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FORUM:

ON W. G. RUNCIMAN'S *THE THEORY OF CULTURAL AND SOCIAL SELECTION*

1.

CONSTRUCTING A SELECTIONIST PARADIGM

THE THEORY OF CULTURAL AND SOCIAL SELECTION. By W. G. Runciman. Cambridge, UK: Cambridge University Press, 2009. Pp. viii, 257.

ABSTRACT

In his latest contribution to the application of Darwinian evolutionary thinking to the social sciences, W. G. Runciman conceives of human behavior as resulting from three levels of selection—biological, cultural, and social. These give rise, respectively, to evoked, acquired, and imposed patterns of behavior. The biological level is hardly controversial, but to draw a distinction between separate cultural and social selective processes is more problematic. Runciman takes memes to be the variants competitively selected at the cultural level and the practices constituting rule-governed roles to be the variants competitively selected at the social level—thus preserving separate spheres of research for anthropology and sociology. It is not clear, however, what drives cultural and social evolution. Nor are the three levels theoretically well integrated. The book's strength lies in the numerous examples provided of how the application of selectionist theory illuminates and enriches sociological and historical explanations and contributes to the construction of historical narrative.

Keywords: social evolution, cultural evolution, variation, selection, meme, practice, social role, universal Darwinism, paradigm

I

A strong case can be made that a paradigm change is taking hold across the social sciences. From archaeology to anthropology, and from psychology to economics, social scientists have begun to apply Darwinian evolutionary thinking to their disciplines to create a potentially unifying theoretical framework. The trickle of books in the late 1980s, when this trend began, has become a respectable flow, from research reports to textbooks. New journals have been established, while the number of articles written from an evolutionary perspective in broad mainstream journals has increased. Even history may be drawn in, once the aberration of postmodernism is put to rest.

Paradigm change, it should be noted, does not entail jettisoning the knowledge laboriously gained within the context of previous paradigms. The Copernican paradigm did not nullify the observations made by astronomers working within its Ptolemaic predecessor, any more than did adoption of the Einsteinian relativistic

paradigm require rejection of the scientific findings of those working within its mechanistic Newtonian antecedent. But paradigm change does require more than seeing things in an alternative way (rabbit or duck). A new paradigm must not only explain all that the previous one did, but must also explain how the previous paradigm (or paradigms in the case of the social sciences) arose and came to be accepted.

This is the challenge faced in formulating a Darwinian evolutionary approach across the social sciences. Even if this is achieved, however, it will still be notoriously difficult to convince those intellectually and professionally committed to previous paradigms. Sociology is a discipline that has proved to be most resistant to evolutionary theory; yet it was in sociology that one of the earliest and most comprehensive attempts was made to introduce Darwinian evolutionary thinking. This came in the form of W. G. Runciman's three-volume study entitled *A Treatise on Social Theory*,[1] the first volume of which (1983) set out a methodology for social theorizing. In the second volume on substantive social theory (1989) Runciman presented his evolutionary hypothesis, which in the third volume (1997) he applied to explain social change in twentieth-century England.

The *Treatise* was a major undertaking, which placed Runciman, as he intended, in the tradition of the great social theorists: Spencer, Marx, Durkheim, and Weber. Yet the response from his fellow sociologists was tepid, to say the least. Although a handful adopted an evolutionary approach in the 1990s, most remained unimpressed—partly because they were wedded to alternative paradigms (from structural functionalism to social constructionism to rational choice theory), partly because they confused Darwinian with Spencerian evolution, and partly because they erroneously lumped Runciman's theory in the same theoretical basket as sociobiology, whose explanatory pretensions they were rightly resisting. Runciman's disappointment was evident in *The Social Animal* (1998),[2] in which he set out in a somewhat polemical way to reach a wider audience beyond the cabal of professional sociologists, by targeting students who might have more open minds.

In *The Theory of Cultural and Social Selection*, Runciman presents his mature views for an informed audience, taking account of later theoretical developments both in evolutionary biology and in analogous applications in other social sciences, in the hope that he can thereby "diminish the antagonism" that the Darwinian evolutionary approach still generates among social scientists. If elegant prose and erudite scholarship carry any weight, Runciman should go a long way to achieving this goal, for this book makes a major contribution toward constructing a Darwinian evolutionary paradigm for the social sciences that will surely stimulate theoretical debate.

