

Nesse, R. M. (1999).  
The evolution of hope and despair.  
*Social Research*, 429-469.

# The Evolution of Hope and Despair

BY RANDOLPH M. NESSE

*Love joins hate; aggression, fear; expansiveness, withdrawal, and so on, in blends designed not to promote the happiness of the individual, but to favor the maximum transmission of the controlling genes. (Wilson, 1975)*

**E**MOTIONS can be useful only if they influence the future, so it is not surprising that they are aroused mainly by events that change our appraisals of whether we will be able to reach our goals. Events that indicate that our efforts will succeed arouse hope. Events that suggest that our efforts are futile foster despair. We experience hope and despair, not at the beginning or end, but in the midst of our long-term efforts. These efforts arise from the deep values of cultures and their individuals, so social attitudes toward hope for their success and despair at their likely failure are not taken lightly. In fact, most cultures have norms that specify the correct attitude towards hope and despair. Attempts, such as this article, to think about hope and despair outside of these norms, tend to arouse opposition. So, we will proceed slowly at first.

For several reasons social ideologies are biased in favor of hope. First, and most obviously, hope can relieve suffering, so people naturally prefer it to despair, just as they prefer drugs that relieve anxiety to those that cause it. Not only do we prefer hope to despair in ourselves, we have similar strong preferences for others, as Adam Smith so astutely notes:

Nothing is more graceful than habitual cheerfulness, which is always founded upon a peculiar relish for all the little pleasures which common occurrences afford. We readily sympathize with it: it inspires us with the same joy, and makes every trifle turn to us in the same agreeable aspects which it presents itself to the person endowed with this happy disposition... It is quite otherwise with grief. Small vexations excite no sympathy, but deep affliction calls forth the greatest. The man who is made uneasy by every little disagreeable incident, who is hurt if either the cook or the butler have failed in the least article of his duty, who feels every defect in the highest ceremonial of politeness, whether it be shewn to himself or to any other person, who takes it amiss that his intimate friend did not bid him good-morrow when they met in the forenoon and that his brother hummed a tune all the time he himself was telling a story; who is put out of humour by the badness of the weather when in the country, but badness of the roads when upon a journal, and but the want of company and dulness of all public diversion when in town; such a person, I say, though he should have some reason, will seldom meet with much sympathy. Grief is painful, and the mind, even when it is our own misfortune, naturally resists and recoils from it. (Adam Smith, "Of Propriety," from *A Theory of Moral Sentiments*, I.ii.5.3) (p. 42)

Second, the powerful people in a society have strong interests in fostering hope and its consequent effort, and in undermining despair and the associated lassitude that threaten any social order. In Western societies, this has long been a major role of the Christian church, which praises hope as one of the three cardinal virtues, and attacks both despair and its proponents. These efforts meet individual needs' and simultaneously undermine any attempts to challenge the current hierarchy, thus providing support for the church from a range of levels of the hierarchy. Where the authority of the church has faded, this task has passed psy-

chology, with its exhortations to be optimistic, its treatments to boost self-esteem, and its dire warnings (probably justified) that negative attitudes cause cancer and heart attacks. Psychiatry takes this even further, attributing despair to brain abnormalities (often with good cause), and prescribing drugs that relieve the disease of depression. Even in business, managers manipulate the attitudes of their employees—using exhortation, posters, rewards, and examples, to foster optimism and hope. Woe to the employee labeled “negative.” This tyranny of optimism is sent up most perfectly in a web site, [www.despair.com](http://www.despair.com), dedicated to “fostering demoralization.” The conventions are clear—participants in a society are generally required, both by the power structure and each other, to support efforts to find hope and avoid despair. By this means, deep illusions are perpetuated, illusions that may, paradoxically, cause unhappiness and the maintenance of inequity.

The first illusion is that hope and despair are opposites. Of course, in a sense, they are—one arises when things are going swimmingly, the other when there seems to be no route to success. But on another level, they are intrinsically intertwined partners in the dance of desire, differing only in whether or not the object of desire is more or less likely to be reached. Despair cannot exist without hope. In fact, much real depression is caused by inability to give up a useless hope.

The other illusion is that hope is a beneficial virtue and despair is a harmful sin. In fact, both exist only because, in certain situations, they offer benefits. The benefits of hope are obvious, its costs concealed. The costs of despair are clear, while its benefits are covert. The bias is so powerful that the words hope and despair contain intrinsic judgements. What if, instead of hope, we emphasized the futility of many efforts? What if, instead of despair, we praised sensible giving up? But we have no ready words for these purposes.

To understand the benefits and the costs of hope and despair requires a search for the situations in which they give benefits. This, in turn, demands a deep look at how natural selection

shaped the mechanisms that regulate our behavior, especially, the capacities for pleasure and happiness, and pain and suffering. This article proceeds in several stages. The first explains the prevalence of the illusion that defenses are diseases. The second addresses the evolutionary origins of positive and negative emotions. The third section addresses the possible functions of happiness and sadness. The fourth section considers mania and depression as extremes of hope and despair. Finally, brief mention is made of the limits of reciprocity models for human interactions, the power of emotional commitment, the role of religions and ideology in maintaining hope, and whether an evolutionary understanding of human emotions necessarily undermines the utility of subjective belief.

*The Illusion that Defenses Are Diseases*

The experience of pain or suffering indicates that something dire is happening, something that will likely harm us or decrease our resources. But the capacities for pain and suffering are useful. Life without any pain seems like a wonderful idea, but people with a congenital lack of the capacity for pain die by early adulthood (Melzack, 1973). Likewise, a cough indicates that something is wrong, usually a respiratory infection. But the cough is not the problem, it is part of a solution. People who cannot cough, or who use drugs that excessively block cough, are likely to die from pneumonia. Likewise, most other aversive experiences are useful defenses. Fever protects against infection; fatigue against damaging tissues from overexertion; diarrhea and vomiting against toxins in the bowel. All of these defenses are aversive, but useful. The fundamental distinction, between defenses' as contrasted with the defects and challenges they protect against, has been surprisingly little recognized, even in medicine, so studies to demonstrate the value of defenses are undeveloped. Will taking a medication to reduce fever speed or slow your recovery from influenza? Adequate studies to answer the question have not been done. The illusion persists that painful states are the problem, while their utility is neglected. There are several reasons for this.

First, there is simply the fact that people seek help mainly when they feel bad, so both doctor and patient tend to label the bad feeling as the problem. Second, a vast amount of medical treatment attempts to relieve such aversive states, and most of this treatment causes little or no harm, thus making it appear that the pain (or nausea or whatever) is indeed unnecessary. The explanation for why treatments that block defenses don't cause harm is two fold. The body has redundant defense mechanisms, so blocking one does not cause all that much impairment. Also, the expression of a defense, such as fever, is usually inexpensive, but failure to express it may be fatal, so natural selection has shaped regulation mechanisms that tend to express them whenever there is any hint of danger. This has been dubbed the "smoke-detector principle" in recognition of our need to accept false alarms in smoke detectors if we are to ensure that it will sound an alarm in every single instance of a real fire (Nesse and Williams, 1994).

