CHAPTER 43
ADVANCED GENERAL RECONCILIATION

That we would accord life a similar position of importance in our pursuits as we attribute to our species may appear to be far from our nature. We might not be certain about the scope of our emotional identification with life. We may not have had occasion to explore this issue because we may not have considered whether life requires care from us beyond more narrowly indicated utilitarian protection and support. Even if we possess a need to secure the survival and thriving of life, we would not be aware of such a need if we had no reason to doubt that the survival and thriving of life are secure. The consistently unendangered historical fulfillment of that condition may not have allowed a corresponding need to come to our awareness. This may only change as our competitive pursuits or independent circumstances call the established cycles and balances of life in question and as we deepen our knowledge of life's complexities and requirements as a matter of our technological progression or in our search for countermeasures to the destabilization we witness. We may learn to understand the rare and fragile nature of life. We may perceive the absence of life in large expanses we explore. Within our system, life has the remarkable capability to adapt itself to environmental conditions by creating specialized life forms over time. However, our impression to that effect would be overstated if we merely focus on our habitat. In relation to the span of possible environmental conditions, the survival and thriving of life appear to be tied to fairly specific and rare conditions. Further, although the adaption to particularized requirements and opportunities might be considered a strength, it might constitute a weakness as well. The different sets of conditions that are necessary for different species to survive and thrive seem to give rise to difficulties if conditions change too rapidly for a genetic adjustment to arise or take hold. In addition, life appears to be endangered because participating species frequently ground their existence and thriving on intricate correlations with other forms of life. Many conditions on which a species depends might be produced by other species. This connectedness may permit life to extend its reach and deepen its presence because vanguard species may lay the foundations by their production or refuse or by their presence itself for other species that use these as resources. But that advantage appears to come at a heavy price. The reliance of species on other species can cause considerable fragility of species if dependences are disturbed. It may also expose a system of life or aspects of it to existential danger to the extent species are integral to its circulatory functioning.

Nevertheless, that individual entities, species, and even systems may be easily eliminated by adverse circumstances does not appear to be representative for life in general. It seems that life can fill the void left by them with more individuals and other species. Where the stability of a system cannot be preserved and is destroyed at higher levels, life appears to have considerable flexibility to fall back on base organisms with superior resilience. Their evolution may again construct a system with a higher complexity as long as favorable settings for the progress of life persist or resume, potentially because of their groundwork. This capacity to recover from a catastrophic decimation appears to disprove the notion of life's fragility somewhat. That impression becomes additionally discredited as we become apprised how life travels the expanses of nature in basic forms and develops and spreads upon its arrival to cover opportunities. It finally falls when we discover that life can develop from nonliving substances in many locations that offer conditions similar to earth and possibly under different conditions. Life as a general phenomenon seems to be ubiquitous and indestructible. This may induce us to conclude that life does not depend on our cooperation. We might not be concerned about life's ability to survive and thrive. We may deem ourselves and humanity more endangered.

Our attitude may change as we consider the development of life and our part in that development. Our impression of a mission of life to extend its reach and deepen its presence and a systematic approach to implement that mission may induce us to understand life as a self-determining force. We may ascribe a metaphoric will to it. Further, its systematic adaption to circumstances and use of every opportunity to secure and expand its hold suggest to us a consummate implicit intelligence. The progression of life appears to be identical with a process that an intelligent being would formulate to maximize its survival and thriving. Such an intelligence is evidenced by relatively basic life forms that survive and thrive solely by genetic programming that provides a standardized array of functions to direct their demeanor and that rely entirely on the content and the mutation of that code and corresponding environmental conditions for conducting their mission. Although adaptions may involve multiple generational cycles, a great number of trials, and coincidental environmental occurrences to succeed, the results may be impressive. We may also gain a notion of intelligence by the way life forms achieve changes of their environment that are vital for the development and advancement of themselves and of other life forms. The intelligence of life is moreover evidenced by life forms that supplement their genetic program with the ability of individual representatives of a species to learn from experiences and develop autono-

