CHAPTER 42
BASIC GENERAL RECONCILIATION

Similarities of nonhuman surroundings with human assertiveness and common origin may not give rise to sufficient emotional incentives to have humans adequately address the sustainability of their resources. They may continue to operate in competitive ways that ultimately endanger their existence, hoping or even trusting that there will always be opportunities for conquest that unfold access to new and unspoiled resources. The existential threats of such strategies necessitate that we search for additional ways to nurture emotional cooperative attitudes toward our nonhuman environment that can sufficiently stand in for comprehensive rational insights into the benefits of cooperation. They might also work as vanguards for the growth of such insights and provide resolve to act upon such insights once they are attained.

To see whether such a development is possible, we must review the criteria for emotional identification in more detail. This review has to begin with tribal relations among humans as the basis from which we would extend emotional cooperation. The guidance from inherently cooperative needs and the easily ascertainable utility of cooperation in the pursuit of other needs build a broad foundation for participants' recognition that cooperation serves the fulfillment of their needs more than competition. Moreover, the abundance of commonalities among humans renders it likely that they feel emotions in similar ways, with similar intensity, and from similar causes. The resulting empathic susceptibility to the emotions of other individuals may combine with our cooperative predispositions and readily attainable awareness concerning the usefulness of cooperation to incorporate others into our tribe. These factors, and even empathy alone, may cause us to discount their incompatibilities, their lacking utility within tribal parameters, or the benefits of handling them competitively as nonmembers of our tribe. Yet, although we may admit them into our tribe to some extent, these discounted factors continue and might counteract our solidarity. They might limit how far we admit others into our tribe and how far we are willing to restrict a competitive approach toward them. We might find it advantageous or necessary to exercise competitive strategies against them although we include them into our tribe. We might protect and support them if they are of continued utility for our competitive purposes but also maintain or reassume distance even while we engage in cooperation with them with respect to other needs. Accordingly, empathy and utilitarian considerations may not be able to break competitive practices completely. Notwithstanding, our cooperative attitudes

have the potential of creating substantial obstacles to deriving happiness from our competitive practices. These practices would deprive us of fulfillment regarding multiple needs that derive satisfaction without mutuality and needs that require or can benefit from constructive mutuality. We would evoke negative mutuality in defense against our impositions. In addition, our emotional identification would reflect on us a part of the pain we inflict on other humans. We would further incur pain from our failure to assist other humans because it leaves us longing for the pleasure in which we could partake if they gained pleasure. Hence, not including other humans into our tribe may hurt us.

Even if we fail or refuse to recognize this, we may pursue strategies that control our exposure to pain. To evade or reduce pain from defensive activities by our victims, we might apply deceit or coercion. To restrain empathic pain, we might strive to dehumanize our victims. We might overstate differences between us and them to persuade ourselves that our competitive abuse of them and disregard of their needs have a less or no painful effect on them. Such a pretense might be difficult to sustain against overwhelming evidence of commonalities. We might therefore strive to convince ourselves and others that individuals we mistreat or whose plight we ignore deserve such treatment as a defensive act. Only, empathic pain counteracts the pleasure we obtain from competitive utilization of or our failure to care for other humans. This reduction in our happiness may motivate us to supplant our comportment with more cooperative manners of pursuit. We may reserve competitive practices and carelessness to defensive conditions and exigencies. But empathy commands us to act cooperatively even in these remaining areas. The pain that we inflict on or permit in others in an emergency may make it hard to validate our actions in a societal context as well as in our judgment unless we can avoid disproportionately graver suffering. A society may proscribe and defend against competitive acts or failures to assist that are motivated by an exigency if these do not meet certain margins of overall benefit. It may also provide for mechanisms to equitably address the harmful consequences of emergencies in which it tolerates competitive action and nonassistance. In addition, the pain that we might suffer by our empathic response from reacting to an emergency at the cost of others may approach, equal, or exceed the pain we might suffer from an emergency if we were not trying to save our interests at the cost of others and took the damage.

Requirements for a defense against offensive competition might provide better justification to overcome limits set by emotional identification with other humans. But even such a justification may not permanently overcome empathic pain. It may only countermand it tem-

porarily with pleasure we feel over securing needs against competitive threats or acts. We may choose empathic pain as lesser pain if we are confronted with the potential or actuality of greater pain. Still, our violation of empathic obligations may linger on in our memory and continue to cause us pain. We may have to labor through subsequent confrontations with that pain. Traumatic imprints on our mind may not permit its presence to fade or may induce it to reenter our emotional awareness. We may have to recall and reactivate the emotional details that made us choose empathic pain as a lesser evil, thus forcing us to relive the related traumatic events over and over in even more detail to soothe our pain. We may also seek comfort by vilifying our foes and their activities beyond realistic levels. These strategies cannot be very successful if we understand our fundamental commonality with them. Nevertheless, a defensive justification might soothe our empathic pain the most and give us the most justification for the infliction of pain on others or our indifference regarding their happiness. Realizing this, we may utilize a pretense of defensive necessity. We may attribute to our victims harmful intent or activities. We may invent or exaggerate the existence of preceding competitive threats or acts by them or provoke such acts. We may reconstrue their defensive precautions and maneuvers as offensive. By these subterfuges, we may be able to recharacterize our competitive and careless practices as acts of protection, retribution, or correction that are directed against competitive offenses or as acceptable byproducts of defensive struggles. We may go through such trouble not only to attain support and acclaim by others but also to find justification in ourselves. Still, we will continue to be aware of our pretenses on a deeper level, and these will therefore be futile.

The empathic guidance we receive in our relationship with humans constitutes a precursor and emulator for the insight that cooperation among individuals increases the effectiveness and efficiency of our endeavors compared to competitive strategies. Beyond its promotion of productive rationalizations in its wake, its attitudes and resulting acts can initiate the fulfillment of needs that inherently call for cooperation. More immediately, it constitutes an important part of our need for collective survival and thriving that therefore extensively coextends with our emphatic motivations. These factors seem to be fundamentally missing or diminished in our attitude toward the remainder of our environment. In spite of the benefits we can achieve from protecting and supporting our nonhuman resources and from cooperation with them, we must in large parts engage in competitive strategies to secure resources for our pursuits. We may not appear to have needs that inherently require us to cooperate with our nonhuman en-

vironment, possibly with the exception of a vague desire for harmony. Even if we reserve particular affection for a purported creative source, our sense of general relatedness through sourcing may not pose a sufficient incentive to spare aspects of deemed creation from destruction. The divergence of characteristics may render our impression of commonality too weak for our need for collective survival and thriving to apply or to apply effectively. Remaining empathic obligations may be surmounted by our rationalizations that our nonhuman environment cannot feel emotions or that such emotions are of a lesser quality than human emotions. In addition, impositions on our pursuits because of our empathy for our nonhuman environment may reduce our individual or our collective capacity for survival or wellbeing. This may move us to weigh benefits and detriments of competitive use of and nonassistance to our nonhuman environment. We seem to have more room to vindicate noncooperative conduct in dealings with our nonhuman environment than in our relationships with humans. This vindication appears to additionally increase if we can convince ourselves that our nonhuman environment comprises significant offensively competitive qualities. Although we cannot apply deception of our nonhuman environment as effective tool and this tool would be inapplicable because it cannot effectively defend itself against our infractions, we may succeed in deceiving ourselves and other humans in this manner.

