<u>Abstract</u>: The purpose of this essay is to explore the nature and role of art as a human phenomenon from a broadly cognitive perspective. Like science and religion, art serves to mediate the unknown, at once to embrace and to defend against the fundamental mystery of existence. Thus, it may challenge the status quo while generally serving to maintain it. Art tracks the individuation of subjectivity, serving the pleasure principle, yet is appropriated by the collective's commitment to the reality principle. While science and religion close in on serious answers to fundamental questions, art opens up possibilities toward playfulness, uselessness, imagination, and arbitrary whim. Though art has no unifying definition, meaning, or intent through time and across cultures, it remains important to people, both to do and to enjoy. It serves to counterbalance the naïve realism of science, the "rationality" of modern society, and the literalism of text-based religion. While its allegiance is divided, its most worthy intent is to aid us to confront and negotiate the great mystery revealed to us in consciousness.

1. What is art?

It has been famously said that there is no such thing as art, only artists.¹ At one time, however, there was no such thing as the artist either. The concept of art and the concept of the artist are both modern notions, lenses through which we look back on cultural productions over the ages and see an illusory unity. While there is no consistent function of "art" for all time and all places, the roles of those who made or performed the things we now call works of art have not been consistent either. Art is thus an ambiguous notion, and what passes down to us as art does not comprise a single category. Science, in contrast, is relatively well defined and seems to build toward an accurate, useful, and unified representation of the world. Art is heterogeneous by comparison and does not seem to move toward any end at all. If anything, it seems to evolve away from unity and consistency and become ever more inclusive. Throughout this essay I will compare art to science in particular, and also to religion, as alternative modes of human cognition.

An artwork produced in its day cannot be experienced the same way by later generations, in different settings. We can investigate the historical context for a Renaissance painting, for example, and learn something of the artist's or patron's motives and of the social reality of the time. But this may have little to do with the circumstances in which a modern viewer encounters it. The work may never have been intended for future eyes, for which it is a *found object*, detached from time and context, something of a mystery like a fossil or archeological remains. A religious icon, for example, is inevitably redefined by its new secular context in a museum or gallery. Cultural artifacts out of context thus share a quality of mystery with natural phenomena. Science copes with this mystery by redefining natural phenomena as theoretical or laboratory artifacts. The mystery in artworks is not only a question of the passage of time, or difference of culture, for all artistic productions are reinterpreted by those who receive and use them. They are subject to multiple interpretations.

¹ E. H. Gombrich *The Story of Art* Phaedon, 1950/2011. While the present essay focuses on painting and sculpture, many of the same points will also apply to music, dance, theater, architecture, design and craft, etc., all of which I intend under the term 'art'.

The question of what they "really" mean makes no more sense than the question of what natural things really are "in themselves," apart from the interpretations and the purposes of science, and the technical interventions involved in observation and experiment.

This very ambiguity, whereby the concept of art means different things to each generation and to different individuals in different cultures, in widely varying contexts, makes its continuing importance through the ages all the more remarkable. Art persists as an ongoing social phenomenon, even today when the notion applies to a greater diversity of activities and people than ever before. The term 'art' accommodates extreme skill along with the very lack of it. Art is a self-generating domain evolving along with society—one generation setting problems for the next to solve. It covers an amazingly heterogeneous range of intentions, preoccupations, and social functions; yet it survives as a meaningful category of active human interest, however inconsistent and ill defined. Why? What underlying thread informs the significance people continue to give to art? Why and how is art important, both to those who produce it and those who enjoy it?

One could approach such questions in several ways. Photography and the Internet allow a facile comparison of art from all periods and cultures. Art history uses time as a fundamental linking thread. But one could also focus on the very diversity of creative expressions, and of the intentions behind them and surrounding them. These could be related in terms of various parameters in what I will call art space. A model for this notion is the concept of phase space in physics. A "space" in this abstract sense is an *n*-dimensional map in which things or events can be located. It is a conceptual rather than a literal space. It can have any number of "dimensions," which are simply the parameters one might choose to help situate things or events in a coordinate system. Dimensions could include polarities, such as: representational versus abstract, literal versus symbolic, detailed versus minimalist, decorative versus fine, formalist versus didactic, religious versus secular, heroic versus decadent, prurient versus chaste, professional versus amateur, public versus private, monumental versus intimate, and so on. The space can also include aspects of art without clear polar opposites, such as motivation or technical mastery, or functions such as social cohesion, status, economics, etc. We should imagine that anything people have ever called art can be located on this map, which includes a great range of expressions from all cultures and ages. I do not propose to create such a map, only to introduce the concept as an inclusive way of contemplating the diversity we call art, a framework to keep in mind in the following discussions. It is simply a reminder of the many considerations that may be involved in understanding or comparing works within this great diversity.

Webster's dictionary defines art as "The human ability to make things; the creativity of man as distinguished from the world of nature." In that sense, it is far older than science. Yet, science and art are both ways to remake and re-present nature as part of the human world.²

Like technology, art tangibly creates the human world, both literally and symbolically. Architecture provides a literal human environment set apart from nature.

² Representation in science consists in scientific modeling, which can be as abstract as modern art and is usually defined by equations.

