who published under the Latin name Carolus) published a small pamphlet that undermined the idea of a “great chain.” In his *System of Nature*, Linnaeus organized species not in terms of how similar they are to us, but by how similar they are to one another. By the turn of the nineteenth century, the naturalist Georges Cuvier could argue that a great chain was impossible, for there were four kinds of animals—segmented (i.e., arthropods), shelled (i.e., mollusks), radial (i.e., those with other than a bilateral symmetry), and vertebrate—and they were so different in body plan as to be incomparable to one another, and

thus not rankable. In such a system, however, we fell in among a group of animals Linnaeus called “Mammals” in 1758, and more tightly within a group he called “Primates,” comprised of apes, monkeys, lemurs, and bats. The meaning of this arrangement was obscure, even considering the mistaken inclusion of bats into primates.

5. *How does causality work?* The experience of the physical sciences was that causes precede effects. Something in the future, generally speaking, cannot cause something in the past. In 1776, Edward Gibbon began publishing his monumental analytic work on the history of the Roman Empire, explaining the present (at any point in time) in terms of the past. With physics and society becoming more rigorously historicized, philosopher David Hume launched a vigorous critique against the sloppy inference of causal relations. And yet, biology was not historical at all. On the mountains of Ararat, where Noah's ark landed, the animals getting off the boat appeared to be adapted *not* to where they were (Turkey or Armenia, presumably), but rather to where they were going *to end up* (polar bears to the arctic; bison to the Great Plains; pandas to bamboo forests). This posed a problem, however: How could their adaptations exist for future use? It would seem as though history was working in reverse here—the future (where they will end up being adapted) is causing their present state. And more practically, how could the animals even get from Ararat to where they were adapted without dying first? Just imagine being a polar bear in the Near East.

6. *Aren't we all one species?* One odd implication of Isaac de la Peyrère's work on pre-Adamites was the suggestion that different groups of people might be the products of separate creative acts. The obvious interfertility of all people (demonstrated by sailors over the centuries) suggested monogenism, that all people are the products of a single creative act and thus share a common ancestry. This was most compatible with a literal reading of the Bible, but also carried with it an important biological implication: that somehow the human form must be to some extent mutable, for different-looking peoples would all be descended from Adam and Eve, regardless of what they looked like today. Alternatively, the institution of slavery was widely rationalized by the proposition that enslaved peoples were beastly and were unconnected genealogically to the slavers. Polygenism required a looser reading of scripture and a strictly creationist view of human prehistory—that the differences among peoples are today as they have always been. Polygenism reached the height of its popularity around the time of the Civil War, perhaps unsurprisingly, but faded in the aftermath of the war. What remained was the position that because humans are all one species, the human form must have changed somewhat over time.

The Logic of Natural Theology

Back in the 1600s a radical way of thinking about the world had emerged in Europe. In the first place, it was represented by a privileged new form of knowledge, comprised of experiment, demonstration, and reason—as opposed to other forms of knowledge, such as revelation and tradition. This “new philosophy” (a label applied by the poet John Donne) specialized in falsifying received wisdom: When Galileo

showed that there are things going around the planet Jupiter, for example, it could no longer be maintained that everything goes around the earth.

By privileging reason over other forms of thought, philosophers of the seventeenth century quickly proved threatening to established knowledge. If we know that dead people cannot write, and the book of Deuteronomy describes the death and burial of Moses—argued the philosopher Spinoza—then how can we believe he wrote that book, as we have traditionally been told? Spinoza was excommunicated by the Amsterdam Jewish community for such thoughts, but the names of excommunicators are lost to history, whereas Spinoza himself is widely acknowledged as one of the founders of modern rationalist philosophy. Miracles became sidelined, interesting only to the credulous and childlike; and what the ancients ascribed to miracle was reinterpreted as simply primitive ignorance. The new philosophy—or science, as it came to be known—soon developed its own social organizations (such as the Royal Society), and specialized forums for dissemination or documenting claims (the scientific paper).

Its most radical intellectual practice was to construct a barrier between the natural realm and the supernatural realm. Anthropologists since Bronislaw Malinowski in the 1920s have appreciated the extent to which most people do not make such a distinction; spiritual forces suffuse human existence, and it makes no more sense to separate those forces from daily life than it does to separate the eggs from the rest of a cake. As late as the 1890s, in England, Thomas Huxley was waging a social war to professionalize science education and take it out of the hands of country parsons—because it was still so widely assumed that nature and religion somehow go together.