Our cooperation with our nonhuman environment may have to remain incomplete because we must adjust parts of nature to our requirements if we are to survive and thrive. But our historical tendency of erring in our treatment of our nonhuman environment may make it indispensable that we preserve and build empathy toward it to have us proceed with adequate caution. Only, when we resort to empathy as a saving mechanism, we are restrained by its instinctive requirements of emotional identification. We cannot help to render the application of empathy and the resulting inclusion of aspects of our nonhuman environment into our tribe dependent on whether such subjects are capable of feeling emotions and on how similar these emotions are to ours. Our concern whether our nonhuman environment feels emotions appears to be readily allayed regarding most nonliving features. But we may begin to have doubts when we encounter nonliving mechanisms with sensory and possibly reactive capacities. An assessment becomes even more complicated as we deal with entities that exhibit the characteristics of life because we imply a capacity to feel and react to pain and pleasure in the pursuit of survival and thriving functions. Apparent differentiation capabilities that remind us of reactions to pain or to pleasure may be unclear if we cannot objectively measure pain and

pleasure. Even if we can measure these phenomena in humans, such methods might not be transferrable to other types of entities. Even if we could measure the same indicators that are responsible for human emotions in other entities, differences in their nature may not permit us to accurately measure emotions compared to human terms. Insufficient direct indicators regarding the quality and quantity of emotions in other types of entities compared to humans may make us look for behavioral as well as for communicative similarities. Such information is encumbered if nonhuman entities do not indicate or communicate emotions at all or not in the same manner as humans. We may rightfully presume that living entities that are closer related to humans in their physiology or behavior can feel emotions in greater similarity to humans because they appear to be equipped with similar facilities and requirements. But that presumption may not carry far in our inquiry.

As we examine more distant types of entities, we enter an area of uncertainty because the differences increase. We often find an apparent reduction of the number of needs and differences in the articulation of needs compared to humans due to internal and external dispositions. While we may still be able to recognize at least rudiments of human concepts, we become less able to correlate needs to our experiences as their assortment, their quality, and the means to fulfill them diverge. Notwithstanding, we may have to acknowledge the presence of needs in most if not all life forms. All life appears to possess existential requirements. Although it is conceivable that life forms may never lack what they require to survive and thrive, this is not what we commonly detect. Most life forms we know exist in systems where the fulfillment of what they require might be or become deficient. The survival and thriving of their individual representatives often are matters of considerable fragility, of edging up against adversity and of carving out an existence in spite of it. The growth of species with experiences of conditions changing from conducive to adverse and from adverse to conducive may have enabled them to follow, find, or create conducive circumstances and to avoid, endure, or change adverse circumstances. Attempts to obtain distance from, withstand, or cure deprivation and the cessation of such attempts upon fulfillment indicate a mechanism that is capable of distinguishing damaging from advantageous circumstances and is motivated to act or cease acting upon that distinction. Its acts would indicate that it can feel some form of pain and pleasure, and they would constitute a pursuit of happiness motivated by a pain-pleasure mechanism. An exception might only apply if deficiencies are the cause for remedial action without any detection mechanisms and fulfillment would physically render additional pursuits impossible.

Living entities of this type might continue to subsist in spite of their incapacity to perceive deprivation or fulfillment. They might not even react to variations of external or internal conditions. They might be executing a program that does not cause autonomous selection between factors that are deleterious and others that are conducive. They might be programmed to undertake particular functions. Their genetic programming might simply function or fail depending on the interrelation of environmental situations and their physiological condition. When they become subjected to poor or hostile environmental conditions, their only reaction might be a reduction or cessation of function effected by the influence of unfavorable conditions on their functionalities. Similarly, their sole response to favorable conditions might be an increase of their functions in approximation of their potential.

While a difference in activities depending on states of deprivation or fulfillment of requirements might be an auspicious sign for the ability to sense emotions, there are clearer indicators. To judge the potential of emotions in other species appropriately, we would have to explore their potential to experience emotions in anticipated forms as well. To detect fear, we would inquire for the capability of an entity to generate impressions of pain without the manifestation of immediate causes that inflict pain. Fear could arise in reaction to external stimuli that an organism associates with the causation of pain or even without such stimuli. It might also arise from its acquired or genetic programming and might therefore not be limited to entities with anticipatory awareness of causes and consequences or a more rudimentary association. In either event, it can be recognized by reactions of avoidance or of defensive confrontation without the actual infliction of detrimental conditions. Anticipated pleasure might be difficult to distinguish from pain in its present or anticipated form because it might refer to them as distinguishing marks. Even a state of pleasure might be difficult to prove because it may not have many indications by activity. Rather, it may be defined as the absence of activity. We may assume a state similar to pleasure if an entity that possesses the capability to undertake remediation in circumstances of deficiency is not engaged in such activity. It appears possible that what we describe as pleasure or happiness in us is in other entities simply the absence of pain, a state of rest, of neutrality without any emotion. If that were the case, their range of emotion might be different from the scope of sensations we can experience. However, not much in the detection and assessment of a pain-pleasure mechanism would change. There would still be a differential between pain and the absence of pain that could generate the necessary motivation for an entity to refuse unfavorable conditions and to

seek conditions that are more favorable. Conversely, it is conceivable that an entity could only sense the satisfaction of requirements but no pain. The absence of pleasure alone might motivate that entity to engage in activities that generate fulfillment. Here again, there would be a differential between the presence and the absence of fulfillment that could engender the necessary motivation because one state would be sensed as inferior compared to another. A basic pain-pleasure mechanism would still be present if only pain or pleasure could be sensed.

The sole fundamental difference between a pain-neutral and a pleasure-neutral mechanism appears to be that a mechanism that derives motivation from absence of pleasure involves the capacity to be attracted to a state that is not present. A pursuit founded on attraction to pleasure by itself would either require a memory of pleasure and a concept of the future or a mechanism of attraction produced by original instinct or acquired programming. In contrast, anticipatory mechanisms are not intrinsic prerequisites to establishing a functioning differentiation mechanism that is grounded on a sensation of pain upon deprivation and an impression of neutrality upon fulfillment. Even if such a mechanism might function better if it were fitted with anticipatory capacity, it grants rudimentary functionality in securing requirements without anticipatory powers. This makes it likely that in the development of sentient entities the motivations of pain preceded more complex mechanisms that can forecast pain or pleasure and that these were added later. While it appears conceivable that reactions to pain subsequently atrophied and only left attraction to pleasure, such a development is doubtful because it would curb immediate reactivity.