Painting, sculpture, and design embellish that environment. We move among the things we have made, no longer among the things found in nature. While the history of western art can be seen as a progressive liberation from specific constraints—such as service to religion, pictorial representation, and given formal rules of aesthetics—art as a human phenomenon has always served to re-create the world to human taste. Especially today, in an overall sense, art presents an alternative to science as a manifestation of intelligence, one that celebrates the subjective and affirms the sensuous and the arbitrary in the shadow of reason and practicality. (It offers us not artificial intelligence, but *art intelligence*.) Art in modern society can be seen as a sort of perennial return of the repressed, the right brain reasserting itself against the domination of the left brain.³

From the vantage point of the present, art seems to encompass the whole realm of creative possibility. In the vastness of this extent, it can be compared to mathematics, which encompasses the whole realm of logical possibility. Like art, pure mathematics is inventive, playful, arbitrary and in principle useless. In its origins and through its close association with science, *some* math has become the epitome of practical utility applied in technology, just as some art has served particular goals and functions. But the math applied in science is but a small part of the whole of present-day mathematics. In a similar way, the established genres of "painting" and "sculpture," for example, and how they have functioned in various epochs, are but specific manifestations of creative possibility. Just as technology has expanded in tandem with the development of society, with new technologies offering new forms of creative expression.

The organization of science has evolved over time, from the solitary efforts of luminaries such as Newton, Einstein and Darwin, to the international teams of physicists and engineers involved in cyclotrons, space telescopes, and gravity wave detectors, and the research teams now involved in genetics and drug development. In some cases, the archetype of the solitary artist has similarly given way to large production teams involving many skills and technologies, perhaps returning to the Renaissance model of the shop. In its origins, art was a communal effort; great cathedrals, for example, were created by international teams of artisans and many local labourers. On the other hand, such collaboration is but one avenue along which art has developed and is pursued; many artists work alone, on smaller scales, or in shared facilities. The very nature of creative possibility allows this range of production methods, and so does the marketplace.

One aspect of art, at least in our time, is to serve what Freud called the pleasure principle, in opposition to the reality principle. Compared to the rationality of science, art *should* be gratuitous, whimsical, arbitrary, useless, playful, even irrational. Another aspect of art, however, is that it has always served power and wealth, whose default use is to underline, illustrate, and justify special status and privilege. Art is principal way for the rich to inspire awe—to demonstrate they are above others, able and worthy to direct society. This was true in the days of Louis XIV and remain so through the post-industrial age. Today, money can

³ 'Left brain' and 'right brain' are here intended more as psychological functions than as literal physiology.

buy high-end consumer products and services: elite car and clothing, custom entertainment system, yacht, private plane, servants, etc. But after that, what? Art continues to function, as it always has, both as a *form* of wealth and as a *sign* of it. Art represents concentrated labor if not always precious materials.⁴ To own an artwork is to have commandeered the labor that went into it; to have commissioned it is to literally have commanded it.

Just as capitalism has grown ever more abstract, withdrawing from actual production of goods, so have the uses and even forms of art, which now can serve as financial instrument. One can buy shares in an art collection, and increasingly such art is made expressly for financial speculation. Some art is calculated to be shocking in the attempt to capture market attention, so that even whimsy, play, and the arbitrary can ironically be turned to economic purpose. In that case, the underlying principle is hardly pleasure, except whatever pleasure is afforded by succeeding in a cynical game, by increasing one's net worth, or by impressing others.

As in society at large, change or evolution in the arts is hardly linear, moving rather in cycles between extremes that broadly may be called heroic and decadent. The "heroic" is earnest, straightforward, straight-laced and often straight-lined; the "decadent" (or ironic) is tonguein-cheek, sophisticated, self-conscious, clever, ornate, even literally kinky. On a stylistic level, cyclic change manifests in an alternation between the austere stiffness of the heroic and the embellishment of the decadent or ironic. This can be seen in the difference between Baroque and Rococo architecture, between Doric and Corinthian capitals, or between Empire Style furnishings and Art Nouveau. Cycles in general imply an opposition that is unresolved: two (or more) contrasting impulses, neither of which can gain permanent ascendency. In other words: a dialectic that drives history. Opposing forces alternate, but there may also be synthesis that results in a new net force. This in turn may be opposed or qualified by some other compensating force, resulting in a new synthesis, and so on. Religious and secular concerns, or conservative and liberal concerns, for example, alternate on a large scale, reflecting swings of social mood.

Cycles imply an eternal return. Hellenistic art bore virtually all of the characteristics and genres later re-invented in the Renaissance—such as portrait, still life, and landscape, hardly any of which existed in the intervening medieval art. Another way to put this is that, in relation to the Greco-Roman tradition, the Christian art of medieval Europe regressed to the kind of rigidly formulaic iconography of the Egyptians and Mesopotamians. It then outgrew this heroic phase as medieval towns grew into major centers of the new bourgeoisie with its refined tastes, requiring new forms of architecture and art.⁵ The Renaissance resumed a line of humanism that had been interrupted by what we would now label more fundamentalist concerns. In fact, much of Greek art had been deliberately destroyed by Christian iconoclasts, and we know of it mainly through Roman copies and descriptions. But the Renaissance itself was an unstable and uneven period, with the humanist impulse struggling against reversions to religious fundamentalism, such as Savonarola's bonfire of the vanities, in which people voluntarily destroyed their own art treasures in a religious frenzy that ended in burning Savonarola himself.