mous determinations and programming to secure survival and thriving. Genetic programming may already enable some differentiated behavior in reaction to different circumstances. However, reflective facilities that allow individuals to accumulate information about their environment and to devise strategies in general and specific adaption to situations open new horizons of effectiveness and efficiency. This autonomous intelligence allows species to adjust to environmental variations during their lifetime and to shape their environment and themselves in a more direct and flexible manner. Higher life forms, such as humans, may also be able to vary, expand, and focus the programming of themselves, other individuals, the human species, or other species through their deliberate application of technological awareness. These advanced qualifications decidedly strengthen life's capacity to expand its reach and to deepen its presence. They can more efficiently achieve advancements that traditional programming might take multiple generations, series of mutations, and dead ends to cover. In addition, the complexity of allocations of which higher life forms are capable might lead to creations that genetic development might not be able to reach by itself. Many highly developed species display a measure of supplemental, autonomous programming. Nevertheless, with the appearance of humans, the advancement of life has entered a qualitatively different phase. Our capacity to understand and modify ourselves, other life forms, and our environment gives us superior abilities to enhance our and other life forms' participation in the mission of life. Our attributes and potential may be interpreted as an attempt by life to fulfill its mission more effectively and efficiently. They appear to task us to assist in its development, protect it, and expand it into other habitats. We may view the development that produced us as a process in which life has become aware and increases its ability to determine its fate.

These considerations may stimulate us with newfound levels of emotional identification. For one, the concept of life as an intelligent entity portrays it as an organism that is ominously similar to humans. Moreover, the impression that humanity constitutes an inherent part of that organism and is charged with leading tasks in its mission gives rise to the idea of partial identity of life and humanity. These concepts may impart us with strong emotional identification that exhorts us to act in the interest of life. It appears to elevate emotional identification to a level where we incorporate life into our need for collective survival and thriving. As an initial item of order, we might resolve not to do anything that would set back the current state and stability of life. We might achieve this by making certain that our uses do not cause permanent damage and do not disrupt its mission. However, the best we

might accomplish with such behavior would be a world that we would leave behind as if we had never existed. Such noninterference with life appears to fall woefully short of our capacity and perceived leadership position in the advancement of life as well as of our need for collective survival and thriving. While not damaging life is important, we would not make a positive contribution. Our incorporation of all life into our need for collective survival and thriving seems to demand that we not only protect but also actively support life. The satisfaction of that need entails that we protect and support life to the best of our abilities in its existence, diversification, proliferation, and qualitative evolution. We may extend the reach of life by introducing certain life forms to presently available environments on earth that are not populated by them. We may further assist the mission of life through selection and breeding. Still, such approaches appear to be relatively minimal considering the potential humans possess. That additional potential consists in the development of technology. Through technology, humanity can avail life within its system the ability to venture into space. Besides the facilitation of transport, humanity might employ technology to prepare habitats on and beyond Earth for occupation by life. It might also optimize the distribution and variegation of species in conformance with conditions of different venues on Earth and in space. It could engineer life forms to better cope with such conditions and to make them conducive for a higher development of life. By infusing intentional action into natural terrestrial and cosmic development and distribution, humanity could advance its own capacities and those of other species to assist life in its mission. It might further use its powers to protect life against environmental threats and against self-destructive tendencies. It might develop preventive and direct countermeasures as well as remedial technologies. Humanity's protection activities may consolidate with support efforts to the extent humanity manages to disperse and vary life sufficiently so setbacks leave aspects of life intact at a similarly high level or at a level that can recover and continue the mission.

The protection and support of life appear to merge with strategies we may take on humanity's behalf. To secure human survival and thriving, we will want to broaden our foothold and improve our ability to exist in different environments. Only, relatively few locations might be fit to accommodate the demanding requirements of humans unless and even if we dramatically reengineer our species. Other species that have traditionally supported our existence as well as engineered variations of them may be of great assistance in preparing locations for our arrival and for sustaining our presence. Then again, the propagation of humans into other habitats may be limited or complicated by the pre-

requisite to transport them or their constituents. This may require an extensive support system if not during transport at least upon arrival. Considering the potential vastness of the mission, it may be more efficient and effective to transport and distribute primitive precursor organisms of humanity and their support organisms that continue to exist or that we can back-engineer. These might be better capable or adjustable to travel or to live under the conditions of their destinations. We might broadly deploy seeding vehicles into the expanses of space in ways that we might hesitate or be unable to deploy if they had to be staffed by humans or by their constituents. These precursor organisms might develop into humans or humanlike species upon arrival. Even if we were to spread organisms or modifications of them that are only related to us by shared ancestry, they would be carriers of a common essence. That essence might also carry the potential of developing into humanlike or similar life forms. The same concept applies if humans might not survive in habitats where they are already present. If related species can survive, some essence of us can survive through them and may rise again to comparable levels. Our emotional identification with other life forms and our preparedness to include them in our need for collective survival and thriving may then be significantly enhanced by a special utilitarian attraction. We may embrace them because of their potential to secure the survival and thriving of humanity or at least of a part of its essence through them. We may feel about them similar to how we feel about humans who are not directly related to us but carry an essence that we share with them. By pursuing our need for human survival and thriving through nonhuman representatives, our dedication to them may extend to levels that we previously reserved to humans because they serve the same purpose. Although we may concentrate on securing the survival and thriving of humanity or its essence, our efforts appear to implicitly advance the mission of life because we seek to establish systems of life that can support humanity. Such systems and the character of life in them may change if humanity should progress to replace its or other life forms' biological essence or its implementation with aspects that are traditionally termed nonbiological. Such a transformation may additionally enable the spread of life. Further, advances in transportation and production technology may enhance our ability to spread life and thereby facilitate its mission.