The same arguments apply to emotional suffering (Nesse, 1991; Tooby and Cosmides, 1990). Natural selection doesn't give a fig for our happiness or sadness; brain mechanisms express these responses in whatever ways promote the long-term success of our genes. This suggests both caution and optimism regarding the potential future role of drugs in manipulating mood. While some experiences of low mood may be useful, many are not, even aside from pathological depression. Blocking them might thus be viewed as similar to blocking pain or fever. The illusion that subjective pain and suffering is abnormal is just that—an illusion. The capacity for suffering is useful, even though the situation is damaging. But we can nonetheless often safely block them. We now consider the origins and functions of the emotions in general, before returning to consider the situations in which hope and despair might be useful.

### *The Origin of Emotions*

The brain/mind was shaped by natural selection to serve a single global function—to process information in order to control

behavior and physiology in ways that maximize inclusive fitness. Our capacity for enjoyment (especially happiness and pleasure) and suffering (especially pain and sadness) seem to be central components of that mechanism. Their expression seems tightly linked to the likely effects of a situation on Darwinian fitness. But have the capacity for enjoyment and suffering been shaped by natural selection? If so, in what situations, and by what means, have they increased Darwinian fitness?

Attempts to answer these questions arouse confusion and controversy, but they are of profound philosophical and practical importance. Religions, philosophies, political ideologies, and therapeutic systems all attribute human suffering to some cause or another, whether desire, social pathology, evil, original sin, economic inequity, distorted thinking, or genetic defects. Even in classical philosophy, according to Nussbaum (1994) "there is... a broad and deep agreement that the central motivation for philosophizing is the urgency of [ameliorating] human suffering, and that the goal of philosophy is human flourishing." Much of social science pursues the same goal. But we can hardly avoid observing that such efforts have, so far, met with a singular lack of success. As for philosophy, it seems, for the most part, to have given up on the task of providing a guide to *eudaimonia*. Given this situation, progress toward scientific understanding of the evolutionary origins of enjoyment and suffering should be helpful.

If emotions contribute to Darwinian fitness, if sadness and happiness influence our genes' ability to survive, then we must try to understand the nature of the interaction between emotions and fitness. The questions of why and how emotions give benefits are particularly important in our present era, as advances in pharmacology are giving us profound new powers to manipulate our feelings. Soon, perhaps within the decade, we will have medications that influence many emotions with remarkable specificity and few side effects. Yet we have little notion about how and when these emotions might be useful. What would the impact be, on individuals and societies, if we gained the capacity to experience enjoyment and banish suffering irrespective of our situation? We are,

to put it mildly, ill prepared for this coming revolution. To make sensible decisions, both as individuals and as a society, we must better understand the origins and functions of both positive and negative emotions. To understand hope and despair, we must seek an evolutionary explanations for the capacities for enjoyment and suffering, happiness and sadness.

*Evolutionary Perspectives on the Emotions*

While attempts to understand the functional significance of the emotions are as old as human thought, explanations based on natural selection obviously began with Darwin. In his *Expression of the Emotions in Man and Animals*, he laid the foundation for much subsequent research, and considerable confusion (Darwin, 1872/1965). His overall theme, and the point he makes clearly, is that human emotional expressions are consistent across different cultures and are continuous with those of animals. His rationalist, Victorian discomfort with that continuity, and with intense emotions in general, may be responsible for his treatment of human emotions as mere vestiges that persist from our animal ancestors. He thought that emotional expression was primitive and of little adaptive significance for modern Englishmen. Even in the case of animals, he greatly emphasized one function of emotions, communication, and gave relatively little attention to other possible benefits. Thus, the father of evolutionary theory started off research on emotions by minimizing their adaptive significance for humans and neglecting the full range of benefits they offer for animals (Fridlund, 1992).

Traces of these early directions have persisted. Confusion continues between proximate and evolutionary explanations of emotions, and between evolutionary explanations based on phylogeny and those based on the adaptive functions that shaped a trait. These distinctions were clarified by Tinbergen's famous four questions (Tinbergen, 1963) that now are the foundation for biology (Mayr, 1982), and especially ethology (Alcock, 1993; Krebs and Davies, 1991). Tinbergen said that a complete explanation for a characteristic of a species needs to answer four separate

kinds of questions. The first is an explanation of the character's anatomy and physiology—its structure and how it works. The second question is how the character arises in the course of development—its ontogeny. Answers to these two questions comprise the “proximate explanation” for the character. The third question is about the trait's phylogeny; what are its precursors in other species? The fourth question is about the character's function; what selective advantage has it given that accounts for how it has been shaped by natural selection? Answers to these two questions comprise an “evolutionary explanation” for a character. Note that all four questions require separate explanations; they are not alternatives and do not compete with each other. In the best science, advances on one front give rise to advances on others. In much current research, however, blurring of these distinctions gives rise to much fruitless controversy.

Of course, not all characters of all organisms have been directly shaped by natural selection. The color of blood, for instance, is an epiphenomenon. The number of digits on the hand is largely a result of historical constraints. The chin arises from the benefits of having a bone to attach jaw muscles to; its pointedness has not been selected for. All these possibilities notwithstanding, there are many aspects of organisms that almost certainly have been shaped by natural selection and therefore must have evolutionary explanations. The eye is the classic example. It has an obvious function that contributes to fitness, and its complexity and evidence of design demand an evolutionary explanation.

What about emotions? They are complex, moderately consistent across different human groups, embodied in discrete brain location and mechanisms, important to fitness, and, most telling of all, they are controlled by regulation systems. Natural selection can shape a system to regulate a trait only if that trait is itself important to fitness. In short, there are several good reasons for thinking that the capacities for the basic emotions have been shaped by natural selection, so we are justified in proposing and testing hypotheses about what functions they may serve. Contro-

versies about how to study adaptation have often been rhetorical and political, but substantive scientific criticism has led to recognition of some difficulties and strategies for overcoming them (Rose and Lauder, 1996). The principles that have long been used by physiologists (Schmidt-Nielsen, 1990; Vander, Sherman and Luciano, 1985), and that have provided the basis for extraordinary advances in ethology (Schmidt-Nielsen, 1990; Vander, Sherman and Luciano, 1985), are now being assimilated into the human social sciences (Barkow, Cosmides and Tooby, 1992; Buss, 1995; Crawford, Smith and Krebs, 1987).

*Evolutionary Studies of the Emotions*

Several lines of work on emotions have long been associated with an evolutionary perspective. Here we will touch on emotional expression in different cultures, on brain mechanisms, on special aspects of learning, and on basic emotions.

