

Where Are We Going, Where Have We Been?

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Evolution is the single clearest theory that connects humanity to the natural world and explains how and why we are a part of it. It is brilliant in its simplicity, ubiquitous in its reach. Before it, nature is wild, multifarious, and confusing, and afterward, everything might still be a mess, but there is a reason for the mess—an explanation for the circuitous paths that got life where it is today. Adaptive behavior, the purposeful result of accident. It is John Cage's view of art writ large upon the world: nature's complexity is remarkably the result of chance operations. The peacock's unwieldy tail is as useful as the ant's body design is efficient. All qualities have been selected because they are the most successful—even things that seem exaggerated and strange.

Once you start to think about it, the range of natural selection spreads outward, and many imagine it can explain everything. Nature evolving, now no mystery. Every wonder of life has its purpose, based on simple desires: survival, competition, sex, proliferation. The intricate machine-like couplings of moths, the cruelty of chimpanzees, the strange preferences of weird female and male beasts alike. Does selection actually explain this? And, where, in this era of cloning, genetic manipulation, and biotechnical enhancement, do we humans fit in? Can the theory of millions of years of living evolution have any use when applied to the narrow time frame of human civilization, the motion in time we like to call progress?

Evolution by natural selection is the one scientific revolution of the past two hundred years that can be grasped at the human scale, as it describes the human place in nature and immediately changes the way we see the world. That is why it

is a fitting subject for a *Terra Nova* book. As such a compelling and comprehensible vision, it has been as easily abused as it has been invoked to explain all sorts of nuances of human behavior, from war to business, art to exploitation. In this collection, we examine both practical and speculative sources of biological and social phenomena. Through these far-ranging essays, poems, and images, we see how the concepts of evolution and progress can be useful in appreciating our own shifting place in the world.

Each of the four parts of this anthology gathers pieces around a distinct aspect of our overall theme. In part I, “Moths, Sex, and Chaos,” we include creative investigations of some of the founding concepts and personalities of evolution and natural selection, focusing on the scientific theories of adaptation and evolutionary biology.

Theodore Roszak begins the book with a challenge to Darwinian orthodoxy, which he traces back to the other pioneer of the theory, Alfred Russel Wallace. Roszak questions evolution’s inability to explain how the human mind became so sophisticated. Despite all our civilization’s advances, we still don’t do a good job explaining what the brain can do, and the metaphors of machines offered by human progress aren’t much help either. We think the mind is evolution’s finest achievement, while the rest of the planet stands by mute as we admire ourselves.

Michael Ruse questions the progress we assume must be happening in the unfolding of evolutionary theory. He believes that evolution’s history is no more progressive than is evolution itself, presenting a notion of science as highly biased to the cultural values that shift over the decades. Competition? Cooperation? What you see in nature depends on what you look for. The key to grasping the real value of science, he surmises, is admitting that it is a creation of culture and society.

In his essay on sex, David Geary explains that evolution is not really about progress, but about adapting, across many generations, to ecological and social change. The same could be said about our own explanations for our and nature’s behavior. We circle around mysteries that are never transcended by anything we say. We wish to be creatures of free will, ever deciding what to do next, what to create, and what to destroy. Now if all our individual decisions are just blips in some erratic slow motion of the species that moves with no goal in sight, we too get amazing results without needing to know where we’re supposed to end up.

Part II, “Steps from the Cave,” focuses on this adaptability, the changes in humankind. It includes pieces on personal, internal human change, as well as the inevitable experiences of maturing and aging. It swings from tales of destruction and

growth to assessing the ways humanity has evolved in language and in art. It considers how evolution and progress play out as metaphors and methods to make sense of our own, specific lives. Ellen Dissanayake takes us into the utter strangeness of the French caves that contain the earliest paintings, going back at least 30,000 years. What touches her most is the alien quality of these spaces, which she imagines would have been just as strange way back then. Only human beings, she surmises, could have taken pleasure in such surreal, uncomfortable environments, using them to express their greatest stories.