Nevertheless, what united these seventeenth-century scholars was the goal of understanding the regularities that govern the physical world, independently of the spiritual world. Indeed, Isaac Newton's 1687 work, the *Principia*, showed that something as mysterious and arcane as gravity could be reduced to mathematics. Moreover, it showed that the same regularities existed in the heavens (in the motion of planets) as on earth (in the falling of apples). Wherever God was—and you could hardly find a person more “spiritual” than Newton—it did not seem as though his domain was in outer space, if earthly rules of physics could be seen to apply there.

And yet, as creator of the universe, he left his imprint on it. Discovering the regularities that govern the workings of the universe could be seen as glimpsing into God's mind. This would have been the height of blasphemy a few hundred years earlier, but now could be taken as a respectable—indeed, as a reverential—goal. Newton was hailed as one who had decoded some of God's deepest secrets, and the merits of continuing in that vein were taken as self-evident. Consider this: In describing the achievement of sequencing the human genome with millennial technology, geneticist Francis Collins (Wode, 2000) invoked a metaphor from centuries earlier: “We have caught the first glimpse of our own instruction book, previously known only to God.” British scholars were more eager to discover God's hidden secrets in earthly biological facts than were their counterparts on the Continent. From John Ray's *The Wisdom of God Manifested in the Works of Creation* (1691) through William Paley's *Natural Theology* (1802) and the diverse Bridgewater Treatises of the 1830s, these scholars believed that the greatest goal of the study of life was to testify to the power, beneficence, and bounty of God.

This was in fact the biology that Charles Darwin studied while a student at Cambridge and Edinburgh. But for all its piety, natural theology was increasingly difficult to sustain, as the meaning of biological patterns in nature became more obscure. John Ray had understood God's wisdom to reach expression in the Great Chain of Being, which connected all living forms to each other; consequently he had pronounced extinction impossible, as it would represent the destruction of God's plan. And yet by the 1700s, two things were clear: species in historical times had been driven to extinction (notably the dodo), and prehistoric times were positively rife with now-extinct animals. Clearly if God's plan really were manifested in the works of creation, it was a somewhat different plan than the one that Ray saw.

A second problem was that of the Linnaean hierarchy, which had superseded the great chain as an organizing principle for species in the eighteenth century, but whose meaning was quite unfathomable. Linnaeus himself didn't speculate on it, but the nested hierarchy seemed to suggest that God had two concurrent plans: one that showed common themes in the underlying structures of diverse species, and one that showed the ways in which particular animal species fit in perfectly with their environments. The first was hard to explain, seemingly a lapse of creativity on his part, or else simple laziness. The second was also hard to explain, except teleologically—with God fashioning animals for environments that existed not on Mt. Ararat, where they were starting from, but for those elsewhere on earth, which they would most likely go extinct before reaching. The most basic facts of modern biology in 1780 posed very difficult theological problems for biologists trying to make sense of God's handiwork.

Third, by the 1790s the field of philology, or the study of language, was developing. Early philologists could show that very different languages seemed to share basic similarities, and could be grouped into clusters of similarity, rather like what Linnaeus had accomplished with species. In this case, however, the clusters had been produced only in the last few thousand years, as written records documented the diversification of, say, European languages from medieval Germanic and Latin ancestors. Not only was language diversification a documented historical process, but this contradicted the static view of language given in the Bible—in which God makes languages different from one another at the Tower of Babel, and they presumably stay that way. Clearly, there was a lot more to understanding linguistic changes over time than the Bible gives us. Moreover, if philologists were right, then languages from India to Ireland were descended from a very remote common ancestral language—Indo-European—which was probably spoken long before the Tower of Babel was supposed to have been built, and which presumably rendered the Tower of Babel as an explanation for language diversity merely a pleasant fiction.

Fourth, by the early nineteenth century it was clear that there had existed in remote times an extraordinary array of living beings, sharing some similarities with known living forms, but often wildly unfamiliar in themselves. Not only was widespread extinction an obvious fact, but it was also clear that the extinct species had not all lived and died at the same time; rather, they had died in particular geological formations, which implied specific periods in earth history. Forget Noah's flood—the history of life on earth incorporated repeated successions of fauna, as older species continually died out and were replaced in the fossil record by different kinds of animals. Once again, it was difficult to make theological sense of such

data: it implied many false steps, indeed design flaws, in the history of life. And to muddy the picture even more, death and sin are theologically connected: St. Paul's Epistle to the Romans (6:23) says, "For the wages of sin is death; but the gift of God is eternal life through Jesus Christ our Lord." And yet there was surely an awful lot of death, apparently unconnected to sin, evident in the history of life.