Upon recognizing that other life forms react to a differential of circumstances to fulfill or to stop fulfilling their requirements for reasons other than physical propensity or capacity, we may extend empathy to them in spite of their failure to meet human standards for emotion. But we may contest that species that do not cure deficiencies in their requirements can sense differentiations between deprivation and fulfillment. We may arrive at that conclusion based on the consideration that the ability to sense emotions would not serve any function if they could not give rise to remedial action. Then again, even higher-developed entities might encounter circumstances that inflict motivations to which they cannot respond. It thus seems possible that types of entities could exist that can sense actual or anticipated deprivation or desire without the ability to do anything about them. The ability to discern a differential in the fulfillment of requirements might develop separately from or at least earlier than the capacity to pursue their fulfillment. Accordingly, unless we have direct proof that entities do not

sense a differential of fulfillment, we cannot be certain. We might feel extended empathy and an obligation to act on it if we knew that living entities could sense emotions but not react since they would appear to be helpless. Still, we might use our ignorance about their potential for emotions as a convenient excuse to allow competitive motivations and disregard to prevail over lingering empathic bases for cooperation.

If we do not recognize a sufficient semblance of a pain-pleasure mechanism, we may feel free to utilize our living environment without much or any empathy. However, the condition of living entities that cannot feel pain or pleasure is not so different from entities that can sense emotions. All living entities share the limitation that their survival is solely possible if environmental circumstances stay within the parameters of their requirements. By reacting to pain or pleasure and by adjusting to their surroundings or adjusting their surroundings to them, individual entities may be able to survive and thrive. Yet these capacities also encounter boundaries of adversities that current representatives of a species cannot surmount or manage. Nevertheless, over a sequence of generations, species may be able to adjust or be adjusted to adversities and overcome or decrease their challenges. This generational capacity of life to survive and thrive by reacting to adversities is a fundamental characteristic of all life. It can therefore form the foundation of an empathic bond by humans toward all branches of life.

The capacity to adjust to challenges over generations appears to originate in the province of biological entities. Environmental circumstances may cause, or affect the viability of autonomous, mutations in biological entities. Less adapted specimens of species may suffer more difficulties to fulfill their individual life functions and to produce viable offspring while better-adapted specimens experience better opportunities. Through this mechanism, species that present a better match for environmental conditions survive and thrive. We may be reluctant to attribute the reactiveness of a species in this mechanism to a sensory process and a reaction to pain or pleasure. But the effect of genetic variation among representatives of a species and the improved survival, thriving, and procreation of better-adapted variations simulate the workings of a pain-pleasure mechanism and the reactions to its motivations. It may impart the appearance that a species reacts to its environment according to sensory impressions of what is conducive to its existence. To the extent mutations come forward autonomously without an environmental influence, they even simulate anticipatory activity. The generational selection mechanism makes it appear as if choices are being made among available avenues that seek to advance the happiness of the species. Even if the results are not the work of a pain-

pleasure mechanism, they emulate such a mechanism with high competence. Humans seem to share the fundamental process of mutation and selection with other life forms. Humanity further has three fundamental requirements in common with them. It shares the need for a conducive setting to shelter the existence of its individual representatives, energy to grow and compensate expenditures of energy by existential functions and activities, and propagation to secure the species beyond individual death. To the extent these requirements are not automatically fulfilled, they are represented in basic survival needs and in supplemental collateral and specific needs in some life forms. The particularities of activity these needs ordain are not only important for their individual survival and thriving. Cumulatively, they also form an important factor in the survival and thriving of their species. The traditional primary function of representatives is to survive long enough as carriers of genetic material to propagate and to thus enable the survival of their species. Organisms may follow the programming innate in their species to secure that purpose. However, beyond that, genetic programming or the facilities it provides for additional environmental programming may lead to differentiated reactions and modes of reaction by individuals to a variety of circumstances that they meet.

The fundamental commonalities in the requisites and the generational development of life are testaments to the concept that all life is related by type. These characteristics distinguish life from the background of nonliving substances and principles from which it has arisen. Another characteristic that seems to distinguish life is its tendency to optimize its presence through diversification, multiplication of representatives, and transformation of nonliving resources into life by incorporation or instrumentalization. We may interpret this tendency as the expression of life's struggle to optimize its chances of survival and thriving. Taking advantage of available habitat, life endeavors to cover all available opportunities for establishing itself in conducive environments, obtaining food, and propagation. Life appears to be a force that systematically seeks to extend its reach and to deepen its presence by qualitative and quantitative development. We may call that focus the mission of life. As a feature of life's development, we are a part of that mission. This insight may move us to significantly broaden the fold of species for which we feel compassion and responsibility. Even if we do not share many specifics with other life forms, our fundamental relatedness and common objectives may motivate us to see beyond differences. Our bonds may be particularly strengthened when we can trace humanity and other species to a common antecedent species. With an increasing comprehension of the nature and relatedness of species, we

are directed to include an increasing number of them into the fold of species whose existence we have to advance to placate our empathic requirements. Eventually, we may be motivated by empathy to include all life into our tribe. As we develop empathy for all life, we may begin to view the survival and thriving of all life as a principal objective. The expansion of what we regard to be our kind may prompt an expansion of our need for collective survival and thriving to include the survival and thriving of all life. However, our tribal inclusion of other species seems to cause problems in our supply of means. It appears to compel us to relent in the competitive treatment of other species and to afford them protection and support approaching or equaling our obligations to humans. It seems to restrict our use of other life forms to cooperative strategies. This may strike us as problematic. The proposition that we should abandon competitive practices and rely on mutuality with other life forms may confound us. We may not consider their natural behavior or reactions to our cooperative behavior as sufficient equivalents of human cooperation. We may also be apprehensive about additional obligations that the inclusion of life into our tribal care imposes on us. We may wonder how far our cooperation must reach and what sacrifices it could require. We may worry that our interests will be diminished or might be lost in our service to a larger scheme of life.

We may believe that we can escape or at least reduce this problem if we limit competitive uses to species that do not sense emotions because this reduces our exposure to empathic pain. In that segment, our cooperative attitudes would be predominantly directed by our attachment to utility and our wish and rational considerations of maximizing that utility. The presence of pain-pleasure mechanisms in other species may require cooperation in areas that do not benefit us. We may therefore try to eliminate the ability to sense emotions in species that usually have that ability. Even if such manipulated species should be similar to us in other respects, we should be able to exploit them with lower guilt. The same should apply to our competitive use of humans who cannot feel emotions. Other species or humans that do not possess a pain-pleasure mechanism would not be viable by themselves because they would lack essential orientation capabilities. Their existence would depend on artificial support mechanisms that direct them in lieu of a pain-pleasure mechanism. Our use of desensitized species or humans might hence be restricted. Even if we were to develop functional equivalents of them without emotions, the elimination of emotions may burden us. Our mechanism of empathy may not be able to incorporate the concept that our victims cannot feel emotions if they are of or resemble species that are traditionally known to be sentient.