The consistency of basic emotional expressions in different human cultures has, ever since Darwin, supported the thesis that they have been shaped by natural selection. The first controlled studies were by Izard, who showed substantial ability of people to recognize emotional expressions on the faces of people from other cultures (Izard, 1968). Then Ekman carried out a landmark series of studies in New Guinea. People there, who have not had contact with outsiders until just a few years previously, were able to recognize the emotional significance of facial expression in pictures of people from the West. People in modern Western cultures could also recognize the emotions as displayed by expressions on the faces of people from the tribe in New Guinea (Ekman, 1989). Eibl-Eibesfeldt showed that deaf and blind children make facial expressions similar to those of non-impaired people (Eibl-Eibesfeldt, 1983). In conjunction with many more studies, this evidence has been accepted by most observers as confirmation that certain basic emotions, and their corresponding facial expressions, are universal and presumably part of the hard

wiring of the organism. Demonstrations of cultural variability (Lutz, 1988) pose no more of a threat to this conclusion than variations between different languages pose to the thesis that they are built on a common underlying biological capacities (Pinker, 1994).

Another line of research has looked for the brain mechanisms that control and express emotions. Early work by Papez showing the special role of the limbic system (Papez, 1937) gave rise to more explicitly evolutionary work by MacLean that saw traces of phylogeny in the “triune brain” with its ancient emotional “reptilian” foundation supporting the subcortical regions (“paleomammalian” and finally the “neomammalian” cortex (MacLean, 1990)). While he made some forays into the functional significance of emotion, the emphasis has been mainly, like Darwin’s, on the phylogenetic continuity between humans and animals, and on the localization of emotional processes to specific brain locations. The advent of brain scanning in conjunction with huge investments and progress in neuroscience, has taken this work rapidly forward. We now know a lot about the brain mechanisms that mediate emotions (Gazzaniga, 1995, p.1047-1180; Gazzaniga, 1992; George et al., 1995; LeDoux, 1996). In combination with clinical expertise and thinking about function, Damasio has shown specific deficits associated with a defect in emotional processing (Damasio, 1994; Damasio, 1995).

While debate continues about whether there are or are not basic emotions (Ekman and Davidson, 1994, pp. 5-48), there seem to be good reasons for thinking that certain emotions are fundamental capacities of the organism (Ekman, 1992; Izard, 1992). Furthermore, there is substantial agreement on what these emotions are: happiness, sadness, anger and fear—with love, surprise, and disgust also often mentioned (Oatley, 1992, p. 61). Plutchik has offered a particularly detailed look at the evolutionary significance of emotions and their relationships to each other in a circumplex model (Plutchik, 1980). The identification of consistent basic emotions has been taken as evidence for the effect of natural selection.

Emotions can be interpreted as special patterns of response shaped by natural selection to deal with the adaptive challenges associated with certain situations that have recurred in the course of evolution (Nesse, 1990). The characteristics of the fight—flight reaction, for instance, seem admirably designed to cope with situations that require aggression or escape (Cannon, 1939). Two pioneers of an evolutionary approach emphasize that it is the adoption of certain responses and not others that makes emotions adaptive: “When a tiger bounds toward you, what should your response be? Should you file your toenails? Do a cartwheel? Sing a song? Is this the moment to run an uncountable number of randomly generated response possibilities through the decision rule?” (Cosmides and Tooby, 1987, p. 296).

This perspective addresses several perennial questions in emotion research. First, it suggests that no one aspect of emotions—cognition, subjective experience, physiology, vocalization, or facial expression—is primary. All are aspects of a state whose coordination is explained not by neural mechanisms, not by psychological operations, but by the process of natural selection. Second, it suggests that the various aspects of an emotion are united, not because they serve one function, but because they give a selective advantage by a variety of means in a certain kind of situation. Because the adaptive challenges of various situations overlap, and because certain changes, such as arousal, may be useful in the face of different challenges, we should not expect that different basic emotions have distinct boundaries. Instead, we expect to see partially overlapping constellations of changes whose specific aspects are adjusted to the demands of a particular kind of situation. In short, the key to differentiating the basic emotions is not to be found in the emotions themselves, but in the adaptive challenges of the situations that shaped them.

Special aspects of learning have also been a focus of evolutionary research on emotions. Behaviorism was so dominant fifty years ago that emotion research was sparse. But some of the first studies to break the stranglehold of general learning theory were

those that showed constraints on the conditioning of nausea and fear (Garcia and Ervin, 1968; Seligman, 1970). Studies of learning and emotion since then have moved steadily towards an evolutionary perspective on their adaptive significance (Livesey, 1986; Staddon, 1983). Also, studies of prepared learning of certain fears (Lang et al., 1993; Mineka, Keir and Price, 1980; Öhman, Dimberg and Ost, 1985) have provided an evolutionary foundation for the clinical understanding and treatment of anxiety disorders (Barlow, 1988; Barlow, 1991; Marks, 1987).

*How Do Emotional Capacities Increase Fitness?*

There is fairly wide agreement that the adaptive significance of emotions may involve communication, motivation, behavior, attention, memory, cognition, and regulation of physiology and arousal (McNaughton, 1989; Thayer, 1989). Many theories of emotions emphasize one or another function or aspect as compared to others: action readiness, response amplification, communication, adjustment of arousal, attention, learning, and others. But is there a benefit to emphasizing some functions over others? If emotions are shaped by the adaptive challenges of situations, then there is every reason to expect that they will give advantages via multiple mechanisms that serve multiple functions.

There is also growing agreement, especially among evolution-minded scientists, that it is wise to focus on the situations in which emotions are useful. Lazarus, whose concept of adaptation is somewhat distant from an evolutionary view, says "emotions are always about person-environment relationships that involve harms (for the negative emotions) and benefits (for the positive emotions)" (Lazarus, 1991, p.819). Frijda describes emotions as "the set of mechanisms that produces relational action tendency and activation change" (Frijda, 1986, p.474). His "functionalist" approach "assumes that both psychological and biological phenomena make sense," Oatley takes a similar

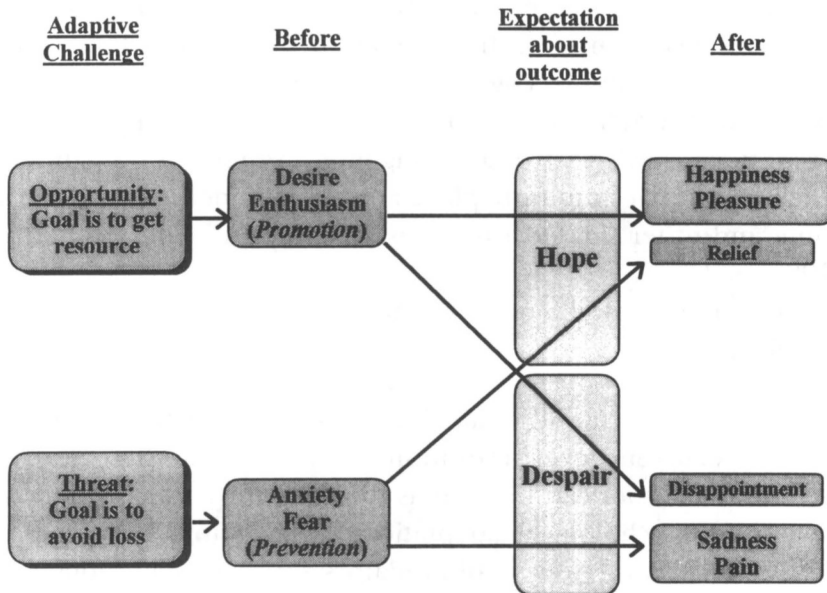
approach, saying, “an emotion is a distinctive mental state that normally occur in identifiable eliciting conditions. It has distinctive parts and recognizable consequences... Emotions occur in distinctive circumstances” (Oatley, 1992, pp. 18-19). “Emotions... are part of a management system to co-ordinate each individual’s multiple plans and goals under constraints of time and other limited resources” (Oatley and Johnson-Laird, 1987, p. 31).

