

Johnson's focus on patriotism elaborates a special case of manipulation of such a mechanism. Patriotism in large, heterogeneous states is an ideology propagated by the ruling class to instill false consciousness, and induce the ruled to behave against their best interest. It frequently mimicks kin selection because the old evolutionary roots thereof make the idiom of kinship especially potent, and because the unconscious and nonrational component of kin selection makes it an effective smokescreen for deceitful manipulation. Indeed, the ruling class frequently deceives itself, for the most effective ideology (and religion) is the one propagated by self-deceived proponents. The most effective deceit is self-deceit, as Trivers insightfully suggested in his discussion of reciprocity.

**GENE-CULTURE COEVOLUTION AND
GENETIC SIMILARITY THEORY:
IMPLICATIONS FOR IDEOLOGY,
ETHNIC NEPOTISM, AND
GEOPOLITICS**

J. Phillippe Rushton

*Department of Psychology
University of Western Ontario
London, Ontario, N6A 5C2
Canada*

Johnson has formulated an insightful theory of patriotism in which socialization and conditioning expand biologically evolved kin-recognition systems to obligate people to behave toward in-group members as though they were genetically more similar than in fact they are. In this commentary I will broaden his thesis by proposing a model in which patriotism is more than just "manipulated" altruism working to the individual's genetic detriment, being instead, a genetically influenced strategy by which genes more effectively replicate themselves. While the conditioning processes Johnson outlines undoubtedly occur (Rushton, 1980), as does manipulated altruism (Dawkins, 1982), if these were sufficient to explain

the human propensity for deontological action, patriotism would remain an anomaly for evolutionary biology. One question whether evolutionarily stable ethical systems would long survive if they led to reductions in the inclusive fitness of those believing in them.

What I am therefore suggesting is that genes incline people to construct and learn those ideologies which increase genetic fitness. The idea that genes have such extended (and reciprocating) effects beyond the body in which they reside, constitutes a central focus for current thinking in sociobiology (Dawkins, 1982; Lumsden and Wilson, 1981, 1985). From the standpoint of Lumsden and Wilson's theory of gene-culture coevolution, for example, patriotic nationalism, religious zealotry, class conflict, and other forms of ideological commitment (even 'international socialism') can be seen as genetically influenced cultural choices that individuals make which in turn influence the replication of their genes. Thus the makeup of a gene pool causally affects the probability of any particular ideology being adopted, and the subsequent ideology, in turn, causally affects relative gene frequency. Religious, political, and other ideological battles may become as heated as they do because they have implications for genetic fitness; genotypes will thrive more in some ideological cultures than others. From this perspective, Karl Marx did not take the argument far enough: ideology serves more than economic interest; it also serves genetic purpose.

For this account to be true, (a) individual and group differences in ideological preferences must be partly heritable, and (b) ideological practices must confer differential genetic fitness. Evidence exists to support both these propositions. With respect to (a), while it has generally been assumed that political attitudes are for the most part environmentally determined, both twin and adoption studies demonstrate moderate to substantial heritabilities (e.g., 0.50) for both specific conservative social and political attitudes, as well as stylistic tendencies such as authoritarianism and degree of ideological commitment (Eaves and Eysenck, 1974; Eaves, Martin, Heath, Jardine, Feingold, and Eysenck, 1985; Scarr and Weinberg, 1981).

With respect to (b), that is, whether the learning of ideologies can increase genetic fitness, obvious examples are to be found in those religious beliefs regulating sexual practices, marital custom, infant care, and child rearing (Reynolds and Tanner, 1983). Other evidence derives from cultural proscriptions on dietary habits. Amerindian tribes adopting the use of alkali cooking for maize, for example, had larger population densities and more complex social organizations than Amerindian tribes who did not, primarily because alkali cooking releases the most

nutritious parts of the cereal, enabling more tribal members to grow to reproductive maturity (Katz, Hodiger, and Valleroy, 1974; see also Lumsden and Wilson, 1981). The native tribes were unable to explicate the biochemical reasons for the benefits of alkali cooking, but their cultural beliefs had evolved for good reason.