⁴ Gold and lapis lazuli in medieval and early modern painting indicated the wealth of the patron.

⁵ Gombrich, ibid

From the point of view of Vasari—the 16th-century founder of western art history who coined the very term 'renaissance'—art progressed steadily toward the pinnacle of his age, personified by Michelangelo. From such a perspective, things could only go downhill. The standard of technical perfection set by his generation was defined in terms of accurately representing architectonic space and human anatomy—quintessential humanist concerns of the time as in antiquity. Eventually modernism dissolved all standards and seemed rather to imply that "anything goes." While this freed up creative expression, the onus of judgment began to fall on the viewer, for anyone could set up shop as an artist and try to flog their ware.

The democratizing effect of modernism meant that art could be a humble cottage industry again, as well as a grandiose tradition of "fine" art and highbrow fashion. On the one hand, art could be "outsider art," pop, or even kitsch. It could be home decoration, hobby, or middle-class consumer product. It could be tasteless painting on black velvet and cheap poster reproductions. While lower-brow art constitutes a major sector of the total art economy today, on the other hand it could also be highly esoteric projects funded through grants or wealthy benefactors, or sold at exclusive auctions. *All* sectors under the art umbrella promote idiosyncrasy of personal imagination and taste, and a fragmentation of interests in search of novelty. Hence the wide range of art expressions today, in search of a niche in which to be identified as unique. Hence also the wide range of practices, attitudes, and production modes—from hack commercialism to refusal on principle to sell anything at all; from isolated artists working in their basements to large teams collaborating on high-tech projects; from sheer tinkering with materials and processes for its own sake to multimillion-dollar projects aimed at an investment economy.

Artists are typically experimentalists. They want to see what happens when you try this or that. They tend to love processes, working with materials, and tinkering. Some are theorists: they want to follow out certain assumptions or lines of thought to their logical conclusions. In this they are aided by zealous curators, art historians, and gallery owners who promote ever-changing theories of art, reflecting what artists do, and also shaping it—just as the world of fashion promotes change for economic reasons. The contemporary art world is a restless cult of the new, defined by an elite who control the big business of the international art market. Its dynamic participates in the relentless parade of technology upgrades and fashion "revolutions" that fuel consumerism generally and partake in the ideology of progress. Individual artists may be under pressure to continue what they have already done in order to maintain a "brand." At the same time, they may feel driven to outdo themselves or compete with others, to be "original." Some aspire to fame and a recognized place in "art history"—an intellectual narrative that is often little more than a revisionist afterthought.

Yet, underlying the diversity of motivations for art and its many manifestations, it is possible to discern a sincerity that remains largely unarticulated because art is by nature nonverbal. If the left brain is concerned with defining, analyzing, articulating, explaining, using and controlling, the right brain has a different function that is elusive precisely because our dominant mode of thought is verbal. Artists may have difficulty explaining their attraction to doing art or why they are doing in particular what they are doing. Actually doing it may be the only way to discover the why or outcome. This may account in part for the bewildering diversity of creative expressions: artists themselves are bewildered. That is no failure, however, except in the eyes of a culture dominated by verbal thinking and the compulsion to know things with certainty.

I propose that this sincerity involves an intuitive attraction to the fundamental and intimidating mysteriousness of existence, which many have called the Great Mystery. But artists are generally not mystics, even if their pronouncements sometimes sound mystifying. Mysticism is frowned upon even in religion, for reasons we will further explore. Despite the early association of art and religion, art in the modern world is significant more in relation to science. Religion, science, and art are three approaches to this Great Mystery, each with its own advantages and hazards. To understand why art seems to play a lesser role in shaping the modern world than science and technology (and even religion, in its current resurgence), let us first further explore how science and art involve distinctly different cognitive modes.

2. Ways of Seeing

Senses and brains evolved to help the physical organism deal with its environment. For human beings, however, the world is external not only to the skin but also to an inner psychic core that is the locus of awareness: the perceiving self. (Indeed, even the physical body is perceived as external to this locus of awareness.) This results in some ambiguity concerning what is real. While this self exists in relation to the things it can become aware of, not all of those "things" exist in the real environment, and there may be things in the environment of which it is not aware. The reality of nature is independent of us, a separate question from the actuality of our experience. While our consciousness is immediately present to us, external reality eludes the self's direct and certain knowledge or control. Yet, the physical body must adjust to it constantly in such a way that permits survival. In other words, what we call *knowledge* consists in those adjustments that work for survival! Yet, one can scarcely know in advance what will work, Nevertheless, the human being is the creature with a sense of the future and an acute need to know. The fundamental uncertainty involved in cognition leaves us in a very precarious existential situation, which I will poetically call holv terror. It is not "holy" in any religious sense. Quite the contrary, as we shall see, religion—with the rest of human endeavor, including art and science-often serves as a shield against it and denial of it. Nor is it terror in the sense of a conscious experience of fear (let alone in any political sense); rather, as we shall also see, keeping it *out* of awareness is paramount and renders it all the more effective as a determinant of human being and culture.

At the root of this holy terror is the awareness of mortality. If we were not genetically programmed to survive, there would be no particular reason to loathe the death of the body. However, the survival of the conscious self is also at stake in mortality. If the self cannot survive the death of the body, then it will cease to exist. This prospect is almost by definition impossible to imagine; for, when we try to imagine not existing, there we are trying to imagine it! To the being aware of its own existence, the end of that existence is unnerving if not incomprehensible.

