

Natural Selection and Societal Laws

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I believe that modern opposition, both overt and cryptic, to natural selection, still derives from the same sources that led to the now discredited theories of the nineteenth century. The opposition arises, as Darwin himself observed, not from what reason dictates but from the limits of what the imagination can accept. It is difficult for many people to imagine that an individual's role in evolution is entirely contained in its contribution to vital statistics. It is difficult to imagine that an acceptable moral order could arise from vital statistics, and difficult to dispense with belief in a moral order in living nature. It is difficult to imagine that the blind play of the genes could produce man.

—George C. Williams

Introduction

Ever since Darwin published his *Origin of Species* literate people have tended to regard the attributes of living things as outcomes of an evolutionary process, and to suppose that humans like other organisms are in some way derived through organic evolution. In terms of searches for explanation there are several meanings to this remark. Laboratory scientists, for example, may assume that common or similarly derived mechanisms underlie physiological phenomena observed even in widely different animals, and they may as a result use simpler or more easily studied organisms,

such as rats, to help understand complex species, such as humans, which are difficult to study in the laboratory. Primatologists may assume that humans are similar to other primates because of genetic similarity or a recent common ancestry; this assumption may be used in developing and testing theories about human behavior and its history, or about the phylogenetic derivation of humans. Paleontologists assume that the phylogenetic patterns they are able to trace across geological time are the result of mutation, selection, and isolation, as observable today, even though they are hardly ever able to reconstruct the environments in which the changes occurred well enough to understand the adaptive significance of ancient trends.

Biologists with a primary interest in the evolutionary process may seek generalizations about the nature of adaptation and extinction from the workings of that process now and in the immediate past, and develop and test hypotheses from this approach on whatever extant organisms seem best suited. They assume that if adaptation is a continuous process, and if generalizations can be extracted about adaptiveness of attributes common to many or most organisms—sex ratios, senescence, parental investment, sociality—then evidence of cumulative adaptive changes should appear in comparative analyses. At some point, with sufficient understanding of the evolutionary process and enough information about past environments, phylogenetic and other patterns from fossil evidence may be put together with adaptational information from the study of living forms in order to develop, as far as possible, both the actual reasons for long-term history and a greater predictability about the traits of living organisms.¹

Here I wish to utilize the approach of generalizing and predicting from the process of adaptation as a vehicle for studying human sociality, especially to consider the nature and probable background of societal laws, norms, and traditions. The approach, as such, is not new. Since Darwin, it has been commonplace, at least in the Western world, to think even of human attributes in terms of natural selection. The reference, however, may be fleeting, only half-serious, or even principally humorous: “Ah, yes,” we say with a smile, “Survival of the fittest!” Indeed, it is probably fair to say that in recent years most allusions to any relationship between human behavior and natural

selection have been in jest. This may be partly because we are skeptical of the implication that what we do from day to day really has much to do with a process as simple and genetic as "survival of the fittest." It may be partly because we share the fears of others that evolutionary explanations imply an intolerable, robot-like determinism quite inconsistent with our views of our usual day-to-day, consciously planned, individualized existences. It may be partly because we sometimes recognize an irony in our identification of the "fittest" after the fact, because we know very well that we could have made it happen otherwise if we had intervened. It may partly stem from the suspicion that the purveyors of an evolutionary philosophy of life have some new brand of "social Darwinism" in mind—some notion that if natural selection lies behind human attributes then variations among people must be accepted as occurring along axes appropriately judged in terms of better versus worse, with such variations to be either allowed or caused to disappear by our deliberate contributions to the operation of some kind of "natural law" of survival of the fittest.

For these various reasons, applications of natural selection to human phenomena, and in fact as crucial explanations of biological phenomena in general, have drifted into neglect or at least a lack of centrality. This has happened despite unswerving recognition within biology that natural selection, or differential reproduction, is the principal guiding force in the evolutionary process.²

Some of the error and vagueness exists for unjustifiable reasons. Thus, genetic determinism is not in any sense a concomitant of the application of a selective model of human history. Genetic determinism implies long-term, irrevocable causation, but the elaboration of ontogenies and phenotypes which characterizes the evolution of life through natural selection is actually an opposite trend. Phenotypes and ontogenies—and especially behavior as an aspect of the phenotype—represent flexibilities that are opportunistically and strategically realized in the variable environments in which the organism lives out its life. In a sense, the most deterministic aspect of life is actually in the consistencies of the environments in which successive generations develop, and of course humans are masters at altering their environments far outside the limits represented by history. The existence and elaborateness of learning testifies to the absence of

long-term causation in the environments of life, and therefore to the value of reliance upon immediate contingencies, especially in regard to social events. It is a curious fact that when genes are brought into the equation Genes + Environment \rightarrow Behavior, as they must be, there is a widespread tendency to assume that the role of the environment is thereby necessarily underplayed and that of genes overemphasized. Even if this has been true in the past we have no choice but to leave genes in the formula and try to discover their role as well as that of their environment.

Similarly, there is no excuse for extrapolating from natural history to the development of value judgments about human attributes expressed in the present or future. Again, the opposite is more reasonable: To understand the past is not to bind ourselves to it but to deliver ourselves from its grip. Knowledge of the history of our own evolution should place us in the best possible position to cause the shaping of our future by human design, which in itself is inevitable, to proceed in desirable rather than undesirable directions.

I think, however, that fears of determinism and social Darwinism were not the real reasons why evolution, in the decades following Darwin, seemed to drift away from the front lines of biological investigation, and especially behavioral analysis. If evolutionary models had worked, they would have remained in the forefront. The reason they did not work was never squarely identified until George C. Williams published a dramatic refinement of Darwinism in his 1966 book *Adaptation and Natural Selection: A Critique of Some Modern Evolutionary Thought*. Williams's argument was that biologists had never clearly answered the question: Survival of the fittest *what*? For various reasons, they more often than not had assumed that the attributes of organisms have evolved because of their value in perpetuating the species, population, or social group. Williams showed that when the directions of change so indicated are contrary to those that would contribute to the survival of the genes of the individual organism, under nearly all conditions the latter will prevail.³ What survives are the most reproductive sets of genes, and, concomitantly, the phenotypic potentials they have yielded in the environments of history (hence, that they may yield in the environments of the future).

This crucial refinement of Darwinism has generated a remarkable new surge of attention to evolutionary explanations, especially of behavior; and it promises to place natural selection once again in the forefront of every kind of biological investigation, including our efforts to understand ourselves through our history. Numerous authors have pointed out how this change in our thinking has rendered basic concepts and approaches obsolete in biology in general, and particularly in population genetics, ecology, ethology, and anthropology, because they depended upon selection operating principally at the population or group level.^{4,5}

Darwinism, then, or the principle of differential reproduction, is a statement about why things are as they are with the entire world of life. It leads unmistakably to an attitude about the ultimate causes that lie behind the proximate mechanisms with which we, as individuals, must deal in our everyday, practical existences. Anyone who would challenge the philosophical implications of these statements must attack Darwinism at its base, which is to say, the entire idea and the universality of natural selection. For, as Darwin noted in 1859, to find an exception, an adaptation derived from some effect other than the cumulative influence of differential reproduction of variants, would not merely weaken his theory or reduce its overall significance but annihilate the entire idea. In the absence of any such challenge, we are not free to ignore the consequences of an evolutionary process, the cumulative effects of a continuing process of differential reproduction, upon all of natural history, including our own current attributes and tendencies. We are not free to deny such effects by assertion. We are not free to require that each scholar return to a defense of Darwinism before he develops a thesis on the assumption of its validity. In fact we are not free—any of us—to reject the evolutionary view of life. Logic, fact, and the absence of substantive challenges or reasonable alternatives clearly deny us any such frivolity. Whether we like it or not, and whether or not it has been a part of our personal educational, philosophical, social, or ideological backgrounds, we are required to accept that *background explanations for all activities of life, including our own behavior, will eventually be found in generalizations deriving from the cumulative effects of an*

*inevitable and continuing process of differential reproduction of variants.*⁶ The only question is their nature and the directness of their applicability.

From these introductory comments, I now proceed toward the particular discussion proposed for this chapter, the probable background of societal laws. Since laws are functions of societies, I shall do this by first discussing the probable backgrounds of societies and sociality.

Origins of Sociality

Once biologists had recognized that differential reproduction cannot easily be invoked to explain any attributes of organisms supposed to be good for the species or group as a whole, it quickly became commonplace to assume that attributes of organisms have evolved because in the past they helped the individual organism to maximize its reproduction. This interpretation has proved to be extraordinarily powerful in solving long-standing problems about altruism, population regulation, sex ratios, senescence, sexual dimorphism, parental investment, breeding systems, menopause, length of juvenile life, and a great many others.

The greatest impact of this revolution has been felt in the study of social behavior. Sociality can only exist in group-living organisms. Supposing that organisms do things because, in historical terms, they thereby help their own personal reproduction not only raised questions about all of the behavioral expressions commonly regarded as “social”—like cooperation, sharing, and all forms of altruism—but also changed our attitude toward voluntary group living. If groups were seen as forming, and the individuals within them interacting and cooperating, solely to help perpetuate the species, then deleterious consequences to individuals were to be expected and would not necessarily be minimized. Only the success of the group would be relevant. On the other hand, if behavior evolves to help individuals, we are suddenly aware that group living entails automatic expenses to individuals, such as increased competition for all resources, including mates, and increased likelihood of disease and parasite transmission. Accordingly we are made to wonder—for the first time, really—why animals should bother to live in groups. Why be social, beyond what is required to mate and raise a family? If

the answer is that individuals living in groups reproduce *more* than individuals not living in groups, then, again for the first time, we are led to seek out the specific benefits that accrue from social life.