As we try to define our participation in the mission of life, we are compelled to present the question whether this mission includes a purpose beyond its initial appearance that might also inform us more about our purpose. We may interpret the process of life and of us as a prominent part of it as being motivated by a will to survive and thrive.

But the proliferation, diversification, and development of life reveal a transformational characteristic that seems hard to explain by that motivation alone. It seems to include the absorption of nonliving aspects into life's realm and their subjection to life's purposes. In addition, life appears to have a tendency to produce species that increase its power to fulfill its mission. We may wonder where that increase in power will lead. The answers to the question of life's and possibly of our purpose may be found in comprehending what distinguishes life from its preceding nonliving background. Life seems to be definable as the capacity of a phenomenon to maintain its existence through activity. At first glance, that definition does not seem to distinguish life as particularly precious. We appear to be able to point to a number of amalgamated nonliving phenomena that sustain themselves by activities. Yet, when we look closer, we observe that they have the built-in characteristic of eventually disintegrating, albeit possibly after extended time. Life distinguishes itself from such amalgamations by missing the inevitability of disintegration of its defining essence despite a level of complexity that by far exceeds any naturally occurring nonliving, active amalgamations. Passing genetic essence to descendants that blossom into individuals according to this essence and that again pass it on to descendants endows this essence with a potential to endure without inherent limitations. Its multiplication and dissemination improve its prospects of survival as well. Its continuation is in addition advanced by its capability to adapt to environmental challenges and opportunities through mutation and by enabling individual carriers to react to opportunities and challenges autonomously. Its perseverance is finally enhanced by its development to enable carriers to become aware of its and of their circumstances and mission and to manipulate these circumstances to their greatest effect in that mission. These biological aspects can find continuation, expansion, and more resilience in artificial organisms.

We might claim that nonliving aspects of our environment are superior because they carry an indestructible essence by the substances and their properties that constitute them. We may claim that these substances and most of their amalgamations do not have to be active to maintain themselves. They additionally appear to be superior to life by not seeming to require external resources to persist. But these may be invalid assumptions. As we delve deeper into what we have deemed to be basic substances, we detect them to be destructible phenomena. We also find them to be characterized by an activity that is necessary for them to exist. This activity may exhaust itself or become exhausted through environmental circumstances and may interact with environmental circumstances to maintain itself. Further, substances and their

activities seem to carry programming regarding their functions. Basic elements may therefore fulfill an expansive definition of life. But conventionally defined life may still carry the advantage that it can adjust to remediate failing aspects and develop its programming and capabilities. Because basic substances appear to lack these superior organizational capabilities of conventional life unless they organize into organisms, we may distinguish them from conventional life. Yet, ultimately, a distinction cannot be upheld since conventional life is entirely composed of basic components and their functions and results from their organizational capacities. As the rest of nature, life has developed and is developing according to processes involving basic substances, their properties, and the laws of nature molded by the action and interaction of these properties. As a phenomenon of that system, the development of life is an unavoidable consequence of the basic concepts by which our world is constructed. It can only be distinguished as a stage in which attributes of basic components are revealed by unprecedented functionalities. The advancement to this stage appears to be similar to the development of an individual organism from a cell in which all its capacities were already present and merely unexpressed.