Fifth, by the 1830s it was clear that the geographic distribution of species could not sustain a simple biblical interpretation. If God made animals to be adapted to their environment, and clearly enjoyed recycling body plans, we might expect that the species from a rain forest in South America might appear as well in the rain forest of Africa. And yet they did not. Further, extinct animals in one area seemed to be similar to the ones there presently, and rather less so to other living or extinct species. As a young naturalist wrote in 1839, "This wonderful relationship in the same continent between the dead and the living will, I do not doubt, hereafter throw more light on the appearance of organic beings on our earth, and their disappearance from it, than any other class of facts" (p. 187). Moreover, there would also be no reason to expect species on different islands in an archipelago to be slightly different from one another, and yet they indeed seemed to be, as Darwin also acknowledged in *The Voyage of the Beagle* (1839).

Sixth, the antiquity of the human species was under relentless assault. Crude stone tools were turning up in ancient geological deposits all over Europe, and they clearly implied the existence of crude ancient people. Were they from before Adam and Eve, or after? Although this may seem like a silly question, it actually had important theological implications. It seemed by the 1850s that the best way to rescue scripture and reconcile it with science was to see the Garden of Eden as the beginning of the modern earth, but preceded by untold eons of premodern life. Adam and Eve, created in the Garden of Eden, were given a world prepared for them, with essentially modern species. The stone tools were obviously fashioned by human hands, and were thus post-Adam.

All of which yielded a satisfyingly pious interpretation of the data—unless one could produce solid evidence of stone tools along with extinct animals. That would put Adam and Eve in a premodern world; indeed it would effectively make them premodern, and essentially destroy what was left of the Garden of Eden story. The idea that Adam and Eve would have lived with dinosaurs was far more theologically problematic: at very least, it rendered the Garden of Eden itself an entirely unfamiliar spot, and suddenly expanded by orders of magnitude the number of species Noah would have to get on board the ark. And at worst, it could render the divine origin of humankind a pleasant biblical fable, like Noah's ark and the Tower of Babel.

The great antiquity of the earth, and of life, had been the centerpiece of Charles Lyell's *Principles of Geology* in the early 1830s. But even Lyell held out against the idea of people actually coexisting with extinct animals—for the natural theologian, a lot hung on that association, and it would have to stand up to especially rigorous standards. Finally, in 1858, careful excavations at Brixham Cave in England made the association impossible to deny. Darwin's *The Origin of Species* was published the following year. Lyell himself published *The Antiquity of Man* a few years later.

Natural theology was what Darwin destroyed, the idea that the history of life—that is, the origin of species—can best be understood as a series of miracles and

that God created things for a purpose, which can be revealed by appropriate study and meditation. The origin of life itself might still be a miracle, but the number of such miracles shrank to "one or a few" in the last paragraph of *The Origin of Species*. Darwin showed that the history of life could be explained by understandable natural forces, and probably ought to be. The glory and wisdom of God were nice, but could be safely isolated from a discussion of the diversity of life, whose patterns were more satisfactorily explained by common ancestry.

None of which is to say that the history of life, and the ultimate emergence of our own species, were not part of a great plan unfolding. Rather, we simply have no access to the plan, and we don't seem to need to refer to it to figure out what happened. Darwinism explained homology (the correspondence of parts in very different animals) as relics of ancient common ancestry, and explained adaptation as a consequence of the unique historical trajectory taken by each species. It also explained the mysterious, yet obvious, Linnaean pattern of groups-within-groups as a first approximation of the patterns of ancestry among the species.

The Challenge to Intelligent Design

Clearly it is difficult to infer the hand of God from his ostensible work on earth. His handiwork could be interpreted as a great chain or as a nested hierarchy. His wisdom is demonstrated by both the impossibility of extinction and by the prevalence of extinction. Genetics and paleontology now show that the diversity of life can be accounted for by a small number of natural processes, and so scientifically it probably ought to be. Whatever his plan is, it is not accessible to science; that is, it is not knowable by the conventions of reliability established since the seventeenth century.

