

ON THE COMMONALITIES AMONG RELIGIOUS AND MORAL CODES: PROXIMATE ANALYSIS FROM A SOCIOBIOLOGICAL-BEHAVIORISTIC INTEGRATION

by Harold L. Miller, Jr., and Steven Faux

The person who espouses a belief in deity or in other ways manifests the trappings of religion is no more curious than the person devoid of such practices. Both reflect an intersection of the processes of biological and sociocultural evolution. Recently the intersection has received fresh focus in the ambitious synthesis known as sociobiology.¹ Among the ramifications of its appearance has been a revival of attention to religion and moral tradition.

We have been struck by the intensity of recent efforts to reassess the relationship between the twin processes of evolution.² Such efforts have been catalyzed by sociobiological theory and share a common approach which seems to be to assent to the underlying identity of the evolutionary processes (both yield adaptation through continuous variation and selective retention), then to draw distinctions between the fundamental units of the systems (e.g., genes vs. "memes"),³ and finally to characterize the nature of the linkage between the two evolutions.

Each issue has proven problematic. The matter of the basic unit of cultural evolution has produced several contenders, for example, the "recipes" of Donald T. Campbell and F. T. Cloak and the neological "memes" of Richard Dawkins and "idenes" and "culturetypes" of Ralph Wendell Burhoe.⁴ The gamut of possible relationships between the two types of evolution runs from antagonistic (Campbell) to complementary (W. H. Durham) to symbiotic (Burhoe) to parasitic (Cloak) and by now may contain even further variants.⁵

Without detracting from the significance of these latter issues, we have chosen to center on the one raised initially: the basic process which

Harold L. Miller, Jr., is associate professor of psychology, Brigham Young University, Provo, Utah 84602. Steven Faux is a graduate student in the Department of Psychology at Brigham Young. Their paper was presented at a symposium on sociobiology and religion during the annual meeting of the American Psychological Association, Toronto, Canada, August 31, 1978.

[*Zygon*, vol. 14, no. 1 (March 1979).]

© 1979 by the Joint Publication Board of *Zygon*. 0044-5614/79/1401-0002\$01.02

seems to serve both kinds of evolution. Our specific concern lies in the mechanism by which selection occurs. In biological evolution it is to the physical environment that customarily the selective function is ascribed. On this view the environment affords an often complex system of contingencies for the differential replication of genes across generations. Those individuals who by virtue of constitution and/or experience are better able to satisfy these contingencies (which typically are related to such things as access to nutrients and sexual partners, avoidance of predators, etc.) are thereby "selected"; that is, they are empowered to exert greater influence on the genetic complexion of the succeeding generation. (Sociobiology makes plain that such endowments need not be made directly. A nonreproductive individual may be "selected" solely as a consequence of contributing to the reproductive success of its kin.) By definition those individuals who are not so adept in accommodating the environment are selected for a different and more ominous outcome. In summary, natural selection proceeds on the basis of differential reproduction, that is, on the basis of "fitness" or, in the expanded sense provided by sociobiology, of "inclusive fitness."⁸ It should be realized also that the prime player in this process is not the individual organism but more specifically the complex of genes which it represents.

The case for selective mechanisms in sociocultural evolution is somewhat less compelling. Here it seems that it is the members of societies who serve the selection function. But on what basis do they select? In his search for the decision rules (i.e., the contingencies) by which social selection operates, Campbell has invoked "social system functionality, as expressed in the conquest and conversion of other peoples."⁷ Durham has offered a more explicitly sociobiological rationale by suggesting that the "inclusive fitness of individuals . . . has been an important general criterion guiding this selective retention [of cultural attributes]."⁸ Thus Durham maintains that those cultural practices which do not compromise the inclusive fitness of their adherents will be selected. Regrettably the means by which individuals gauge such fitness in order to determine the relevant harmonies are not disclosed in his arguments.