A few years ago, in the wake of this realization, I attempted an exhaustive list of such benefits for all organisms. To my surprise I was able to generate only three broad categories: (1) predator protection, either because of (a) group defense or (b) the opportunity to cause some other individuals to be more available to the predator; (2) nutritional gains when utilizing food, such as (a) large game, difficult to capture individually, or (b) clumped food difficult to locate; and (3) simple crowding on clumped resources.⁷

To my knowledge, no other reasons for group living, commensurate with the now well-established view that selection operates principally at and below the individual level, have been generated. It is a crucial point. Because individuals should tend to move apart, avoid competitors, and be nonsocial, large groups should appear only (a) when the resources of reproduction are so clumped that there is no alternative to close proximity (3, above) (a situation implying no cooperation, hence no special social organization), or (b) when cooperation contributes to individual reproduction in the population or species at large because of some extrinsic hostile force (1 and 2 above).⁸

Applying these hypothesized explanations to familiar organisms yields some interesting and surprising suggestions. Thus (2b) applies easily only to a few animals, like foraging vultures and sandpipers, and (2a) only to species like African hunting dogs, wolves, lions, group-fishing pelicans, and group-hunting fish. That leaves responses to predators as the probable evolutionary basis, or function, of all other actively formed groups, including most primate species and all of the great herds of ungulates and schools of fish.⁹ Because laws are only made by humans living in the kinds of social groups we call societies, understanding group living is evidently closely related to understanding systems of laws.

Causes of Human Groupings

Everyone knows that early groups of humans are postulated to have been hunters of large game. Their predecessors almost

certainly lived in groups for the reason that, probably like all modern group-living nonhuman primates, they were the hunted rather than the hunters. To all indications man is the only primate who became to some significant extent a group hunter—the only group-living primate who, at least for a time, escaped having his social organization essentially determined by large predators. In this light, it may not be so startling that dog and wolf packs and lion prides are social groups with which we empathize to a great degree—social groups that fascinate behaviorists because of parallels and complexities that are not clearly established elsewhere outside the human species. The human brand of sociality thus appears to be approached from two different directions—by various other primates because they are man's closest relatives, and by canines and cats because they most nearly do, socially, what humans did for some long time.

But the organization and maintenance of recent and large human social groups cannot be explained by a group-hunting hypothesis.¹⁰ The reason is obvious: The upper size of a group in which each individual gained because of the group's ability to bring down large game would be rather small. As weapons and cooperative strategies improved, then, owing to the automatic expenses of group living, group sizes should have gone down. Instead they went up—right up to nations of hundreds of millions.

Human nations of millions of individuals, each potentially reproductive, appear to be unique in the history of the earth. There is no parallel, as often supposed in the past, with the social insects, in which one or a few females do all of the reproducing and the rest are closely related sterile workers and soldiers. Chimpanzees, baboons, and macaques are probably our closest counterparts in this regard, and their social organization likely never escaped strong effects from predators of other species (one of the most important of which may well have been our own ancestors).

What, then, did cause human groups to keep right on growing? If we hold to the arguments described above, what forces could possibly account for the rise of what anthropologists have called the "nation-state"? The uniqueness of human group sizes, as well as the uniqueness of humans, suggests that unique, truly remarkable causes may be involved.

One possibility is that the early benefits of group living (such as group hunting, cooperation in irrigation, and a host of others) were so powerful that they produced humans with such strong tendencies to group that they developed the huge modern nations of today as more or less incidental effects. This argument construes humans as being considerably less flexible in their behavior than I would like to allow. It says, in effect, that we are captives of our genetic history, and are such compulsive group lovers that we pursue the habit relentlessly despite deleterious effects on ourselves and our children, and despite its hindering effects on the reproduction of ourselves and our close relatives. Perhaps such an argument does not seem too remote to those who have regarded reproduction as a triviality in human history, or to those who do not recognize the degree of opportunistic flexibility that typifies the human organism. Any such argument, however, seems entirely impotent to me. Moreover, should this be the real reason for human sociality, alternative hypotheses should not easily apply.

But there is an alternative hypothesis, one recently proposed by several different writers, and one which seems to me reasonable, appropriately unique, and clearly relevant to all efforts to understand, govern, and perpetuate ourselves.¹¹ I will call it the "Balance-of-Power Hypothesis." This hypothesis contends that at some early point in our history the actual function of human groups—their significance for their individual members—involved the competitive and predatory effects of other human groups and protection from them. The premise is that the necessary and sufficient forces to explain the maintenance of every kind and size of human group, extant today and throughout all but the earliest portions of human history, were (a) war, or intergroup competition and aggression, and (b) the maintenance of balances of power between such groups. I emphasize that this is hypothesis, not conclusion, and I state it in this simple radical form to make it maximally vulnerable to falsification.¹²

The model deriving from this argument would divide early human history into three periods of sociality, roughly as follows:

1. Small, polygynous, probably multi-male bands which stayed together for protection against large predators. (By polygyny is meant not necessarily the maintenance of

- harems, but simply that fewer males than females were contributing genetically.)¹³
2. Small polygynous, multi-male bands which stayed together both for protection against large predators (probably through aggressive defense) and because of the ability to bring down large game (perhaps, at certain times, entirely because of one or the other of these reasons).
 3. Increasingly larger polygynous, multi-male bands which stayed together largely or entirely because of the threat of other, similar, nearby groups of humans.

I suggest that expressions of human social organization today are derived from this sequence, with the relative importance of each stage in understanding sociality in modern humans dependent upon the duration of the stage, the intensity of selection during it, and where it occurs in the sequence. I also suppose that we have been in the third stage so long that the influences of the first two stages are relatively minor. The latter assumption departs dramatically from arguments of other writers, but that is not critical to the arguments that follow.

To relate the scenario I have just constructed to the thinking of archaeologists and anthropologists on the problem of the rise of nations, I would call attention to the recent review of Flannery (1972) on the evolution of civilizations, to Carneiro's (1970) paper, and to Webster's (1975) critique of Carneiro's argument.¹⁴ Flannery describes the modern range of human societies from small hunting-gathering bands of fewer than two hundred individual affiliates through tribes and chiefdoms to huge industrial nations. He notes that all large nations had to pass through at least some of the smaller stages to reach their present condition, and shows that archaeological evidence regarding the earliest known dates for the three classes of societies larger than band societies suggests the appropriate chronology from small groups to large.¹⁵ Then he asks what "prime mover" could account for the trend toward larger, more complex states and nations?

After reviewing many extrinsic possibilities and finding each either unnecessary or insufficient, Flannery seems to follow an approach frequently resorted to by biologists and social scientists alike in this kind of situation; he seems to seek the reasons for the nature of society in its internal workings. This approach leads

to hypotheses like the one discarded earlier here—hypotheses of orthogenesis or genetic, physiological, or social “constraints” or “inertia.” In biology it leads to what are termed arguments from physiological limitations—tendencies to explain each attribute as the maximum that could be achieved in a certain direction despite continued favoring of directional change. In effect, it requires that one explain ultimate causes by proximate causes rather than vice versa, and it is at best a vulnerable argument.¹⁶

Anyone who invokes proximate limitations to explain extant phenomena of life is in effect denying the power of the evolutionary process to produce some perceived or imagined effect. Sometimes there are valid arguments from adaptation for such explanations. An example is the argument that no more than two sexes exist because the presence of three or more would automatically cause an ecologically inferior sex to become less valuable as it became rare and eventually to disappear; with two sexes individuals of the rare sex automatically become more valuable.¹⁷ But to deny adaptive significance because of supposed constraints on natural selection is perilously close to asserting either that marvels like humans and honeybees are impossible, or that they are entirely predictable. Moreover, the rapid directional changes induced by human selection, especially upon domestic animals and plants, and the diversity of effects achieved within species by different directions of selection in only a few generations, tend to deny any long-term significance of genetic constraints and attest to the potency of selection.

How, though, does Flannery dismiss the hypothesis suggested here, that of intergroup competition? He notes that intergroup aggression has evidently been continuous throughout history in many parts of the world where large nations have never evolved. Like Webster and others, he concludes from this that, while war may be necessary to explain the origin of the state, it is not sufficient.

But these authors do not explicitly consider the question of balances of power. Balances of power depend to some extent on physiographic and other extrinsic environmental circumstances, and they may as well exist between tiny New Guinea tribes as between nuclear powers.¹⁸ Moreover, aspects of intergroup conflict among such people, which are commonly referred to as ceremonial or ritualistic, may actually reflect the importance of

balances of power; examples are elaborate bluffing and the intensity of concern with avenging each death. Balances of power are also significant within groups, continually denying to individuals and subgroups the possibility of initiating individualistic reproductive strategies or fragmenting the larger group by secession or fission.

If, for whatever reasons, growing imbalance through one-sided expansions of some groups, or superiority in weapons or some other regard is not possible, then large nations may never appear. One test of a balance-of-power hypothesis would involve checking to see if physiographic or other barriers reduce the effectiveness of coalitions or the likelihood of unity across areas of increasing size, preserving the balance at low group sizes (Carneiro's "environmental circumscription"). Another test would be to see if empires have tended to develop in pairs or groups, or centrally nested inside multiple smaller competitors, and to disintegrate when they lacked suitable adversaries (Carneiro's "social conscription"). Even a very general knowledge of history suggests that these things have been true. Carneiro's hypothesis, and the analyses of Flannery and others, seem to me to put us on the brink of modifying to acceptability a hypothesis of just the sort discussed here (and in somewhat different forms by others).