The above analysis provides a new perspective on the role of religion in economic and political organization, a topic that has generated research interest at least since the proposition that the Protestant Reformation was a major influence on the rise of capitalism. One result of this research has been the view that the emergent "work ethic" led Protestants to reach higher levels of economic attainment than Catholics, both within and between nations. From the perspective of gene-culture coevolution, however, it is important to emphasize the reciprocal cycle between culture and genes; thus it is just as likely that the "first cause" was a change in gene frequencies predisposing individuals toward greater individualism, industriousness, frugality, and intelligence which subsequently inclined them to adopt a belief system supportive of their genotypes as well as attain a high level of economic success (for a partial review of the heritability of individual differences in personality, see Rushton, Russell, and Wells, 1985). The "Protestant Ethic" has never explained why Jews and Orientals economically outperform Protestants; group differences in partially inherited traits, however, may do so.

One objection to the account given so far concerns the mode of gene-culture transmission. It could be argued that while religious ideologies directly benefit the extended family, those such as patriotism would often result in a decrease in fitness (hence Johnson's thesis ultimately resting on patriotism being a form of manipulated altruism). A recent formulation going beyond classical kin-selection theory, however, provides a firmer basis for an evolutionary understanding of ideological commitment, *for benefited genes do not have to be only those residing in kin*.

Genetic Similarity Theory

Kin-selection essentially means that genes may ensure their own survival, not only by causing the organism of which they form a part to reproduce, but also by causing it to act in such a way that its relatives produce more than they would have done without its action (Hamilton, 1964). Kin-selection theory, however, can be incorporated into *genetic similarity theory* (Rushton, Russell, and Wells, 1984, 1985). Essentially the argument is as follows. If a gene can ensure its own survival by acting so as to bring about the reproduction of a family member in which a copy of itself is to be found, then it can also survive by bringing about the reproduction of non-

family members in which copies of itself are to be found. In other words, the tendency to favor relatives is a special case of a tendency to favor those of similar genotype.

In order to pursue this general strategy, an organism must be able to detect copies of its genes in others. Johnson has outlined the main ways in which degrees of kinship, or genetic similarity, can be differentiated (recognition alleles, spatial distribution, familiarity through association, and phenotypic matching). He accepts that all might be used, but downgrades the first as implausible, while emphasizing the latter two. A strong version of genetic similarity theory, however, implies the existence of a genetic similarity detector ("recognition alleles"), for such a mechanism would be maximally efficient. All one need postulate is that some phenotypes are inherently more attractive to the organism than are others. The evolutionary origins of such a mechanism could be simple: if like appearance is positively correlated with like genes, any mutation toward preference for like phenotype would tend to proliferate.

The evidence in favor of an innate genetic similarity detector is best considered by contrasting its discriminatory power with that of a phenotype matching procedure. As Johnson allows, the human preference for similarity in others is well documented. Since similarity can be based on either like genes or like experiences, which of the two causes of similarity is the more important? From a phenotype matching perspective it shouldn't matter whether similarity is created by the genes or by the environment. From the perspective of recognition alleles, however, it is genetic similarity that is of prime importance. Evidence that humans can and do differentiate genetic from environmentally caused similarity has been found in the context of human marriage, where spouses have long been known to resemble each other. My co-workers and I have found that such resemblance is higher for the more genetically influenced of a variety of anthropometric, cognitive, and personological characteristics (e.g., wrist size and nasal breadth rather than bicep or waist size). Put another way, there is a positive correlation between assortative mating coefficients and heritability estimates (Rushton and Russell, 1985; Russell, Wells, and Rushton, 1985). Similar processes are predicted to occur in other relationships, including friendships and even broader social groupings.

