CULTURAL SOFTWARE

A THEORY OF IDEOLOGY

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13 KNOWLEDGE MADE FLESH

In this book I have tried to explain the phenomenon called ideology and the larger cultural predicaments that give rise to it. I have done so through a master metaphor of cultural software and four subsidiary concepts. Each captures different facets of cultural understanding; each conveys different features of the general argument.

The first concept is *tools of understanding*. Our tools of understanding enable us to grapple with our world, to understand what is happening in it, to interact with others, and to express and articulate our values. Our tools of understanding are produced through bricolage and recursive manufacture. We modify and reuse the old to create the new. Moreover, each tool, no matter how useful, carries its own limitations, for no tool is perfectly adapted for every occasion. As a result, there are inevitable drawbacks and side effects as our tools of understanding are repeatedly employed for new purposes and inserted into new contexts and situations.

A second concept is the *heuristic*. The tools of understanding are better suited for some purposes than for others, and, one hopes, good enough for the purpose at hand. The notion of a heuristic captures the simultaneous adequacy and inadequacy of our cultural know-how. Each ability created carries with it a necessary disability, each perspective opened up carries with it a necessary blindness. In our cultural software benefit and advantage are yoked together, and so our attitude toward our cultural software can be neither positive nor neutral nor pejorative. It must be ambivalent.

A third concept is the *meme*. It captures the idea of culture as a system of inheritance. Cultural know-how is a product of transmission. It spreads through communication and social learning. It is tied to the past through lines of me-

metic descent. Cultures are populations of relatively similar bodies of cultural software, which survive and reproduce in ecological niches. Each person is a carrier of culture, with a slightly different set of cultural heuristics and tools of understanding. Memes grow, mutate, reproduce, survive, or perish in the ecology of our minds and our technologies of information storage. The evolutionary success of cultural software depends on its ability to spread widely and reproduce itself reliably in a particular ecology.

This leads naturally to the fourth concept, that of the *virus*. Cultural software is a symbiont, which not only invades the self but also helps constitute it. Cultural know-how is passed from self to self, sometimes with deliberate intention but often without the element of choice. Its evolution is a process distinct from biological evolution that does not necessarily enhance human survival. Cultural software has its own interests in survival and reproduction that may be beneficial, neutral, or even harmful to human interests.

These ideas are brought together under a master metaphor of cultural software. This metaphor emphasizes the role of cultural know-how not only in enabling human thought but in constituting persons as persons. It is the most basic conception because it reflects a most basic feature of human life: we exist as embodiments of cultural information.

Our Informational Existence

All living things embody information in their genetic materials. But what is special about humanity is that we transcend both our genetic materials and our environment. We are more than those creatures for whom our genes formed the original blueprint. And we are more than genetic blueprints shaped by subsequent environmental forces. We are more than a haphazard marriage of nature and environment. We are *persons:* human beings who embody cultural know-how. Cultural software dwells within us and is part of us.

The human being who absorbs and embodies cultural software, who becomes the incarnation of certain forms of cultural know-how, becomes more than genetic information, more than environmental influence, more even than a combination of the two. We become agents and embodiments of history.

The metaphor of cultural software emphasizes this informational aspect of our existence; not simply the information coded in our genes but the cultural information that is made part of our flesh—that is, incarnated within us. It is encapsulated not only in our thought processes and in the materials of our brain (in ways we do not yet fully understand) but even in our facial expressions, our gestures, and our bodily movements. This enfleshment is best symbolized by the fingers of the jazz pianist, trained not only to respond to the keyboard but to improvise upon it. The pianist's fingers possess a second nature. They

know where to go. But their responses are not foreordained. They are not automatic. The fingers of the pianist respond to the moment, they improvise, they create works of great beauty that never existed and never were thought of before.

Our informational nature is also our historical nature—our being in history. We exist in history and history exists in us. We are imbued with information and understandings peculiar to our time; this information and these understandings will mutate and be passed on to be embodied by still others. We find ourselves in a great chain of historical being; we exist in lines of memetic descent, in which we play roles not fully acknowledged or understood. Alongside the course of human events—the wars and famines, earthquakes and diseases, the rise and fall of mighty empires—there is the transmission of cultural software, multiplying and mutating, culminating and dissipating, dispersing and rejoining. We travel and participate in a vast sea of knowledge, custom, and convention, lifting us up, taking us we know not where.