Across the past several decades, failures in the social sciences to locate broad explanatory generalizations have led to the tendency to suppose that, since singular explanations have been singularly absent, it is more appropriate to seek or rely upon multiple causations than to accept singular ones—even, it seems, if one of the latter should appear sufficient! Perhaps it is vile and degrading to expect that singular explanations can be derived at any level for the complex phenomena of human behavior, but not nearly so much so as to deny them on that basis alone. The new evolutionary arguments about group living summarized above, for example, simultaneously cast doubt on the older "group-function" explanations and imply that a singular basis is both possible and likely.

Now let me review the steps by which I arrived at the hypothesis that the rise of the nation state depended on intergroup competition and aggression, and the maintenance of balances of power with increasing sizes of human groups. First, Williams's convincing argument that selection usually is effective only at

individual or genic levels forced a search for reasons for group living that would balance its automatic costs to individuals. The available reasons have proved to be small in number, and only one, predator protection, appears applicable to large groups of organisms, including those of humans. For humans a principal "predator" is clearly other groups of humans, and it appears that no other species or set of species could possibly fulfill the function of forcing the ever-larger groups that have developed during human history. Carneiro¹⁴ and Flannery¹⁴ essentially eliminated as "prime movers" all of the other forces previously proposed to explain the rise of nations, and I think their arguments are reasonable. Flannery and Webster also eliminated intergroup competition as a prime or singular force, and they sought causes of the rise of nations within societal structure. This last procedure is here deemed unsatisfactory because it leads to the explanation of ultimate factors by proximate mechanisms rather than vice versa. Moreover, Flannery's rejection of intergroup aggression as necessary but not sufficient is deemed inadequate because he did not specifically consider intergroup aggression in terms of the maintenance of balances of power. His elimination of other factors may or may not be satisfactory; the fact is, in light of the realization that the automatic expenses to individuals which accompany group living are generally exacerbated as group sizes increase, none of the supposed causes for the rise of nations except balances of power seems even remotely appropriate; nor do they serve any better when grouped and regarded as multiply contributory.

The kind of argument I am making here cannot fail to be disconcerting, or even bizarre, to many modern scientists, philosophers, and humanists, especially those who are reasonably well satisfied with their present way of looking at things; it is too novel for anything else to be the case. There is only one acceptable basis for rejecting it, however, and that is by demonstrating its weaknesses or error. I believe that applying Williams's refinement of Darwinism, as I am attempting to do here, seriously threatens current philosophical thinking at its base and cannot fail to alter dramatically the theoretical underpinning of the social sciences, not in the sense often imputed to Wilson (1975)—that the formulation of normative ethics must depend upon and derive from biology—but in the sense that interpreta-

tions of history, and predictions about the future of humans not yet cognizant of these matters, will be facilitated by this kind of thinking more than by any other aspect of human understanding. Of course, if I am right, how any desired social, ethical, moral, philosophical, or legal situation is realized will also be massively affected by the analytical process proposed by evolutionary biology. My view of the potential flexibility of human behavior, however, causes me to deny any other necessary effects of knowledge of evolution upon the efforts of human beings to manipulate their future (see below).

Group Living and Rules

With these arguments and hypotheses about the history of human society, we may be in a position to develop a clearer overall view of the backgrounds and significance of societal rules and standards.

In the first place, we are led to hypothesize that rules in some fashion represent the wishes of individuals and relate to reproductive competition among individuals within groups, with the additional constraint that individual reproductive success within groups depends to some extent on the success or maintenance of the group as a whole. In other words, we might hypothesize that individuals behaving consistently in respect to the long evolutionary history of humans should work to preserve their group and keep it healthy while simultaneously striving, as far as possible, to convert their groups into clans of descendants and other genetic relatives related as closely as possible to themselves.

It is relevant that efforts to cause changes in the behavior of populations only work when the individuals in the population regard them as personally advantageous: It has to be to the *individual's* advantage to reduce family size, conserve fuel, or treat his neighbor right; or it has to be to his disadvantage not to do so. Cooperative subgroups, like corporations, are not likely to follow courses that match the interests of the whole group, as in avoiding pollution, resource depletion, or profiteering, unless (a) the penalties imposed by the whole group are sufficient to eliminate the profit in selfish behavior, or (b) a threat external to the entire group makes it temporarily profitable to direct efforts primarily to sustaining it (not the least reason for which is the

“public relations” effect from altruism or heroism in such situations).¹⁹

It is the purpose of laws to cause these things to be true, and to be regarded by individuals as having this function; individual members of a group tend to obey the laws and work for the common good with the least encouragement at times when a group is obviously threatened by external forces—indeed, these are the times when even huge nations form alliances with one another.

What Is Justice?

To relate these musings by a biologist to the thoughts of legal philosophers and sociologists, we can turn briefly to perhaps the most widely asked question about societal laws, the very prominence of which supports the individualistic interpretation of history being defended here. The question is, “What is justice?” I will start with an essay on that topic by Hans Kelsen, which opens his book of the same title.²⁰ Kelsen notes that:

No other question has been discussed so passionately; no other question has caused so much precious blood and so many bitter tears to be shed; no other question has been the object of so much intensive thinking by the most illustrious thinkers from Plato to Kant; and yet, this question is today as unanswered as it ever was. It seems that it is one of those questions to which the resigned wisdom applies that man cannot find a definitive answer, but can only try to improve the question.

Kelsen goes on to define justice as “social happiness,” and he says:

It is obvious that there can be no “just” order, that is one affording happiness to everyone, as long as one defines the concept of happiness in its original, narrow sense of individual happiness, meaning by a man’s happiness, what he himself considers it to be. For it is then inevitable that the happiness of one individual will, at some time, be directly in conflict with that of another.

Where there is no conflict of interests, there is no need for justice. A conflict of interests exists when one interest can be satisfied only at the expense of the other; or, what amounts to the same, when there is a conflict between two values, and when it is not

possible to realize both at the same time; when the one can be realized only if the other is neglected; when it is necessary to prefer the realization of the one to that of the other; to decide which one is more important, or in other terms to decide which is the higher value, and finally: which is the highest value.

Kelsen notes that justice must be relative and incomplete, and can only be regarded as ideal or absolute if it is accepted (by everyone!) as having been determined by an ideal or absolute being, such as God—a view expressed by a long succession of philosophers.

Justice is necessarily incomplete, and laws are fluid, then, because people strive. To understand sociality and the sociology of law it would seem useful to know what people are striving for. This too is an old question. Kelsen, and the American Bill of Rights, say they are striving for happiness, and this is no doubt true. Happiness, though, as the different versions of a prevalent adage tell us, is many things. It is eating and sex and parenting and warmth and touching and ownership and giving and receiving and loving and being loved; it is eating when hungry, drinking when thirsty, coolness when it's hot, and warmth when it's cold; it is the cessation of pain and the onset of pleasure; it's finding a way to win; it's having a magnificent idea or a grandchild.

In some sense these are all biological things. There is probably nothing on the list that doesn't bring a happiness equivalent to at least one nonhuman organism as well as to humans.

Biologists ask another kind of question about the organisms they study: *Why* does that particular event or stimulus bring pleasure or happiness? As a result, biologists are able to generalize about happiness and see it eventually as an evolved means to an end. The neural connections that cause a bare foot to hurt when it comes down on a sharp object are not there accidentally; nor are those that cause a pleasurable sensation when a ripe fruit is placed inside the mouth. These are evolved correlations. Pleasure and happiness associate with events and stimuli that are beneficial to us in the usual environments of history.

Why should it be so? It should be so only if "beneficial" is defined, in terms of history, as leading to reproduction, i.e., as leading to genetic survival. Whatever, in the past, led to increased reproduction was likely to save itself, to cause its own perpetuation. Whatever did not was at least irrelevant, and, as

such, deleterious to its own survival as an alternative to anything that correlated with reproduction. In this light we can understand why intense pleasure should be associated with the opportunity to benefit our offspring—or improve their situations by personal sacrifices—even, if necessary, by giving our lives for them in excruciatingly painful fashion.

Biologists divide the lives of organisms into two stages: resource-garnering (growing, maturing, becoming wealthy or powerful or clever) and resource-redistribution (reproduction, using power, wealth, and wisdom to produce and assist descendants and other relatives).

Now we can suggest that what humans have evolved to strive for is to reproduce and to reproduce maximally—indeed, to *out-reproduce* others.²¹ Happiness, then, is an end for the individual only in the sense that it is achieved by acts leading to reproduction. Happiness is a means to reproduction. (That this is strictly true only in historical terms and that happiness can obviously be diverted from the goal of reproduction can be ignored for the moment.)

In other words, the striving of organisms can be generalized on solid grounds, and it is not hedonistic at all but reproductive; in historical terms hedonism is itself reproductive, and when it is not we expect it eventually to be abandoned.

I believe that these thoughts give us a way of understanding why human striving is incompatible with the concept of ideal, pure, or complete justice. First, humans strive as individuals or subgroups rather than united wholes. Second, there is no automatic finiteness to their striving because success can be measured in no way except in relation to one another: It follows that their separate strivings conflict, and sometimes involve direct thwarting of one another's efforts. Finally, they are continually altering their strivings to increase their success in the changing situations of life, and thereby introducing additional changes.

The differences of interest that legal philosophers discuss are thus based on differences of reproductive interest, and ultimately on genetic differences, and they are not likely to be resolved, in any absolute sense, by allowing given amounts of reward, payment, or returns on investments.

Our interests, then, are turned to several items, the first of which may be degrees of genetic relatedness or overlap among

interacting individuals. We can even suggest that it is no accident that Kelsen's examples of the complexities of justice are: (a) two men in love with the same woman; (b) King Solomon's threat to divide a disputed child between the two women who claimed it, with the intent of giving it to the woman who loved it too much to allow it to be hurt; and (c) two men in competition for the same prestigious job.