Humanity represents a high stage in the organization of nature that enables a leap of effectiveness and efficiency in its development. Through human capacities, needs, and technological progress, nature becomes not only better able to advance life. It also gains the ability to organize nonliving aspects in excess of its former capabilities. Because life constitutes a higher stage in nature's development and because we represent a higher stage in life's development, we embody a condition in which not only life but also nature has gained awareness. Although we represent a result of the process of higher organization, we appear to be situated in charge to guide that process further because through us nature becomes able to reflect on and deliberately adjust itself. The superior capacity of life to sustain itself seems initially unparalleled by technological phenomena. Yet, as we develop technology, we learn to emulate life functions to where we create machines that fulfill the definition of life. Eventually, we may organize many or even all aspects of our nonliving environment into living mechanisms in assistance to us. While our needs lead us to develop living and nonliving aspects of our world for our sake, our transformation of nature assists in its advancement to higher levels of organization. Ultimately, all nonliving aspects might become incorporated into living entities. The progression of life to higher levels might even result in the incorporation of all of nature into conscious entities and its attaining consciousness of all its aspects as these entities claim awareness of themselves and one another.

Our understanding of these developments may cause us to expand and recharacterize the mission of life into the mission of nature. The interaction of its substances and their properties defines nature's disposition and foreseeable mission to be the development into higher forms of organization, to transform itself through the proliferation, diversification, and improvement of life. Our apparent responsibility for managing nature may prompt us to think of ourselves as special and important. Our position as the most advanced or one of the most advanced species may fill us with arrogance. We may believe that being tasked with nature's development means that we can focus this development on us. We may perceive that nature exists to serve us, not that our function is to protect and support nature. Even if we recognize the possibility of ulterior purposes of nature, we may believe that through us and by subjection to our interests, nature finds its ultimate expression. However, we might be mistaken. Nature's development, its built-in mechanisms that appear to favor development, and its potential we can recognize for development beyond our capacity countermand the idea that the interests of nature are inseparably indistinguishable from our interests. Not only might we give rise to developments that eclipse us and leave us behind. Nature may also generate alternatives that are better adjusted to its challenges or more helpful in promoting its mission. Other life forms may lead this mission if humanity should reach limits in its capabilities. Even if humanity should continue to improve, circumstances similar to those that induced humans are likely to have occurred and continue to happen elsewhere in the expanses of nature. Humanity may be merely one leading agent of nature among many. It may only be the leading agent of a local system of life. Even if leading agents from other systems should not interfere with humanity's leadership, we have to be concerned about humanity's fate. Our review of life's development reveals that nature pursues its mission through expendable types and individuals of entities as its agents. These are used and may be sacrificed in the prosecution of nature's apparent mission if they fail to serve this mission or other agents serve it better. As part of this overall mechanism, our chances of survival and thriving may be tied to our continuing relevance to nature's mission. They may be optimized with the optimization of our service. But we cannot be certain that serving nature's mission will serve us. How we can best advance our interests by facilitating nature is therefore a vital question that we will have to ask and answer for our own sake before long.

The answers to this question do not impress us as obvious. Both the extrapolation of our technological development and the mission of nature entail that we might benefit, empower, or produce types of en-

tities that might assume our functions, means, and position, render us superfluous, and directly or indirectly jeopardize our continued existence. We might develop such entities directly, or we might give rise to them by creating organisms that evolve to surpass us. This threat may appear remote if we are cautious not to create organisms that can pose a danger to human survival or thriving by their capabilities. We might limit ourselves to creating basic living organisms. We may not be worried that these creations will rapidly develop to approximate, equal, or surpass humans. If such entities possess the capacity to reproduce and adjust, their descendants might become a challenge. But so might the descendants of any other life form that is currently far removed from our capabilities. As these organisms progress, humanity might also advance, hence keeping it ahead of these. Still, a threat to human stature may arise if such organisms acquire the ability to reproduce and mutate at relatively increased rates. Such organisms might develop with a rapidity and possess an ability to spread that exceed the capabilities of humanity to match them. This can make such mechanisms perilous in their potential to interfere in human pursuits. It may particularly render them a threat if they advance toward or pass human capabilities.

The likelihood that relatively remote organisms or mechanisms may endanger humans and emulate human capabilities increases with entities that can change their configuration without generational mutation. It further increases with entities that can build other entities or associate into more complex structures. Of even more immediate concern might be organisms that we directly produce at sufficiently high levels of development to approach our capabilities. If such already advanced entities acquire the ability to reproduce and mutate, to modify themselves, to produce other entities, or to combine their capabilities, we might bring about developments that could quickly separate from our control. The installation of surrogates to achieve human or superhuman functions threatens our position most immediately. By replacing ourselves in our activities, we render ourselves expendable. Unless humanity can securely trump the development of its creations with its own development, it may find itself in a contest that it may lose. Even the defense of our position against usurpation from our creations may inflict substantial damage and threaten human existence. We seem to have valid grounds to fear competitive attitudes by species that would approach, equal, or eclipse our capabilities. After all, this has been the way of how we have scaled to the top of our system of life and the way in which we are poised to defend our position. The threat of competition from similar species gains in stature if we imagine being subjected to competitive attitudes similar to those humans carry toward rival