Of course, Campbell's criterion of "social system functionality" might be given a stronger sociobiological flavor if the "conquest and conversion of other peoples" were to imply enhancement of the inclusive fitness of those who conquer and are converted. Instead Campbell seems to advocate the view that those cultural practices which counter the individual's biological (and thereby selfish) tendencies toward embellishment of inclusive fitness are favored. His perspective engages opponent processes and is therefore not strictly sociobiological. His

view that sociocultural evolution is sustained by the imperative to oppose the selfish and society-discouraging tendencies produced by fitness-focused biological evolution suggests that social evolution can be construed as dependent upon the much older process of biological evolution. In order for society eventually to make its appearance it was necessary that the fundamental human nature produced by relentless biological selection be checked by an equally relentless counterforce that came to be recognized as social selection.

LOCAL DETERMINANTS OF CULTURAL SELECTION

Rather than attempting further interpretation of these views, we prefer to concentrate on the local determinants of the selective retention of cultural practices. We are persuaded that this issue has been bypassed in the eager efforts to show sociocultural evolution *qua* evolution. It seems to us prudent (to others, perhaps pedestrian) to begin the identification of proximal factors in the social evolutionary process once the ultimate outlines provided by sociobiology have been accepted.⁹

We focus here on religion and moral traditions as archetypes of sociocultural evolution. Our effort derives jointly from sociobiology and from the psychological tradition of behaviorism, where physical and social environments in the governance of the individual's actions have played a consistent role. The recourse to such a scheme in the effort to explain cultural evolution is not without precedent. Several writers have explored the explanatory candidacy of such seemingly behavioristic concepts as the "satisfaction of human drives" and "hedonistic satisfaction" but generally have found them deficient.¹⁰

What we propose is a more refined view, one drawn from the work of R. J. Herrnstein, a Harvard University psychologist who has extensive credentials as an experimental analyst of behavior.¹¹ Herrnstein's behavioristic posture is reflected clearly in the primacy which he attaches to environmental stimuli in the regulation of behavior. However, the types of control which the environment exerts are diverse. According to Herrnstein the most elementary form, and perhaps the most pervasive in the animal kingdom, is the environment's power of elicitation—the presence of a member of a certain stimulus set guarantees the appearance of a particular response whose properties are typically quite invariant. Terms such as "instinctive" or "reflexive" commonly are used to refer to these arrangements.

The further powers of the environment relate more directly to the internal states of organisms and are described as reinforcement and association. Herrnstein introduces the concept of drive to refer to an organismic condition which renders a particular class of environmental

stimuli reinforcing. Thus the hunger drive is experienced when the class of stimuli known as foods has become reinforcing. Food-getting and food-ingesting behaviors are the customary concomitants. The intimate connection between drives and reinforcers is an evolutionary innovation that is observed chiefly in vertebrates. The environment's power of reinforcement is responsible for the enlistment of new behaviors into the individual's repertoire and for the harmonious integration of new with old in the service of drives. Thus some actions wax while others wane in response to modulations in the reinforcement texture of the environment. Such modulations, however, are premised on fluctuations in drives. Also, just as the power of reinforcement binds behavior to stimuli, so the power of association attaches stimuli to one another in ways that may be novel. Such instances typically are labeled "learning."

Herrnstein reserves the term "value" for the expression of the ultimate refinement of regulatory power possessed by the environment. It is often the case especially with humans that reinforcers are only incompletely specified by heredity. Though one's drives may be genetically dictated, it is encounters with the environment that play a strong hand in the firming up of preferences, that is, in the specification of what stimuli become reinforcing. In social vertebrates, and particularly in humans, such power is vested largely in others, that is, in society itself, which has virtually limitless license to designate what it is that will reinforce. Herrnstein has instantiated the value-acquisition process with references to imprinting in young avians and to the development of good manners and preferences for native cuisines in humans.¹²

Values are identified further by Herrnstein as "internalized criteria for reinforcement."¹³ In the process of value acquisition the individual may be plied initially with reinforcers which are explicitly external. For example, the young child who is learning to use table manners may find appropriate actions rewarded by a favorite dessert or by parental affection. The same actions also might be engendered through threats or other punitive measures. Regardless of regimen, the desired outcome is a child whose good manners are sustained even when earlier incentives are no longer forthcoming. At that point it may be said that the child truly possesses the value of manners. However, on Herrnstein's view, it would not be accurate to suppose that the behavior is no longer connected to reward. Rather the criteria for reinforcement have been internalized (this condition is inferred from the absence of external incentives). Proper performance is sustained now by the presence of some inner sense of satisfaction. (Although there is no certainty as to the specific means by which this sense is instilled, humans quite readily can report such outcomes.) Precisely because good manners persist

when external incentives are absent can it be said that the child truly values those manners.