Yet, holy terror is not just fear of death or non-existence. It is also fear of the unknown. Living is an uncertain business, and a mistake made can lead to death. But even deeper, we do not even know for sure what death is, or what might lie beyond it. We just do not know with any final certainty what is going on here in this existence! The stories we invent to fill the void of this uncertainty and reassure ourselves are often themselves a source of anxiety. (If, for example, the Christian story is to be believed, will you go to heaven or to hell?) Some people take comfort in religious doctrine, just as some take comfort in the doctrines of science. But fundamentally, we know that these are humanly created stories beyond which we simply don't know.

Our basic cognitive situation is that all experience and knowledge involves an interaction of the self with the world. There is always a subjective and an objective component to whatever we experience or think we know. It is a fundamental human problem that these cannot be clearly separated. We cannot be sure how to interpret events or clearly tell what is real from what is imagination or thought. This fundamental ambiguity of experience itself is the stuff of holy terror.

Nevertheless, the brain strives to locate "reality" in what it conceives as an external space. Objectivity thus has these two attributes: the world exists independently of the self, and it consists of "objects" that can be localized, manipulated or avoided. The very language we use to describe the world and our interaction with it reveals this orientation of the body with respect to external objects. We try to grasp what eludes comprehension (L. prehendere, to seize); we try to find the common ground underlying things, to under-stand them. Our language and metaphors are permeated by the subject-object relationship and hardly allow for experience that does not focus on an *object* of some sort, to be manipulated in some way. This is a strategy for survival. Such objectification pertains not only to physical things but also to anything to which attention can be directed, including abstractions. The very fact that this object-orientation is so fundamental to our existence, and central to our perception, means that it largely goes unnoticed. It is built into cognition as a condition for being here at all and into the languages through which we think. (For example, subject and object are parts of speech). It manifests physiologically as the specialization of the left brain for language and reason, and psychologically as what Freud called the reality principle. It manifests sociologically in the dominant role of science and the dominating role of men. However, objectivity is paradoxically illusory, insofar as it is a provisional construct of the brain for specific purposes reflecting the body's vested interests.

Science is the supreme expression in our age of the search for knowledge that is objective and hence secure. However, nothing is actually beyond doubt except propositions that we accept to be true by definition—true simply because we say they are. Such knowledge does not depend on contingencies in the external world; but, then, it tells us very little about reality that we need to know. It is positively true that one tiger plus two tigers equals three tigers; but the relevant information might be that one or more tigers is about to pounce on you. Your survival may depend on knowing whether that is *actually* so, not on the axioms of arithmetic. And of this you cannot be completely certain. Our brains and senses are supposed to provide information about such matters, but that information is never perfectly reliable. You may not notice the tiger until it is too late; on the other hand, if you are jumpy, you may see tigers in the bush everywhere and timidly fail to reach for the fruit that would keep you from starvation. In truth, one is always guessing about the unknown.

While our physical survival depends on having the best information we can get, the quest for certainty leads, on the one hand, to religious dogma, with all the dysfunctions that can

imply.⁶ On the other hand, it leads to idealization in science, which produces its own dogmas and their dysfunctions. Scientific models are defined by scientists; in themselves, they are true by definition, like the truths of mathematics. Scientific models *work* to the limited extent they correspond to natural realities; however, they tend to ignore phenomena and data that do not fit within them. Similarly, the drive for security through technology can blind us to unforeseen consequences that lead ironically to destruction of the natural systems upon which our survival depends. While the need for certainty shapes our interests in accord with the reality principle, it leaves unfulfilled other psychological needs more in accord with the pleasure principle. This creates unbalanced people and dysfunctional societies.

Objectivity cannot reside simply in some form of knowledge that presumes an object, an ontology, a quest for certainty and control. Instead, paradoxically, it must presume the subject and subjectivity, pay attention to the epistemic conditions for knowledge, and emphasize the playful and arbitrary as well as the practical and goal-oriented. It must bypass the tacit purposes of knowledge, which include the compulsion toward certainty and the narrow focus involved in control. It must back off to show us the forest as well as the trees. This necessarily involves the role of the subject as part of the whole picture. At least to a limited extent, art can and sometimes does perform this function in modern society. When it does not, it is for the same reasons that other cultural expressions do not: because culture itself is a perpetual compromise among competing considerations.

The sort of knowledge that consists in "facts" is misleading, and potentially dangerous, because facts present themselves as stand-alone truths. Knowledge must be relativized by connecting isolated facts to many other facts and to the person asserting them. Perceptions must be placed in context, as co-created jointly by the external world and by the subjective self together. Belief must be placed in the social context of other perceiving selves. The job of the thinker or social critic is to point out these larger contexts, to (re)make connections and open up possibilities that have been discarded in the narrowing-down quest for "truth." To some extent, this is also the job of the artist— especially in offering a non-verbal mode of cognition, a different way of seeing.