Floyd Skloot's story of Isaac is a richly layered tale of body, mind, family, and dreams. What takes Isaac's focus from basketball to God? Only a sudden journey to death and back to life. Science may explain his condition but cannot say what to do with this new-found knowledge. Isaac looks elsewhere and sees a way. Valerie Hurley must come to terms with the tragic death of her child and the massively destructive impulses in her own culture. Nature and society change, surprising us, going nowhere in particular. We must sift through our own experiences to grasp glimmers of meaning and hope.

We move into part III, "Places in Time," looking for answers outside ourselves, delving into the details of our surroundings that morph as change takes place. No longer focused on internal experience, we look at the world evolving. The focus is now outside. Leslie Van Gelder moves from memories of her father, the curator of the American Museum of Natural History, through a series of remarkable places, seeking to articulate how place is relived and reexperienced through time and the tales one tells.

Eva Salzman turns a mundane walk through a Long Island neighborhood into a sonata of ancient language, myth, and modern memory. David Petersen eloquently defends what some would call an isolated mountain life, while he links to the world through the happenings of nature and the call of the wild. Carolynne Baker digs deep into the layers of history in a Vietnamese city and tries to decode human experience. We have gotten here from there, choosing pictures and explanations so the places we go can fit into us, in both the past and the future.

Now progress, what's that? An idea a bit older than evolution but not so much. The sense that human civilization is on the rise, improving, going somewhere rather than nowhere. That as we live, we improve our lives, with things getting better all the time.

This is a much more limited, though paradoxically harder, thing to prove than evolution by natural selection. Why? Because it involves the notions of better and

worse, and defining those matters of aesthetics has always been tough at best, and certainly unscientific. When it comes to creatures of nature, no one has ever said we are better than the dinosaurs. We may have large brains and be able to remake our world in any image we like, but the great beasts are certainly impressive and genuinely sublime. Science cannot say *Homo sapiens* is preferable to a lyrebird or slime mold, or a butterfly better than a moth.

Is progress more or less controversial than evolution? Its veracity doesn't divide true believers from the holders of cold, hard facts. We are supposed to live longer than our grandparents, and we will drive cars that are more plastic and automated. They never touched a computer, and everything we call work happens through those wry digital beasts. We can link with the far corners of the world in an instant, but they spoke eight languages, not us. We are at home nowhere, if everywhere, but they better understood what it meant to belong.

There are good old days and bad old days. The new decays faster than the ancient, so a thousand years from now, what will be left? And is there enough wildness left to let evolution continue, heading off somewhere to some grand future where human beings will not matter much, if even remain? No species is supposed to be on top forever. Soon we will run out of some essential resources our ancestors had absolutely no need for, as we whirl on to the end of the industrial world, hoping to reach the beginning of something else: a way of life kinder, fairer, wiser, more careful, and more aware. But is that where we're headed? Is that the goal progress has set itself up to reach?

In part IV, "Getting to the Future," we consider the concept of progress and wonder where that fickle piper might lead, what wild trajectories our species and our planet might travel together in the years to come. Is progress in human civilization ever unambiguously manifest? Here are distinct visions of how the present is moving and pictures on what is found to be progress. Kathleen Creed Page suggests that new reproductive technologies radically transform what it means to invent the next generation. Yet as we tame the life force, we must recognize its autonomy and never get carried away with our own powers.

Kevin Warwick literally put a chip on his shoulder: he had a small electronic circuit implanted under his skin so that his own nervous system could be linked to a computer. He is quite optimistic about where this will get us. With brains literally plugged into computers, there will be no need to work so hard or learn so much. Whatever we need to know can be automatically downloaded into us. Joan Maloof agrees that technology might bring us to such cyborg human-machine

hybrids, but wonders instead if the real future for our species is a kind of deevolution, where we slowly return to nature and abdicate our dominating role. Once we have seen the possibilities, we may in the end choose humility. Andy Couturier reports on one Mr. Nakamura, a Japanese wood carver who studied with a Tibetan master and lives a simple life in his home constantly carving, keeping an ancient tradition going. He is part of the modern world, but not pushing it onward to something that it is not. He chooses simplicity and adapts only within himself and his art.