The title of the book is significant, both for what is included and what is excluded. Runciman has avoided using "evolution" in any of its forms, preferring instead to refer to "selection." This carries two implications. One contrasts what Runciman is doing with what Darwin did. Darwin proposed a theory of *natural*

1. W. G. Runciman, *A Treatise on Social Theory* (Cambridge, UK: Cambridge University Press, 1983–1997).

2. W. G. Runciman, *The Social Animal* (London: Fontana Press, 1998).

selection: Runciman is proposing a theory of *cultural and social* selection of comparable scope. Note the dual reference to the cultural and the social as separate and distinct. The second implication following from the first is that these other kinds of selection are analogous only to Darwin's theory of natural selection: they entail no intrusion of biological evolutionary theory into the explanation of social behavior in the way that E. O. Wilson's radical claims for sociobiology did.[3] Instead, as will become evident, Runciman draws upon the principles of what he calls the "neo-Darwinian paradigm" (more commonly referred to as "Universal Darwinism")[4] to explain both cultural and social change. In this lies the interest of Runciman's theory for historians.

The structure of the book is straightforward. After a prologue outlining the Darwinian legacy, Runciman sets out the principles of Universal Darwinism and discusses their application and implications. Three chapters then follow dealing with natural, cultural, and social selection, the three separate levels on which Runciman conceives "heritable variation and competitive selection" to occur. Quite different mechanisms of heritable variation and competitive selection operate, according to Runciman, on each of these three levels. Three different replicators (genes, memes, and practices) are subject to different kinds of selective pressures. The penultimate chapter discusses how selectionist theory can be applied to construct narrative histories, and the epilogue reiterates the case for a selectionist comparative sociology. To conclude thus is significant. Runciman is above all a sociologist, and part of his purpose is to preserve sociology as a distinct discipline, quite apart from either anthropology or history. In order to do this, however, Runciman has to establish a clear distinction between cultural and social behavior—which may be analytically possible, but seems problematic in terms of evolutionary theory.

Runciman wants to explain the processes of change in human societies that lead to different historical outcomes, a task that entails understanding individual behavior in terms of both its various causes and its collective consequences. He divides behavior into three kinds, which result from selective processes functioning at three different levels: natural, cultural, and social. His three types are: *evoked* behavior, when an individual responds instinctively to some environmental cue; *acquired* behavior, when an individual behaves in a way learned from or in imitation of some other agent; and *imposed* behavior, when an individual behaves in ways prescribed by a social role that is "underwritten by institutional inducements and sanctions" (8). Instinctive behavior, from mothering to emotion-driven responses to provocation, is the result of natural (genetic) selection operating over the course of hominid evolution. Acquired behavior results from cultural selection of "items" of information held in mind (for which Runciman accepts the term *meme*). Imposed behavior, by contrast, results from social selection of "rule-governed *practices* which define mutually interacting institutional roles" (3).

3. Edward O. Wilson, *Sociobiology: The New Synthesis* (Cambridge, MA: Harvard University Press, 1975).

4. Richard Dawkins, "Universal Darwinism," in *Evolution from Molecules to Man*, ed. D. S. Bendall (Cambridge, UK: Cambridge University Press, 1983), 403-425.

The natural level of selection is the preserve of evolutionary biologists and geneticists. Its significance for the study of social behavior lies in the evolution of adaptations that have become "behavioral universals" characteristic of all human beings. Such universals derive from the way our brains evolved to gather and process sensory data: for example, the way we respond to what is frightening or dangerous in our environments (natural and social), and the way we relate to each other in social groups (detection of cheaters and preparedness to punish free riders, coalition formation for mutual benefit, and so on). Our shared genetic inheritance provides the basis for empathetic understanding across cultures, for common modes of communication, including facial expression and body language, for the subconscious processing of data, and even for our ability to translate one language into another. Evoked behavior remains significant, therefore, even for sociologists.

Acquired behavior is a phenotypic expression not of our genetic endowment, but of what we have learned, hold in memory, and act upon. Different cultures are characterized by different distinctive sets of beliefs and attitudes (or "meme complexes") and evolve as the distribution of these changes within the participant population. Sharing a culture does not entail possessing the precise set of memes defining an ideal type, only a variable subset of them. Conformity of acquired behavior to cultural norms ensures cultural continuity, but may actually be minimal for certain individuals: nonconformist eccentrics can be found in any culture. What is important at any one time is the dominant behavior pattern that is socially endorsed, whether by custom, agreed convention, biased transmission, or in response to other cultural and social pressures.