Evolutionary psychologists Cosmides and Tooby are even more explicit:

To the extent that situations are structured and recurrent over evolutionary time, their statistical properties can be used as the basis for a special kind of psychological adaptation: an emotion... Each emotion state- fear of predators, guilt, sexual jealousy, rage, grief, and so on- will correspond to an integrated mode of operation that functions as a solution designed to take advantage of the particular structure of the recurrent situation these emotions correspond to” (Tooby and Cosmides, 1990, p. 410)

In this view they emphasize the importance of action tendencies, as does Frijda, although he focuses on individualized “concerns” instead of situations (Frijda, 1986)

The basic notion that emotions correspond to the situations that arise in goal pursuit can be traced back through Saint Thomas Aquinas at least to Aristotle. From this perspective, the basic human emotions are four: desire, fear, happiness, and sadness. Hope is not the same as happiness or pleasure, and despair is not the same as sadness. Hope and despair arises from expectations about whether a goal will be reached, or not. If a positive goal is reached, the result is happiness, or, for more physical situations, pleasure. If it is not reached, the emotion is disappointment. If a negative goal is successfully avoided, the emotion is relief. If it is not, the negative emotion is sadness, or, for physical losses, pain. Hope and despair exist



**Figure 1.** The Behavioral Ecology of Hope and Despair.

in the middle realm, when efforts are ongoing but the goal is not yet reached nor recognized as impossible (Fig. 1).

The functional significance of two aspects of this schema are easy to comprehend. Excitement aroused by an opportunity gives an advantage by making the most of a possible benefit, while the arousal and avoidance associated with anxiety can prevent a loss. In both cases, anticipating a challenge arouses an emotion that improves the ability to cope. By contrast, happiness and sadness usually follow experiences of gain or loss. How can they be helpful after the event? Only by influencing future behavior. If a successful action leads to happiness and pleasure, which in turn increase the tendency to repeat the action, a function can be readily recognized. But what about sadness? On the surface, it seems maladaptive, or an epiphenomenon at best.

Taking an explicitly evolutionary view, however, reveals that the occurrence of a loss or disappointment is an important event. After a loss, several possible changes in an organism may be adaptive. If the loss is tissue damage, the response is physical pain. To

repeat, the experience of pain is almost always associated with decreasing fitness, but the capacity for pain is useful. It motivates and facilitates escape from situations that cause tissue damage and, via learning, prevents reoccurrence of such situations.

A sophisticated perspective on the mechanisms by which emotions change future behavior is provided by Livesey, who says, "affects or feelings provided a mechanism for the development of associative learning" (Livesey, 1986, p. 231). His approach specifically addresses "the survival value of the felt emotion," (p. 325) "Emotions had their origins in the evolution of systems that enable the animal to perceive the outcomes of actions as affects or feelings, pleasurable or painful, i.e., the "reward" and punishment" effects. These percepts provided a mechanism for the evolution of associative learning and were also the precursors of emotion which emerged as a later evolutionary development" (p. 242). He traces the origins of this idea from Epicurus to Aristotle, to Spencer who said "Natural selection works to produce a correlation between feelings of pleasure and actions beneficial to survival on the one hand and feeling of pain and actions which are injurious on the other."

This principle makes several predictions.

1. Enjoyment should tend to be aroused by cues and situations that have tended, over evolutionary time, to increase inclusive Darwinian fitness.
2. Sadness should tend to be aroused by cues and situations that have tended, over evolutionary time, to decrease fitness, and
3. People who lack these capacities should show suboptimal adaptation because of deficiencies in learning.

What is the connection between enjoyment and suffering and situations that tend to increase and decrease Darwinian fitness? Behaviorism took this problem to its lowest common denominator, but the mind attends to far more than food, pain and

other cues that have become associated with such reinforcers. A list of situations that arouse enjoyment and suffering offers a starting place. Enjoyment comes from good food, good friends, caresses, sexual intercourse, public recognition, gaining property, and happy, healthy, successful children. All of these situations seem to be connected, by one or another degree of separation, with reproductive success. On the meta-level, people enjoy accomplishing goals for their own sake, from sports competition, to catching fish, to playing video games, or even hitting a small white ball into a hole. Situations that bring suffering are associated with decreasing fitness: sickness, death of a child, death or loss of a mate, infidelity by a mate, threats to resources, loss of resources, failure of efforts that might have succeeded, rejection, embarrassment, humiliation, and guilt. It would be most interesting to collect a series of emotional episodes and assess the situations that aroused them for likely effects on fitness.

The third hypothesis has recently received some experimental support. Some of the brain-damaged patients studied by the Damasio's were offered an opportunity to play a simple card game in which subjects could turn over cards from either of two decks. One deck gave steady modest payoffs with each card, while the other gave higher rewards along with occasional substantial losses that made it an inferior strategy overall. Normal subjects started to choose the superior deck even before they could identify their preference, and they showed skin conductance changes in the face of risky choices even when they could not consciously detect that a choice was risky. The brain damaged subjects, by contrast, did not show skin conduction changes and did not use the best strategy even when they knew it. The article concludes, "We suspect that the autonomic responses we detected are evidence for a complex process of nonconscious signaling, which reflects access to records of previous individual experience—specifically, of records shaped by rewards and punishment, and the emotional state that attends them"(Bechara et al., 1997, p. 294). These

results seem to show functional significance for preferences that precede inferences (Zajonc, 1980), although it would have been interesting to see if brain damaged subjects would have shown the same effect if the more variable deck had been superior in the long run.

*Sadness*

With this background, it is possible to address some possible benefits of the capacity for sadness. Depending on the nature of the loss, there are many ways in which a special state of sadness might increase fitness after a loss:

1. Prevent further immediate losses. If a child has been lost to high waves, or a cow to wolves, or food to scavengers, immediate action may prevent additional losses.
2. Recover the lost object if possible. In grief, searching for the lost loved now often seems useless, but in the ancestral environment, such searching might often have paid off. In other situations where the resource might be recovered, motivation of persistent searching may also be adaptive.
3. Avoid situations and actions that may have been associated with the loss. Presumably the situation is dangerous or otherwise undesirable. Even if the situation or place was not obviously the cause of the loss, avoidance may still, on average, be useful. People who experience severe danger, for instance, reliably avoid the place where it happened. Superstitions in such instances can be functional.
4. Try to understand the cause of the loss, especially if the threat may recur and understanding might prevent future loss. The rumination observed in people who have experienced severe losses often seems excessive or even senseless. But if on some occasions such cognition results in behavior that prevents future losses, the mechanism may, overall, be worth it. Women ruminate substantially more than men and this seems to explain much of the sex difference in sus-

ceptibility to depression (Nolen-Hoeksema and Morrow, 1993). Do women have more resources to lose, and is their thinking about possible losses more productive than that of men? Searching for information about the causes of a loss, and monitoring for cues that the same untoward event may be looming, can cause symptoms of a generalized anxiety disorder, but such symptoms may protect against future losses.