We may continue to display empathic reflexes if we abuse or fail to assist specimens of such types. We may even picture the elimination of the ability to sense relative states of deprivation and fulfillment as inducing a state of paralysis. We may be unable to shake the impression that such a state would be painful. Because we would vehemently oppose this state for ourselves, our emotional identification might cause us to oppose it for desensitized entities. We may then be unable to assuage our guilt over the competitive use of or nonassistance to species that share essential characteristics with us, much less our own species, by removing their pain-pleasure mechanism. Our inability to tolerably decrease or to eliminate empathy displays to us that empathy does not work as a direct transfer of pain or pleasure. In our emotional identification with other entities, we do not directly relate to what they sense but to what we imagine them to sense. Our imagination is shaped by and limited to our mental facilities and experiences. Empathy is a reflex based on our impressions of what another sentient entity may be feeling according to how we imagine we would feel in its place.

Our inability to become comfortable with reducing or eliminating the pain-pleasure mechanism in entities that would otherwise be sentient leaves us with a reduced group of far removed species that we may consider subjectable to competitive use or disregard because they can sense no emotions. Our identification with other life forms due to our acknowledgment of their general commonalities with us may further restrain our exclusion of such species from our empathy. Following the commands of empathy would significantly reduce the utility of life in our pursuits and increase our burdens for serving life. We may only be able to cope with such alterations through increased technological implements. Ultimately, we might be able to abandon all competitive activities against our living environment in this manner. It is conceivable that we would one day become able to modify, replace, or eliminate functions that have traditionally required competitive abuse of other species. We may be able to emulate the functions of living entities by artificial mechanisms. We may even synthesize the substances we need to sustain our physiological functions without a sacrifice of living entities. We may reach manners of pursuit that limit our infliction of pain on other life forms to necessary defenses. In cases where we have to control organisms that would otherwise harm us or other species, our awareness of their adversity and potential damage should sufficiently reduce our empathy to make it manageable. We may further decrease our empathic exposure by protecting and supporting life forms to where their individual and collective existence is secure. But the reduction of our empathic pain for other species appears to have

natural boundaries. We would stay exposed to empathic pain because our conduct is not the sole source of pain for life. Individuals of other species may cause significant pain to themselves and one another because their activities are largely characterized by competition and indifference toward individuals of their own and of other species. Moreover, extraneous objects and events may cause them pain. To not feel empathic pain, we would have to prevent the occurrence of pain in all aspects of our living environment. This would require a significant reorganization of the ways in which living entities fulfill their needs to cooperative pursuits as well as the control of their more extended environment. We may see the purpose of protecting life against external threats. But it may be more difficult to discern an alternative, cooperative scheme of life that retains and extends its developmental success.

The potentially extensive demands that empathy for our living nonhuman environment imposes on us might appear overwrought. In particular, our state of technology for the foreseeable future may not permit us to adequately, let alone completely satisfy our needs without the exclusion or exploitation of other life forms or under complete assistance for them. Yet, even if we were technically able to achieve all that empathy appears to demand from us, we may not be prepared to transform our ourselves and our human and nonhuman environment to such a comprehensive extent. Our empathy for other life forms may not be sufficiently weighty to subject our entire individual and collective existence to it. We may limit the influence we allow empathy over our activities because the empathic pain we feel for our living nonhuman environment is a set of indirect manifestations of pain that may pale against manifestations of our direct needs and even our empathy for other humans. To the extent our attempts to avoid empathic pain for our more extended living environment damage our ability to pursue more immediate concerns, subjecting ourselves to its commands may create pain that exceeds the pain we attempt to avoid. If we have to choose between avoiding empathic pain in our treatment of other species and pain from the deprivation of needs that affect our individual or collective existence, we are likely to sacrifice our responsibility to our extended living environment. The commonalities on which empathy with other life forms and their possible inclusion into a need for collective survival and thriving are based, seem to be too few and too general to overcome the emotional allegiance we feel toward our self and our species. We may therefore approach our interaction with other life forms primarily from the viewpoint of their utility and may tend to attribute independent value to them only to the extent such an acknowledgment does not materially interfere with our pursuits.

We may intensify this perspective regarding our nonliving environment. Assembling any empathy for its basic resources may be most difficult. Their lifeless character and nonobvious constituents may encourage us to a presumption of license to use them without empathy. Beyond that, empathy for our nonliving environment may appear even less affordable without endangering and possibly destroying ourselves because it represents the ultimate substance of which we live. It seems that we cannot exist unless we act competitively against our nonliving environment. Impositions on our nonliving environment appear to be particularly necessary if we wish to reduce our competitive use of nonhuman life forms because our nonliving environment will have to provide the resources in the emulation and replacement of such assets.

Yet, as we develop, our emotional relationship with our nonliving environment might not stay at its traditionally low level. The similarity of nonliving entities we create to emulate our use of living entities may lead us to afford them empathy and treatment that approximate or match our attitude and behavior toward living entities even if they only replace aspects. But nonliving entities may also transition to where they take on the characteristics of life and hence become living entities. Initially, we may distinguish living mechanisms from emulated mechanisms by their biological and nonbiological character based on traditional notions of components. However, in time, living organisms will be composed of biological and nonbiological aspects without principal distinction. Such tendencies begin long before we can devise artificial living organisms. Nonbiological technology provides much of the instrumentation to manage biological features of our environment and ourselves. These tools are initially clearly separated from biological functions. But we are soon engaging in nonbiological emulation of selected biological production results, functions, or entire organisms. Further, biological and nonbiological aspects are on course to interact as parts of merged functions or systems that incorporate advantages of both. It will ultimately become impossible for us to distinguish biological aspects as we learn to form components into biological structures and processes since biological structures and processes are composed of nonbiological components. Meaningful divisions between biological and nonbiological aspects are hence destined to vanish at higher levels of assemblage. The traditional definition of life may have to be revised due to the merger of these aspects. We may distinguish life by the acquisition of resources and their investment to secure an entity's existence or produce other entities. The field of biology will have to be expanded from familiar organic presentations to include all mechanisms that fulfill the definition of life, regardless of their components.

The similarity between artificial and original life may evoke empathy in us. That alone may not significantly encumber us. As with regard to all other life forms, we should be able to keep our empathy in check as long as our behavior can be justified by a more valuable purpose in the prosecution of our anthropocentric needs. However, in addition to our developing empathy for artificial life forms, we may emotionally assert parentage and undertake to protect and support them. The combination of these emotions might induce us to incorporate artificial mechanisms into our need for collective survival and thriving. Such attitudes may already arise as we emulate or invent artificial life forms or machines that exhibit similarities with life forms. It may become irresistible as we emulate human characteristics in artificial life forms or machines. If we are aware of that risk, we may try to contrive emulations in ways that allow us to maintain emotional distance from them so we can completely utilize them for human survival and thriving. Only, that might severely restrict our advancement through them. If we cannot refrain from fabricating sufficiently advanced entities, attempting to limit emotional identification by superficial criteria might be untenable. The increasing similarity of artificial entities to humans will make it progressively harder to deny them fundamental rights and treatment equal to humans. Neither humans nor similes may tolerate their competitive or indifferent treatment. Confining artificial humans to a subordinate status may lead to disputes and conflict between natural and artificial humans and even among natural humans. A similar issue may already present itself as humans assist or replace their natural functions with engineered capacities or as they add functionalities to themselves. The assimilation of emulations and enhancements into humans may reach levels where it might be difficult to maintain a definition of humans that is distinct from emulations and enhancements. The depth and variety of possible alterations may place humanity at a critical point. They may engender a reduction of emotional identification due to the decrease of similarities or its expansion due to the enlargement of what we regard as human qualities. The reconciliation of our needs is likely to steer us into the direction of accepting modified aspects of human nature and to extend emotional identification.