Ethnic Nepotism

One implication of the genetic similarity theory extension to kin-selection theory is that a biological basis is provided for what van den Berghe (1981) has referred to as "ethnic nepotism." Two individuals within an ethnic group will, on average, be

genetically more similar than two from different ethnic groups. It is in an individual's genetic interest, therefore, to benefit his own group over others, and there is good evidence that altruism does follow such lines. Group members often prefer to congregate in the same area and associate with each other in clubs and social groupings. Charitable donations are typically made in greater quantities within ethnic groups than between them and empirical studies have documented that people are more likely to offer help to members of their own race or country than members of other races or foreigners. Anyone working in a university in the United States over the last 50 years will be personally aware of the changing norms concerning "racial" and "religious" quotas, and attendant ethnic rivalries, and perhaps, too, of ethnic differences in abilities, attitudes, and lifestyles (Rushton, 1985) which, as Johnson notes, can aggravate relations between groups. The American university situation is not unique. *The Times Higher Educational Supplement* (August 30, 1985:8) reports that the Kenyan government has warned lecturers and administrators at the University of Nairobi to stop awarding higher marks to students of their own tribe. The same page also carried a story of a 'tribal' problem in a university in Sri Lanka where members of the Tamil minority have had to be given police protection.

The tribal nature of university populations was first observed by this author in 1981 while spending six months at the ethnically heterogeneous University of California at Berkeley. The contrast with my more homogeneously White Anglo-Saxon Protestant (WASP) home base caused me to attend to the ethnic differences with interest. Not only did fellow ethnics tend to congregate and sit together, but they often banded together for direct political action. Black newspapers on campus were militantly concerned with the plight of black rioters in London, England, 7,000 miles away, as well as the Atlanta black child murders. Jewish student newspapers, on the other hand, were more concerned with what they saw as the beleaguered State of Israel and the plight of dissident Jews in Russia, and of black Jews in Ethiopia even more thousands of miles away. They were appealing for money to help airlift the Ethiopians to Israel, many of whom are now there, paradoxically providing an internal 'tribal' problem of their own. The Chicanos, to take a final example, seemed primarily interested in getting bilingualism adopted at the University Faculty of Education and in strengthening the laws aiding migrants from Mexico and Central America. Similar examples will come readily to many people's minds, and it would seem that one of the influences determining which issues become salient and what positions will be taken on them is the person's group membership.

Some may object that these examples include "religious," "class," and "linguistic" divides, not necessarily causally associated with genetics. This, however, could be put to the test by calculating genetic distances between people (a variety of genetic markers are possible, the most recent and sophisticated being based on studies of DNA sequences). If genetic similarity theory is correct, it would be predicted that many of the classic divides are genetic in origin. The recent analyses of Professor Bonne-Tamir of Tel Aviv University, for example, (Karlin, Carmelli, and Bonne-Tamir, 1982; Meyers, 1985) show that Jews, even after being scattered around the world for two millenia, remain—to a significant degree—genetically distinctive. Jews from Iraq have more in common from a genetic viewpoint with Jews in Poland than either group has with the non-Jews among whom they have lived for centuries. This is also true of immigrants to Israel from such diverse areas as Germany and the Soviet Union on the one hand and Libya on the other (the Ethiopian Jews mentioned above, incidentally, do *not* appear to be genetically Jewish). Jews as a group can be expected to adopt ideologies that work in their genetic self-interest world wide as, of course, can Anglo-Saxons, Japanese, East Indians, Africans, and all other "gene pools."

Genetic similarity theory also has implications for within-group altruism. The more homogeneous the group, the more likely it is that feelings of in-group solidarity and patriotism may arise. Many have considered the Japanese population to be exemplary in terms of the degree of internal cohesion that has prevailed since Japan was forced to open its doors to the West. Freedman (1979) has argued that the Japanese are one of the most inbred of modern industrial nations, there having been little or no major gene mixing for some 1700 years, and uses this fact to explain also the high rate of adoptions of nonrelatives in Japan, a custom going back centuries (adoptions are known to be more successful when the parents perceive the child as similar to them). Degree of genetic homogeneity may partially explain the military tenacity of the German army in World War II discussed by Johnson, and perhaps, too, the lack of morale in the American Army in Vietnam.