Runciman is not interested in how memes are stored in memory and function in thought so much as how they are transmitted and subjected to selective pressures—though he does consider the conditions that make memes more or less attractive, such as the formation of co-adaptive combinations (as when doctrine, imagery, and participation in ritual combine to spread religious memes). As Runciman notes: "The competition for adherents is often a competition between rival bundles of memes . . ." (107). This is as true for politics as it is for religion. Take, for example, taxation, where behaviors associated with pro and con link to complex bundles of memes associated with civic duty and public services on the one hand, and with individual rights and responsibilities on the other. How individuals respond to selective pressures determines the outcomes of such competitions. Winning sets of memes become orthodoxies (religious or political), whereas losing sets get called heresies—labels that serve only to obfuscate the processes involved. The challenge for historians is not just to trace the changing distributions of bundles of memes, but to determine what the selective environmental forces were that favored the reproduction of one set rather than another.

Mutant memes arise, according to Runciman, through a process of mental manipulation that he refers to as "reinterpretation." But how this happens remains mysterious, in large part because memes themselves are defined only in terms of information—about which more below. Do minds simply rearrange memes, or do they invent new ones—in which case in what sense is invention a "reinterpretation"? In fact Runciman evinces little interest in cognition, which apparently he

does not conceive as functioning as a process of selection. Yet cognition provides the link between cultural and social selection, a relationship that in Runciman's account remains opaque.

At the social level, competition is not between bundles of memes, but between social roles, which also encode information (3, 59). Roles come in complementary pairs, each of which defines the other. Kings can be kings only if they have subjects who behave as subjects, and likewise for managers and workers, or generals and soldiers. The practices that instantiate the less powerful of such dyads are imposed through coercive social pressures, including the threat of punishment for failure to perform them. Roles define categories of persons who perform them, the similarities between whom are determined primarily by their access (or lack thereof) to economic, ideological, or political (including coercive) power. Such categories include classes, age-sets (like the "baby boomers"), status groups, and other such social divisions (including notably those determined by birth, such as gender and ethnicity), for which Runciman previously coined the general term "systact."

Societies are characterized by their prevailing modes of production, persuasion, and coercion, which not only correspond to the three forms of social power, but also constitute the three dimensions of "institutional design space" (175). In each of these arenas or social dimensions competition occurs between the incumbents of dyadic roles, who may over time negotiate new (mutant) practices that modify their respective roles. Roles evolve through the adoption of innovative practices: societies evolve through changes in the distribution of roles—as, for example, between the roles associated with the bourgeoisie and aristocracy as the former rose and the latter declined in western Europe. So for Runciman, while historians focus on people, sociologists should keep their attention fixed on practices and roles (172).

Just as species evolve when adaptively beneficial mutations spread within a population until some stable distribution representing an optimal fitness peak is reached in relation to selective pressures, so cultures and societies evolve when beneficial mutant memes or practices reach stable distributions in the form of combinations of cultural memes or social practices in response to prevailing cultural and social environmental pressures (65). Of course any stable distribution is only temporary, for selective pressures may easily change, or adaptively superior mutations appear and spread.

Runciman uses the modes of production, persuasion, and coercion as a three-dimensional framework for both structural and comparative analysis. In the mode of production, for example, the dominant systact may extract a surplus through demanding tribute, or corvée labor, or rent, or taxation. In the mode of persuasion, the status of the dominant systact may derive from control over sacred symbols and rituals, or inheritance, or office, or expertise. And in the mode of coercion, the dominant systact may exert control through the loyalty or obligation of retainers, or the support of a citizens' militia, or of dependent clients, or through command of a paid police force and army (151). Different combinations can be found in different societies, some of which, as measured by specified criteria (standard of living, degrees of freedom), are more successful than others.

Evolutionary explanations of how societies came to be as they are requires reconstructing the changing distributions of roles and practices. These take the form, according to Runciman, of "just-so" stories based on available historical evidence, like those constructed by biologists from the even more fragmentary evidence available to them to trace the evolution of one life form or another. These reconstructions take the form of historical narratives, which explain events by reference to the continuous impact of selective pressures on the memes and practices that constitute cultures and societies. That is, they depend upon theory to fill in the explanatory gaps where evidence is unavailable, as in the historical sciences (biology, geology, astronomy)—a process Runciman refers to as "reverse engineering" (32).