Billions of years ago, a great tide of genetic information and genetic transmission began, a tide that still carries us and of which we are still an integral part. Only a few million years ago, a new tide arose on this planet—a tide of cultural information and cultural transmission. It has steadily gained power and influence, using us as its partly witting and partly unwitting vehicles. Through human technology and colonization, this tide has reshaped the ecology of our planet, confronting and redirecting the older tide of genetic transmission like two great waves colliding on a rocky shoreline.

The collision of the genetic and cultural tides is not only the result of overpopulation and pollution. Our science has made us conscious of the genetic tide itself and how to manipulate it. We have already learned to shape the genetic information of plants and animals in primitive ways, to limit and extinguish other species by brutal choice and careless accident. Soon we shall be able to reengineer our own genes. Then the two tides of genetic and cultural information will swirl around each other, reshaping each other in ways we can only guess.

The Career of Reason

Human reason is an integral part of the tides of memetic evolution. It has a cultural and historical component. And because it has this component, human reason is not a finished product. It is an ongoing project, a collection of historically accumulated tools of understanding, each imperfect and provisional, which metamorphose and meld, spreading and dissipating throughout human populations. Human reason is a feature of populations and cultures as much as of individuals. We are its carriers and its developers, its subjects and its agents.

Through the evolution of culture, knowledge is made flesh and dwells within us.

Throughout this book I have portrayed the devices of human thought and their historical evolution as the source of both understanding and misunderstanding, of both empowerment and confusion. Some will think that this portrait debases reason, or makes it impossible for reason to improve itself and see through injustice and illusion. It does not. Such misunderstandings reflect, I think, the failure to be fully reconciled to the ramifications of our historical existence.

One might object that the picture of reason as an assortment of ambivalent tools fails to explain the adequacy and efficacy of human reason. Beyond the various devices of human thought must there not lie another, purer faculty of reason, which lacks the ambivalent character of all the others and therefore arbitrates over them all? Perhaps our understanding does make use of metaphors and metonymies, heuristics and narrative structures. But surely our ability to deconstruct them indicates that there is some further general faculty of reason that allows us critically to reflect on them. For if there were no general faculty of "good reasoning," how could we see through the cognitive illusions that this book describes? The various heuristics and devices of thought—including metaphor, metonymy, and narrative construction, among many others—are mere supplements to this purer form of reasoning, invoked when convenient, but ultimately unnecessary to critical reflection. In the alternative these devices merely provide raw materials that this other higher faculty of reason sorts, culls, and purifies without needing to employ them in the process of purification.

This objection rests on two confusions. First, it confuses belief in the existence of better and worse ways of understanding the world with belief in a separate capacity of critical reason that arbitrates over lower and more fallible forms. Second, it wrongly assumes that if human reason is a motley collection of tools of understanding, it cannot be efficacious, self-reflective, and self-correcting.

Behind this objection is a familiar desire—a desire to preserve human reason from its imagined detractors. It seeks to preserve the power and purity of human reason by identifying some part of human understanding as "reason" and attempting to separate and distinguish it from the remainder. This strategy projects error and illusion onto this remainder in order to reassert the power and mastery of what it labels "reason." But our processes of understanding cannot be divided and separated in this way.

Human beings can and do discover the better and the worse argument. Metaphors can be deconstructed, analogies can be dismantled, narratives can be dismembered. But we do all of these things using cognitive tools (like lan-

guage) that in other contexts and situations can have ideological effects. There is no pure analytic capacity of "good reason" that is separate from the many devices of human understanding. Reason is a bundle of devices that build on each other and counteract one another's ideological effects. Good reasoning is not so much a matter of purification as a form of triangularization, of imagination and reconsideration, in which we attempt to make use of the many different tools we possess.

Taken by itself, each of our cognitive tools has weaknesses and limitations, yet taken together each can compensate for the others' respective deficiencies. Human reason is like a collection of slender twigs, which, taken separately, bend and break easily, but when bundled become difficult to snap. Human reason is like a roof made of a motley assortment of overlapping materials, which individually let in the cold and the rain, but woven together provide a relatively effective shield against the elements.