We pay a high price for extending the barrier between nature and "supernature," constructed during the 1600s, to human origins. It becomes difficult to maintain, for example, that humans alone are endowed with a divine soul. Either all living creatures have divine souls (a position compatible with Hinduism, for example), or none does. If humans have them, how can chimpanzees and gorillas and the extinct *Paranthropus boisei* not? One recourse would be to mark out a spiritual origin of the human species at some point, based on arbitrary criteria. True or not, it lies outside the domain of scientific competence and interest.

Creationism was an unmarked category prior to Darwin—it was normative, or taken for granted so pervasively that it did not require a name. As a political movement, it arose in opposition to Darwinism, particularly motivated by religious issues; for Darwinism had sucked the theology right out of natural theology.

But just what was Darwinism? Darwin quickly became such an intellectual icon that all sorts of intellectual positions, often quite loosely affiliated with the dual propositions of Darwinism—that life is genealogically connected, and adaptation is the result of natural selection—claimed him as their namesake or godfather. A late-nineteenth-century scientific movement preached exploitation, colonialism, war, and genocide in the name of Darwin; likewise, various forms of scientific racism and genetic determinism in the twentieth century also linked themselves to Darwin.

It would be nice to keep Darwin's name unsullied, and an argument could be made that scientists have a responsibility to do so. At very least, associating Darwin's

name with social and political positions makes it more difficult to discuss the basic biology of Darwinism. And yet, we acknowledge that science in the modern world is a social discourse, in which legitimacy is conferred on ideas perceived to be scientific. As a result, it is not surprising that the voice of authority that comes with science might be usurped by both the nonscientific ideas held by scientists, and by ideas that are themselves not scientific at all, or even antiscientific. As an example of the former, there is the Charles Darwin Institute, maintained today by psychologist J. P. Rushton, who believes that human races have evolved to be different intellectually and sexually, and whose work is repudiated in anthropology and biology. As examples of the latter are religious sects such as Christian Science and Scientology.

The Scopes trial in 1925 showed that, however distasteful Darwinism may seem, banning the teaching of evolution would be unsuccessful; and half a century later, creationists developed a new strategy: scientific creationism. Here, with the literal truth of the Bible as axiomatic, creationists attempted to bend nature to conform to it. The geological column, and the apparent evidence of untold ages of earth history, such as the Grand Canyon, would all be explained by recourse to Noah's flood. Genetics would be dismissed, fossils connecting living groups of animals would be explained as lies, and bogus footprints of humans and dinosaurs in Texas would be brandished as evidence for the coexistence of those species, and by a bizarre extension, for the truth of the Bible. Scientific creationism was unable to convince a federal court of its sincerity or competency as science in 1981.

In the 1990s, creationists adopted a new legal strategy. Rather than challenge science on its own turf—that is, rather than trying to show that creationism really is science—creationists now tried to wrest science from the scientists. Intelligent design (ID) was consciously formulated to oppose the assumption of naturalism central to the methods of modern science, and sought to expand what counts as “science” to include supernatural agency. In other words, intelligent design seeks to breach the wall constructed between nature and supernature in the seventeenth century, on which modern scientific reasoning is to a large extent founded.

The problem is that supernatural forces are by definition capricious. They constitute the very opposite of the physical regularities that science tries to analyze. If you believe in angular momentum and inertia, then you cannot believe that the earth stopped rotating while the Hebrews were laying siege to Gibeon, and started up again a day later (Joshua 10:12–13), without engendering globally cataclysmic consequences.

Intelligent design itself calls attention to the methodological assumptions of science, and tries to cast a wide net. Arguing ostensibly on behalf of the imminent presence of a benevolent deity, ID has successfully extended its appeal beyond the evangelical Protestants and biblical literalists who see it as a “wedge” by which to topple Darwinism in science class.

It's not that ID is demonstrably wrong—it is just anachronistic. The issues it engages are not those of Darwinism, but of rationalism, in the decades that preceded Darwin. In some sense Darwinism is an automatic outgrowth of rationalism: Given a set of methods for thinking about the world, it stands to reason that sooner or later the idea of common descent will arise (as in fact it did with several other scholars in Victorian England, such as Alfred Russel Wallace and Herbert Spencer). It is simply the theory that best explains the data, which is what science aims to produce.

ID's confrontation, then, is not so much with the specific interpretation of the data on the history of life, but with the intellectual methods by which data are interpreted. This is not about whether we came from apes, but about how we draw scientific inferences. It is about what counts as reliable and useful knowledge: Is the naturalistic explanation the best, or should supernatural explanations be admitted into the arsenal of scientific tools as well? (I sense parapsychologists and cryptozoologists drooling in anticipation of legitimacy!) Let's pose four questions of intelligent design to show how difficult it is as a source of reliable knowledge.