Though Runciman does not state the matter in these terms, each historical narrative has the epistemological status of an interpretive hypothesis, which new evidence may either confirm or falsify. A good example straddling biology and culture is how successive discoveries of hominid remains and improved methods of determining what selective pressures were exerted by changes in the natural environment have resulted in successive reconstructions of the narrative of human evolution. The struggle between competing hypotheses that marks the history of science is equally evident in the history of historiography.

Runciman has much more to say in this rich and rewarding book, especially to sociologists—including pithy criticisms of sociological methods, and the challenges of doing sociology in a post-Darwinian world. These need not detain us. For the historian and social scientists more broadly Runciman offers numerous illustrative examples from across the social and cultural spectrum, from Caribbean slavery to Mongolian shamanism, of how selectionism can provide new and illuminating perspectives on processes of change—including such old chestnuts as the transition from the slavery of the classical world to medieval feudalism, and from feudalism to capitalism. His comparative examples are particularly enlightening. Runciman's stated purpose is to show how an evolutionary understanding can illuminate "just what is going on in distinctive cultural and social behavior-patterns" (224). This he has certainly done.

II

On the face of it Runciman's theory is comprehensive and convincing. Closer examination, however, reveals certain problems. To see what these are we have to begin with the generalized Darwinism, or universal selection theory, that Runciman takes as the model for selection at the cultural and social levels. This he summarizes as comprising two elements: "heritable variation" and "competitive selection," which do the hard lifting in any selectionist explanation. So it is imperative to define, on the one hand, what it is that varies and is replicated, and on the other, how—under what selective pressures—variants compete (to achieve superior outcomes as evaluated by reference to relevant criteria).

But there is another requirement for any selective process, which often gets overlooked in generalizing selectionist theory. There must be something driving it. In natural selection the driver is the innate urge present in all organisms to sur-

vive and reproduce (which at the molecular level takes the form of the tendency for genes naturally to replicate, provided resources are available, and so gives rise to the metaphor of the "selfish gene"). The driver provides the criterion by which to determine whether or not the selective process achieves adaptive success. Note that for most populations of organisms over the course of evolutionary history, success has been temporary: most species that have lived on earth are now extinct.

Universal selection theory has been applied to explain adaptive outcomes in everything from the immune system and cognitive development to the growth of scientific knowledge and the spread of computer viruses.[5] Most attention, however, has been directed to providing a selectionist explanation for the growth and development of human cultures. That no paradigmatic consensus has been reached is due in part to a failure to understand what continued to drive cultural evolution as it became increasingly uncoupled from biological evolution. Misleading metaphors have not helped: selfish memes by analogy with selfish genes; memes as viruses. Both conceive of memes (whether comprising ideas, or information, or the grab-bag Dawkins originally listed[6]) as external agents that colonize the brain/mind for some purpose of their own. But this is nonsense. The brain/mind is neither a receptacle nor an organism to be parasitized. Rather, it actively selects out of the mass of perceptual data to which it is constantly subjected just those that have meaning in relation to the developing interests, values, and goals of the self-concept it is continuously constructing. Adaptive success is measured by the consciously experienced psychological satisfaction that results from behavior that advances those interests, values, and goals. Preferred satisfaction differs for each individual, but maximization is driven by the biological reinforcement mechanism of pain avoidance and pleasure attraction (even in the inverted world of a masochist, or where pain is suffered for the sake of some superior desired end).

Runciman does mention that cultures and societies can increase satisfaction by choosing certain behaviors over others, but only in passing (76). He does not use satisfaction to establish a theoretical linkage between cultural and biological evolution. All he notes is that coevolutionary synergies are produced when the two systems work in tandem. Yet maximization of conscious satisfaction both grounds cultural evolution in biology and frees it from the straitjacket of sociobiology. The evolution of culture is not driven solely by the urge to maximize reproduction, as sociobiologists maintain, even though the satisfaction to be derived from behavior associated with this biological urge (seeking loving relationships, experiencing sexual pleasure, having children) continues to motivate much human behavior. Other forms of satisfaction are often just as or more important, such as gaining social prestige, exercising power, or being creative.