Genetic Similarity and Geopolitics

The theoretical stance taken so far predicts that the ease of producing patriotic sentiment and internal harmony varies with the genetic homogeneity of the national group. As van den Berghe (1981) puts it: "Ethnicity can be *manipulated* but *not manufactured*" (p. 27; van den Berghe's emphasis). It also predicts that genetic similarity has important implications for group relations both within and between nations. Since ethnic aspirations are rarely justified

in terms of naked genetic self-interest, any analysis will necessarily have to be conducted at a deeper level than surface ideology. Political interests are typically couched in the highest of ethical terms, no matter how utilitarian, transparent, or heinous these appear to opponents. Just consider the incompatible claims from such competing gene pools as the Arabs and the Israelis, the Afrikaners and Zulus.

If ideologies are filtered through the calculus of genetic self-interest, one might examine the genetic consequences of political action to see who appears to benefit—or lose. Political issues are most likely to generate concern when sexual mores and reproduction are at stake. It is interesting to examine the growth of right-wing Christian fundamentalism from this perspective. According to a recent article in *Time* (September 2, 1985), the movement represents, in part, a reaction to the perceived moral breakdown of society. Largely as a result of portrayals in the mass media, and changes in the educational system, many religious people have apparently come to “feel they live in a hostile culture” (p. 51). Among the issues on which this group is most vociferous is abortion. One might speculate that, if estimates of genetic similarity could be obtained, the fundamentalists would be somewhat homogeneous and close to the central tendency of the Anglo-Saxon gene pool. One might also conjecture that if genetic distance measures were calculated, North American “liberals” on abortion would be found to be significantly distant from the WASP average. If so, might it be of interest to know what percentage of the estimated 16 million women having legal abortions in the United States since 1973 were Anglo-Saxon? The growth of “white survivalism” and militant “Christian Identity” groups such as the Aryan Nations, and the Covenant, the Sword, and the Arm of the Lord, represent a more extreme response to these perceived threats to the Anglo-Saxon gene pool. If this overall analysis is correct, one might expect similar correlations in deviations from both genetic and ideological norms in other groups. Preserving the “purity” of the ideology might be an attempt at preserving the “purity” of the gene pool. Are ideological “conservatives” typically more genetically homogeneous than the same ideology’s “liberals”?

The role of genetic similarity in geopolitics is likely to become increasingly noticeable in both the U.S. and USSR as the turn of the century approaches. Both of the superpowers have large ethnic minorities and, given the differential in birth rates between majority and minority populations, the current ruling groups are unlikely to maintain their positions much longer. One reason the USSR invaded Afghanistan was to suppress Moslem fundamentalism which, if spread to the southern socialist republics, could bring an end to the existing power structure. These

genetic minorities have the highest birth rates in the USSR and can ultimately be expected to displace the currently dominant Russians. In the U.S. power shifts can be expected as the differential birth rates of Spanish-speaking Americans, black Americans, and the currently dominant North European Americans continues.

Conflicts elsewhere in the world might also be viewed through a genetic perspective. The protagonists of the struggle in Northern Ireland between Protestants and Catholics could be examined to see if they represent a continuation of a thousand-year contest between Anglo-Saxons and Celts. The Babylonian and Egyptian captivities may have ended over 2,000 years ago but it might be argued that the current Arab-Israeli conflict represents a continuation of those ancient rivalries. It might also be asked whether Israel can hope for a long term solution to the Middle-East when adjoining Arab countries are replicating their genes at the rate of the total current population of Israel each year.

Genetic similarity can thus be expected to be one of the many influences operating on political alliances. Obviously causation is complex, and it is not intended to reduce relationships between ethnic groups to a single cause. Fellow ethnics will not always stick together, nor is conflict inevitable between groups anymore than it is between genetically distinct individuals. As Johnson outlines, people can be manipulated into working for “other groups.” People also work for other motives, such as economic success as well as reproductive success (although, as van den Berghe [1981] points out, from an evolutionary perspective the ultimate measure of human success is not production, but reproduction). Behavioral outcomes are always mediated by multiple causes. The Anglo-Saxon world is currently aligned primarily against the Russians, their half-cousins, while the more genetically distant Japanese are allies. It is an empirical question though whether it would be easier to manipulate antipathy in white Americans toward the Japanese than toward the Russians, or whether class conflicts become more intense when there is a racial element to them. Thus while “politics make strange bedfellows” and human alliances are constantly shifting, stable reciprocities may become more predictable as genetic distances between groups are added into the equation.