3. Art, Science, and Religion as Forms of Cognition

Art and science both have origins in religion and share with it the quest for transcendence. They are complementary approaches, related loosely to right and left-brain functions. While science undoubtedly involves creativity, art embodies it differently—for example, graphically or musically instead of mathematically. Art and science both are forms of cultural production, expanding the human realm. Both rely on creative imagination. Science translates theory into technology; art translates imagination into material expression. Scientific models are designed to "capture" nature, to bring precision and definition to experience. Art too has often been representative, trying to "capture" a landscape, for example. But it may also attempt to open up experience and liberate it from external

⁶ Of course, there is another aspect of religion which has always sheltered a true alternative to the quest for positive knowledge: the tradition of mysticism which, in its purest form, refuses to name the unnameable or to make definite that which is no thing at all.

reference, to invite and explore ambiguity, without an intention to specify an image or meaning or bring a question to closure. It may deliberately multiply interpretations rather than attempt (like science) to decide among them.

Science is distinguished from art and other cultural expressions by its cumulative progress, through the agglomeration of data and consequent advance of technology. Its theories seem to build toward a more refined and complete representation of the external world. Yet theories are always subject to drastic revision and data to reinterpretation. To predict the future of science would be to already assume truths of nature that we cannot know in advance. Despite wars and urban renewals, art too accumulates—in museums and private collections, for example. Its social role has evolved in step with changing social institutions and mentalities, and its forms with changing technology. But it would be debatable to call these changes progress in any long-term sense.

Science, art, and religion did not exist as distinct categories in pre-agrarian societies. From a modern perspective, we can say that each represents a different mode in which society fulfills the general mandate of culture: to manage and tame the unknown by translating it into humanly-defined terms, establishing a framework in which to contain it. Yet, the self-transcending nature of human consciousness itself perennially implies possibilities beyond containment in any particular view or cultural framework, however encompassing. The depth of natural reality seems also to elude definitive containment. The result of this double open-endedness is ongoing mystery. What we now call science, art, and religion are different cultural approaches to it that were hardly distinguishable in Europe before the early modern period, which served as a kind of prism to disperse the unitary light of faith into a spectrum of related strategies in regard to the Great Mystery. In particular, these included humanism, capitalism, Protestantism, and scientific method.

After four hundred years, we are used to science as the preferred stance in regard to the natural world. Physics has become the paradigm of an objective approach, justified by the successes of technology in helping to humanize the planet. For, the essence of "objectivity" is separation of subject from object. The literal sequitur of this removal of subjectivity from science is the human removal from nature. Everything that smacks of subjectivity is to be expunged from scientific description. The window that remains is supposedly transparent, yet separates an interior mental space from the natural world outside. Science creates knowledge for purposes that remain tacit, by ignoring the contribution of the subject to our experience and focusing exclusively on the role of the object. Thus, the object can be contained and productively manipulated in thought as well as literally. Technology is based on the premise that the natural world is *materiel* for human industry.

While religion provided the necessary ground for both science and art, the expectation of modernity until the 20th century was that science and rationality would eventually displace religion and superstition altogether. Yet, religion has persisted and continues to preserve an alternative perspective that competes with the dry rationalism of science. For, the religious practitioner is free to embrace subjectivity in a way that the scientist is not. I believe that this partly accounts for the enduring appeal of religion and its perennial resurgence. We know in our bones that the rational vision of science is not the whole or only possible story. Feedback from nature tells us that science and technology are not unqualified boons to society, even

though we have every reason to believe in our current theories and have every reason to doubt theological doctrines and dismiss the superstitions of past ages.

Science competes with religion for a niche—to provide a worldview, an ontology, a creation story, even an ethic to live by. Neither, however, provides a true alternative to the materialist ethos that is destroying the world. For, both science and religion are dominated by a masculine "rationality" that habitually pursues unexamined (and often emotion-based) premises, which are also often genetically-based premises. Both are grounded in a type of thought that objectifies experience and facilitates manipulation and control, distancing subject from object, mankind from nature. Nevertheless, there has always been a mystical aspect of religion, surviving in the shadow of orthodoxy, that seeks a different relationship to experience. While science looks askance at mysticism, so does orthodox religion, and for similar reasons.

Long before science, religion had appropriated the search for solid ground in the face of existential uncertainty. The Catholic faith dominated Europe for a millennium, during which both natural philosophy and art were little more than its handmaidens. Religion, in turn, was hardly separate from political goals. Knowledge of nature served to glorify God and his self-appointed rulers on earth. So did works of art, which were anonymous contributions to an iconography whose overall role was to indoctrinate an illiterate populace, whether to support a pope or a monarch.

Medieval scholasticism had consisted more in pure speculation than in observation of nature. In order to conduct experiments, the new natural philosophers had to overcome the traditional aristocratic stigma of manual labor inherited from the Greeks. Some renegade thinkers had paid dearly for their ideas when they conflicted with church dogma. In general, natural philosophers—later called scientists—and other humanists tread a circumspect path around the received ideas of religion. Bacon (an early advocate and spin doctor) had carefully sought church sanction for scientific inquiry. Copernicus died of old age before his ideas could fully register with the orthodoxy. Kepler, like Luther, remained politically and physically beyond the reach of Rome; Galileo fared less well in Italy, where he was forced to denounce his claims and remained under house arrest for life. Descartes left Catholic France and payed coy lip service to faith while questioning many of its foundations. (He did not, however, question reason as the proper path to truth, or his capability as a rational subject to grasp the truth.) Newton, in the more liberal England, deliberately segregated his scientific and other pursuits. (He was a Unitarian and enthusiast of alchemy, as well as an expert on biblical exegesis.) In the wake of the tumultuous Civil War, the Royal Society was founded on the premise that science should remain aloof from religious or political positions. The scientist could have his private beliefs, but they had no place in public science.

