
CHAPTER 11

LESSONS FROM SAILING SHIPS: AN INTRODUCTION TO GROUP SELECTION THEORY

“For now I see peace to corrupt no less than war to waste.”
John Milton, *Paradise Lost*, 1667

Imagine being a crew member on a merchant ship setting sail for a crossing of the Atlantic Ocean during the 18th Century. There will be storms and the constant threat of pirates during the 7-week journey. The sailing is sponsored by merchants who want the cargo to arrive safely, the ship’s owner who wants to preserve his investment by the arrival of his ship intact, and the captain and crew who wish to arrive safely where they will be paid and continue their lives. All factors favor cooperation by everyone on the ship in the mission of operating the ship properly on the high seas and delivering its precious cargo safely to the opposite shore.

Each person on the ship has one or more assigned jobs. Presumably the assignments are made on the basis of ability for the needed tasks. It won’t matter that one crew mate is an excellent runner, or hunter, or mountain climber, or jungle explorer, for on the ship these abilities don’t matter as he will be measured by his performance of assigned tasks. Each crew member’s fate will be affected by the quality of his crewmates and the manner in which they all work together to navigate the ship safely to port. When each mate discharges his task with competence and cooperation the entire endeavor is helped, and the prospects for a prosperous outcome for all mates is improved

This situation is a simple way to introduce the concept of “group selection theory.” During the voyage all people aboard the ship will either live as a group, or die as a group. This is a more extreme example of a tribe either entirely living or dying during conflict with a neighboring tribe, but the concept is easier to grasp using the sailing ship example because the ocean is deep and unforgiving with a history of taking entire crews to the ocean bottom.

With the ship analogy in mind let’s consider the tribal setting our ancestors had to survive for millions of years. If a tribe is in chronic conflict with a neighbor tribe the losing tribe might be decimated. This prospect has a message for individual members who pride themselves as being proficient in some irrelevant realm. An individual with a talent for basket design, for example, will have a useless talent when there are more compelling needs for tribal welfare.

So what makes a good warrior? There are the obvious factors of strength, agility and other skills. Two other factors deserve special attention: altruism and intolerance.

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Altruism is defined as a willingness to forego individual payoffs in order to achieve a payoff for another individual or group of individuals. Two explanations are commonly offered to account for the existence of altruism. First, if the cost to the altruist is small, and the benefit to the other person is great, and if the interactants have recurring relationships, then it is easy to imagine that a series of such acts can yield benefits to all participants if there are several such interactions with opposite sign. (The “sign” of the interaction refers to which person is the recipient of the altruistic act.) Notice that this dynamic does not require that the two people have a close genetic relationship.

Inclusive Fitness

The second explanation for altruistic acts requires that the two individuals be closely related. J. B. S. Haldane famously quipped that he would willingly give his life for two first cousins, or four second cousins, etc., in answer to a question about altruism. The calculus of genetic payoffs of this type is now called “inclusive fitness” and it states that our brains are designed to recognize when a sacrifice is likely to confer a greater benefit than loss to our genes, present in our near relatives as well as in oneself.

Parochial Altruism

Finally, there’s a “group selection” theory that can account for altruistic acts. If a tribe is at risk of being decimated by a rival, and if the home tribe is desperate, then there’s logic in some individuals making high risk attempts to turn the tide of battle. It’s not necessary for the hero to be closely related to his fellow tribesmen since all of them will either survive or be killed depending on the outcome of the battle. This is analogous to ship mates dealing with an emergency at sea which requires heroic action to save the ship and all its crew. The genetic relationship of the sailors is irrelevant to the need for action.

A heroic warrior can be viewed as an altruist. He risks his life in order to save the tribe partly because saving the tribe may also save the hero. Genes that predispose to this form of altruism should be favored by evolution whenever tribes live in chronic conflict with their neighbors. The prediction is borne out, at least in game theory simulations (Choi and Bowles, 2007). Since the altruistic acts benefit only those in the home tribe it has been referred to as “parochial altruism” (“parochial” refers to a concern that is narrowly restricted, or a way of thinking that is “provincial”). The notion that genes predisposing for “parochial altruism” will evolve when tribes are in conflict is based on “group selection theory.”