That certain values possess a substantial staying power is cited often as evidence for their hereditary nature. Various recent writers have made an explicit case for the origins of basic human values in biological evolution.¹⁴ Others, such as Campbell, have argued that the commonalities in religious and other moral systems owe their durability to their efficacy in deterring the selfish tendencies which otherwise would obliterate human sociality.¹⁵ We urge a third view, which suggests that such commonalities arise from consonance with the biologically evolved human drives. Though we cannot currently offer a catalog of those drives, we are content that they exist (they may be discomfitingly numerous in the case of the human species) and are confident of means by which they can be discovered and discriminated.¹⁶ As this occurs, the process of value acquisition will become increasingly transparent.

Our argument then is basically this: Humans are influenced inextricably by biological evolution, which has the struggle for optimized inclusive fitness as its essence. This heritage confers a vast collection of instincts and drives, which provide the raw materials for achieving harmonious interaction with the environment and thus securing a foothold in the contest for genetic domain. Society has evolved as a further means for sharpening the contest and had its genesis in the emergent incompleteness of reinforcer identification. When genes finally relinquished their dictatorship over the creature's pleasures (i.e., when the sources of reward were no longer strictly the imperative of inheritance), it was left to the creature's experience to write these prescriptions. According to Herrnstein, "the shaping of reinforcers in individual experience is the vertebrate way of creating social behavior."¹⁷ And, at this point in human progress, social experience predominates through the medium of values. But biology is not left without influence. Its controls over drives allows it editorial authority over values. It is our contention that those values whose qualities are most consistent with the fulfillment of drives are longest lived. Furthermore, we suspect that a substantial, direct correlation generally prevails between the longevity of values and the inclusive fitness of their possessors. Such a correlation obviously can arise from a situation in which inclusive fitness and value lifetime both were predicated on the satisfaction of drives.

The bulk of Herrnstein's empirical analysis of drives has centered on a principle of behavioral allocation which now is known as the "matching law."¹⁸ In its simplest quantitative form it stipulates that an organism will distribute its behavioral resources in a manner consistent with (i.e., which "matches") the distribution of reinforcers associated

with various behaviors. Herrnstein's law is a statement of individuals' quite remarkable sensitivity to the parameters of reward and has inspired a vast research effort aimed at quantitative elucidation of the process by which rewards are empowered to direct and maintain behavior. The propensity of organisms to adhere to the matching law has made it possible to measure their preferences with precision and predictability. (E.g., Harold L. Miller, Jr., has shown how the matching law can serve as the basis for the psychophysical scaling of food preferences.)¹⁹

THE GOVERNMENT OF HUMAN ACTION

We now turn to the final segment of our considerations—the role of religious and moral codes in the government of human action and the remarkable staying power of their commonalities. Organized religion seems to provide a specimen of social evolution par excellence. It has emerged apparently independently at various times and locations. The success of such organizations is demonstrably sensitive to perturbations of the general social climate. In addition, different religious organizations appear to compete to fill particular niches within the social environment. Our particular interest is to examine those aspects of religious and moral values which have proven most durable and to show that their persistence is premised on a felicitous intersection with human drives.