If the mind is the product of evolutionary forces, both natural and cultural, the nature of reason could hardly be otherwise. The human brain arose not as a general-purpose problem-solving machine but as an organ that solved particular evolutionary problems—how to recognize danger, how to find food, how to find a mate, how to engage in social cooperation and punish defectors, how to avoid contagious disease, and so on. Evolution is conservative and economical: It always solves the problems before it, not the more general difficulty that might arise at some point in the future. It always draws on the devices available to it; it does not redesign from scratch. So when Nature designed us to be able to recognize defections from social cooperation, she did not necessarily optimize our abilities at psychological introspection or mathematical calculation. When she enabled us to organize expectations of events in narrative form, she did not necessarily optimize our ability to do analytical philosophy. When she instilled a healthy respect for certain indicia of health, she did not prepare us for an era in which these heuristics and behaviors might be counterproductive. Rather, what biological evolution tends to produce is a collection of special-purpose gadgets that work tolerably well for specific environmental challenges, even if they lack more general abilities and efficiencies.

Along these lines, cognitive scientists recently have suggested that the mind might be fruitfully compared to a sort of Swiss Army knife, containing multiple reasoning capacities called "Darwinian algorithms."[1] If we take an evolutionary approach seriously, we recognize that the mind is as motley as it is powerful. The mind is a collection of tools of understanding, each fairly good at the tasks for which it evolved but relatively limited outside its domain. There is no general-purpose faculty of reasoning and problem solving, but together, the various gadgets that we collectively call reason can do an acceptable job.

Like the bundle of twigs or the thatched roof, the mind's performance is

not flawless. Our minds display interesting gaps in abilities, much as our senses occasionally deceive us in optical illusions. As with optical illusions, we can work around them by using our other faculties. One might think that our ability to work around cognitive illusions supports the notion of a general faculty of "good reasoning." Indeed, it demonstrates precisely the opposite proposition. These cognitive illusions, these gaps and lapses in our cognitive competence, are proof that our reasoning powers are the process of evolutionary bricolage, that we are dealing not with a smooth undifferentiated surface of reason but rather with a mosaic of overlapping materials, the joint product of natural and cultural development. Both the existence of these lapses and our ability to compensate for them are signs of evolution at work.

Indeed, if our faculty of reason were smooth and undifferentiated, if we did possess a general-purpose faculty of reason, this would be a strong argument against our minds' having been the product of evolutionary development, whether natural or cultural. The gaps and inadequacies of our reasoning process are evidence of the evolutionary origins of the mind, both natural and cultural. A mind produced by evolution will display both "spandrels"—abilities that later prove useful but which are mere side effects of previous evolutionary design—and "panda's thumbs"—compromises of design created from previous materials that work tolerably well but imperfectly. The person who demands a general, undifferentiated faculty called "good reasoning" does not understand that she is also asking for a being who is not the product of temporal forces of evolution.

One might fall back on the hope that culture's overlay on our mental faculties has successfully smoothed out its rough edges. After all, we have developed language and propositional argument, science and experimental methods. But cultural tools are also historical products: they are the evolutionary result of generations of memes that were able to take root in human minds and spread widely to the minds of others. The cultural component of reason is also a collection of new gadgets superimposed on and merging with the older ones that we have inherited from previous development. Together, this set of tools can recognize and solve many problems. Together, the tools of our understanding can produce what is roughly equivalent to a general-purpose problem-solving machine. But it still betrays its rough edges, its gaps, its inefficiencies. And it is still limited in many ways.

Even so, it is important to distinguish the claim that reason is motley from the claim that reason is unreflective—that it cannot improve itself through conscious analysis of its own beliefs and operations. Perhaps this is the real source of the objection to the picture of reason that I have offered in this book. If there were no separate capacity of "good reasoning"—for example, one represented by propositional discourse—one might fear that human beings

could not rationally reflect on cognitive illusions and improve their thinking processes. They would be doomed forever to be the slaves of unreflective customary modes of thought.

Ironically, this objection is itself an example of bad reasoning, for the conclusion does not follow from the premises. Precisely because human thought is self-reflective, it must have a layered, heterogenous, and cumulative character. Human thought is the product of bricolage, and the modification and improvement of human thought through reflection and argument is part of the process of that bricolage.

Human beings can and do transcend unreflective prejudice and custom. The conflict of human wills creates the occasion for conscious reflection about our factual and normative beliefs; these reflections can be assimilated to become the background assumptions and tools of a later era. Through sociability and strife, through human cooperation and human competition, our cultural software reflects on itself, criticizes itself, and modifies itself. Hence there is a continuous dialectic between custom and reflection on custom, between habitual practices of thought and criticisms of these practices, between what is considered "reasonable" at any point in history and reasoned attacks on this rationality.