There’s an interesting aspect to the way in which this kind of parochial altruism is elicited, which has also been pointed out by Choi and Bowles (2007) as well as Wilson and Wilson (2007). It pertains to intolerance, an unwillingness to overlook individual or group differences. For example, if fellow tribesmen dress one way and someone is seen dressing another way (not incorporated into tribal rituals), the non-conformist will not be tolerated. Perhaps there were instances in our evolutionary

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past when a brave member of a neighboring tribe sneaked in to assess tribal strengths and weaknesses in preparation for later warfare. Such a person would be noticed as a “stranger” who dressed differently. A tribe whose members were tolerant might merely shrug and leave the stranger alone, whereas a tribe with intolerant members can be expected to challenge the stranger and demand an explanation of who he is and what he is up to. Clearly, tribes in chronic conflict reward genes that predispose to intolerance.

Thus, conditions of chronic conflict should increase the incidence of two types of genes: those that predispose to “parochial altruism” and those that predispose to intolerance. The game theory simulation by Choi and Bowles (2007) show that indeed both genes increase their representation in hypothetical gene pools that are in chronic conflict.

Another result of these game theory simulations pertains to the situation when one tribe decisively overwhelms a rival tribe, leading to a peace that lasts for several generations. The evolutionary forces that selected genes for intolerance and parochial altruism are relaxed, and in their place are new forces that reward the opposite genes. Peaceful conditions favor genes that predispose to tolerance, but also those that promote selfishness (Choi and Bowles, 2007). Wilson and Wilson (2007), as well as Turchin (2007), have suggested this scenario as a way to understand the fate of empires. Indeed, this is one way to view the decline and fall of civilizations.

It seems ironic that war and peace elicit opposite behaviors. How can these reversals be achieved? Two modes are possible. Either the population evolves in a way that changes the representation of “genetic types” or the individual members respond to “readings” of an ever-evolving social setting with automatic adjustments of their attitudes and behaviors. Both modes are based on gene expression, but the latter is more sophisticated. Just as the immune system takes readings of pathogens in the blood and adjusts its responses in an adaptive manner, the brain is capable of reading social situations and adjusting its activity in a manner that is usually adaptive.

There are two important clarifications for this use of the term “adaptive.” First, something is adaptive if it enhances the survival of genes that code for it. Second, the specified change is adaptive provided the current setting is similar to the “ancestral environment.” In both instances the concept of adaptive relates to the fate of genes, and not necessarily individuals.

The first clarification conveys the message that behaviors that help genes survive may not be in the best interests of individual welfare. Consider the switch from peace time to war time; the individual is expected to become intolerant and hateful, and he is expected to sacrifice his life through heroic acts that protect the home tribe. His fellow tribesmen may benefit by this heroism, but not necessarily the hero.

The second clarification has become important in modern times because tribes have been replaced by super-tribes and nations consisting of members from many genetic backgrounds. Japan is one of the few nations that has preserved its genetic purity, so

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there may be some genetic sense for the Japanese to engage in extreme acts of heroism (e.g., kamikaze heroics). It is also noteworthy that the Japanese in peace time have one of the lowest crime rates in the world. For them, the current environment resembles the ancestral one in important respects. But for most other nations the populations are so genetically diverse that the genes are foolish to create individuals willing to become loyal patriots ready to fight to the death for the Fatherland.

If humans were capable of sanity they would mock patriotism for the pointless suffering it inflicts upon humanity. Patriotism has always been pointless from the perspective of the individual, but it is now also pointless from the perspective of the group. Yet, it cannot be eradicated since it has been so crucial to genetic survival for so many generations.