One dimension of reward which has implications for the analysis of religion is that of delay. Indeed postponement of gratification is a value which has stood historically as a cardinal tenet of religious and moral codes. The rationale for self-denial lies in the promise of transcendent rewards—glorious, unglimped riches which lie on the other side of death and whose luster and ability to satisfy defy mortal imagination. The price of these supernal bounties is exacted through the forfeiting of more immediate, "earthly" pleasures. Religions have held traditionally to policies of self-restriction which revolve around the practice of sacrifice. Whether defined in the offering of the "best of one's fields and blocks," the forgoing of food and drink during fasting, subscription to prolonged sexual abstinence, or in myriad other ways, there is a pronounced sense of self-abnegative demand in the creeds of traditional religions. Only upon such conditions could one legitimately anticipate rendezvous with a resplendent afterlife. And should the temptation to abandon such sacrifice and to indulge one's most immediate desires ever dominate, the assurances of postmortal dominion might be foreclosed forever unless of course suitable penance was performed. Such dogma traditionally has exerted powerful sway in human conduct.

While Burhoe, Campbell, and others have alluded to the utility of such beliefs as social-system lubricants, we sense a more direct psychological function.²⁰ Religious protocols which augur the post-mortal receipt of exalted experiences usually involve provisions for the brief, mortal simulation of such experience, that is, some sort of vicarious, anticipatory sampling. Short "tastes," fleeting glimpses, or momentary approximations of the promised exaltation are often the acknowledged outcomes of individuals' "experiments" with religious or moral orthodoxy and serve to instill a flavor of reality and ultimacy. They characteristically are experienced as very rewarding, something assuredly to be striven for. It is in such striving, in the acquiring of personal strategies for the deferment of lesser gratifications, which otherwise would be commonplace, that the merits of religious belief are revealed at least partially. Their staying power may owe in some measure to their provision of the possibility of intensely satisfying transcendent experience which is predicated on conformity to recipes for self-control.

What the individual can gain as a consequence of religious orthodoxy is practice with the realization of delayed rewards through the employment of prior commitments. G. Ainslie has produced an elegant model of self-control derived from Herrnstein's matching law.²¹ The model involves temporal gradients of reward value and suggests that impulse control (i.e., the deciding for a greater but presently unobtainable reward over an immediately available but specious alternative) is possible only prior to a point in time at which the gradients intersect. Subsequent to that point, individuals become powerless to avoid the specious reward. Commitment consists of strategies which can be effected prior to the intersection and which have the effect of eliminating choice situations where the specious alternative would be compelling. In such a strategy the individual actually "commits" his or her future behavior to one and only one course of action.

Ainslie suggests that personal ability to demonstrate prior commitment rests heavily on the ability to accentuate the satisfaction associated with the delayed reward. Religion's provision of "spiritual" experience whereby the sense of ultimate reward may become more tangible already has been mentioned. Ainslie further suggests that prior commitment might be sustained also by the knowledge that one has been successful in avoiding a specious reward. This notion comes very close to Herrnstein's definition of value as "an internalized criterion of reward." By asserting the values of self-denial and by providing programs whereby prior commitment can be practiced, religions may allow their adherents to acquire behavior which becomes much more

efficient in optimizing individual rewards over a lifetime. Indeed, where life span is extensive as in the case of humans and where many rewards come only after appreciable delay, strategies for self-control not only are salutary but appear invaluable.

Such strategies, gained initially through exposure to religion, might be expected also to spill over into other phases of living with similarly satisfying outcomes. On this view, religious and moral values succeed on two counts: (1) To the extent that they promote facility with prior commitment they furnish the adherent with efficacious means for optimizing rewards (i.e., satisfying drives) over a lifetime, and (2) they are perhaps uniquely successful in promoting prior commitment because of their extraordinary ability to engender a sense of ultimate payoff and to sprinkle inklings of that payoff which are noted for their intensity and sense of authenticity. That differentials in the anticipation of delayed rewards and in the efficient achievement of those rewards translates into differentials in inclusive fitness can be only surmised at this point. But we think it highly likely that a direct relationship exists.