Science continues to express the paradigm of rationality that grew out of the Enlightenment and which embraced the philosophy of mechanism. The principle of sufficient reason (that everything must have a rational cause or explanation) led to causal determinism and mathematical modeling. Reason and imagination are brought to bear on the behavior of natural systems, on the one hand, and the properties of conceptual systems, on the other, attempting to equate them within theory. While science impresses us with the fruits of technology, there are highly mathematical areas of scientific speculation—such as string theory—with no conceivable practical use. (Even general relativity has but recently found practical application in the timing of GPS satellites.) Nevertheless, scientific research is generally constrained by rationality, by the natural world itself, and by the hope for practical spinoff and financial or military benefits. Science is a quest for reasoned explanation understanding—but also for mastery. The whole point of causal determinism and of mathematical modeling is prediction—of events in the natural world or of the results of experiments. In Freud's terms, science must serve the reality principle—which ultimately means survival.

Art plays a different role, especially as it dissolves into the nebulous realm of creative possibility. In that realm (which includes pure mathematics), art can afford to ignore pragmatic constraints; indeed, it may dedicate itself to breaking free of them. It can defy reason. It investigates not the creativity of nature but human creativity. Art picks up where science leaves off, sometimes using the same technology, but to explore imagined possibility outside the constraints of science or rationality—and outside earlier definitions or understandings of art. Art is self-generating and self-perpetuating because the realm of creative possibility is limitless. Imagination does not run out. Science too is self-perpetuating, but for a different reason: because nature does not run out and will always surprise us. However, many scientists work with an underlying assumption that human thought can finally close in on nature and exhaust its secrets. Science would converge on final answers, in ever finer detail, while art diverges into ever more questions and expressions. Art defies reason and practicality to free imagination from realist constraints. It may express whimsy; but, unlike pure fiction, it must use real materials and processes to achieve that expression.

Both art and science seek to transcend limits imposed by nature. In some ways, art imitates, and perhaps mocks, science. Like science, it involves materials and technical processes, performs systematic experiments, elaborates abstract theories, and sometimes undertakes monumental projects enlisting many hands. The scientist has her laboratory and the artist has her studio. The creativity of science is harnessed to control and use nature, by producing a simulacrum that is supposed to be true to reality. The artist too may produce a simulacrum of nature—not to control nature, but to redefine it conceptually and explore creativity. A research team may be hierarchical, headed by someone recognized in their field; yet, the other associates are often far more than mere technicians hired to carry out that individual's program. Art too is often collaborative, though rarely among equals. The head of the studio is the "artist," whose designs are executed by assistants. Scientists have natural reality in common to guide their collective efforts. There is no common guiding "art reality"—only the project defined by the artist or patron, in the context of what other artists have done and are doing.

In some ways, art is a shadow version of science, with similar organization, including the need for funding. Yet its goals are often the opposite of scientific goals. It does not seek a single truth or final answer, but to proliferate novelty, expand experience, and open up possibility. It does not serve the reality principle, but exhorts play and is deliberately arbitrary. In some cases, it seems to protest the very rationality behind science, while making use of its principles and derived technologies. Like academics, artists are often extremely serious about what they do, dedicating many hours of tedium to achieve their results. "Artspeak" can seem to parody academic discourse. Often, however, artists are not good at articulating what they are doing, except as an afterthought, and may prefer to leave verbal explanations to others.

Science has become ever more abstract and unified in its concepts while at the same time becoming ever more precise, well defined, detailed and technical—a mathematically unified and well-defined approach to the physical world. In comparison, while embracing abstraction and intellectualization, art has become ever more fragmented—eluding definition and converging on nothing consistently except perhaps sheer creativity. No longer committed to represent nature or reality (hyper-realism notwithstanding), it no longer embodies a rigorous corpus of technique or set of standards. Theories, experiments, and ideas for research in science can hardly be arbitrary, but must follow up on existing knowledge and directions of research. The notion of an objective truth and the supposedly objective reality of nature at least nominally serve to arbitrate among theories. Something like this *was* true in art at one time, when it essentially expounded the common religion. Something like it remains true in the upper echelons of the official art world. In general, however, the field of invention in art is wide open.

4. Culture Against Nature

From the earliest times, the challenges posed to human existence had included dealing with the overwhelming power of nature and society to affect one's experience, well-being, and fate. To someone parachuted suddenly into life, the world might seem a bewilderingly complex and arbitrary arrangement. Since people are actually born into the receiving context of family and culture, the child's awareness develops gradually, adapting to life in ways that make one's experience seem normal. We grow up sheltered by others who instruct us in how to make sense of things. All of culture (in the broad anthropological sense) is a strategy to make sense of experience, to create order out of chaos-to deal with holy terror. That includes the cultural forms we call religion, science, and art. One could say that culture assimilates the natural world to the terms of a human world. It attempts to reduce external reality—which is essentially elusive—to perfectly known humanly-defined terms. Yet, all such terms are limited and finite. No matter how sophisticated our ideas and creations, mental or physical, reality is not obliged to conform to them. Life is full of surprises, of things we did not invent or anticipate, and it is this independence from us that makes the world real rather than merely a collective or personal hallucination, dream, or invention. There has always been an unknown that escapes the confines of our definitions and is a source of bewilderment and awe. There has always been an ongoing question about how to relate to it.