As human beings, it is much easier for us to talk about progress than about evolution, because we clearly know why our future is indefinite while for the science of nature, we're supposed to trust the experts. Evolution, they tell us, is a theory both intuitive and counterintuitive. "Don't you see?" they say. "Natural selection allows life to be cryptic and common at once, producing beautiful variety without any guiding hand being in charge." Make all human behavior a subset of biology, the way E. O. Wilson consistently wants it to be. Or prove that very simple algorithms can lead to the most astonishing of patterns, as Stephen Wolfram and other chaos theory theorists have, reforming science on the simplest step-by-step mathematical grounds.

But we are not here to talk only about science. We are interested in how the ideas of evolution and of progress stir artists into action, challenging all to place their work in the largest scheme of palpable change, asking, "Where do I fit into the march of time?" Evolution slowly unveils the deep mysteries deep time has wrought upon living forms, and progress is the dream that humanity can make this motion go on, continually improving the direction it takes. The older you get, the more you realize things do not stay the same. You realize that society's collective span of attention is short. What seemed known by all is quickly forgotten, and the same mistakes are made. Progress? All we know is that change doesn't hold still.

There is more information today than any of us could master. There are more years to live and fewer reasons to live for. There are faster computers and slower decisions, and the rapid decimation of species that have taken millennia to finesse. The only reason for so much human-made change is the hope that progress will solve, inspire, transform us and the world into some better place, moving all the while with no one in charge.

With no guide at the helm, progress looks suspiciously like evolution in nature, even though, in biotopic time, all of our problems are a blip like a fly in the Taj

Mahal. This might offer a glimmer of hope: if nature can supply wonderfully elegant solutions to the problems of survival by trying out test models derived solely by chance, then surely it's possible for us to find our way forward. Evolution, bolstered by accident, moving in fits and starts, does not rush things. You won't see it whizzing by at the speed a computer might be able to simulate. Patience is the tempo out there, in the world beyond us. Nature renews itself, moving in cycles, but is going nowhere, with nowhere to go.

We all speak of change. We make decisions and plans, concoct schedules and time lines. We steer our life in specific directions even when, in the back of our minds, there's a gnawing sense that the future stays beyond our control. The experts tell us not to be fooled, not to sit so smug, that no one ever said human beings were the cream of the crop, the end product of eons of randomness and accidents finessed. Selection produced us, and all the beauty of nature besides, but nothing had us in mind when it began.

We can accept that; indeed, it gives us a lot less to worry about. But we're still ill at ease when it comes to progress. Ever since the word got out and education reached beyond the royal and the religious, with the great burst of the Enlightenment, we have read, thought, and changed the way we live in search for a better life. That's the story we've all been told for years. Why is it, then, that the same question, "What is the good life?" hangs over us all the way down from the ancient Greeks? We are no closer than they were to figuring out how to frame an answer, even though we pat ourselves on the back and call ourselves more enlightened, more respectful, and open to those who are different. Philosophy does not progress, nor does literature or art. There are glimmers of greatness amid acres of waste, and we ought always to train ourselves to look for what will last. Yet beauty is fleeting, cleverness fleeting, timeliness fleeting.

Our minds and bodies are equally restless. "So you wanna direct evolution?" laughs biologist Lynn Margulis. "Just have as many children as you possibly can." So is procreation the only evolutionary influence a person can have? Ideas appear, fan out, get caught, make waves or fade, touch some and mostly go unnoticed. We're puffed up like bullfrogs if we think that we actually matter to the world. Who else watches TV? Who marks down the march of time? The rest of nature is too sure of itself for such doubt.

Science must by its own definition be careful and scrupulous, never loose with its claims. As much as we talk of unlocking the mysteries of origin, how the past could turn into the present, the way experiments lead to accepted knowledge is

always a slow and meticulous game. Mysteries are to be savored, danced around, evoked with the indefinable influence of image and word.

Evolution shows the great power of aimless change. But human survival, if we make it, is something to celebrate only after we take aim. Not to fire, not to hit, but to envision and guess the new way out. We like that line, but you know, this *terra nova*, this new world, has always been there, even before our search began. We just didn't know how to get there, but maybe we are wise enough not to sail blindly into the unknown. We are blessed with the adaptive need to ask questions, and the wisdom not to be satisfied with easy answers. Art answers the hardest questions best, because its solutions don't make the questions go away, but keeps them enduring forever in that part of ourselves that wants to hold on to the great, the impossible, and the true.