We might afford some aspects of our nonhuman environment emotional identification that approximates and might even match the emotional status we accord to humans. Still, one fundamental distinction in our stance toward such aspects may remain unless they closely approach or equal human motivational characteristics. In spite of other similarities that may imply empathy, inclusion in our need for collective survival and thriving, and expectations of mutuality, scarcity of

emotional identification may persist as a result of reduced cooperative attitudes by our counterparts. They may lack the voluntary element of awareness and intent that are so valuable for the fulfillment of needs in our cooperative relationships with humans. Since large areas of our nonhuman environment do not possess features that permit us to find these elements of cooperation, we may regard it of no or less negative consequence if we treat these areas competitively. More than that, we may conclude that the absence of a cooperative motivation requires us to act competitively. Hence, we have imposed our will on nature, contained, controlled, and modeled it, and appropriated its benefits. Even features of nature that give us the appearance of cooperation because they grant us favorable conditions may not elicit cooperative attitudes on our part because that cooperation has traditionally been proffered without a requirement of human cooperation in return. Further, conscious assistance for our nonhuman environment has been largely beyond our capabilities. However, because human demeanor was part of natural, sustainable cycles, it was harmonious with nature and therefore could be regarded as a form of mutual cooperation. As humanity developed, its activities began to rapidly depart from these long established and honed behavior patterns. Increasing mental capacity gave rise to novel and diversified manners of pursuit that were not in harmony with the nonhuman environment. These novel manners may in aspects have been attributable to progressions of genetic and acquired instincts. Yet they appear to have mostly been comprised of technical expansions and variations motivated by traditional needs.

For some time, these departures did not reach levels that significantly disturbed natural structures and processes. The impact of humans on their surroundings was minor because of their small number and low level of technology. Human existence was enabled by the capacity of nonhuman resources to recuperate or by their ostensibly inexhaustible presence and, to an increasing but often still subordinated extent, by human contributions to natural cycles that boosted their effectiveness or efficiency for subsequent competitive use. To the extent natural capacities persist, we may carry on with our tradition of competitive use. Our competitive mindset may be tempered when we perceive that some natural resources are diminishing. To secure our supply, we may find it useful to limit our use to extend the availability of nonrenewable resources and to allow renewable resources to recover. But the extent, intensity, and perpetuity of our uses may require more. Increasing, continuing, or even pursuing them at lower levels may involve that we counteract the damaging consequences we have already caused and that we commit to actively reconstituting resources.

Although we may consider this change in our conduct as a stark contrast to our historical attitude toward the nonhuman environment, we would merely harmonize our pursuits again with regard to it. Only, this time, our uses obligate us to engage in a more direct and comprehensive cooperative mutuality similar to how we might behave in our cooperative relationships with humans. Because our nonhuman environment may be mostly incapable to engage in cooperative allocation of resources in reaction to our extended pursuits, we have to interject ourselves and act on its behalf. We have to manage the beneficial and the detrimental aspects that we find or generate so our nonhuman environment develops in harmony with us. We have to also manage ourselves so we come or stay in harmony with nonhuman environmental aspects if we cannot adjust them. By supporting and protecting the resources that we might need in our environment, we support and protect ourselves. To rearrange our pursuits with the nonhuman environment, we have to learn to appreciate its beneficial conditions and developments and reconstitute them if they become damaged by our activities or other interferences. But we do not have to confine ourselves to producing a state of affairs in our nonhuman environment as if we had never existed or only achieved rudimentary levels of development. We may also venture to progress beyond preservation and attempt to elevate our nonhuman environment to more advanced arrangements. Such interventions have to be conducted with particular care because they may remove us further from the natural harmony with our nonhuman environment and might cause undesirable changes unless our expansions are reconciled on the elevated levels we seek to create.

The negative potential of human intervention becomes particularly dire in the realm of living organisms. They may construct a complex, harmonious system of life that is characterized by its integrated revolving and evolving production process. This is a setting of which humanity was and largely still is a part, and on which it still essentially bases its existence and thriving. Its integrated sophistication and evolution may remind us of a living organism. But it reaches beyond the living aspects of our nonhuman environment because it is founded on nonliving structures and processes that participate in systemic mechanisms or present other conditions for life to exist. Our development has brought forth changes that have upset our harmony with the requirements of our system of life. Human production of means, which includes the proliferation of means for the production of other means, its wasteful byproducts, and human products at the end of their utility may not be naturally recyclable, and it may modify or interrupt natural processes. Much of this delinquency has been caused by ignorance

or incompatible traits that have not been harmonized with the entirety of our interests. Either way, our failure to reconcile our interactions with our nonhuman environment seems to have caused us to focus on maximizing short-sighted results and to not care about ulterior damaging effects on our needs or the needs of others. Such behavior would not be possible if our needs were individually and collectively reconciled. The lack of our reconciliation with our nonhuman environment may reveal missing reconciliation within and among ourselves. Mending these deficiencies may constitute a precondition for reconciliation with our nonhuman environment. That might not be immediately apparent. But since practical and empathic considerations might not be sufficient to reconcile us with our nonhuman environment, utilitarian concerns and empathy that guide individual and collective reconciliation may be requisite stations to complete our development.

Disharmony may appear to be an unavoidable result of human development because that phase necessarily involves that we have not arrived at a full insight or at least the capability to implement that insight. It reflects interim measures in the break between the instinctive natural harmony our ancestors enjoyed and a manufactured harmony that we might achieve upon understanding of and command over our nonhuman environment and ourselves. If we are to achieve harmony again, we must survive this interlude and preserve our environment in a condition that enables harmonization once we achieve the necessary knowledge and capabilities. The challenges of this period are great because the initial success of humanity threatens its existence. They are constituted in large part by the greater breadth and intensities of uses in consequence of humanity's increase in population. That increase in numbers may have been in part a function of the initial spread of humanity as a new species or of unrelated environmental improvements. The augmentation of humanity may have led to departures from traditional procurement techniques because these could no longer support such numbers. Even without the involvement of population proliferation, humanity's technology has departed in many respects from natural derivations of means to accomplish better qualities and quantities of means. These developments have become combined with the issue of population growth. Departing production techniques have enabled the proliferation of humanity by making increased and more advanced levels of means available, which may have induced further departures from natural harmony to support the thereby increased numbers.