Runciman understands both cultural and social evolution as processes analogous to biological evolution but quite separate from it (though all three may interact in pairs to produce coevolutionary effects) (figure, 224). What drives these emergent processes at the level of individual behavior is not spelled out. Instead,

5. Gary Cziko, *Without Miracles: Universal Selection Theory and the Second Darwinian Revolution* (Canbridge, MA: MIT Press, 1995).

6. Richard Dawkins, *The Selfish Gene* (Oxford: Oxford University Press, 1976), 206.

collective outcomes are evaluated: cultures are adaptive; societies that apply one form of organization rather than another produce some desirable benefit (higher living standards). Runciman's focus is on the mechanisms of variation and selection. The "memes" he identifies as the variants in cultural evolution and "practices" as their analogue in social evolution both encode information. Memes are defined as "items or packages of information transmitted from mind to mind by imitation or learning" (3). Runciman devotes little discussion to what happens to memes at the cognitive level, however: his interest is in the behavior to which they (somehow) give rise.

Information is encoded and transmitted in many forms—as speech, in writing, through behavior, and in material objects—each of which is not simply received but is interpreted by the perceiving subject. Runciman takes memes to be the form information takes in the human brain/mind, though he admits we don't know much about them. Memes are variable in size (for how extensive is an item or a package of information?), form "co-adapted complexes," and unlike genes are not necessarily exactly replicated in another mind. Runciman skirts around the problems this conception raises by observing that:

> From the perspective of comparative sociology, the stability and coherence of widely different cultures and sub-cultures is evidence for the remarkable capacity of functionally equivalent memetic combinations to reproduce those of their component units of information which affect behavior in the phenotype despite the information loss and intentional or unintentional distortion and reconstruction which . . . is always more likely than perfect copying. (109)

This leaves Runciman's theory at a similar stage of development, however, to Darwin's theory of natural selection prior to its "synthesis" with genetics, though he is not alone in wanting to go no further. Leading cultural evolutionists Peter J. Richerson and Robert Boyd eschew the term "meme" entirely and refer only to "cultural variants," which they too admit are entities "about which we know distressingly little."[7]

Failure to identify what memes or "cultural variants" actually are does not invalidate cultural selection as a theory, any more than Darwin's ill-defined "gemmules" invalidated the theory of natural selection. But the failure to include what happens at the cognitive level does leave any theory of cultural evolution incomplete. Presumably the hope is that whatever it is that is reproduced in human minds and expressed in behavior will be revealed in time by cognitive neuroscience, when a synthetic theory of cultural evolution will become possible.

Given the parlous state of memetics as a field of study, Runciman can hardly be faulted for failing to define memes more precisely. What is of concern is the model of the brain/mind he apparently accepts in equating memes with information. This is the popular computer model—information in, information out—which unfortunately seriously distorts our understanding of how brain/minds work. Eventually this model must go the way of the eighteenth-century mechanistic model of the universe, to be replaced by one that takes account of cognitive complexity and the

7. Peter J. Richerson and Robert Boyd, *Not by Genes Alone: How Culture Transformed Human Evolution* (Chicago: University of Chicago Press, 2005), 81.

brain/mind's active role, both in what and how it selects to remember, and in what it selects to express in behavior—a model more along the lines of what has been called the "embodied mind," about which there is a growing literature.[8]

One way of working toward a more comprehensive understanding of the role of brain/mind in the evolutionary process would be to take cognizance of the nested relationship that exists between biological evolution on the one hand and cultural and social evolution on the other. To do this, however, one must go back into human evolution. The evolutionary challenge faced by evolving species of *Homo* was to fine-tune behavioral responses to the pressures exerted by relatively rapid changes in the natural environment, and more significantly, to the much more rapid changes in their social environment. The solution took the form of differentiation of the brain to create new ways of performing what had become its key function: the structural organization of sensory data about the environment through establishment of causal and hierarchical cognitive connections, thus enabling improved selection of appropriate behavioral responses.[9] In the course of this process, memory became differentiated into functionally and structurally different systems: semantic memory to store concepts and meanings of words structured hierarchically and syntactically (which evolved in relation to improved forms of communication, culminating in language); episodic memory containing personal experience in the form of images and associated emotions structured temporally (providing the basis for the self-concept); procedural memory coordinating developed skills (linked directly to the motor system); and working memory as the conscious forum for cognitive selection. All, especially the semantic and episodic memory systems, are massively interconnected.