The basis for conflicts of interest among individuals—hence, the basis for the unresolvability of the question of justice—evidently derives from our history of reproductive competition operating primarily at the individual level. I am saying bluntly that social conflict derives from biological facts. To me this suggests that our best chance for diminishing social conflict lies in better understanding of its biological basis.

Since most people today live in nation-states, we must also be interested in the nature of such societies and the possibility of generalizing the basis for the systems of law by which nation-states manage to function. Stein and Shand, in their 1974 book, *Legal Values in Western Society*, argue that order is “the primary value with which law is associated.” But they answer the question, “What is law for?” by saying that the “three basic values of the legal system” are “order, justice, and personal freedom.” From the arguments I have just made, and those that follow, I suggest instead that law is “for” but one thing: the preservation of order; and that justice and personal freedom, to whatever extent they are sought or approached, are also for the purpose of maintaining order. Order is valuable to everyone if extrinsic threats to the group are sufficiently severe, and the group is of no value if there are no such threats. In times of little or no extrinsic threat, on the other hand, laws are most valuable to those who lopsidedly control resources. These people generally include the wealthy and secure (versus the poor and insecure), parents (versus individual offspring), and older people (versus younger people). Revolutionaries (those willing to destroy order) must either (a) perceive themselves to be in a very bad position within society; (b) suppose that no significant threats to the group exist at the moment (so that internal dissension would not lead to worse troubles for themselves as a result of outside forces); or (c) have support from outside the group that seems to them to

promise a better situation as a result of destruction of the existing order, and perhaps even their group as constituted.

And so we are returned to the biologist's view of organisms' lives being divisible into the activities of resource-garnering and resource-redistribution. I think we are talking about the basis for everyday phenomena such as the so-called "generation gap," inheritance laws, changes in occupation at midlife, racism, and reasons for racism's effects falling more heavily upon one sex (male) of the minority group than upon the other.

What I am saying, in many parts of this essay, I recognize to be essentially common sense. It seems to me that this is true to the extent that appropriate explanations are being approached. On the other hand, even common sense should become infinitely more sensible in the context of a history of differential reproduction, and I want to pursue that possibility further.

Reproductive Competition and Law-breaking

I have argued that the *function of laws is to regulate and render finite the reproductive strivings of individuals and sub-groups within societies, in the interest of preserving unity in the larger group* (all of "society" or the nation-state). Presumably, unity in the larger group feeds back beneficial effects on those segments or units which propose, maintain, adjust, and enforce the laws. Partly because of continual shifts of interests, changing coalitions, and power adjustments, it is not likely always to do so evenly, or in such fashion as to cause all individuals to benefit equally from group unity; hence, the value of "federal" government.

As a preliminary test of the general model that laws function to place limits on reproductive striving,²² several obvious predictions may be considered. First, laws should be constructed so as to regulate competitive striving, and the severity of punishment should reflect the severity of deleterious effects on the reproduction of others. Capital punishment is generally correlated with murder, which destroys the victim's ability to reproduce; treason, which potentially lowers, at least slightly and perhaps massively, the reproductive fitnesses of everyone else in one's society; rape, which may directly interfere with a man's chances of reproducing

via his spouse, sister, daughter, or other female relatives. Rape laws are particularly interesting to consider, since, because it is a nonfatal kind of assault, rape may not at first seem to be an appropriate transgression for the imposition of capital punishment.

If we were to select a category of striving that is centrally important, restricted to a definite part of the human life span, and more intense in one sex than the other, then we should be able to plot changes in the intensity of that striving—say, by age—against changes in the likelihood or rate of lawbreaking.

Suppose we choose sexual competition, or competition for mates, including all of the various activities involved in increasing one's desirability as a mate, hence, one's ability to select among a wider array of potential mates. First, sexual competition is demonstrably more intense among males than among females; and one can easily show from apparently accumulated differences between modern human males and females powerful evidence that this has consistently been the case during human history, and that a general consequence is that the entire life-history strategy of males is a higher-risk, higher-stakes adventure than that of females.²³ This finding leads to the prediction that lawbreaking will occur more frequently among males, which of course is already well known.²⁴ It also seems to predict that laws are chiefly made by men (as opposed to women) to control men (as opposed to women). That laws are made by men to control men is suggested over and over again in the structure and application of laws. As perhaps the prime example, it has become painfully clear because of attention recently brought to bear by women's groups on the application of laws against rape that the female victims are treated like pawns by the collections of (mostly) males who enforce the laws, judge and punish the offenders, and are indirectly wronged because of affinal or kin relationship to the victim. One might say that rape victims appear to be treated as if rape laws were designed to protect them only in the sense that rape wrongs the males to whom they "belong" or might have belonged and reduces their value or attractiveness to those males; and in the sense that, when rapists are free to act, the interests of all *men* are in jeopardy. It appears that the female victims of rape may be only incidental to the development and application of rape laws. Under current circumstances, the most

pathetic of all rape victims is probably the female (1) without a male who has at that moment a proprietary interest in her welfare, such as a father, brother, husband, or sweetheart; (2) whose male defenders are already somewhat tentative in their allegiance to her; (3) who was raped by such a person or in such a circumstance as to pose little threat to other males in society; or (4) was raped in a fashion or circumstance that reflects particularly severely on her future desirability as a mate. It is relevant that in most states a man cannot be accused of raping his wife, and, until very recently, a man could kill his wife or her lover without being accused of murder while a wife could not.²⁵

Lawbreaking is also expected to be concentrated at those periods in life, or those ages, when competitive striving is most intense or most crucial. Competition for mates is greatest just before the usual ages of marriage, and the extent to which an individual is able to begin effectively to climb the ladder of affluence may also be determined at about the same ages. Lawbreaking is strongly concentrated during ages 17-22 in technological nations.²⁶ These are also the precise ages at which Yanomamö Indians, and probably men in most societies, suffer their highest mortality, mostly from intergroup aggression, and also the ages of highest likelihood of military induction.²⁷ These ages immediately precede those at which marriage is most frequent.

Lawbreaking is expected to be higher in individuals or groups most inhibited from climbing the ladder of affluence or using the system legally to accumulate resources. Moreover, lawbreaking should be even more heavily concentrated in males who are more or less publicly identified as likely to have such difficulties. Thus:

(a) Lawbreaking should be, and is, higher in minority-group males than in majority-group males.²⁸

(b) Lawbreaking should be, and is, higher in publicly (e.g., physically) identifiable minority-group males than in those not publicly identifiable.²⁸

(c) In the absence of publicly identifiable minority groups, lawbreaking should be highest in young males whose families give them least assistance in climbing the ladder of affluence. The most dramatic correlation found by Ferracuti and Dinitz (1974) with delinquency in a racially homogenous Puerto Rican situation was with lowering social status of the boy's family.²⁹

Lawbreaking is also higher in families lacking one parent—especially the father—in families that are less religious, and in families with less control over their children and who give their children less assistance, encouragement, and attention, but who punish them more often.²⁹

Finally, we may consider alternative strategies of reproductive competition among males, their distribution, and their consequences for patterns of lawlessness. I assume that freedom of opportunity to “climb the ladder of affluence” is a crucial aspect of sexual competition which, when available, will supplant all others—that is, that males who are either affluent or have a very high likelihood of becoming affluent are among the most desirable mates. Such males are unlikely to be lawbreakers, except in the context of using the system to further their affluence illegally, such as by income tax tricks or misuse of power associated with affluence.

In contrast, one expects alternative strategies, such as behavior that can be considered under the general label of “machismo,” or flash and braggadocio, to be concentrated in individuals or groups whose likelihood of climbing the ladder of affluence (“using the system” effectively) is lowest, and especially when this low likelihood is publicly projected by inescapable identification with a disadvantaged group, such as a minority that the system discriminates against. “Macho” strategies of sexual competition are at once declarations of desirable qualities other than affluence, denials of the value of affluence as usually measured, rejections of the system, and declarations of a degree of disdain and independence with regard to the rules of the system. Sexual competition by macho behavior is almost by definition a declaration of lawlessness, or willingness to break the law.

In summary, the predictions may be met that (a) macho behavior, such as flashy dressing and abandonment of spouses and families, and (b) lawbreaking will be concentrated in men who (i) are young, (ii) lack wealthy, influential, successful, or powerful relatives, and (iii) are recognizable as members of minority or other disadvantaged groups. It is an obvious corollary that somehow to equalize the possibilities of individual men of all classes and origins of “climbing the ladder of affluence”—at least in terms of personal capabilities (and how they are seen by their possessors)—would provide the most reliable if not the easiest

way of reducing the problem of overcrowding in prisons. Perhaps not surprisingly, this conclusion is consistent with those arrived at from entirely different approaches, and after very extensive examinations of correlates of crime and delinquency.³⁰

Nepotism and Reciprocity

At this point I think it is necessary to distinguish explicitly two general classes of social interactions which have different characteristics and different outcomes. Although their differences and similarities are thoroughly explored elsewhere,³¹ their changing relationship to societal laws in different kinds and sizes of groups requires a brief summary here.

Nepotism implies that benefits are given by one individual to another without reciprocation, the gain to the first individual resulting from the genetic overlap between the two. Reciprocity implies that benefits are only given when there is a high likelihood of a compensating return to the phenotype of the benefit giver (but, conceivably, the return could be to the phenotypes of relatives of the benefit giver). Only reciprocity can evolve within groups of unrelated individuals. In groups of equally related individuals (or individuals who cannot respond to differences in degrees of relatedness and can only evolve to respond in terms of average relatedness), nepotism will also evolve such that only two kinds of individuals will be distinguished: group members and nongroup members. Reciprocity can also evolve in such groups.