What a pathetic situation humans find themselves in. Anyone who mocks patriotism, who points out that it serves no purpose, will be branded “unpatriotic” – and they will be censored. The need to enforce patriotism has been so strong for our ancestors that they created a mythical entity to help enforce it: God. This creation was instigated by the genes, of course, since they were the beneficiaries of behaviors that secured their survival at the expense of individuals. Since the modern “state” is an outgrowth of primitive tribes, governed by chiefs and their helpers, it can be said that the church and state were meant to work together. The 18th Century struggle to separate them was motivated by a subconscious realization that individuals were the victims of this collaboration. The separation of church and state is a historical aberration, doomed to a short existence. Every humanist should be sad that the few bastions of 20th Century sanity are doomed to revert to their former evil state in the 21st.

Roger Price’s Two Moralities

The following idea was advanced by Roger Price in his book *The Great Roob Revolution* (1970, p. 78) as part of his description of how a Roob (cf, Chapter 24) develops a sense of morality. I present it here because 1) it supports my theory for the role of artisans in creating a civilization and 2) it illustrates how a society’s prevailing morality might change between times of conflict and peace.

The child quickly learns how to distinguish between “I like it” and “I don’t like it.” This is a template for calling things either “good” or “bad.” During growth to adulthood there’s a “fork in the road” that causes some people to elaborate good and bad differently. Price refers to one end point as Right-Wrong morality, and the other as Good-Evil morality. According to Price “The Right-Wrong culture lays great stress on appearance, manners and protocol, but within this format does not insist on conformity. It defines heresy, not in terms of thought, but in terms of action. ... Right-Wrong morality is essentially Liberal and is the motivating attitude behind Liberal Democracy. It protects eccentricity, fosters art, encourages distinction and rewards excellence.” Price continues “Good-Evil morality, on the other hand, is evolved by the downtrodden masses, by the victims, the slaves, the frustrated and the defeated; they adopt the premise that the dominant ruling classes who have been exploiting and tyrannizing them are not merely bad, but are congenitally Evil...

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Nietzsche claims that the weak man makes virtues of his own weaknesses... It glorifies helplessness, charity, self-denial and brotherly love, and professes that poverty is morally superior to riches and that no distinctions exist between men. ... The Good-Evil system cannot tolerate opposition and insists on ... a brutal orthodoxy and a total conformity, not only of action, but of thought.”

During peaceful times the Right-Wrong morality is adaptive, whereas during inter-tribal conflicts the Good-Evil morality is adaptive. Because interludes of peace are often shorter than a lifetime every person must be capable of embracing both moralities, though individuals may have an inherited predisposition. In particular, artisans and tribal chiefs must be inclined to prefer the Right-Wrong morality, as explained in the next section.

Two Moralities and Rise of Civilization

Price was writing about people living in a civilization, but there's a clue within his descriptions of how a civilization arises. The Right-Wrong morality resembles what would serve the collaboration of a tribe's chief and the artisans “employed” by the chief. For this collaboration to be most effective the artisans must be allowed to experiment with ideas; they are exempted from the need for conformity imposed on the others. The artisan is exempt from battle, so he doesn't have to nurture a fierce demeanor, and being polite and having good manners may help him get along with those who resent him; his interpersonal relationships are greatly influenced by the fact that he is protected by the chief. The artisan may even become known for being eccentric and artistic, and for being driven to achieve distinction in hopes of being rewarded for his excellence (all things itemized by Price).

I suggest that Price's Right-Wrong morality describes the coalition between a chief and his artisans as a tribe is poised upon a path leading to civilization. The Good-Evil morality may have developed later, as the chief and his artisans succeed in enlarging the tribe to super-tribe status (either through high survival rates of births within the tribe or by the capture of neighboring tribes), where abuse of power could have led to enslavement of masses of tribesmen. The scenario of tribes growing to super-tribe status is treated in Chapter 20.

In trying to understand the rise and fall of empires it will be wise to keep in mind the possibility that they are related to the rise and fall of genes that predispose for parochial altruism and intolerance. Other factors deserve consideration. Most of the forces causing empires and civilizations to rise and fall are based on evolutionary changes to the genome that require an understanding of the different levels of evolutionary selection. This chapter introduced the concept of “group selection.” We must also consider selection at the level of the individual. This is the goal of the next chapter.