Half of people with a panic disorder go on to develop depression, and people who are depressed experience concurrent anxiety, but people with severe depression rarely go on to develop pure panic disorder (Angst et al., 1990). Such overlap, arising from diagnostic cannons that separate anxiety and depression, has given rise to a thriving research industry to account for comorbidity (Maser and Cloninger, 1990). Much of the comorbidity probably arises from personality and genetic factors. The genes that predispose to generalized anxiety disorder seem to be the same as those that predispose to depression (Kendler et al., 1987). To explain within subject changes, however, the functional significance of anxiety and depression may help. If people experience anxiety in anticipation of a loss, and then it occurs and causes sadness, this would explain much comorbidity. More generally, life situations that involve loss usually also involve risks, and *visa versa*.

5. Reassess major life strategies to determine if they need to change because of the loss. Loss of territory, a friend, a spouse, skills, appearance, or a role in a group all will require many other changes and careful consideration of alternatives.
6. Replace the lost resource if possible. This often is the best response to a loss, but before acting, an assessment of the costs and alternatives is essential, especially if one is likely to suffer another similar loss. Men and women whose spouses leave them often are wary of starting new relation-

ships, and they may choose less desirable partners to avoid another loss.

7. Get help from kin. In times of need, kin often will offer extra help, so communicating one's loss is therefore useful.
8. Warn kin about the danger to help them avoid the same loss.
9. If the loss is a loss of status, then withdraw or submit, in order to avoid attacks. Several theorists have emphasized the similarity of depression to the behaviors of males defeated in hierarchy competitions (Gardner, 1982; Price et al., 1994). Especially in conjunction with data showing consistent plasma serotonin changes in such situations (Raleigh et al., 1991), it seems likely that a special kind of response is available for situations characterized by a fall in a status hierarchy. Whether such responses offer a global model for low mood, and whether low mood and submission arise from similar or different brain mechanisms are important open questions.
10. Offer reparations or flagellate the self, if that might help to reconcile a lost relationship. The apparently puzzling tendency of guilty people to punish themselves makes sense in a reciprocity context. If a person takes advantage of a relationship, but then realizes that the relationship is more valuable than the advantage gained, then reparations must be offered. If they are not accepted, the guilty person must then deprive him or herself of more than the resources gained, in order to convince the injured party to reestablish the relationship.

There are, no doubt, other ways in which sadness can confer benefits after a loss, but this list offers possible functions that illustrate the diverse ways in which a selective advantage could come from a special state that arises after a loss. The reader is warned, however, that this position is by no means widely

accepted. One distinguished emotions researcher who takes an evolutionary and functional view says “[sadness] cannot be said to possess functional significance; it has none” (Frijda, 1986, p. 22). Certainly low mood can be excessive and even fatal, just as pain, cough, and diarrhea can be. But the *capacity* for sadness seems likely to be an adaptation that has been shaped by natural selection.

The belief that sadness is maladaptive may be a cognitive illusion (Nisbett and Ross, 1980; Tversky and Kahneman, 1974). Because sadness occurs in situations that are disadvantageous, and because its characteristics so often seem useless or harmful, the association bias readily leads to the false assumption that sadness itself is the problem, instead of part of the solution. As already noted, any of the bodily defenses treated by doctors are misunderstood for the same reason. Fever, a subtle and carefully regulated adaptation, is often thought to be a problem to be treated, instead of a defense to be respected (Kluger, 1979). Similarly, pain, cough, diarrhea, vomiting, and fatigue are often not recognized as defenses (Ewald, 1980; Williams and Nesse, 1991). As so often, Darwin was prescient: “Pain or suffering of any kind, if long continued, causes depression and lessens the power of action; yet it is well adapted to make a creature guard itself against any great or sudden evil. Pleasurable sensations, on the other hand, may be long continued without any depressing effect” (Darwin, 1887, pp. 51-52).

*From Happiness and Sadness to High and Low Mood*

In a clear statement of a widely supported theory, Oatley and Johnson-Laird have proposed that happiness is induced by goal attainment and that it motivates continuing with the plan that is working, while sadness arises when a major plan fails, and it motivates cessation of useless effort and a search for a better strategy (Oatley and Johnson-Laird, 1995).

One crucial clue is the habituation of emotions to continued stimulation (this is often described as “adaptation” with much

resulting confusion) (Loewenstein and Shane, in press). A great majority of people report being “happy,” and their ratings of happiness return within a few months to their baseline even after a wide variety of traumatic events, even including becoming paralyzed (Diener and Diener, 1996). While there are marked genetic and temperamental differences that account for much variation between people (Bouchard, 1994), we are here interested in the functional component, and therefore focus on within-person mood variation. As Frijda puts it, “Emotions are elicited by change brought about by events rather than absolute amounts of satisfaction or harm that these events carry” (Frijda, 1994). The response of a trait only to changes, and not to absolute levels, suggests an information function, not a simple homeostatic function.

In work consistent with this principle, Carver and Scheier take a control system view that interprets affect as “the outcome of the comparison process at the heart of [the action] loop” (Carver and Scheier, 1990, p. 23). The intensity of the positive or negative feeling is seen as the “first derivative over time of the input information” (p. 22) as compared to the standard of comparison. Their theory interprets affect as an internal representation of the rate of change of fitness outcomes as compared to expectations. It has the particular virtue of making specific predictions about the escalation of low mood to depression when a person, for some reason, is unable to disengage from a task that is not paying off. Morris takes a similar view, distinguishing the functions of emotions from the functions of moods, which “exist for the sake of signaling *states of the self* in terms of the physical, psychological, and social resources available to meet perceived environmental demands (*italics in original*) (Morris, 1992, p. 256).

Another view is that moods regulate energy and effort. Thayer has a two axis system comprising energy-tiredness and calm—tense states that generate many combinations (Thayer, 1989). He sees “mood systems as part of an evolutionary inheritance... as vital signs of readiness for action and need for rest and recuperation... Our moods also guide us in regard to when to mobilize our

resources, when to be cautious, and when to be completely inconspicuous, to lie low and stay out of trouble" (Thayer, 1996, p. 76).

I have argued, in a similar vein, that high and low moods track the propitiousness of the environment, and that they function to adjust patterns of resource investment (Nesse, 1991). This predicts that moods arise from assessments of future expectations, and that past events influence mood because they are associated with future patterns of payoffs. To the extent that low mood arises from poor opportunities now as compared to the future, it makes the nonobvious prediction that mood will be lower when the future is likely to get better, as compared to situations in which no improvement is anticipated. Of course, whenever the anticipated payoff is less than the likely costs, there is no point in taking action. In many clinical cases of depression, the complete lack of viable life enterprises leaves the person in a virtual social desert, where all efforts may well be wasted.