What happens in groups of variously related individuals, within which the individuals can respond to the differences in relationships? Obviously, when reciprocity is unlikely, closer relatives should be favored in beneficence. But so should they if there is any doubt about reciprocity, as there must always be. One can better afford to lose, and less afford to cheat, in reciprocity with a relative, and more so with a closer relative than with a more distant one.

Even parental behavior is, like reciprocity, an investment involving the risk that it may not yield a suitable return. If acts of nepotism should be directed at one's closest relatives, among those with equal needs, so should acts of reciprocity, assuming

no variation in cost-benefit ratios. This means that in groups of variously related individuals, nepotism and reciprocity will always tend to be intricately related. Thus, reciprocity can evolve alone, but only in groups of unrelated individuals; but nepotism evidently cannot evolve independently of reciprocity because reciprocity will always be potentially a factor in the social interactions of groups within which nepotism can evolve. This fact may be responsible for many of the confusing aspects of human systems of kinship cooperation and altruism that have led social scientists to doubt their derivation from a history of differential reproduction.³²

Elsewhere I have argued that nepotistic behavior toward non-descendant relatives evolves out of parent-offspring interactions, and that reciprocity derives from nepotism.³³ Here I suggest that authority, in regard to regulation of social interactions, originates in parental authority, and that parental control of resources is a major aspect of rule construction and enforcement. From this beginning the extension to nepotism is small in the forms of assisting relatives in efforts to obtain repayment of debts owed them, avenging wrongs done to relatives, and accepting responsibility for debts incurred by relatives.

The development of nation-states correlates with the suppression of nepotism, a rise of concern with law and order, a rise of belief in the authority of divine beings or rulers, and an acceptance of nobility and divinity in leaders and rulers. I ask whether there is a connection between these changes and the original parental authority, with the origins of divinity being reverence toward deceased powerful ancestors and the effort to use their presumed wishes and authority to promote order, and to use the ability to convince others of either special knowledge of such ancestors' wishes or communication with them to succeed to leadership and power (hence, I suppose, unusual reproductive opportunities). I do not suppose it an accident that God should have come to be regarded as a "Father in Heaven."

Changes in Rules with Development of Nation-States

I have already argued that the rise of nation-states occurred as a result of the interactions of neighboring competitive and hostile groups expanding their alliances and cementing unities in a balance-of-power race. Now I suggest that rather than the rise of the

nation-state being understandable through knowledge of its internal workings,³⁴ the internal workings of the nation-state are understandable only in terms of the reasons for its appearance, namely, intergroup aggression and competition. Let us examine briefly the sources and kinds of rules in the different kinds of societies compared by Flannery and widely regarded as representing stages preceding the nation-state. They are bands, tribes, chiefdoms, and stratified societies. In drawing heavily from Flannery's review, which I find consistent with other writings on this topic, I note that Flannery wrote in total unawareness of the arguments I am making.

Flannery notes that the only "segments" of *bands* are "families or groups of related families" and their "means of integration are usually limited to familial bonds of kinship and marriage, plus common residence. Leadership is informal and ephemeral; division of labor is along the lines of age and sex; and concepts of territoriality, descent, or lineage are weakly developed."

In extant band societies there is little heritable wealth. Social interactions are said to be based largely on "reciprocity," but the term has been used by anthropologists who did not distinguish nepotism and reciprocity. Wiessner³⁵ has evidence that in Kalahari Bushmen "reciprocity" is essentially limited to known genetic relatives, and it is practiced more with closer relatives than with more distant ones.

What authority there is in band societies seems to derive largely from parents and collections of parents, especially older men. Relatives defend and avenge one another, and they are expected to do so. The social "cement" of band societies is clearly nepotism.

Tribes are larger groups "whose segments are groups of families related by common descent or by membership in a variety of kinbased groups (clans, lineages, descent lines, kindreds, etc.). . . . Ancestors are often revered, and it is believed that they continue to take part in the activities of the lineage even after death. . . . Since 'tribes,' like bands, have weak and ephemeral leadership, they are further integrated (and even, it has been argued, regulate their environmental and interpersonal relations) by elaborate ceremonies and rituals. Some of these are conducted by formal 'sodalities' or 'fraternal orders' in which members of many lineages participate. . . . 'Tribes' frequently

have ceremonies which are regularly scheduled . . . [and] may help to maintain undegraded environments, limit intergroup raiding, adjust man-land ratios, facilitate trade, redistribute natural resources, and 'level' any differences in wealth which threaten societies' egalitarian structure. . . ."36

It seems to me that Flannery may be describing the rudiments of laws that hold together groups of not-so-close relatives by imposing and maintaining restrictions on reproductive competition. He describes from archaeological finds "pottery masks . . . countless figurines of dancers . . . incredible accumulations of shell rattles, deer scapula rasps, turtle shell drums, conch shell trumpets . . ." which suggest not only ceremony but significant differentials in heritable wealth.

Chagnon³⁷ has noted that Yanomamö Indians may not mention the dead. Yet the Yanomamö, he assures me, otherwise fit Flannery's usage of tribes. This sensitivity around the use of ancestors may indicate the difference between allowing and not allowing succession to power and influence by identification with powerful deceased relatives. The Yanomamö tend to fission when a powerful ancestor dies, with the sizes of groups at fissioning correlated with degree of genetic relatedness in the groups. Tribes discussed by Flannery revere such ancestors, and, one supposes, may use them to enhance unity in their societies of groups of related families. The power of parents and the unity of nepotism thus still appear the major source of authority and rules in the tribal societies to which Flannery refers.

Chiefdoms are still larger groups in which "lineages are 'ranked' with regard to each other, and men from birth are of 'chiefly' or 'commoner descent.'" Such chiefs "are not merely of noble birth, but usually divine; they have special relationships with the gods which are denied commoners and which legitimize their right to demand community support and tribute . . . the chief . . . may be a priest . . . the office of 'chief' exists apart from the man who occupies it, and on his death the office must be filled by one of equally noble descent; some chiefdoms, maintained elaborate genealogies to establish this . . ."

"Since lineages are also property-holding units, it is not surprising to find that in some chiefdoms the best agricultural land or the best fishing localities are 'owned' by the highest-ranking lineages . . . high-ranking members of chiefdoms reinforce their

status with sumptuary goods, some of which archaeologists later recover in the form of 'art works' in jade, turquoise, alabaster, gold, lapis lazuli, and so on."³⁸

In chiefdoms it would appear that sources of authority have become more significant than in small groups, sometimes shifting from parental authority to deceased ancestors to gods representing extensions of such deceased ancestors. One also notices that the "office" of chief has itself become a vehicle of potential reproductive success for the individual who attains it—hence, itself a sought-after position (i.e., it is no longer strictly a vehicle for nepotism to the entire subject group, as in the case of a family patriarch). This opportunity is accepted and allowed by group members, perhaps because of the value to them of competition for the position of chief, which increases the likelihood that their leader will be a capable one.

Finally, "The state is a type of very strong, usually highly centralized government, with a professional ruling class, largely divorced from the bonds of kinship which characterize simpler societies. It is highly stratified and extremely diversified internally, with residential patterns often based on occupational specialization rather than blood or affinal relationship. The state attempts to maintain a monopoly of force, and is characterized by true law; almost any crime may be considered a crime against the state, in which case punishment is meted out by the state according to codified procedures, rather than being the responsibility of the offended party or his kin, as in simpler societies. While individual citizens must forego violence the state can wage war; it can also draft soldiers, levy taxes, and exact tribute."³⁹

Nepotism displays a peculiarly altered condition within the nation-state, as compared to the smaller kinds of human societies in which it may represent the basic social cement. Nepotism obviously cannot be the social cement of nation-states of millions or hundreds of millions of individuals; only reciprocity can fulfill this function; and, of course, the interactions of individuals in nation-states are always organized around barter, currency, and various kinds of legal obligations and documents which ensure that debts are paid. So, within large nation-states we retain ties chiefly to the immediate family, and we tend to identify as immediate family parents, offspring, and siblings. Because there is a correlation between the uniquely human phenomenon of

socially imposed monogamy and the nation-state, everyone in the immediate family is related to Ego by 1/2; nephews, nieces, aunts, and uncles by 1/4; first cousins by 1/8. More distant relatives are generally classed just that way—as “distant relatives.” We do not usually organize into clans, and when we do we are usually regarded as behaving outside the law. So nepotism in the nation-state seems focused on the individual and the immediate family, with its vestiges outside the family likely often “misdirected,” in historical, reproductive terms (especially in modern societies with the high and novel degree of mobility of our own) to neighbors, roommates, or others whose social relationships to us mimic those of relatives in the past. The functional relationships between nepotism and reciprocity described earlier thus correspond to the roles and relative prominences of these two related aspects of sociality in the different kinds and sizes of human social systems extant today and believed roughly to correspond to stages in the development of the nation-state.⁴⁰

It seems to me that the categories into which the laws of nation-states can be arranged are commensurate with the biological arguments made above: (1) those which prevent individuals or groups from too severely interfering with the reproductive success of others, (2) those which prevent individuals or groups from too dramatically enhancing their own reproductive success, and (3) those which promote industry and creativity in individuals and groups in ways that may be exploited or plagiarized by the larger collective. Examples of laws in these three categories, respectively, are those concerning:

- a. murder, assault, rape, kidnapping, treason, theft, extortion, breach of contract.
- b. polygamy, nepotism, tax evasion, draft evasion, monopolies.
- c. patents, copyrights, wills.

As a final comment, I cannot resist noting that the Ten Commandments look like a legal prescription for the maintenance of a nation-state. I find it easy to interpret the first four, all of which deal with paying homage to God and not breaking his laws, as referring to the importance of preserving the large group. I am impressed that 40 percent of the rules seem concerned with this issue.