First, can we identify “design” in the world without a designer? I live in the state of North Carolina, which has a very distinctive and easily recognizable form (see Figure 6.1).

It is quite complex; I could not approximate it very well freehand. Why does it look the way it does? As the creationists commonly do, let me suggest two alternatives. One, the form of the state of North Carolina came into existence incrementally via a set of processes and events ranging from the geology of the Atlantic coastline and the shape of the Catawba River, to treaties and agreements made with various Indian tribes, and with the states of Virginia, Georgia, Tennessee, and South Carolina—complex processes and events, but ultimately studiable and knowable. And two, the state of North Carolina was zapped into existence by the hand of a divine state-maker.

Alternatively, is it more persuasive to regard the intricate structure of a snowflake as the result of complex, but knowable, processes of crystal growth; or as the result of the intervention of a divine snowflake-etcher?

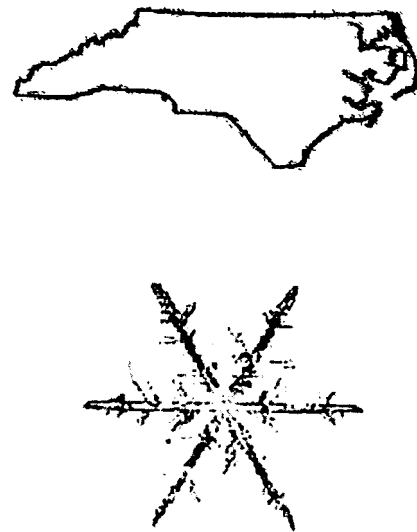


Figure 6.1

Top, North Carolina. Bottom, a snowflake. Illustrations not to scale

Yes, intricacies and complexities can indeed be found in nature without requiring the active and immediate intervention of a supernatural power. Certainly a naturalistic, historical explanation is compatible with the idea of a master plan behind it—except that the plan, if it exists at all, can be detected only in retrospect, and thus can't really play a part in scientific investigations. An intelligent designer is a necessary hypothesis neither scientifically nor theologically.

Second, in order to make ID operational scientifically, we must know when and how to invoke it. If the hallmarks of design can be seen in anything from a snowflake to an eyeball, what are its limits? In other words, what would the *absence* of design look like?

One of the least designed things I can imagine would be a sidewalk crack. Of course it is subject to structural features of the concrete, but a sidewalk crack is also a highly random series of directional changes. And cracks just seem to happen “naturally.” Yet, to try and reproduce a sidewalk crack precisely is most difficult, for, like the snowflake, it is very intricate. In other words, there is as much evidence of design in a sidewalk crack as there is in anything else. So what does the designer add to an analysis of the world? Is a sidewalk crack different for being designed or for not being designed?

Third, let's say that I could recreate that sidewalk crack using a jigsaw. I now have the original, very random, sidewalk crack and the precisely designed (by me) copy. What criteria are at your disposal for telling them apart? If you cannot tell something designed from something not designed, then you can effectively treat everything as if it were not designed. Alternatively, you could treat everything as if it were designed, but why would you bother? You would be adding a complication without helping the analysis.

Finally, to return to the question that originally animated the natural theologians: What attributes can we discern about the designer from his work on earth? The people who have traditionally been interested in doing this have sought to glorify God, not to understand his workings—they had a vested interest in making God look good. And yet the *imperfections* of nature show that he did not design things optimally—acne, impacted wisdom teeth, and cancer could all be considered rather severe design flaws of ordinary bodies. The *biases* of nature show that, for example, considered in terms of taxonomic diversity, biomass, and sheer numbers, the designer has “an inordinate fondness for beetles” (as a famous wisecrack put it). The *failures* of nature show that, in a nutshell, nearly every species that has ever come to exist has gone to extinction—hardly a track record worthy of admiration, much less of awe. The *patterns* of nature, the Linnaean nested hierarchy, show that he surely wanted to make it look as if life were genealogically connected—for if that pattern does not reflect common descent, then what might it instead reflect?