Just as there are subtypes of anxiety that correspond to different threats (Marks and Nesse, 1994), it seems likely that there are subtypes of sadness that correspond to different kinds of losses. The characteristic search for the lost one in grief would have been adaptive in our ancestral environment, especially when someone simply did not return from the bush. The tendency to blame oneself for the death of a loved one seems irrational and useless now, but if such self-blame would sometimes have prevented another loss, this would be useful indeed. A mother who left her baby on the ground in an unguarded moment and lost it to wild dogs would, via grief, learning, and memory, be very unlikely to do make that mistake again.

*Extremes of Hope and Despair: Mania and Depression*

Mania and severe depression are diseases. They unlikely to be adaptations themselves, so no direct evolutionary explanation is needed. As is the case with all other diseases, however, the organism's susceptibility to these mental diseases can be understood in

terms of why vulnerabilities persist in the face of natural selection. There are two different issues here. First, is the question of why some people are genetically more susceptible than others. Second, and quite separate is the question of why we all are vulnerable to affective disorders (assuming that we are). This might result from trade-offs, or because the more mild traits are defenses regulated to be readily expressed, or because of evolutionary constraints (Nesse and Williams, 1994).

While it might seem that mutation creates defects faster than natural selection can purge them, the selection force against the genes that cause manic depressive illness is so strong that this is implausible unless many genes are involved. Another possibility is that the same genes also give a selective advantage, either to the person with the syndrome, or to healthy relatives. This possibility has been suggested by Jamison, who organized a Cold Spring Harbor Conference on the topic. There is abundant evidence that creative people have increased rates of affective illness (Jamison, 1993), and data that shows increased creativity in relatives of manic depressives as compared to controls (Richards et al., 1988). While this is an intriguing lead, the actual factor might be quite dissimilar to the syndrome itself; it could even be something as different as resistance to plague.

The second question is why we all have the capacity for depression. Is it a defect, like epileptic seizures, or is it a defense like fever or shivering? Many suggestions have been made about how depression might be a defense that is useful in certain extreme situations, but before going further it is essential to emphasize that while some depression might be useful, much is pathological. Anyone who has practiced psychiatry has seen hundreds of people whose moods are dysregulated, often devastating or ending their lives. The attempt to find possible functions for depression does not mean that depression is not ever a disease, it means only that low mood and some depression may sometimes be useful. The attempt to find out when it is useful, and how, may well provide the foundation for a deeper understanding of mood and its

regulation, knowledge that is badly needed to help us cope with what appears to be an epidemic of depression.

Gut has argued that when major life strategies are failing, the state of depression facilitates the complete reassessment necessary to start afresh (Gut, 1989). Oatley says, "Depression... is a crisis in a plan that leaves the person without alternative plans for fulfilling a goal that has been lost. Depression feels intolerable. But the function of this intolerability may be to prompt change" (Oatley, 1992, p 299). Indeed, "fresh starts" are strong predictors of recovery from depression (Brown, Adler, and Bilfulco, 1988). I see, in many of my patients, people who have made huge investments in jobs or relationships that now appear increasingly hopeless, with no apparent alternative available. In that situation, depression often arises. Brown's data confirms the role of humiliation and entrapment in precipitating depression (Brown, Harris, and Hepworth, 1995). Klinger argues that escaping such situations is a function of depression in that it helps to end a "commitment to an inaccessible incentive" p. 14 (Klinger, 1975). Clinicians have long observed the same phenomena (Bibring, 1953).

A mystery about depression, and about sadness in general, is why it should involve lack of initiative and lack of self confidence. If a person has experienced a loss, wouldn't it be better simply to get back to work and put in extra energy in order to try to make up for the loss? Suggestions that people may need to withdraw in order to process information are probably partly correct, but there are two other potential explanations. The first is that the pessimism and withdrawal are pathological extremes of normal sadness. There is another way, however, in which pessimism itself might be useful. True depression, as contrasted with demoralization, arises usually in circumstances when a huge life enterprise is in trouble. Problems with a career or marriage threaten the overall life strategy. What is the best thing to do in such a circumstance? When one has spent years of effort developing a marriage, or a reputation, or raising children or developing career skills and connections, is it best just to give up? No. It

would be most unwise to blithely walk away to try something different. The best thing to do when a major life enterprise is failing may be nothing at all. When a bad situation tempts a person to abandon a life-long enterprise, it may be useful indeed for imagination to be impaired, for self-esteem to be lowered, for initiative and hope to be paralyzed. From this perspective, the state of despair may be a specialized adaptation for situations in which giving up on a huge life enterprise is tempting, but possibly foolish. After weeks and months, the process works its way through, leading either to recovery of the enterprise, or giving up on it, or to accepting its new, less satisfying state. When the process gets stuck, with hope preventing giving up or acceptance, despair escalates into serious depression.

If this is correct, then the amount of depression in a culture will be related to the size of the enterprises people pursue. In the environments we evolved in, marriages lasted only a few years, efforts to get food were successful or not in a few days, and even social competitions lasted only months or a few years. Now, by contrast, most people are engaged in efforts that require gigantic initial investments. If they don't work out, the option of leaving and starting over may not only be difficult, it may be impossible. So, people persist in efforts that seem hopeless precisely because they have no alternative. I wonder if the frequency of depression in modern life might arise from the size of the enterprises people now engage in, the large groups in which they compete for status and mates, and the difficulties of starting a major enterprise afresh. Our behavioral control systems were not designed for this environment, but for one where life enterprises were far smaller and more replaceable.

More routine decisions face every animal from moment to moment. The task of optimally allocating effort and resources to different tasks is so crucial to reproductive success, that the mechanism that accomplishes it might well be called the "Central Darwinian Algorithm" (expanding on Cosmides and Tooby's felicitous phrase (Cosmides and Tooby, 1992)). The capacity for

mood helps to regulate the direction, amount, and timing, of resource and effort allocations (Nesse, 1990; Nesse, 1991). If people expect that one kind of effort is unlikely to payoff, they will usually turn their effort elsewhere. If all available enterprises are likely to be unproductive, perhaps because of the lack of some crucial resource, like membership in a supportive group, then it is wise to conserve efforts for a more propitious time. If a major enterprise is draining crucial resources, a wrenching disengagement may be necessary, and very low mood may, as many have suggested, facilitate this necessary change. Usually the failing enterprise is an important relationship or social role, and depression can be seen as an emotional pry-bar that disengages otherwise persistent attachments. This might help to explain the seemingly paradoxical finding that depression arouses, in spouses, more criticism than sympathy (Coyne et al., 1987).