The brain/mind is not simply a passive receptacle for bits of information that it regurgitates as required: it fits new data into an ever-developing structure, either through creating new cognitive connections, or through reinforcing existing ones, both of which may entail cognitive reorganization to reduce dissonance. How new data are structurally integrated depends on the already existing structure. Connections may incorporate data into the core cognition that forms the usual basis for behavior, or be relegated to a peripheral position through connections to what others think or do. Actual behavior in any situation (including speech acts) depends on a partly conscious, partly unconscious process of cognitive selection,[10] which reflects how a particular situation is conceptualized given the interests, goals, and values of the individual. The resultant behavior does not simply transmit information; rather, it communicates meaning, both derived from interpretation of data and imparted by the intentions and motives of the actor. How others in turn respond depends on how they interpret communicated meaning in relation to their own cognitive structures.

8. George Lakoff and Mark Johnson, *Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought* (New York: Basic Books, 1999).

9. These were in addition to the cognitive maps by means of which other organisms organize sensory data. The beginnings of memory differentiation can be glimpsed in other species, including apes, dolphins, and elephants.

10. A whole new frontier of psychological research has opened up into what has been called the "new unconscious" (to differentiate it from the Freudian connotation). *The New Unconscious*, ed. R. R. Hassin, J. S. Uleman, and J. A. Bargh (Oxford: Oxford University Press, 2005).

What this perspective on brain/mind function indicates is the importance of cognitive structure—which in turn suggests that elements of structure in the form of cognitive connections are the discrete (material) entities that vary and are reproduced in the brain/mind, and are competitively selected in sociocultural evolution. Just as genes build organic structure, so cognitive connections build cognitive structure in the form of worldviews in relation to which human beings select one behavior over another. This cognitive level of selection is nested within the biological level by virtue of its dependency on brain/mind function. The selective pressures brought to bear at the cognitive level comprise not only the confronting situation, as this is conceived, but also all the beliefs, values, ideals, and goals associated with the self-concept and the emotional content attached to them. This whole selective process, conscious and unconscious, constitutes what we retrospectively call a "decision."

Cognitive structure has been given limited attention by neuroscientists, and not much more by psychologists. Linguists have focused primarily on word order and meaning, syntax and semantics, rather than on the structural relationships between concepts. Worldview is more a popular than a scholarly concept, but it does refer to cognitive structure. What we need to theorize is how cognitive connections, whether constructed from sensory data by the receiving brain/mind or learned pre-formed, are structurally related and organized with respect to existing mental content, for this would give an indication of which meanings harbored in mind will, circumstances permitting, find expression in behavior.

Behavior is subject to selection on two levels: first when previewed in cognition, then when performed. We do not, of course, always consciously select a particular behavior. An action may be instinctual, or a learned response to a set of environmental cues, or it may be consciously selected and performed after due consideration. In all cases actions are influenced not just by conceptions of circumstances and the exercise of reason, but also by affective and evaluative weightings given to whatever associated memories are drawn upon (also instantiated by cognitive connections). How far the web of connections extends will depend on the action potentials of the neural networks instantiating them, the variability of which in different brain/minds imparts differences in the meaning communicated by the behavior.

Runciman has virtually nothing to say about the cognitive level of selection. In fact he does not recognize what happens in the mind as a selective process at all. In fact previewing behavior and making decisions about whatever environmental challenge or problem confronts the individual is what consciousness evolved to do: choice of action is a selective process. What happens on the level of cognition profoundly affects the behavioral phenotype. Of course Runciman knows this very well, but he neglects to give it the requisite theoretical weight. Instead he focuses on behavior as the locus of selection.

Once any behavior is performed, it is subjected to selective pressures exerted by natural and cultural/social environments, which Runciman rightly notes depend in no way on whether variant behaviors were performed intentionally or

unintentionally. Behaviors favored by selection will be replicated (through imitation or learning), whether they are speech acts or social rituals or productive labor, the cooperative effect of which is to construct the social and material environment in which we live. The constructed human "niche"[11] evolves as the distribution of the behaviors that produce it changes over time (through the introduction and spread of innovation). Not only do we construct a material niche, however, we also construct a social one through the relationships we have with other human beings, from family members and work mates to those we casually encounter, like bartenders and taxi drivers, in the presence of whom we behave in schematically appropriate ways.