species, display toward entities with subordinated capacities that they use for their pursuits, or apply to species they consider to be irrelevant or noxious. Even if we terminated competitive abuses of our environment, we might fear that similarly capable entities might not treat us as kindly, particularly if they have not reached our level of insight and are maintaining behavior according to the competitive principles that govern lower stages of life. These threats may neutralize any empathy or enlargement of our need for collective survival and thriving toward species with the potential to ascend toward our level of advancement. Instead, we may develop competitive sentiments and strategies.

That we incur existential threats by ascending species might be inevitable. Desires to perfect the fulfillment of our needs, and particularly the seeding of other systems to serve our need to secure the survival and thriving of our species and nature, appear to compel humans to develop and advance to technologies that make such developments possible. Even if we halt our shaping or creating of species that might endanger us, they might still arise independently as a natural function of nature's development. If approximations represent significant benefits for us, we might sanction them to exist under controls designed to prevent the risks they pose for us. But we might also resolve that their utility is surpassed by their threat to our resources, station, and existence. We may therefore stop, curb, or even reverse their development or try to eliminate them. Then again, temptations to exploit their constructive potential might prevail over our concerns until their approximation to us becomes dangerously close. We might regard it feasible to control advanced life forms we place in our service by modeling and monitoring their programming and by external restraints designed to keep them docile and inferior in their powers. But such measures may be subject to a risk of failure, some of which appears to be irresistibly tied to permitting similarity. As other species become similar, we may treat them partly with empathy and support and assist them based on their close utility and our beginning inclusion of them in our need for collective survival and thriving. These attitudes may confuse and soften control measures. Differences in our interaction with such species may moreover become objectively unwarranted or perceived to be unwarranted by them and humans and give rise to competitive struggle. Such a struggle may be difficult to foreclose even if we wish to prepare a species for integration into humanity and prevent competitive activity against humanity in its approach. It might be hard to avoid even if species that rise or are created by us might attempt to coexist or cooperate with us. We might find the fundamental adjustments to our traditional position of dominance that would be necessary to accommo-

date them unacceptable. The prospect of sharing resources with similar kinds of entities raises the specter of depriving us of resources that we might need. Even if there were adequate resources to be shared, we may resent that we should be compelled to share the exclusivity of our leadership and that we should have to coordinate the management of our affairs with another species. We may view this as an imposition on our needs and fundamental rights to control our circumstances and of self-determination, self-realization, self-respect, and expression.

Understanding these existential risks may move us not to assist or allow the advancement of any species to that state. We may prefer to develop humanity and dependent instruments that solely function by human command in ways that make the development and use of similar life forms unnecessary. If we tolerate or create other life forms that might become a hazard to human dominance, we may only succeed in securing human survival and thriving if we turn ourselves into our own creations and focus on continuously surpassing their capabilities. To afford humans this edge of supremacy, engineering or replacing its biological substance alone may not be sufficient. Merging traditional human functions with further capabilities may be required. The chances of accomplishing this appear favorable because our evolution and the evolution of nature in our surroundings appear to be increasingly in our hands as our technology progresses. But the development we have to undertake and undergo and the manner in which we must defend our position at the helm of nature seem to imply that humanity would deport itself competitively against the development of nature or at least relent on its development, only permitting it to advance or advancing it at a secure, utilitarian distance. The defensive positioning of humanity toward evolutions that could approach, equal, or eclipse human capabilities may turn humanity into a problematic asset in the development of nature if humanity should not progress in accordance with nature's potential. It may make humanity a powerful obstacle for or an unproductive promoter of nature's mission. Human impositions can only be justified from the viewpoint of nature's apparent mission if humanity's leadership has to be preserved because it constitutes an unsurpassed manner of advancing nature's mission. Nature is likely to challenge us to continuously prove that merit. To secure our position and avert being passed by, we have to determine and assert our stance toward phenomena of nature's development that impact human existence, including developments of and by us. We have to decide whether and to what extent we permit or pursue these or resist them, where we might direct them, and how we should implement our resolutions. The next chapter inquires how we might cope with these challenges.