The association of the Linnaean nested hierarchy with a common ancestry for animal species was evident from the beginning. Linnaeus's eighteenth-century rival, the naturalist Count de Buffon, objected to the whole system Linnaeus was proposing, and which was rapidly accepted in academic circles for its obviousness, on the grounds that the Linnaean system had no reason to exist. Because Linnaeus chose not to speculate on why the pattern exists, or what it might mean, Buffon found the exercise of classifying species within this framework silly. The meaning of such a pattern was clear, and it was more or less blasphemous: It may be pondered whether . . . this constant conformity of design followed from man to

quadrupeds, from quadrupeds to cetaceans, from cetaceans to birds, from birds to reptiles, from reptiles to fish, etc., seem not to indicate that in creating these animals, the supreme Being has wished to use an idea, and yet to vary it in all possible ways, so that man could admire equally the simplicity and magnificence of execution of this design.

From this point of view, not only the donkey and horse, but as well man, apes, quadrupeds, and all the animals could be regarded as constituting the same family. . . . And if it is once admitted that there are families of plants and animals, that the donkey is of the horse family, and that it differs only because it has degenerated, then one could equally say that man and ape have had a common origin like the horse and donkey—that each family among the animals and vegetables have had but a single stem, and that all animals have emerged from but a single animal which, through the succession of time, has produced by improvement and degeneration all the races of animals.

The naturalists who establish so casually the families of plants and animals do not seem to have grasped sufficiently the full scope of these consequences, which would reduce the immediate products of creation to a number of individuals as small as one might wish. For if it were once proved that these families could be established rationally—if it were true that the donkey were but a degenerated horse—then there would be no limits to the power of nature. One would then not be wrong to suppose that she could have drawn with time, all other organized beings from a single being.

But no: it is certain, from revelation, that all animals have participated equally in the grace of creation, that the pair of each species and of all species emerged fully formed from the hands of the Creator.

Buffon grasped the problem with crystal clarity a century before Darwin. The nested hierarchy is most plausibly explained as the trail of a common ancestry, which is precisely why he rejected it. As with languages, the pattern is that of a family tree. Nowadays, it is precisely why we find that hierarchy so useful. The challenge lies for the creationist, who rejects the common ancestry of animals: If the features that make us similar to apes as Hominoidea—that make Hominoidea and Old World monkeys similar as Catarrhini, that make Catarrhini and other creatures similar as primates, that make primates and other creatures similar as mammals, that make mammals and other creatures similar as vertebrates, and that make vertebrates and other creatures similar as animals—if this distribution of characteristics does not indicate something about relative proximity of descent, then just what does it indicate?

The simple fact is that there is no scientific theory of intelligent design. It is a legal strategy, not a scientific theory; it was developed by a legal scholar—Phillip Johnson of University of California—Berkeley. It draws its support from evangelical Christians, many of whom do take the Bible as literally true, and draw on the same materials as the discredited scientific creationists from a generation ago. At the same time, however, ID reaches out to deists, Jews, Hindus—to anyone who wants to find meaning in life and feels that science is robbing them of that meaning. It even drew a favorable comment from a high-ranking Catholic cardinal, in spite of the Church's formally pro-Darwinian position.

This outreach has prompted a backlash among some hard-line Protestant evangelicals, who see ID as being “soft” on the real issue of biblical inerrancy. And they are right—for there is nothing particularly biblical about ID. It is, for example, just as compatible with polytheism as it is with monotheism. If a Timex watch implies a designer and a Rolex watch implies a designer, why should they necessarily imply the same one? And if, by analogy, *Homo sapiens* implies a designer, what is implied by *Paranthropus boisei*? The same designer, in a restless moment? A different, somewhat less-competent, designer?

And if you can't tell those basic alternatives apart, then what really is the value of invoking an intelligent designer for understanding the diversity of life?

Conclusion

History is very much a key for making sense of intelligent design. Much of its appeal lies in the adoption of a seventeenth-century metaphor—that the universe is like a giant machine, the mechanical philosophy. It is certainly true that, by treating nature as if it were a machine that you can analyze part-by-part, you can gain certain insights—for example, William Harvey's discovery that the heart is like a pump. That, however, is a valuable simile: The heart is *like* a pump, the universe is *like* a machine.

Intelligent design takes this three-hundred-year-old idea and argues that because the universe is indeed like a machine, then it must have a builder, as machines do. But that is to fail to appreciate that the mechanical philosophy was a literary device, not a literal truth, in the first place. The universe does not have to have a builder, because it is merely *like* a machine in some ways—it is not actually a machine and therefore is not automatically entitled to all the properties of machines.

As Robert Hooke, an early advocate and practitioner of science, pointed out, this is not about what God can do—it's about what nature can do.