Culture and society are both notoriously difficult concepts to define. Both are replicated through the cumulative effect of individual behavior, which in both cases depends on the same content of cognition. Cultural and social behaviors may be subject to different selective pressures, but in many human activities the two categories overlap to the extent that it is impossible to differentiate between them, even analytically. Take the example of religion. Ritual behavior (singing hymns) replicates both a component of a culture complex (Christian belief and worship), and social structural relationships (with other worshippers to form a congregation). The same is true of innumerable other activities, from work to sport, in which behavior replicates or alters both social relationships and the culture associated with those activities. This is particularly true for economic activity in which social relations are crucial to the production of the material culture that constitutes the human "niche." But it is also true of bureaucracies and governments where social relationships not only instantiate social structure (through what Anthony Giddens has called "structuration"[12]) but also thereby create less tangible, but no less real, institutional cultures (created not just by rules and regulations governing different roles, but also by possession of shared beliefs, attitudes, and goals.)

Runciman differentiates between cultural and social levels of selection by reference to what he maintains are the different ways information is packaged in the variants subject to selection—memes in culture, and rule-governed practices in society. But society and culture cannot be differentiated in this way given that cultural production depends on social relationships, and social practices depend on cognition (the possession of apposite memes). Nor is it possible to distinguish culture from society by reference to selective forces. As Runciman admits: "it is sometimes difficult to detect how far cultural rather than social selection is just what is going on" (190).

Runciman attempts to bolster his distinction between culture and society by reference to history, in the form of a "primordial transition" (141) that took place at different times among different social groups when cultures advanced to the level of societies. This transition occurs, so he argues, when imposed institutional roles replace the social order of interpersonal ranking that characterizes cultures (77). Once defined, roles can be filled by anyone with the necessary courage, ingenuity,

11. K. N. Laland, J. Odling-Smee, and M. W. Feldman, "Niche Construction, Biological Evolution and Cultural Change," *Behavioral and Brain Sciences* 23 (2000), 131-175.

12. Anthony Giddens, *Central Problems in Social Theory: Action, Structure and Contradiction in Social Analysis* (Berkeley: University of California Press, 1979).

or luck. Once the office of kingship becomes institutionalized, it can be filled by a usurper just as well as by the designated crown prince. All that is required is for the occupant of the role to be able to perform the practices associated with it.

It is true enough that formal, structured institutions of administration and government evolved relatively late in human history, well after human groups across the world had evolved cultures uniquely adapted to the different environments in which they found themselves. But the evolution of culture was possible only because human beings belonged to a social species. The prior evolutionary challenge that had to be overcome was the social one of group formation: the establishment of "altruistic" and cooperative social relationships that could override selfish, individual interests. Social skills evolved in tandem with culture among early humans, including group punishment of cheaters and alliance formation. Cultural and social evolution were not separate and distinct: both were behavioral responses to an environment that was both natural and increasingly sociocultural—which is why many evolutionary theorists prefer to use this term.

Behaviors, whether social or cultural, once performed are subject to selective pressures from both the natural and sociocultural environments. Sociocultural pressures are brought to bear by other individuals and groups with the power to do so. The effect of these pressures is to provide feedback to the individual actor, the monitoring and interpretation of which may serve to reinforce or modify cognitive structure and subsequent behavior. Observers too monitor behaviors and their effects, and form their own interpretation, which influences their own behavioral repertoire. Destruction of crops by drought may lead a farmer to abandon marginal land, an action that may influence other farmers to do likewise. A deterioration in workplace relations in the face of demands to change work practices may pressure a manager to adopt alternative methods, which another company may then decide to apply. Behaviors that achieve intended outcomes will be reinforced and repeated. The point is just that the selective processes involved at this level affect the individual phenotype, no matter what the behaviors seek to achieve in relation to the natural, cultural, or social environments. Rule-governed practices are social behaviors performed in response to the pressures exerted by structured social organizations; but social structures function within a broader environment still, natural and sociocultural. In the same way, cultural behaviors are custom-governed behaviors subject to both cultural and social pressures.

The selective pressures affecting individual phenotypic behavior at this level are exerted primarily through the exercise of power. Social power is concentrated and brought to bear as selective pressure in three forms (equivalent to Runciman's modes of production, persuasion, and coercion), comprising those organizational structures by means of which economic, ideological, and coercive powers are concentrated. The political power available to governments includes all three "dimensions," though in variable proportions in different political systems. Power therefore should be understood as the potential individuals and groups possess by virtue of their structural relationships to exert selective pressure on the behaviors of other individuals and groups.