The Paradox of Differential Fertility

If the replication of genetically similar genes is as strong a biological imperative as sociobiological theorizing suggests, why are descendants of North European populations everywhere in the world currently experiencing negative growth, while concurrently allowing extensive immigration from genetically less similar gene pools? Why, at the same time

have North European populations adopted an ideology of secular humanism which discourages racist attitudes and encourages antipathies toward religious sentiment proportional to the degree to which those ideologies combat the new orthodoxy?

While cultural evolution and organic evolution are undoubtedly different and yet reciprocally linked in extremely complicated ways, they may nonetheless share certain properties (Dawkins, 1982; Lumsden and Wilson, 1981, 1985). Both appear to strive to replicate their units, if necessary at the expense of the other system's units (alleles in the case of organic evolution; 'memes' or 'culturgens' in the case of cultural evolution). Their seat of battle is the individual human mind which only dimly perceives the consequences of its choices, based as they are on many competing elements. Thus ideologies can arise which have the paradoxical effect of dramatically decreasing fitness. A classic example of such a lethal culturgen is to be found among the Shakers, a religious sect which considers sex to be so sinful that it imposes celibacy upon even its married members. This ideology has nonetheless been quite successful in replicating itself through several generations; new adherents being recruited, largely via adoptions. The member's genes, of course, fail to replicate.

In fact the fertility paradox goes back centuries. Fisher (1958) raised the issue of why civilizations decay, and documented evidence in favor of the hypothesis that the ruling groups (often classes, sometimes races) failed to reproduce themselves, usually having a much lower fertility than the ruled groups. Fisher (1958) hypothesized a trade off between the capacity for economic success and fertility. There is indeed evidence that this trade off exists at a quite profound level and moreover is related to other characteristics, the whole complex being partly genetic in origin (Rushton, 1985). My own guess is that low fertility may be partly mediated by a psychological process in which the desire to be in control of both oneself and one's environment is taken to an extreme. Irrespective of the mechanism, the paradoxical fact remains that successful cultures often arise whose leading members subsequently limit their own replication, giving less genetically similar others the opportunity to replace them. Such cultures, (e.g., The Graeco-Roman Empires), and the gene pools associated with them are presumably, in the main, evolutionary dead ends. If this perspective is accurate, are North Europeans headed for the same fate as the ruling classes of ancient Greece and Rome?

To a highly evolved species such as our own, with a strong desire to know and master the world, the laws that govern gene-culture coevolution and the human mind are highly to-be-prized culturgens. With

increasing knowledge of the deep structure of human nature, of the biological component in gene-culture coevolution, and of biotechnology, the time may be reached when human beings can directly, behaviorally or biochemically, intervene in the evolutionary process and control the future course of history. The question is: if that time comes, in whose image will it be shaped? People will differ in their moral prescriptions. The choices they make are likely to reflect both their genetic and their ideological interests.

Notes

The argument advanced here represents a preliminary attempt to combine the theory of gene-culture coevolution proposed by Lumsden and Wilson (1981, 1985), the extension to selfish-gene theory made by Dawkins (1982), and the work with my colleagues, Robin Russell and Pamela Wells on genetic similarity theory (e.g., Rushton, Russell, and Wells, 1984, 1985). Although references exist in the text to these works, I am pleased to more formally acknowledge my indebtedness in this note. Any errors or misapplications, of course, are entirely my own.

The preparation of this commentary was facilitated by a grant to the author from The Pioneer Fund. It is a pleasure to thank Christine Littlefield for her many valuable comments and suggestions and for numerous hours of discussion bearing on the issues.