The fifth says that we should also honor our parents. This is commensurate with arguments advanced so far: Half of the commandments thus deal with respecting sources of authority or not tampering with current distributions of resource control. These are the commandments that include threats of retribution. Even the fifth concludes its admonishment with the phrase “that thy days may be long in the land which the Lord thy God giveth thee,” probably, however, referring to the family’s survival rather than that of the individual—hence, effectively referring to genes rather than individuals!

The next four commandments tell us not to kill, commit adultery, steal, or lie. The tenth tells us not even to think about it. I am particularly impressed with the tenth commandment because, in my experience, humans tend to regard as first novel and bizarre, then ludicrous and outrageous, the suggestion that their evolutionary history may have primed them to be wholly concerned with genetic reproduction (in the environments of history). How does it happen, that in the course of evolving consciousness as a state into or through which *some* of our behaviors are expressed, we are so emphatic (and public) about rejecting this seemingly ever-so-reasonable one? Simultaneously we seem to reject the possibility that what we are truly about could be something we hadn’t really thought of—personally and individually. It makes one wonder, quite seriously, if there might not be something incompatible about telling young children all about natural selection and rearing them to be properly and effectively social in the ways that we always have.⁴¹

Evolution and Normative Ethics

The arguments given above, and the cited references, make it clear why I believe that evolution has more to say about why people do what they do than any other theory. In contrast, my answer to the question: “What does evolution have to say about normative ethics, or what people *ought* to be doing?” is: “Nothing whatsoever.” Apparently this response is so startling that I am required to explain it.

I have two reasons for giving this answer. The first is that I regard humans as sufficiently plastic in their behavior to accom-

plish almost *whatever they wish*. The emphasis is on the final phrase because this is the crucial question.

There is an unfortunately prevalent attitude that to suppose an evolutionary background for behavior automatically supposes a predictable future into which we are helplessly cast as a consequence of the ontogenetic determinism produced in us by the history of selective action on our genes. The feeling seems to be that all evolution has to offer is information about our inevitable route through history. No one wants to know all about his future, unless the knowledge, paradoxically, promises to help him change it; and most people doubt anyway that such knowledge is possible. I am sure these feelings give rise to one kind of anti-evolutionism.

People who think this way are missing the fact that the life histories of individual organisms and the fates of species are predictable, in evolutionary terms, only to the extent that environments and their effects are predictable. For a species whose individual members possess cognitive and reflective ability, and the power of conscious prediction and testing of predictions, even the knowledge of its evolutionary history, and the interpretation of its individual tendencies in different ontogenetic environments on account of that history, become parts of the environment that determine its future. Indeed, I am contributing to this book solely because it seems to me that no other aspect of the human experience could possibly be so massively influential upon our future as a clear comprehension of the reasons, and therefore to some extent the nature, of the fine tuning of our personalities, individually and collectively, from the effects of an inexorable process of differential reproduction during our history.

I am saying that what a knowledge of evolution really offers us, in terms of the future, is an elaboration not a restricting of ontogenetic possibilities, of life history or life-style opportunities, and of collective potential for accomplishing whatever may be desired. It does this by telling us who we really are, and, therefore, how to become whatever we may want to become. Evolutionary understanding, then, more than anything, has the power to make humans sufficiently plastic to accomplish *whatever they wish*. This grandiose notion, of course, loses all its glamour if there is any doubt at all about the centrality of evolutionary theory as explanatory of human nature.

My second reason for denying that evolutionary understanding carries lessons about what we *ought* to be doing involves the background of such notions. Ethical structures have been developed throughout history without any extensive direct knowledge or conscious perception of the evolutionary process. If they have in any sense converged upon what might have generated in the presence of such understanding it has to be because individuals and collectives of individuals have identified rights and wrongs in terms of effects, ultimately, upon reproductive success. I have already argued that they have done so, and I think it is obvious that they have usually done so without any conscious knowledge of the relationship of reproductive success to either history or proximate rewards like sensations of pleasure or well being.

Does this mean, however, that opportunities for reproductive success necessarily must lie at the heart of our considerations of normative ethics for the future? I can see no reason for such an assumption.

So we are returned to proximate rewards, which have formed the basis for all systems of normative ethics anyway, without any particular evidence of their connections to ultimate reproductive success. No one needs evolutionary theory to identify proximate rewards in his own life, although such theory may clarify their significance to us. Moreover, anyone who rejects as a proximate reward to himself whatever may be identified as such from evolutionary considerations by definition cannot, in my opinion, be wrong.

However proper systems of normative ethics are identified, then, evolutionary considerations almost surely can help to achieve the goal. It must be obvious that I think that it can do this better than any other kind of knowledge. But evolutionary understanding has little or nothing to tell us about how to identify the goal. At most it may suggest that this question is destined to remain much more complex than we would like, that answers to it will change rather than become simple and static, and that it will never be answerable for all time at any particular time.⁴²

NOTES

1. This step has been possible so far with very few traits of very few organisms, and only then on short-term bases or with rather low

levels of certainty. The truth is that we do not yet know with much confidence such things as why the dinosaurs became extinct. Attempts at syntheses of the sort implied here are likely, however, to be prominent features of evolutionary investigations in the future, and I think we may expect them to occur first in three areas: (1) the evolution of sterile castes in insects (because the underlying genetics in Hymenoptera—the major group involved—are asymmetrical owing to haplodiploid sex determination, and we understand them well); (2) the evolution of mating behavior in arthropods and vertebrates (because so much comparative analysis is possible and so much relevant information is available from related studies, like the use of genitalic morphology by taxonomists); and (3) the evolution of human social behavior (because we are so fascinated by it, and because paleontological and archaeological data continue to be gathered so rapidly).

2. The reasons for this assumption are not widely discussed. Some of them are the following: (1) altering directions of selection alters directions of genetic change in organisms; (2) the causes of mutations (chiefly radiation) and the causes of selection (Darwin's "hostile forces" of food shortages, climate, weather, predators, parasites, and diseases) are independent of one another; (3) only the causes of selection remain consistently directional for relatively long periods (thus could explain long-term directional changes); and (4) predictions based on the assumption that adaptiveness depends solely upon selection work. A prime example of the last is the history of sex ratio selection, traceable from the work of R. A. Fisher, *The Genetical Theory of Natural Selection*, New York: Dover, 1958; (1st ed. 1930), pp. 158-62; W. D. Hamilton, "Extraordinary Sex Ratios," *Science* 154 (1967): 477-88; R. L. Trivers and D. Willard, "Natural Selection of Parental Ability to Vary the Sex Ratio of Offspring," *Science* 179 (1973): 90-2; R. L. Trivers and H. Hare, "Haplodiploidy and the Evolution of the Social Insects," *Science* 191 (1976): 249-63; R. D. Alexander and P. W. Sherman, "Local Mate Competition and Parental Investment in Social Insects," *Science* 196 (1977): 494-500; R. D. Alexander, J. L. Hoogland, R. D. Howard, K. M. Noonan, and P. W. Sherman, "Sexual Dimorphisms and Breeding Systems in Pinnipeds, Ungulates, Primates, and Humans," to appear in *Evolutionary Biology and Human Social Behavior: An Anthropological Perspective*, ed. N. A. Chagnon and W. G. Irons, (North Scituate, Mass.: Duxbury Press).
3. See also R. C. Lewontin, "The Units of Selection," *Annual Review of Ecology and Systematics*, 1 (1970): 1-18; R. D. Alexander and

- G. Borgia, "Group selection, altruism, and the hierarchical organization of life," *Annual Review of Ecology and Systematics* 9 (1978).
4. See references in the following: R. D. Alexander, "The Search for an Evolutionary Philosophy of Man," *Proceedings of the Royal Society of Victoria*, 84 (1971): 99-120; "The Evolution of Social Behavior," *Annual Review of Ecology and Systematics*, 5 (1974): 325-83; "The Search for a General Theory of Behavior," *Behavioral Science*, 20 (1975): 77-100; "Natural Selection and the Analysis of Human Sociality," in the *Changing Scenes in Natural Sciences*, 1776-1976. ed. C. E. Goulden, Philadelphia Academy of Natural Sciences Special Publication 12 (1977) 283-337. "Natural Selection and Social Exchange," in *Social Exchange in Developing Relationships*, ed. R. L. Burgess and T. L. Huston, (New York: Academic Press, 1978); "Evolution, Human Behavior, and Determinism," *Proceedings of the Biennial Meeting of the Philosophy of Science Association*, 2 (1977): 3-21.
 5. Here I add a reservation about the enthusiasm which has occurred in the wake of Williams's 1966 book, and as a result of W. D. Hamilton's theory of inclusive fitness in "The Genetical Evolution of Social Behaviour, I, II," *Journal of Theoretical Biology*, 7 (1964): 1-52 (later referred to generally as "kin selection"). Hamilton followed Fisher (*The Genetical Theory of Natural Selection*) and others in pointing out that organisms can reproduce genetically not only via their direct descendants but also through whatever other nondescendant relatives may be socially available to them. In other words, nepotism to any genetic relative may be part of an organism's strategy of reproduction through altruism to others (altruism being defined as acts that at some expense or risk to the actor contribute to the well being—actually the reproduction—of others). Since humans are more extensively and complexly nepotistic than any other organism, Hamilton's arguments are immediately interesting to anyone concerned with human behavior. Hamilton's arguments also focused attention on subgenotypic elements, since they deal with reproductive costs and benefits to anyone of helping relatives with different fractional genetic overlaps. My caution has to do with the fact that evolutionary biologists have followed the lure of simplified quantitative genetics, perhaps without due care, right to the gene level. A prime illustration is the recent book by Richard Dawkins titled *The Selfish Gene* (New York: Oxford University Press, 1976). The same trend followed the rediscovery of Mendel's results, and that approach was eventually termed "bean bag genetics." As Ernst Mayr put it ("The Unity of the Genotype,"