We may care about damaging effects on the system of life only to the extent it affects our needs for individual and collective survival. However, our dependence on the system of life to deliver us resources

for the pursuit of these needs and the interdependences of processes in the system expose us broadly to disturbances we cause in it or that might arise from other sources within or external to the system. Even if we limited our utilitarian attraction to particular features, we might arrive at extensive requirements for protection and support. To secure aspects that are or might become useful to us, we have to protect and support all aspects of the system that are necessary or helpful to fulfill the requirements for the adequate existence of these aspects. Because many useful aspects are situated in interactive dependence with other aspects of the system, it may be difficult to protect or support the existence of resources without upholding large parts or even the entirety of the system. Maintaining a resource without its traditional support system or replacing the functions of a resource in this interdependent system may necessitate significant efforts. The complexities and stakes of these efforts may persuade us to avoid segregating resources from their systemic setting and to avoid events that require us to fill vacancies in systems. They may motivate us to instead protect and support resources in which we are interested by protecting and supporting the complete context they require to exist and flourish. Similar conditions appear to apply to the quantitative and qualitative improvement of resources. We might not be able to maintain the supply of an adjusted resource or an ultimate benefit from it without adjusting its systemic context. If resources do not represent parts of a systemic interchange and are not neutral, we would have to keep them separate so that they do not infringe on that interchange and only admit them into the system if they can be beneficially integrated into our system of life. Sustaining the obtainability, effectiveness, and efficiency of segregated resources may require that we devise a separate recycling system.

Once we understand the underlying structures and processes of our resources and how competitive use or nonassistance may damage their availability, it may become clear that cooperation with our nonhuman environment is in our interest. We may also grasp that basing our utilitarian concepts on present needs is shortsighted. We may not have a full understanding of the benefits certain living and nonliving features could confer upon us. They may have as of yet unrecognized or undeveloped potential for functionality. All aspects of our environment carry such a potential. Beyond utility in their natural form, they may provide a basis for engineered attributes. Thus, our failure to protect and support any piece of our environment may harm us at some point. Except for features that are proved to be and remain irrelevant or damaging, we would have to leave our system of life, including its nonliving support and protection structures and processes, as well as

resources outside its purview intact in their original or improved form. We would only avail ourselves of resources if we could apply harmonic production sequences in or outside the system. Abiding by that standard appears to be increasingly difficult as our development intensifies environmental uses and effects. Apart from limited settings, the ubiquitous presence or vicinity of our system in our surroundings and the need we have for it to maintain our existence may restrain us. We may not have much room for technological development and production if they are to be neutral or beneficial. We might generate more maneuvering room if we should gain the capability to conduct advanced production in realms beyond our system of life. Yet, even then, we would have to be diligent to contain negative consequences from the resulting use and the remains of means for our system. To protect and support our system, we must mind that our production of resources does not unduly interfere with it. If we accrue refuse in or in the relevant vicinity of our system, we must either remove that refuse from the system or its environs or recycle it to control damaging effects. Otherwise, the presence and reactions of nonrecycled refuse may negatively affect our resources and pursuits. Recycling poses a growing existential problem for humans because of their increasingly widespread and intensive development and their application of resources in departure from activities that form part of natural renewal cycles. For some time, humans may escape from areas that they have contaminated or there may be so much of a resource that its nonrecycled use cannot extinguish or critically reduce its availability. But this is not commonly the case unless humanity can increase its access to habitat or an enlarged fund of other resources that keeps pace with its supply requirements. Even if we should have the ability to access new regions of living space and other resources, recycling may be a more economical way to sustain us. Moreover, expansion might require resources in amounts that only recycling can deliver. Further, there might be limits to our expansion. If we do not find suitable new habitats and other resources, we may have no viable fallback position if we have not become versed in recycling. Failing to recycle may thus be a costly and hazardous way of existence. It exposes us to finalities that may eventually limit our pursuits and cause them and us to end. Replenishing resources we damage will be broadly necessary to secure our survival and thriving.

We may then ask what we need to do to foreclose or at least to minimize damage to our system of life. One measure we have to take is the defense of our system against internal, nonhuman and external threats. To counteract human impositions, we must bring the number of humans in proportion with the ability of the system to provide re-

sources in a sustainable manner. That requirement also applies if we establish systems in other locations. It seems to be relatively easily accomplished by controlling human reproduction rates. In addition, we must address the issue of competitive interferences and the preservation and restoration of harmony in connection with our technological development. Even if we are aware of interferences we cause, we may be partial to the development and use of means beyond traditional cycles because they may currently improve some of our pursuits at levels of effectiveness that we cannot produce or generate as efficiently with harmonic techniques. We may conclude that the benefits of a disharmonic pursuit can outperform its detriments sufficiently. We may not have a choice because there may not be viable alternatives to pursuits with damaging consequences to supply basic existential conditions. In these cases, we may continue deleterious practices while we search for alternatives that improve our overall balance of benefits. But we may not even discern the ramifications of our deviations. Only as we gain more awareness of our requisites for happiness and the effects of artificial developments might we see that currently profitable techniques cause unjustifiable risks and harm. Even then, our options may remain restricted due to a limited feasibility of countermeasures and because they may involve additional risks and costs that may curb, nullify, or negatively exceed the benefits from curing disharmonic pursuits.

We should momentously improve our overall satisfaction if we could harmonize our technologically advanced endeavors with natural cycles. To accomplish that, we might create separate systems for such endeavors to not interfere with preexisting cycles of our system of life. Alternatively, we must develop technologies that allow us to insert our pursuits into an integrated system. Keeping detrimental pursuits and results separate from our system of life may pose substantial scientific, technological, and practical challenges. Sufficient sequestration might ultimately only be achievable if we keep production and refuse outside the system. That may seem difficult but possible as we develop to expand beyond the boundaries of our current system. Integrating all our activities into our system of life appears to be more challenging. The complexity of the system renders changes to it to fit diverging human pursuits exceedingly demanding tasks that require deep insight, technological skill, and discipline. Moreover, our connection with the system may not allow us to change the system much without changing us as well. Any interventions would have to be undertaken with extreme caution and foresight so as not to destabilize the system and our position in it. We may discount this challenge by referring to the record of flexibility by the system of life in responding to harmful interferences.

Life may be remarkably robust and may be able to regroup upon environmental calamities. But our situation in our system of life is greatly more precarious than the position of life itself. Because we depend on our system of life in its presently developed form to sustain our existence, we must support and protect that system in its present form until we might become capable of improving it or our position in it.