Such situations are, as we all know, hardly ever clear-cut. The possibility of renegotiating the relationship, uncertainties about alternatives, social pressures, moral commitments, threats, effects on others, and the simple pain of separation, all conspire to cause some of the most intense human suffering. When such factors make disengagement impossible, ordinary low mood may escalate to major depression (Pyszczynski and Greenberg, 1987). Whether this is an adaptation shaped by natural selection, or pathology from a defense overshoot, akin to seizures during high fever, cannot now be said for sure. If this theory is correct, then ordinary low mood will follow losses, very low mood will often be associated with situations in which a person persists in a problematic relationship or task, people with a tendency to such persistence will be especially vulnerable to depression, and resolving the problem or giving up such enterprises will lead to recovery. Perhaps tendencies to interpersonal sensitivity and dependency lead to depression because they make it harder to disengage. And perhaps these tendencies are selected for because they make people more desirable relationship partners, maybe even via runaway sexual selection (Miller, 1994).

A different perspective on these phenomena is provided by a group of researchers who have followed the lead of Price (Price et al., 1994; Price, 1967) and interpreted low mood as “yielding behavior” that arises from the status conflicts that are so common in human life (Gilbert, 1992; Sloman et al., 1994). This view is supported by clinical experiences, by demonstrations that blood serotonin levels in vervet monkeys differ depending on rank, change dramatically with changes in rank, and that drugs that influence serotonin dramatically influence the outcomes of status competitions (Raleigh et al., 1991). Certainly, loss of social status or position in a group can induce a special kind of low mood, but it is not yet clear that the characteristics of human depression actually prevent attack by superiors, or that a high proportion of human episodes of low mood arise from losing status competitions. The evidence should be available in the next few years.

If indeed sadness has some of the uses outlined above, it should be possible to demonstrate this by comparing people who have strong, medium, and weak tendencies to sadness after losses. Those people who don't experience much sadness, and who don't demonstrate the behavioral characteristics of sadness, are predicted to engage again in the same behaviors that previously led to loss, and they might well continue to make life investments in hopeless enterprises instead of experiencing the dissatisfaction that makes other people move on despite the risks of making a change. Therapists have long viewed life crises as opportunities for major change. Some aspects of sadness may be designed to facilitate exactly this. The observation that most people usually see life through rose-colored glasses and that people experiencing mild depression are more accurate in their views of themselves and the world (Taylor and Brown, 1988) are consistent with this perspective, while optimism and persistence are wise in a stable situation in order to avoid abandoning relationships and strategies that are temporarily not working (Tiger, 1979). If the long term outlook for an enterprise becomes bleak, then it might well be wise to view the world more coldly and accurately. If one

is in a situation where the best strategy is to leave and start fresh, but the partner might well attack in order to prevent this, then becoming less desirable as a relationship partner might be a good way out.

In short, hope may be costly, and low mood may offer benefits. There are times when action will pay off, and times when it is useless. Situations in which action seems useless, whether to reach a goal or to prevent a loss, are intensely painful. This gives rise to the illusion that despair is always abnormal, and that hope is always beneficial. Psychologists often emphasize the problems of helplessness, but the problem is not always the helplessness itself—sometimes it is the inability to make things come out positively. Despair has its uses.

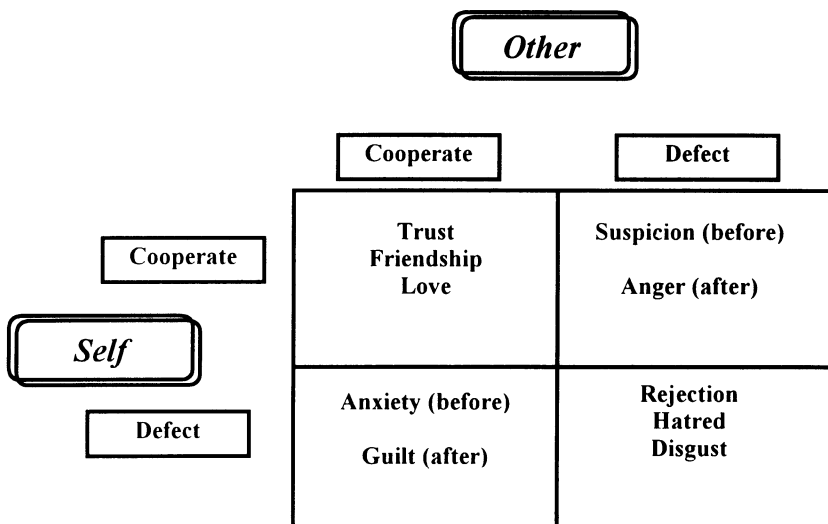
How often is it useful? Recall the smoke detector principle discussed above. If low mood is inexpensive, and if it may offer big benefits, then, like anxiety, it may be present much more often and more intensely than is necessary. This seems likely to be the situation. In our hunter gatherer past, calories were in short supply, so any effort that was not likely to pay off was risky indeed. A system that turned off motivation whenever prospects were poor would make sense. Now, with resources abundant, it is much harder to see the utility of low mood. In fact, it is probably much less useful. Just as we can get along just fine with only a small proportion of the pain and anxiety that our evolved systems provide for us, we can likely do as well or better with much less low mood. So, low mood may be an adaptation, but nonetheless now be most often unnecessary or harmful.

### *Taking Human Emotions into the Social Realm*

The above exposition is admittedly vastly simplistic for humans. The resources that we pursue are overwhelmingly social, as are the competitions that we engage in. While other organisms have specialized states that are aroused by certain elicitors, the important behavior mediators for humans are conscious experience

and cognitive assessments of the progress of intentional plans. Furthermore, we humans have internal models of the external world and our minds churn constantly to assess the meaning of past events and the possible ways that we might influence the future to our advantage. Also, the environment in which individuals live is far from uniform. We exist in social networks, where individuals play multiple social roles in distinct and often unique niches. There are even suggestions that siblings actively differentiate themselves from each other (Sulloway, 1996). On top of all this, we cope with multiple status hierarchies that are constantly changing (Barkow, 1989). Finally, there is individual variation not only in strategy and social niche, but in genetic make-up, so different individuals have different tendencies and abilities to pursue different strategies (Buss, 1995; Plomin, Owen, and McGuffin, P, 1994). All of this does not detract from an evolutionary perspective on the emotions. Far from it. An evolutionary perspective helps to explain why human psychology is so complex and human behavior is so diverse.

To illustrate this, we will touch ever so briefly on the social emotions, since they are, in fact, the source of most human enjoyment and suffering. If indeed social resources are of overwhelming importance, and if kinship (Hamilton, 1964) and the exchange of favors in reciprocity relationships is the key to understanding social networks (Trivers, 1971), then we should expect that special emotional states have evolved to cope with these situations (Trivers, 1981). Attachment and its evolutionary significance have been addressed at great length and for good reason (Ainsworth et al., 1978; Bowlby, 1969). Here, however, we must content ourselves with a simpler approach, the prisoner's dilemma as a model of reciprocity relationships (Axelrod and Hamilton, 1981). In such models, the partners/competitors each can cooperate or defect on each move of the game. If both cooperate, the net total benefit is maximized (say, three points each), but on any given move, if one person defects and the other cooperates, the defec-



**Figure 2.** Social Emotions to Cope with the Situations of the Prisoner's Dilemma.

tor gets a substantial payoff and the cooperator gets nothing (say, five versus zero). If both defect, both receive a very small payoff (say, one point). Thus, if we give each other rides to the airport we both save money and time, but if you give me a ride and I make excuses when its my turn to drive, I have defected and you are left holding the bag.