This brings us to a fourth level at which selective processes operate, which is the group level. Group selection has been a vexed topic in biological evolutionary theory, but there is no theoretical reason to reject it.[13] Throughout human evolution and history, larger and stronger groups have eliminated smaller and weaker ones through warfare and assimilation. But competition between groups in modern societies does not often result in the elimination of one or the other, for the behaviors and structures that give one an edge over another can quickly be borrowed (imitated, learned). Moreover, the benefits of cooperation between groups (through trade, security agreements, and so on) usually outweigh the costs of aggressive competition.

Group selection operates wherever groups or subgroups function as individuals in competition with other such groups. In order to function as individuals, groups must have structural coherence, and power must be delegated. Crowds and mobs may form in response to particular circumstances, be sustained by the imitative behavior of those involved, and exert selective pressure on political decision-making, but they are temporary phenomena that do not compete with other crowds and mobs, or with structured groups, unless and until leaders arise who transform them into semi-permanent, structured organizations (political parties, lobbying groups, or associations to promote defined goals or interests).

All complex modern societies (in the form of nation-states) are characterized by the existence of organized social groups and subgroups, structured in such a way as to empower certain individuals to act on behalf of the group as a whole to promote the interests of members. This is true of trade unions, professional associations, political parties, and economic enterprises. Such organized groups frequently enter into competition, not primarily with the aim of eliminating competitive groups (though this may occur: for example, when a company goes into liquidation), but for the purpose of maximizing the means to obtain sources of satisfaction desired by members. Competition may be for scarce resources (most often money), but competition is not necessarily a zero-sum game. Changes in work practices that augment productivity may increase both the profits of shareholders and the salaries of workers.

In evolutionary economics, competition between companies is for market share. So it is the market that exerts selective pressure, in the face of which firms seek to increase their productivity through introducing new "routines" (sets of practices), or through adopting technological innovation. Companies are structured social subgroups constituted to produce certain goods or services, which as a function of their structure are capable of making decisions and competing as individuals. The CEOs and board members who make decisions affecting a company do so, however, on the basis of the cognitive structures they individually possess.

This level of selection of structured groups is essentially what Runciman means by social selection (63). So the evolutionary processes at work to bring about historical change should be understood as functioning on four levels, not three. Natural selection works at the fundamental biological level, as Runciman and every other sociocultural evolutionist recognizes. Cognitive selection, the level that

13. D. S. Wilson and E. Sober, "Reintroducing Group Selection to the Human Behavioral Sciences," *Behavioral and Brain Sciences* 17 (1994), 585-654.

Runciman omits, functions at the level of consciousness. It is an emergent process for which there is no analogue in natural selection.[14] Behavioral selection subjects the phenotypic expression of the action selected at the cognitive level to forces of selection exerted by the natural and sociocultural environments. These determine whether the behavior will be repeated by the agent and imitated by others, or not. Finally there is the level of group selection of structured social organizations, in which behaviors are coordinated with other group members through the imposition and acceptance of rules, and in which certain individuals are empowered to act on behalf of group members in support of group interests and in competition with other such groups.

Note that in the alternative model I have outlined the four levels of selection are theoretically connected through the conscious experience and elaboration of reinforcement mechanisms that evolved through natural selection, and which constitute the driver (maximization of satisfaction) of sociocultural evolution right through the cognitive, behavioral, and structured group levels. By contrast, Runciman's three levels provide analogous processes of selection only, with little theoretical integration. Each simply produces a different type of behavior, whose contributions to the phenotypic behavioral repertoire of any individual actor can only be analytically determined by the social scientist.

These criticisms should not put off anyone interested in sociocultural evolution from buying this book. The elaboration of a Darwinian evolutionary paradigm for the social sciences is a work in progress, and one to which Runciman has made very significant contributions. Runciman's latest stimulating addition to the debate is brimming with insights into how evolutionary thinking can be applied in cultural studies and sociology through the use of a wide range of examples. It is safe to say that this is a book that will be discussed for years to come.

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14. Unless, to pull a long analogical bow, a comparison is drawn between cognitive selection of behavior and genomic reorganization.