If human reason is the product of such a dialectic, we would not expect our reasoning abilities to be smooth and unified. Rather, we would expect them to be jagged and variegated. Human reason would tend to look like an old building in a perpetual state of renovation, with old walls halfway broken down, new plumbing joined to older lines, electrical wires shunted through ancient walls, bits of old plaster peeping through newer layers, and dust and refuse everywhere.

One cannot have it both ways. If human reason is to be improved through reason, it must bear the marks of renovation. It must be cluttered, unkempt, and untidy. It must be improved in some respects and disturbingly recalcitrant in others. And it will always be so, as long as the renovations continue.

Indeed, precisely because human reason is corrigible, always capable of self-improvement, because it responds and develops in the face of experience, it will always continue to be limited in some ways, better at some tasks than others. This, too, is a consequence of its historical production. Biological evolution does not perfect organisms in the sense that it produces creatures equally well adapted to all environmental challenges. Quite the contrary, it tends to produce creatures exquisitely adapted to the environments they find themselves in. By analogy, we can expect that the forces of cultural evolution will not produce forms of human reason equally good at every task. Our tools of understanding always respond to the problems handed to us; they are devised to solve these problems and not others. We cannot know in advance what all

of these problems will be, even though some of them will surely be the unwitting consequences of our own previous actions. The human mind will not eventually become a general-purpose problem-solving machine because life does not present us with general-purpose problems.

The belief in the ultimate perfection of human reason is a temporally extended version of the belief in the human mind as a general-purpose problem-solving device, which is, in turn, yet another version of the belief in a pure, unsullied form of rationality that arbitrates over all of the other facets of human understanding. There is no such smooth, undifferentiated device, equally good at responding to all of the problems and difficulties that may be thrown at it. All tools, precisely because they are useful, are more useful for some things than for others. This trade-off is inherent in the nature of design, and it does not vanish, even when our tools become more sophisticated. Quite the contrary, for trade-offs of design often become increasingly urgent as technology grows in sophistication.

I noted earlier that we human beings exist in a great tide of informational evolution. Yet our participation in the tide of cultural evolution does not mean that we lack agency. Our cultural software surely affects our behavior; our actions always have unintended consequences. But it is a far cry from recognizing this to inferring that we are mere instruments of memetic evolution. We must reject a simplistic either/or view which insists that either we are in full control of the development of our memes or they are in full control of us.

Human beings are not simply an inert environment in which memes compete and breed. Our minds select and reject, combine and reconfigure the memes we are exposed to. We do this both consciously and unconsciously, both deliberately and as a side effect of everyday life. We are active participants in the growth and spread of cultural software, even if we do not have full control over the terms of its evolution.

Just as we must not confuse our subjection to hermeneutic power with a lack of freedom, we must not confuse our role in the development of cultural software with a lack of agency. Being the bearers of cultural software does not eliminate our agency but, rather, creates it, shapes it, brings it into being.

Human beings imbued with cultural software are unique and remarkable creatures. They are knowlege made flesh, produced through the interaction of their biological capabilities and memetic invasion. Through this interaction they transcend the power of both their genes and their memes. They become agents of culture and, equally important, agents of justice.

Ironically, the only thing beyond our choice is whether we will affect the growth and development of cultural software. For this growth and development is history itself; and we cannot absent ourselves from history, just as we cannot exit from culture. We take part, every day, in the production and reproduction

of cultural software, through language, through participation in social conventions, and through all of the various systems of social meaning. We can avoid affecting the ecology of memes only by refusing to act, refusing to understand, refusing to innovate, refusing to create, refusing to communicate in any fashion at all. But that would be utterly foreign to our natures. For we are beings made of knowledge, and we must communicate to live. To participate in the growth and development of cultural software is our historical destiny. It is our informational fate.

fully contained within the system of cultural power. Yet without human values to be shaped through culture, cultural articulation cannot even get off the ground.

30. Immanuel Kant, "Conjectural Beginning of Human History," in *Kant on History*, Lewis White Beck, ed. (New York: Macmillan, 1963), 57.

13. Knowledge Made Flesh

1. Jerome H. Barkow, Leda Cosmides, and John Tooby, *The Adapted Mind: Evolutionary Psychology and the Generation of Culture* (Oxford: Oxford University Press, 1992).