One could say, crudely, that culture in general involves a compromise between sheer wonder (the friendlier face of holy terror) and survival. Culture serves to shelter us physically and mentally from the harshness of the natural condition and the terrors of the unpredictable. Collective knowledge and practice empower our species in the face of its vulnerable plight in nature. In fact, culture serves to create an *alternative* world—not the found world of nature

but the man-made world of civilization and its artifacts and customs.⁷ It redefines nature in terms specified by human beings—whether scientists or priests, engineers or entrepreneurs, artists or art critics. Culture attempts to remove us from the natural environment and from natural conditioning, while using natural materials to give unnatural expression to that very conditioning. It serves human mastery, which is a drive built into the very biological nature against which, in many ways, human consciousness rebels!

Mastery of nature means also power over other people, whose bodies are parts of nature. The relationship of the conscious subject with respect to possible objects of attention is reflected in the pronouns of speech: "I" exist in relation to "you" and to "it." This *I* seeks to control *it* (and perhaps *you*), but also fears being controlled. We are subject to nature's power over us, which we resist with counterattacks. We straddle two worlds: the ideal freedom of self-transcending awareness and the determinism of biology: spirit contra flesh, culture contra nature. The spiritual and ethical aspect of being human has always been an ideal—tempered, when not corrupted, by materialistic drives and the genetically-driven ingrouping that treats others as alien, utilities to exploit. To see this struggle, one need only look at the history of slavery. Or at the corruption of religion, whereby the church accumulated great wealth at the expense of believers.

Both religion and science serve the cultural reshaping of the raw natural world into an idealized realm. They are ways to cope with the inscrutable mystery of what is, the holy terror of being. For, whatever we think we know, we know also that it can be doubted, that all knowledge about the world is only relatively secure and never absolute. Science substitutes theoretical models for natural phenomena because, unlike nature itself, they are precisely defined. This has a double benefit. First, modeling-especially when quantifiedallows projection into the future. But secondly, it offers the appearance of security, since the model (unlike the reality) can be perfectly known. Religion substitutes theology for reality for similar reasons; faith in its doctrines is an antidote for doubt. Science has proven superior to religion as a way of harnessing nature to human purpose; technology works better than prayer at manipulating raw materials. Yet, science does not correspond to all human purposes or respond to all human needs and desires. It does not relieve holy terror, but only ignores it. It takes the subject-object duality for granted and tries to make the best of it. However, the human psyche also rebels against the very condition of embodied existence and the subject-object relationship itself. It rebels against the inescapable anxiety of not knowing, and also against the embarrassing vulnerability of being caught between the rock of false certitude and the hard place of utter ignorance.

While dogma, ritual, and faith psychologically relieve holy terror, the axioms of religion are no more certain than those of science. Faith is an act, originating with the subject, not a conclusion warranted by the evidence of facts. Hence, under the aegis of orthodox religion, various non-dualist or mystical traditions have remained relatively aloof from dogma, eschewing the need for an ontology at all, and skeptical of the objects and goals of rational thought. Yet even these traditions are subject to appropriation by the knowing mind. Struggling in the context of reifying doctrine, they have often expressed themselves in

⁷ Dan Bruiger Second Nature: the man-made world of idealism, technology, and power Left Field Press, 2006

the only language available. This can give the misleading impression that their focus is on an objective spiritual domain, whereas it is really about *attitude*.

If art expresses the cultural imperative to create the human world, serving to distinguish human beings from animals and the wild, it may also serve to distinguish one's own tribe from others who may not even be recognized as legitimately human. The fundamental distinction is between a self-created human identity and the otherness of the world as found. That world may include foreign agents with whom one must share an environment (we versus *them*). It is essential to define the cooperative group to which one belongs, for otherwise the individual would be alone against the world. The collective creative efforts of one's group serve to define and reinforce a common intent and identity, and common practices that permit the group's cohesion. Culture consists of such practices, which art illustrates. This can mean simply coloring and scarring the body—practices of decoration that establish the physical self as an entity outside nature and establish the individual as a member inside the group. Or, it can mean possessions that define one's social status while surrounding one with a literal environment distinct from nature. Such an object may be a painting that hangs on an interior wall space, a Mercedes Benz in the garage, or designer apparel in the closet. In all cases, the creation of culture serves to establish membership and identity within a group and the human world as defined by that group.

Science is a cultural creation that aims to define the natural world "objectively." Paradoxically, that means: as it truly is apart from human definitions and cultural creations. Science has the particular advantage that its vision of nature maximizes control of the natural environment. It transforms the world both in thought and in deed. As the cultural expression of a particular society, it serves as a manifesto for that society and its controlling elites. Western secular society is the group that believes in the rationalism and goals of science, and in the power it affords. Modernity is the period and mentality dominated by the scientific worldview and by the philosophy of mechanism in particular.

While art, like science, affirms the human world, its nebulousness differentiates it from science and sets its many visions apart from the scientific worldview. While science attempts to converge on a singular truth, or at a least consensus, art diverges into multiple perspectives. There may be consensus, within some circles or even internationally, about the artistic merit and monetary value of recognized works. Yet, while European art may have begun as a coherent religious expression, like religion itself it could only reflect this fragmentation into indefinitely more perspectives, as western society evolved toward greater subjectivity and individuality.