The diagram above shows graphically how emotions correspond to the different situations defined by the prisoners dilemma. When both partners are cooperating, friendship and trust grow. When both defect, there is essentially no reason for a relationship. When you have reason to think the other person may defect, you become suspicious. If the person does defect, the suspicion becomes anger. Seen in this light, anger is a signal that the other person's behavior is unacceptable and the relationship will terminate unless behavior changes or reparations are made. Suspicion is an early warning about possible defections, and communication about such suspicions may prevent defection. When this defense is excessive, we call it paranoia.

Most people who are tempted to defect when the other is likely to cooperate, will experience a growing sense of anxiety. When they do defect, most people cannot escape feeling guilty. How can guilt possibly be useful? And, why do people sometimes engage in self-punishment? As noted above, the goal may be to deprive oneself of any illicitly gotten resources in order to reestablish an important relationship. Saying "I am sorry," is a good start, but depriving one's self, or providing the other person with the resources that were gained by violating a trust, is far better way of demonstrating one's worthiness to participate further in a relationship. These patterns can be tested by having people play artificial games that arouse these emotions. It has been demonstrated that manipulation of mood changes the strategies people use (Clore and Ketelaar, 1997). It would be most interesting to see if people who experience these emotions to different degrees use different strategies in such games. A game theory approach also can help to address some of the more difficult aspects of emotions, especially why they sometimes are so extreme as to seem maladaptive (Frank, 1988; Gibbard, 1990; Hirschleifer, 1978).

### *Commitment*

Reciprocity models can take us only so far. While many human relationships are based on trading favors, people do not appreciate having their personal relationships interpreted as reciprocal exchanges. In fact, they hate it, and attack anyone who suggests that their relationships with their loved ones are, deep down, in the service of their genes. And if someone has the temerity to point out that much apparent altruism is actually either to benefit one's own genes that happen to reside in some other person, or else in hopes of getting something in return, this is beyond the social pale. This position, at the edge of acceptable society, is occupied by many economists and evolutionary psychologists. Even people who know perfectly well that our brains could only

be shaped to result in behavior that, on the average, maximizes reproductive success—even many of them recoil at this vision.

As well, I think, they should. For it is not only repugnant, it also does not match much of what we observe. People are not so calculating or so sensible as these theories would expect. The deviations are not random, they seem to be especially common and intense in intimate social relationships. People often behave, not according to the pleasure principle, but according to principles. They pledge to be honest or loyal, and sometimes they are, even to death. They vow revenge, and sometimes they get it, even at a huge spiteful cost to themselves.

What are to we to make of all this apparent irrationality? The benefits of commitment strategies may explain much. An individual can strongly influence the behavior of others by convincing them that she will do something that is not in her best interests. She may say she will quit her job if the boss does not let her work on a new project, even when she has no other job to turn to. Or, she may say she will kill herself if her lover leaves her. Or, she may tell her lover that she will stay with him, no matter what happens to him. In each case, a person gains major advantages by convincing others she will follow through on a commitment that she would rather not carry out. This idea has been developed by Robert Frank and Jack Hirshleifer (Frank, 1988 #420; Hirshleifer, 1978 #989), and was the basis for a major development in political strategies by Schelling in the early 1960s (Schelling, 1960). The question now, one that is just starting to be answered, is whether humans have built in capacities for using commitment strategies. As Frank suggests, certain emotions, especially anger and love, seem well designed to get us to do things that are not so obviously in our self interest, but that may give big benefits in the long run. And it is fascinating how strenuously people object to the idea that they are just trading favors. To accept a model of a relationship as trading favors is to revert to a crude kind of sociality, to give up on committed friendships and love. Of course, if people believe that altruism they receive is just

an attempt at manipulation, then for them, anything deeper will not be possible. We really do create the social worlds in which we live. And what we believe about human nature has a profound effect on what kind of relationships are possible for us. So, we object strongly when a model of human nature seems to degrade our deepest relationships.

This brings us back to hope. People who believe that love is possible have a huge advantage over others because they are capable of deeper relationships that can help them when they most need help. Eric Erikson describes how crucial it is to develop (Erikson, 1980) “basic trust,” Carl Rodgers emphasizes the need to receive, “unconditional positive regard.” In the midst of a booming economy with competition everywhere, the phrases seem almost quaint, but they describe the core of the beliefs that make deep relationships possible. In whatever terms, it is this capacity for faith in the potential goodness of others and ourselves that makes life bearable, and sometimes pleasurable and meaningful.

### *Religion*

Basing one's behavior on another individual's promises is a risky business. If you vow to help someone and do, but the other person's promise is hollow, you won't know until it is too late. You can test the person, you can even see how he or she acts in situations that suggest that you can never pay a favor back, but you cannot be sure your trust is justified. Unless, that is, you can somehow join a group of people who all face the same problem. If they all can agree on some simple ideology that justifies helping each other, and especially helping each other irrespective of any pay-back, then they can monitor each other, they can support each other's commitments, and collectively, they can make the price of not fulfilling commitments huge. In short, they provide a social structure that make a deeper kind of commitment far less risky, and therefore more common.

This seems to me to be a major role of many religions. They are based on otherworldly prescriptions precisely because the whole goal is to get away from all practical justification for altruism. Love of God or fear of hell—either will work to enforce commitments. Of course, the flip side of this is the coercion, the conformity, and the intrusion that arises almost automatically in such groups.

*Utopia, Dystopia, and the Necessity of Hope*

Finally, we return to hope on the largest scale. It is one thing to experience hope or despair for oneself. But it is something else to have a sense that all life, or all societies or all people are a source for hope or despair. The utopian experiments of the 60s are gone, submerged, with the failure of the great socialist experiments, into our current obeisance to capitalism and the human as wage earner. Consuming is at the core of the modern identity. I fear this is, in part, because we have lost hope in any alternative. Our imaginations are dimmed. Our hopes for a more equitable society are feeble. We are so traumatized by the fall of socialism, by watching free love become fear of AIDS and hippies turn into corporate lawyers, and by the failure of welfare policies, that many have given up any hope of a better society. Even the poor seem devoid of protest, and consumed with individual ambitions or quiet despair. But our society is, to a large extent, what we think it is. If our model of human nature is based only on reciprocity and economic exchange, then we are stuck with just that and no more. We have capacities for much deeper commitments, commitments that can make us good and our lives meaningful, but these stay small and private in an environment that lacks hope for a better society. Despair is useful at times for individuals, but at the social level it perpetuates the status quo. Herein lies a paradox—hope at the individual level is fundamentally conservative, but hope at the social level deeply threatens those on top. As advances in pharmacology increasingly make the experience of

despair optional, I wonder if hope for social change will be fostered or undermined. The answer may have great consequences.

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