Biologisches Zentralblatt, 94 (1975): 377-88), "The approach . . . became entirely atomistic and, for the sake of convenience, each gene was treated as if it were quite independent of all others. In due time all sorts of phenomena were discovered which contradicted this interpretation, such as the linkage of genes, epistasis, pleiotropy, and polygeny, and yet in evolutionary discussions only lip service was paid to these complications. . . . The purely analytical school thought that . . . an integrative attitude was incompatible with a meaningful analysis and dangerously close to such a stultifying concept as holism." Sooner or later, I believe, we must return to the individual as the most potent level at which selection works (See Lewontin, "The Units of Selection"). This simply means that, whatever we decide about subgenotypic levels, we will be forced to consider at every step what is meant by the fact that genes do not produce their effects independently of their genetic environments and are not inherited separately. This question may seem largely academic for social scientists, since the interests of genes and genotypes are so often synonymous; however, the prominence of certain questions, like kin selection and the outcome of parent-offspring conflict (see R. L. Trivers, "Parent-Offspring Conflict," *American Zoologist*, 14 [1974]: 249-64; Alexander, "The Evolution of Social Behavior") indicates that subgenomic considerations cannot be ignored, even by social scientists. Moreover, useful parallels can be drawn between the effects of selection on organization at subgenomic and supragenomic (i.e., social) levels (see Alexander and Borgia, "Group Selection, Altruism, and the Hierarchical Organization of Life").

6. The potential significance of this approach is amply illustrated by several recent studies showing that, while culture clearly is *potentially* independent of the interests of the genes, in fact cultural patterns in regard to social activities like birth-spacing, infanticide, reciprocity, war, inheritance, and interactions of genetic kin reflect to a surprising degree the genetic interests of their perpetrators (Alexander, "Natural Selection and the Analysis of Human Sociality"; chapters by various authors in Chagnon and Irons, *Evolutionary Biology*. . .).
7. Some of my students suggested two special cases that do not fit well into these general categories: (4) communal winter clusters (e.g., of flying squirrels) which may chiefly gain from minimizing energy loss, and (5) the V-formation of migrating waterfowl in which individuals may gain from pooling their information about the long migratory route. W. J. Freeland ("Pathogens and the Evolution of Primate Sociality," *Biotropica*, 8 (1976): 12-24) ar-

- gues that disease may be an alternative cause of group living, but his arguments seem more to involve modifications of group living, once other causes establish and maintain it, because of the expense of diseases under group living.
8. Relative food shortages are here regarded as a "hostile force of nature," as Darwin also regarded them.
 9. I use the term "function" in this paper essentially in the sense of Williams, *Adaptation and Natural Selection* (Princeton, N.J.: Princeton University Press, 1966) (and now of evolutionary biology more or less generally) to mean *evolved adaptive significance*. In other words, I use it to refer to any contributing factor supposed or hypothesized to be responsible for the selective origin and maintenance of the phenomenon, as opposed to (1) effects (Williams's "incidental effects") or (2) contributing causes unable by themselves to account for the phenomenon. Thus, there is an implicit assumption that what I am calling the *function* of an act or other phenotypic expression is alone capable of producing and maintaining the phenomenon; or that is an hypothesis under consideration. In this sense I am searching for single causes, and I regard this procedure as a logical approach to causation in biological phenomena. Multiple causes should be accepted only when single ones prove insufficient. If the absence of truly broad generalizations in the search for understanding of human existence should happen to be attributable to our long-term failure to reconcile the search with the principles of organic evolution, then our reluctance to admit the possibility of "single causes" should at least be tempered somewhat when we enter into a stage of rapid and massive incorporation of evolutionary principles, as I believe is the case at the moment.
 10. Alexander, "The Search for an Evolutionary Philosophy of Man," pp. 115-17.
 11. A. Keith. *A New Theory of Human Evolution*. (New York: Philosophical Library, 1949); Alexander "The Search for an Evolutionary Philosophy of Man"; R. D. Alexander and D. W. Tinkle, "A Comparative Book Review of *On Aggression* by Konrad Lorenz and *The Territorial Imperative* by Robert Ardrey," *Bioscience*, 18 (1968): 245-48; R. S. Bigelow, *The Dawn Warriors* (Boston: Little, Brown, 1969); R. L. Carneiro, "Slash- and Burn-Cultivation among the Kuikuru and Its Implications for Cultural Development in the Amazon Basin," in *The Evolution of Horticultural Systems in Native South America: Causes and Consequences; A Symposium*, ed. J. Wilbert, *Antropologica* (Venezuela), Suppl. 2 (1961): 47-67; E. O. Wilson, "On the Queerness of Social Evolution," *Bulletin of the Entomological Society of America*, 19 (1973): 20-22; E. O. Wilson,

- Sociobiology: The New Synthesis*. (Cambridge, Mass.: Harvard University Press, 1975); W. H. Durham, "Resource Competition and Human Aggression. Part I. A Review of Primitive War." *Quarterly Review of Biology*, 51, (1976): 385-415.
12. I am not implying that no other forces *influence* group sizes and structures but that balances of power provide the basic sizes and kinds of groups upon which secondary forces like resource distribution, population densities, agricultural and technological developments, and effects of diseases exert their influences.
 13. For a discussion of the multiple consequences of this situation, see R. D. Alexander *et al*, in Chagnon and Irons, *Evolutionary Biology*. . . .
 14. K. Flannery, "The Evolution of Civilizations." *Annual Review of Ecology and Systematics*, 8 (1972): 399-426. R. L. Carneiro, "Slash- and Burn-Cultivation . . ."; D. Webster, "Warfare and the Evolution of the State: a Reconsideration." *American Antiquity* 40 (1975): 464-70.
 15. The criticism is sometimes made that Flannery's (ibid.) kind of reconstruction assumes that a particular modern ethnographic example is an exact replicate of its archaeological (and extinct) counterpart, or even, in the extreme, that the ethnographic and archaeological examples are implied to give rise to one another, always progressing from simple to complex. This attitude implies a basic misunderstanding of comparative method. Comparative method, in biology or archaeology, assumes: (1) that sequences of change have occurred (genetic evolution and cultural change); (2) that parallel sequences of change occur in different places, at different times, and in different lines at the same times and places; (3) that some (but not all) of the attributes of different stages (but not the actual cases or even, necessarily, the actual sequences) will be represented in both extant and extinct forms, and (4) that appropriate comparisons of such attributes can yield information about the sequences of change and their causes. These assumptions allow interpretation of the past by studying the present, or vice versa, and comparative method, explicitly in the sense described here, represents the main source of evidence for both evolutionary biology and archaeology.
 16. There *are* genetic and physiological constraints on natural selection: They are recognized by evolutionists under the term "specialization." An animal like a mole, specialized to live underground, is less likely to evolve wings than one, like a squirrel, which spends its time climbing and leaping from tree to tree. This is a very simple example, but the argument is essentially the same whether

one is considering subgenomic interactions or populational phenomena.

17. H. W. Power, "On Forces of Selection in the Evolution of Mating Types. *American Naturalist*, 110 (1976): 937-44.
18. Carneiro, "Slash- and Burn-Cultivation . . .," actually approached this argument with his concepts of environmental and social circumscription.
19. See Fisher, *The Genetical Theory . . .* on "Heroism and the Higher Human Faculties."
20. H. Kelsen. *What is Justice? Justice, Law, and Politics in the Mirror of Science; Collected Essays*. (Berkeley: University of California Press, 1957).
21. I am in no way arguing that all humans always behave so as to maximize reproduction but I am arguing that this is what they have *evolved* to do, in the *environments of history*, and that we must know ourselves in this way to understand best all of our inclinations and our motivations.
22. I would expect the function of laws (see footnote 9) to be the limitation of the reproductive striving of those *other than* the legislators and enforcers themselves; it is an incidental effect that legislators and enforcers are limited by the same laws—although from the viewpoint of those requiring legislators and enforcers to follow the same laws they have to follow (another form of enforcement), this "effect" in turn becomes a function.
23. R. D. Alexander *et al.*, "Sexual Dimorphisms and Breeding Systems . . ."
24. E. H. Sutherland and R. Cressey, *Principles of Criminology*, 7th ed. (New York: Lippincott, 1966), p. 26, note that: "The crime rate for men is greatly in excess of the rate for women—in all nations, all communities within a nation, all age groups, all periods of history for which organized statistics are available, and for all types of crime except those peculiar to women, such as infanticide and abortion."
25. Moreover, only very recently (e.g., Michigan Supreme Court ruling, 1977) has it been suggested formally that a woman has the right to choose sexual partners, in the sense that her sexual behavior in general cannot be used against her in court proceedings testing whether or not, in a specific instance, she has been raped.
26. D. J. Mulvihill and M. M. Tumin, *Crimes of Violence* (Washington, D.C.: U.S. Government Printing Office, 1969).
27. N. A. Chagnon, *Yanomamö: The Fierce People* (New York: Holt, Rinehart, and Winston, 1968); J. Himelhoch, "A Psychosocial Model for the Reduction of Lower-Class Youth Crime," in R. L.