The search for commonalities among religious and moral codes may be extended beyond the anticipation of a transcendent afterlife and the adherence to impulse control. A further commonality seems to lie in their subscription to a pronounced emphasis on family and fraternity. The wisdom of such policies from the sociobiological vantage is plain. The creed which stresses the primacy of the family structure (to the extent of even encouraging elaborate genealogies) and the expediency of personal contribution to familial success may be tantamount to a recipe for enhancing inclusive fitness. The creed which further stipulates an underlying relatedness among members of the religious community or perhaps among all members of the human species (a belief which may derive from belief in a pair of original parents) furnishes a rationale which may be successful in extending the limits of altruistic behavior beyond familial confines. The kind of reciprocal altruism envisioned by R. L. Trivers may well be fostered by a socially fraternal structure in which members are viewed as constituting a greatly extended family.²² Finally a religious creed (such as that in Mormon theology) which offers a view of ultimate reward as the ability to reproduce one's kind indefinitely seems almost embarrassingly consistent with orthodox sociobiology.

A behavioristic analysis of such beliefs would focus on their utility for the satisfaction of individuals' drives. Stress on the primacy of the family as the social unit means that parents in particular will exercise profound influence on the values of their children; that is, they will

have a strong hand in determining what actions eventually will produce internalized rewards for their children. In addition to equipping the child with values which may be more efficacious than those available from alternative sources, this process also solidifies the parent's position as the prime locus of reward, since values are initially trained through close association with reward. This circumstance may well allow the developing child to acquire successful patterns of behavioral allocation more readily and efficiently than it would in circumstances where the sources of reward were more diffuse (such as in a setting where early separation of children from parents and communal child rearing obtained).

The same argument for economy in the acquisition of patterns for the distribution of behavioral resources can be applied to religious creeds which encourage the individual to confer favored status on fellow adherents. By endorsing an extended brother- and sisterhood, religions provide means whereby rewards may be extracted from the social environment with relatively greater ease and simplicity. It seems reasonable to assume that decisions regarding the direction in which one's social behavior should be allocated in order to secure certain desired outcomes would be aided greatly by the knowledge that certain directions were associated with fellow believers. Relationship by virtue of common beliefs and values may promote much readier and more efficient behavioral exchanges among individuals and thus lead more directly to the optimal satisfaction of drives across one's lifetime.

In this paper we have examined a variety of commonalities in religious and moral codes: belief in the transcendent deity and postmortal existence whose quality is contingent on one's mortal performance, the incumbency of self-denial during the mortal lifetime, the primacy of family structures, and a pronounced sense of relatedness in the community of adherents. While we agree that sociobiological theory can make sense of each of these commonalities, we have adopted an analytic stance derived from the behavioristic theory of Herrnstein. We have urged the view that religious and moral commonalities owe their remarkable staying power to their efficacy in fulfilling human drives. The recipes which they afford the individual serve to promote the optimization of reward over a lifetime. That such hedonic optimization may translate ultimately into the optimization of individual inclusive fitness signals the complementarity of the behavioristic and sociobiological perspectives.