Humans may one day become capable to pursue their needs at a high level under the alternatives of separation or integration or under a combination of both. However, problems that our interferences cause threaten to catch up with our system of life, us, and our ambitions long before we can develop sufficiently to securely exercise such control. We may therefore have to identify an earlier solution that reduces detrimental deviations sufficiently. In devising such a reduction, we might orient ourselves in relation to the base line that was established when human survival and thriving could be secured by harmonized processes in the system. Since threats to our survival and thriving appear to frequently arise from qualitative departures from traditional manners of pursuit or quantitative departures in the form of excessive intensity of traditional uses, we may conclude it to be prudent to revert to former manners of pursuit whenever deviations are overall detrimental. That will frequently require a remediation of damage we have already caused by more than a mere adjustment of our prospective behavior. We may permit departures that are neutral or provably confer more benefit than damage overall. We may commit to only deviate from this principle to address exigencies or to avoid exigencies in the transition to traditional levels. From that baseline, we may systematically establish the production and recycling of resources to improve our pursuits according to the models of separation or integration.

Production and recycling only appear to be terms that describe different phases of a continuing, revolving, and evolving existential cycle of life that we seek to perpetuate. Maintaining an optimal flow of phases through existential cycles is rendered difficult by incongruities within and among humans that prevent harmony in our pursuits and lossless movement. Our traits may pose demands that do not allow interlocking existential phases or a joint approach toward existential cycles. Even if we should be able to reduce our needs to generic existential needs, they may intrinsically demand manners of fulfillment that involve contradictions and inefficiencies. Similar incongruities appear to apply in the coordination of individuals. Even if they had the same needs, their interaction in different situations and competitive acts in the same situation may frustrate a seamlessly cycling economy. Differences in their dispositions and experiences add significant complexity.

These problems might be reduced if we gain individual and collective reconciliation and understand the comprehensive necessity of careful production and recycling for the existence of presently living and even more for future generations of humans. We may be more amenable to careful production at least in some respects because it more immediately impacts the effectiveness and efficiency of our endeavors. The aftermath of production and its reintegration into the production process or its neutralization may be more remote concerns. Then again, careful production and recycling represent relatable concepts for humans because they are an inherent standard of reconciled human pursuits. Constructive needs exhibit these virtues through their coordination and by building on one another's success as means. Additionally, the cooperative relation of individuals through mutuality unites them under that standard. Together, these systems move humanity forward in its objectives of individual and collective survival and thriving.

Human cycles do not entirely represent ideals in which the results from the pursuit of one need would automatically constitute the resources for the fulfillment of another. They are at least partly the result of mutual adaption and compromise. The cycles of nature we can observe are not different in that respect. To function, circulatory systems often require adjustments of their participants that deviate from the separate ideals of participants. Our dismissing of this requirement destroys conditions for the functioning of our systematic connections. While this may momentously disturb and possibly destroy the system of life in which we have gained current determinative dominance, it is even more likely to disturb and destroy our survival and thriving. Even if we endeavor to reconcile all our individual and collective needs, we cannot succeed unless we also reconcile these human needs with the surrounding conditions and requirements of nature because these directly reflect on the pursuit of human needs as resources or obstacles. While human needs describe a circulatory pattern among themselves, this pattern is not a representation of a closed system. The production and harmonization of our means necessitate our participation in larger cycles of nature. Reconciling our individual and collective needs appears to inescapably require that we reconcile ourselves with our nonhuman environment. This may not necessarily mean that we must tie ourselves into traditional cycles of nature. We may establish expanded and independent cycles. Yet, in either occasion, our happiness cannot fully unfold unless we include the happiness of our environment, at least to the extent it and our treatment of it reflect on our pursuits. This interrelation enlarges as our pursuits expand. We may designate this third and ultimate stage of reconciliation general reconciliation.

Considering the comprehensive interrelations and components that take part in existential cycles, we may wonder how much we can succeed in constructing perpetual existential cycles. Even if we should achieve cycles that appositely accommodate all interests and requirements, we may not be able to attain perfection. None of the cycles we are able to construct, and not even natural cycles we encounter, seem to be perfectly closed and self-perpetuating. That may in large part be due to avoidable inefficiencies and interferences. But it may also be attributable to unpreventable inefficiencies. The processing of resources invariably seems to produce byproducts that dissipate within the confines of a system or beyond. Even if these could be used if they could be properly allocated, they might be in a form or might have a degree of dispersion that makes such a reuse impossible or would make it inefficient. More resources might be required to recycle byproducts than could be gained. Hence, mechanisms and systems that transmute resources seem to require infusions of additional resources to compensate their losses even if they maximize recycling. Ultimately, these resources must derive from nonbiological resources if life and if we as a part of it are to survive. If a system of life or its fragments only drew resources from within the domain of life, life itself would in most parts promptly decline and vanish as a consequence of its own resource requirements. However, nonliving resources appear to be finite as well. The maintenance of life requires that its losses are of a category of resources that it can access with exceptional reliability. It may find such sources in energy-emitting bodies like our sun or might be able to access other energy sources with a similar longevity. Yet, ultimately, the apparent finality of such sources might become a problem. If life is to survive, it might have to grow more efficient so as not to require supplemental resources. Alternatively, it might have to become able to recycle the emitting sources or at least the resources they emit. Either of these solutions would call for a comprehensive technological transformation that effectuates the governance of dissipating radiation.

These challenges might appear only relevant in the distant future. But the inefficiencies of our deviant practices force us into similar action because they render us extremely dependent on the replenishment of energy and the dissipation of energy threatens to interfere with our system of life. On the other hand, the dissipation of energy is a condition for the system's and for our continued existence. While we seek proficiency in developing cycles for our resources, we must make certain that energy creation, absorption, and dissipation remain within parameters that do not endanger our system of life or us. Keeping a viable equilibrium of these factors may be our proximate challenge.

We also face other problems in our attempts to shape perpetual cycles. Production combined with recycling has to create yields that still allow us to fulfill our needs. This requirement challenges us to develop adequate techniques for reconstituting most if not all resources we apply and to elevate them to greatest possible effectiveness and efficiency in the service of our needs with minimal disturbances among pursuits, individuals, and with natural cycles. The structures and processes in us and our world may not be lined up to provide ideal conditions for a perfect cycle of pursuits. That may be due to intrinsic limitations of components, properties, and resulting interactive laws from which objects and events are formed and function and conditions related to the distribution and the states of objects and events. Further, compromises induced by the presence, dispositions, and conditions of humans and other life forms may not permit us to undertake certain functions or not without additional risk or cost. Moreover, we may not be sufficiently advanced in our knowledge or our implementation capacities to exhaust the permitted parameters of nature in establishing or maintaining adequate cycles. While we must strive toward perfection in our cycles, it appears to be a distant and possibly elusive objective. Even if considerate production and recycling constitute the most economical choices to obtain resources in the long term, they may be burdensome. Although our objective is to maximize the availability of resources, it may require us to hold back and dedicate resources to reconstitution processes that we would not have to spend if we resorted to nonrecycled resources instead. Hence, we might prefer unrestricted resources as long as their cost grants us a current advantage. Developing the necessary resolve for maximizing our resources through proper cycling may take substantial and convincing forward-looking arguments. Even if we find that there are compelling long-term reasons for engaging in a prudently arranged cycling of resources, its implementation and striving toward its perfection can impose demands on us that can make ongoing pursuits increasingly inefficient and ineffective.