- Akers and E. Sagarin, eds., *Crime Prevention and Social Control* (New York: Praeger, 1972) pp. 3-14; Sutherland and Cressey, *Principles of Criminology*; Mulvihill and Tumin, *Crimes of Violence*.
28. F. Ferracuti and S. Dinitz, "Cross-cultural Aspects of Delinquent and Criminal Behavior," in M. Reidel and T. P. Thornberry, eds, *Crime and Delinquency: Dimensions of Deviance*. (New York: Praeger, 1974), pp. 18-34; see also B. M. Fleisher, *The Economics of Delinquency* (New York: Quadrangle Books 1966).
 29. F. Ferracuti and S. Dinitz, "Cross-cultural Aspects . . ."; J. Himelhoch, "A Psychosocial model . . ."; J. B. Cortes and F. M. Gatti, *Delinquency and Crime: A Bio-psychosocial Approach*. (New York: Seminar Press, 1972); J. P. Clark and E. P. Wenninger, "Socioeconomic Class and Area as Correlates of Illegal Behavior among Juveniles." *American Sociological Review*, 27 (1962): 826-34. See also B. M. Fleisher, *The Economics of Delinquency*.
 30. R. A. Cloward and L. E. Ohlin, *Delinquency and Opportunity* (Glencoe, Ill.: The Free Press, 1960); Fleisher, *Economics of Delinquency*; T. Hirschi, *Causes of Delinquency* (Berkeley: University of California Press, 1969); L. Radsinowski and M. E. Wolfgang, eds., *Crime and Justice. The Criminal in Society*, vol. 1; (New York: Basic Books, 1971); C. A. Hartjen, *Crime and Criminalization* (New York: Praeger, 1974).
 31. Hamilton, "The Genetical Evolution . . ."; R. L. Trivers, "The Evolution of Reciprocal Altruism," 1971; M. J. West Eberhard, "The Evolution of Social Behavior by Kin Selection," *Quarterly Review of Biology*, 50 (1975): 1-33; Alexander, "The Evolution of Social Behavior"; "Natural Selection and the Analysis of Human Sociality" 1977; "Natural Selection and Social Exchange" 1978.
 32. Trivers, *ibid.*; Alexander, *ibid.*
 33. Alexander, *ibid.*; Alexander and Borgia, "Natural Selection and the Hierarchical Organization of Life."
 34. Flannery, "The Evolution of Civilizations."
 35. P. Wiessner, *Hxaro: A Regional System of Reciprocity among the !Kung San for Reducing Risk*. Ph.D. Thesis, University of Michigan (1977).
 36. Flannery, "The Evolution of Civilizations."
 37. N. A. Chagnon, *Yanomamö: The Fierce People*; "Genealogy, Solidarity, and Relatedness: Limits to Local Group Size and Patterns of Fission in Expanding Populations." *Yearbook of Physical Anthropology*, 19 (1975): 95-100; (1974).
 38. Flannery, "The Evolution of Civilizations."
 39. Flannery, *Ibid.*

40. P. Stein and J. Shand, *Legal Values in Western Society*. (Edinburgh: Edinburgh University Press, 1974), pp. 114-16, provide a closely parallel but evidently independent comment: "In the fellowship type of social relationship, the value of the individual as a person is secured by the mutual regard and affection of the members for each other. The nature of the relationship is such that every member can confidently rely on receiving respect from the others. Their mutual regard is the product of its personal character. Such a social group cushions its members against the impact of legal rules. For example, early Celtic society, which was largely pastoral, displayed marked fellowship features. The main social unit was the kindred, the *drebfhine* of Ireland and Gaelic Scotland, which extended for four generations. The act of one individual might affect all the members of the kindred, each could claim his share in any inheritance, and each was bound to assume his share of liability for any fines payable by any member. As Nora Chadwick says:

There was no personal payment. The 'kindred' stood or fell together. In this way they were responsible for one another and would obviously keep a close eye on one another's doings. In this way too every 'kindred' group would see to it that the kindred did duty as both police and judges. There could have been no better way in such a society of keeping justice on an even keel, and this helps to explain the relative scarcity of legal machinery which a study of so many legal tracts implies.

"Traces of such group feeling can be found even today in closely knit family groups, which regard themselves as culturally distinct from the rest of society. Gypsies, for example, settle their disputes themselves according to their own customs, and will rarely have recourse to law, except in their dealings with outsiders. If a member of a gypsy family in East Anglia is accused of a motoring offence, it is common for his whole family to accompany him to court, and if he is convicted and fined they will all contribute as a matter of course to its payment.

"As societies develop into the nation-states, they cease to be collections of fellowship groups. These groups are replaced by less personal types of social relationship, in which the members feel no special regard for each other. In the newer relationships respect for persons cannot be taken for granted. Circumstances require that people be treated as individuals, and the position of the individual in society must be recognised by the law. Further, the precise character of the law is best adapted to a society whose members are

treated as separate individuals rather than as members of groups. Historically, as laws have become more sophisticated, the more they have tended to make the individual rather than the group the focus of rights and duties. These considerations do not, however, imply the attribution of a particular value to the individual as against society.

“Ancient Roman society regarded property as belonging to the family, but quite early in its development it ascribed ownership to the head of the family, the *paterfamilias*. He could dispose of the family farm, for example, without the need to obtain the consent of other members of the family. The freedom of disposition applied both to alienations *inter vivos*, such as followed a sale of the property, and to those by will. Towards the end of the Republic, it is true, a testator was compelled to take into account the needs of his descendants when deciding the destination of his property after his death, but he was still allowed a very wide discretion. This aspect of the Roman law of property is sometimes cited as evidence of Roman dedication to the principle of individualism in the modern sense. Such an assumption is unwarranted. The freedom of disposition enjoyed by the Roman *paterfamilias* was legally and commercially convenient. Its exercise must be seen against the background of the strong social pressures of good faith, family piety, and neighbourly duty, summed up in the notion of *officium*. These pressures considerably inhibited the use which the *paterfamilias* made of his powers of disposition. Furthermore, what the Roman owner could do with his property, apart from his rights of disposition, was not so unrestricted as it has in modern times been declared to be. As we shall see, Roman law kept Roman owners within the limits of good neighbourliness, and the alleged ‘absolute’ character of Roman *dominium* has largely been read into the Roman texts by later generations of jurists imbued with non-Roman ideas. Had the Romans really been individualistic in the modern sense, they would have changed the rules whereby adult descendants, unless formally emancipated from the power of the *paterfamilias*, could own no property of their own in his lifetime. The law recognised their right to control what had come to them as a result of their own enterprise, such as military service, but anything they received by way of legacy or gift belonged to the *paterfamilias*, and was thus kept in the family funds of which he disposed.”

41. I mean that our view of evolution may parallel our view of pornography, through reflections, conscious or not-so-conscious, about the effects of either on our children. Thus, we seem first to teach our children to be absolutely truthful—a way of operating that

- clearly is incompatible with social, economic, and political success, probably in any society anywhere. *Then* we teach them to adjust the truth ever so slightly—and thereby successfully—to their own advantage. After they start telling Aunt Kate that she is fat, and such things, we begin to teach them to be what we so tactfully call tactful. Similarly, we seem first to teach our children that sex is an evil to be avoided—that too is a way of operating, for adults, at least, that is not usually compatible with either social or reproductive success. *Then* we teach them, or allow to develop, the circumstances in which sex is permissible and profitable; we allow them to learn that sex in these situations is enjoyable, and we try to teach them that sex in other situations is not. Perhaps, in each case, the sequence of learning is crucial; perhaps by these sequences alone we are able reliably to guide children to success in the sensitive business of sociality, sexuality, and morality. In each case a connection can be discerned between the education of children and the growth of understanding about evolution. In each case a possible explanation of the relationship between family stability and law-breaking is discernible. Perhaps, without always being conscious of it, we tend to be repelled by evolutionary explanations, particularly of human sociality, because we somehow understand that full knowledge and acceptance of them would not be good for our children (see also R. D. Alexander. "Creation, Evolution, and Biology Teaching," *American Biology Teacher*, (Feb. 1978).
42. Donald Black's book, *The Behavior of Law* (New York: Academic Press, 1976) did not become available to me until the final draft of this manuscript was completed. Black's findings are relevant to my arguments and seem to support (even if inadvertently) the general viewpoint I have advocated. As his title suggests, for purposes of analysis, Black treats law as Leslie White, e.g., *The Science of Culture* (New York: Farrar, Straus, 1949) treated culture—as a thing apart from function, motivations, psychology, and individuals. He seeks correlates of the *quantity* of law (pp. 6-8) and tries to ascertain their effects. He defines law as "governmental social control" (p. 2), and quantifies it chiefly (p. 3) by "the number and scope of prohibitions, obligations, and other standards to which people are subject, and by the rate of legislation, litigation, and adjudication." He then examines the correlates of quantitative variations in law in different circumstances and societies, and emphasizes twenty-five or thirty such correlates, which may be condensed as follows: Law is "greater" (employed more often, or more effectively) in societies and social groups that are larger, more dense, more organized, more differentiated, more complex, more

stratified, and in circumstances in which there are fewer other social controls (e.g., less family control) and greater “relational” (social, genetic) distances among interactants (e.g., more during interactions between distant relatives, or nonrelatives, and “strangers”), than in the opposite kinds of societies, social groups, and circumstances. Within societies “more” law is directed (or law is directed more often and more effectively) at individuals and groups that are relatively low-ranking, uninfluential, transient, not “respectable,” socially marginal, and more distantly related than in the opposite direction.

Black’s approach treats law as a singular phenomenon whose traits can be analyzed and generalized. Because law is obviously not without function, and is not independent of the motivations of people, Black’s success in locating a small number of general rules, despite the enormous variation in legal systems, suggests that a certain singularity of function, therefore of motivational background, may exist for law as a whole. That is also the argument made in my paper. Moreover, the particular correlates discovered by Black sometimes are the same as those I have emphasized, and his findings seem to support the arguments about the origins and functions of law described in my paper.

THE ROOTS OF ETHICS

SCIENCE, RELIGION, AND VALUES

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