NOTES

1. E. O. Wilson, *Sociobiology: The New Synthesis* (Cambridge, Mass.: Harvard University Press, 1975).

2. E.g., D. P. Barash, *Sociobiology and Behavior* (New York: Elsevier-North Holland Publishing Co., 1977); Robert Boyd and Peter J. Richerson, "A Simple Dual Inheritance Model of the Conflict between Social and Biological Evolution," *Zygon* 11 (1976): 254-62; Ralph Wendell Burhoe, "The Concept of God and Soul in a Scientific View of Human Purpose," *ibid.* 8 (1973): 412-42; *idem.*, "The Human Prospect and the 'Lord of History,'" *ibid.* 10 (1975): 299-375; Donald T. Campbell, "On the Conflicts between Biological and Social Evolution and between Psychology and Moral Tradition," *American Psychologist* 30 (1975): 1103-26 (reprinted in *Zygon* 11 [1976]: 167-208); *idem.*, "Social Morality Norms as Evidence of Conflict between Biological and Human Nature and Social System Requirements," in *Morality as a Biological Phenomenon*, ed. G. S. Stent (Berlin: Dahlem Konferenzen, in press); M. Daly and M. Wilson, *Sex, Evolution, and Behavior* (North Scituate, Mass.: Duxbury Press, 1978); Richard Dawkins, *The Selfish Gene* (London: Oxford University Press, 1976); W. H. Durham, "The Adaptive Significance of Cultural Behavior," *Human Ecology* 4 (1976): 89-121; M. T. Ghiselin, *The Economy of Nature and the Evolution of Sex* (Berkeley: University of California Press, 1974); George Edgin Pugh, *The Biological Origin of Human Values* (New York: Basic Books, 1977); Peter J. Richerson, "Ecology and Human Ecology: A Comparison of Theories in the Biological and Social Sciences," *American Ethnologist* 4 (1977): 1-26.
3. See Dawkins (n. 2 above).
4. Campbell, "On the Conflicts" (n. 2 above); F. T. Cloak, "Is a Cultural Ethology Possible?" *Human Ecology* 3 (1975): 161-82; Dawkins; Ralph Wendell Burhoe, "The Source of Civilization in the Natural Selection of Coadapted Information in Genes and Culture," *Zygon* 11 (1976): 263-303.
5. Campbell, "On the Conflicts"; Durham (n. 2 above); Burhoe (n. 4 above); Cloak (n. 4 above).
6. W. D. Hamilton, "The Genetical Evolution of Social Behavior," *Journal of Theoretical Biology* 7 (1964): 1-51.
7. Campbell, "On the Conflicts," p. 1106.
8. Durham, p. 96.
9. The proximate-ultimate distinction is taken from Barash (n. 2 above).
10. See, e.g., A. Alland, "Adaptation," *Annual Review of Anthropology* 4 (1975): 59-73; Donald T. Campbell, "Variation and Selective Retention in Socio-cultural Evolution," in *Social Change in Developing Areas*, ed. Herbert R. Barringer, George I. Blanksten, and Raymond W. Mack (Cambridge, Mass.: Schenkman Publishing Co., 1965); P. Corning, "Politics and Evolutionary Process," in *Evolutionary Biology*, vol. 7, ed. Theodosius Dobzhansky, Max K. Hecht, and W. C. Steers (New York: Plenum Press, 1974); Durham (n. 2 above).
11. Roger Brown and R. J. Herrnstein, *Psychology* (Boston: Little, Brown & Co., 1975); R. J. Herrnstein, "The Evolution of Behaviorism," *American Psychologist* 32 (1977): 593-603; *idem.*, "Instinct, Drive, and Value" (paper delivered at the Brigham Young Symposium on Values, Provo, Utah, April 1977).
12. Herrnstein, "Instinct, Drive, and Value."
13. *Ibid.*
14. See, e.g., Pugh (n. 2 above) and R. W. Sperry, "Bridging Science and Values: A Unifying View of Mind and Brain," *American Psychologist* 32 (1977): 237-45 (reprinted in this issue).
15. Campbell, "On the Conflicts" (n. 2 above).
16. Brown and Herrnstein (n. 11 above).
17. Herrnstein, "Instinct, Drive, and Value."
18. R. J. Herrnstein, "On the Law of Effect," *Journal of the Experimental Analysis of Behavior* 13 (1970): 243-66; *idem.*, "Formal Properties of the Matching Law," *ibid.* 21 (1974): 159-64; P. de Villiers, "Choice in Concurrent Schedules and a Quantitative Formulation of the Law of Effect," in *Handbook of Operant Behavior*, ed. W. K. Honig and J. E. R. Staddon (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1977).
19. Harold L. Miller, Jr., "Matching-Based Hedonic Scaling in the Pigeon," *Journal of the Experimental Analysis of Behavior* 26 (1976): 335-47.

20. Burhoe (n. 2 above); Campbell, "On the Conflicts" (n. 2 above).
21. G. Ainslie, "Specious Reward: A Behavioral Theory of Impulsiveness and Impulse Control," *Psychological Bulletin* 82 (1975): 463-96.
22. R. L. Trivers, "The Evolution of Reciprocal Altruism," *Quarterly Review of Biology* 46 (1971): 35-57.