The harmonization of pursuits and resources at the highest levels may eventually empower the most efficient and effective means of pursuit. However, insisting on such levels before we possess the necessary technology and other resources to implement them with an adequate efficiency and effectiveness may be counterproductive and may even foreclose the development of instruments that can facilitate better resource cycles. Accordingly, we may have to approach our general reconciliation in a manner that balances in a cost-benefit analysis the current advantages of nonreconciled or of imperfectly reconciled pursuits over resource cycling with their ultimate deleterious effects. Un-

dertaking such a balancing competently confronts us with an extraordinary challenge. Pursuits that are not or poorly harmonized may supply better and more secure fulfillment for the time being. Against such concrete benefits, future eventualities and even certainties of negative consequences may diminish in our awareness or in their motivational strength. To afford the costs of transition and to timely develop necessary technology for a successful transition, it may be advantageous or mandatory to begin corrections during periods when flawed pursuits are still carrying an advantage. An early adoption of change might also substantially moderate the overall costs of remediation and modification and raise their chances of success. Moreover, sudden adjustment of our pursuits may not safely transfer our pursuits without the threat of interruptions. It might therefore be advisable to undertake a transition over time that keeps disturbances in the fulfillment of our needs to a minimum. Despite these arguments, the willingness to adopt beneficial change may be low in early stages of a deviation. The reduction and remediation of detrimental pursuits may constitute a marked initial departure. Because participants have to surrender or cut back on pursuits and suffer diminished fulfillment of many of their needs, they may try to delay taking responsibility. They may endeavor to stall adjusting their pursuits beyond reasonable transition periods that might be necessary to minimize overall detriment. They may also elude their responsibility by changing the venue or the manner of their activities without reconciliation or by concentrating negative effects on parts or persons that do not interfere or interfere less with their pursuits.

As long as humans avoid their responsibility through competitive tactics, a timely arrangement seems unlikely. Humanity may continue without proper management of its pursuits until a decisive number of individuals are indisputably faced with the fact that continuing that path would cause more damage to them than changing it. Action at that instant may happen too late to avoid the existential endangerment of many individuals or of humanity generally. Even if all of humanity would concentrate on adjustment at that juncture, opportunities for revisions may have been irreversibly lost. Further, we may not have the resources to undertake necessary changes then. In particular, we may be unable to timely develop or implement the technology for the remediation of damage or for the correction, replacement, or elimination of detrimental endeavors. We may also lack resources because we have destroyed or dissipated resources we had or made them otherwise difficult or impossible to use or because of the unrelated scarcity of certain resources we need for an adjustment. Either way, the resource requirements to address the problems we have caused may ex-

ceed resource availability to where countermeasures might be impossible, only possible in part, or only feasible over time as we can access or regenerate resources. Even if opportunities remained and resources could be made available that in time might be effective, it might take too long to put structures and processes into place and generate their effects to save individuals and humanity from damage or expiration. The effects of pursuits that are not or poorly harmonized may continue to accumulate while we try to devise and implement ways to remedy them. Even if harmful pursuits could be stopped, the fallout from previous incongruities may continue to mount and intensify. In addition, the exigencies of circumstances that arise from delays in reacting to damaging consequences may prevent us from reacting appropriately. They may have individuals, groups, and societies that might otherwise agree to curb and remedy detrimental pursuits revert to or intensify competitive strategies toward one another or their nonhuman environment, rendering a sufficiently encompassing approach to harmonize their activities improbable. If we decided to arrest this degeneration, the deterioration caused by previous competitive escalation may make the reversion of harmful effects and the institution of appropriate manners of production additionally difficult and costly.

Not all intransigence toward the adjustment of human pursuits may be willful, reckless, or even specifically negligent. We may not be able to fathom the eventual threat that our behavior may cause for our nonhuman environment and eventually for us. We may lack comprehension how unprecedented technological developments and the proliferation of humans will affect the fulfillment of human needs. Technological innovations that are proximately constructive may create or combine with other circumstances to inflict unpredictable detrimental consequences. In addition to that, the proliferation of humans, their density of existence, the similarity, dissimilarity, and connectedness of their pursuits, and the accumulation of causes may give known negative grounds that by themselves might appear negligible a momentous combined detrimental effect. Competitive acts toward our nonhuman environment may take time to accumulate or make their way through the system to a point where they show some let alone the full measure of their environmental consequences, and even longer before they exhibit their effects on us. They may be cushioned and compensated by known and unknown mechanisms until these become overloaded and cease to function. Negative effects and their causes may be obfuscated by other circumstances. The accumulation of repercussions may come to pass in correlations and in time frames that may exceed our normal event horizon. Detrimental fallout of competition toward our nonhu-

man environment may then emerge in contexts that are far removed from contraventions and may only slowly or belatedly, potentially removed by generations, enter human awareness and understanding.

Our competitive impulses may utilize and maintain the obscurity of detrimental developments. The involved complexities and unprecedented threats may permit us to designate detrimental developments or the extent of damage as speculative and deny their accrual until they become overwhelming. Even if we could anticipate harmful consequences, we might try to deflect concerns by doubting the unavoidability of ultimate damage. We might leave future problems to future solutions and trust that advancements might bring as of yet unknown or unavailable remedies. We might therefore defer counteracting harmful developments. The ostensibly exponential enlargement of technological knowledge and capabilities may appear to warrant such an optimistic stance. However, we might not know how rapidly or intensely detrimental developments will occur or even what their nature will be. Nor might we know of the required remedies or whether technological advancement can save us. This exposes us or at least humanity to threats that might be difficult or impossible to define and might be fatal. Because deliberations of a cost-benefit assessment necessitate that we can forecast the consequences of our detrimental and curative activities, we may be unable to make such an assessment competently. If implications of our demeanor are not securely predictable but they may be dire, it is necessary to proceed with caution. To leave problems that develop from the disharmony of our pursuits with our nonhuman environment to future resolution, we must have compelling reasons.

Rational insights and more immediate utilitarian attractions on their basis alone may not be able to foreclose calamities in the development of humanity. To act timely and decisively enough for protecting humanity from missteps, it may be required to combine them with other aspects of emotional attraction that stimulate respect and care. Similarities of our nonhuman environment with human assertiveness, common sourcing, and impressions of mutuality may give us a proper basis. Our emotional identification with life and with its comprehensive requirements and potential to use nonliving aspects may grant us an additional basis for an attitude of protection and support. Still, our emotional identification appears to be underdeveloped because of reduced references. It does not appear to be adequate to designate the survival and thriving of our nonhuman environment as a sufficiently high objective to effectively secure its availability for our pursuits and outweigh competitive intent or carelessness toward it. The next chapter illuminates how we can finally arrive at that level of commitment.