Whereas science gained consistency by eliminating or denying subjectivity, western art embraced it, and now serves as a counterpoise to the rationalism of science. Especially in modern society, art is a force, however ineffectual, to re-establish balance in a world diseased by nominal rationality. It presents a different vision of intelligence, which celebrates the subjective and affirms the sensuous in the shadow of so-called reason. (One must recall that "reason" is no more than applying logic to assumed premises; the outcome can be no better than these assumptions.) Art has long been associated with the unconscious, the irrational, the non-verbal. In any case, art as a graphic expression seems to embody a different cognitive mode from the linear expressions of language, logic, and math. Indeed, this very difference was reflected in the iconoclast proscription of "graven images." For, Judaism, Christianity, and Islam are alike religions of the text and prone to be suspicious of graphic images, at least as representations of the divine. Art has long been a target for vandalism because of religious rivalries, and even its early use in Christianity was controversial. One could view textualism as a fundamental imbalance in the brain and in society, which art helps to rectify. Art is subversive simply by being non-verbal.

The creativity of the theorist in science usurped and displaced the divine creativity, which alone had been thought to determine what exists. Similarly, theory displaced theology. Scientists took it upon themselves to interpret the "book" of nature and, by careful inspection of the creation, to reverse engineer it in such a way as to think the very thoughts of the creator, to walk in the divine shoes. In a parallel way, artists explored the creativity once reserved to God, first in order to celebrate the divine glory, but eventually to appropriate it for themselves and for humanity.

5. Culture as Compromise

Science, art, and religion are three strategies to evade the holy terror of raw existence. Thus, each has largely failed to solve the mystery of existence. This is hardly surprising, given that the latter is utterly elusive by definition. Yet, it is crucial to understand the nature and inevitability of that failure—especially to grasp that, though unconscious, the failure is deliberate. For, the mind is a protective filter, like sunglasses or earplugs. Culture is the collective application of that filter. Art, like religion and science, involves an interplay of raw reality and human need—of object and subject—and a compromise between them. So do individual art works.

It is helpful to recall a notion of Freud: *compromise formation*. This is the idea that an impulse can be deflected and deformed by competing forces, resulting in a distortion or perversion of the original intent. This is how Freud explained neurotic symptoms, as a defense mechanism. The compromise is a surface manifestation (a "symptom") that both reveals and conceals a deeper psychological stratum. The effect might also be described in physics terms—as a vector resultant of combined forces; or, in philosophical terms, as a dialectical process that synthesizes opposing elements. In any case, each strategy not only casts the mystery of existence in its own light, but also conditions our responses in specific ways that help us survive. It skews how we view the human situation—if not through rose colored glasses, then through the distorting lens of scientific materialism, theology, capitalism, the cult of artistic genius and aesthetics, etc.

At least inadvertently—in the course of relieving holy terror—science, art, and even religion each in its own ways conditions, compromises, perverts, deflects and obstructs confrontation with the Great Mystery. They each accomplish this defensive transformation by *defining reality* and thereby limiting possible experience. The ancient Taoists cautioned against this aspect of thought: the Tao that can be named is not the Tao. The Hebrew scriptures gave man dominion over nature by naming the creatures; but the Creator was not to be so named.

Early Christianity had been a grass roots movement—communal, egalitarian, and non-materialistic—in which women played a large and integrated role. Under Constantine, it

became the state religion, married to power, with its own male-dominated bureaucracy. With the guidance of misogynists, from Paul to Augustine, monastic life excluded or segregated women. The church became a priestly hierarchy and a worldly form of patriarchal government, overshadowing the quest of the Great Mystery, except in the case of individual mystics who were tolerated to the extent they did not rock the ship of state or religion. Natural wonder was diverted into a standard credo. (The Nicaean Creed was literally a compromise between sects, enforced by Constantine for political reasons). Wealth was channeled into Church coffers, perverting the essence of Christian ideals. Natural inquiry was channeled into scholasticism, which referred not to nature or reality but to the ideas and writings of other male thinkers. Without grounding in primary experience, scholarship was a matter of hearsay, a contentious game of angels dancing on the heads of pins. Whoever dissented too far from standard beliefs was accused of heresy. While science displaced medieval scholasticism, giving us a modern creation story, it carried on the compromise in subtle ways, substituting theoretical models for dogmas accepted on faith.

Art diverts attention from the Mystery by vaunting the human world and showing the natural world as domesticated. Representation in painting literally transcribes reality, brush stroke by brush stroke, into the known, affirming our cognitive mastery. Just as science redefines the world in mathematical terms, and religion in theological terms, art redefines reality in aesthetic, symbolic, or formal terms. Even when representational, art channels attention toward favored cultural themes, which were often taken from mythology. When not biblical, these themes were drawn from ancient Greece or Rome or some heroic or idealized event. Though sometimes concealing a symbolic meaning critical of the social order, at face value such painting directs attention away from current social realities, serving as bread and circuses to reaffirm vested interests. Of course, there has been explicit social content in art as well, when the message overrides formal concerns. But if it threatens the status quo, and especially if it does not also engage the viewer aesthetically, often such art is judged inferior: didactic, mere propaganda, unable to please the discerning or withstand the test of time.

Plato had overestimated the power of art, thinking it could endanger the foundations of the state. While individual works of art might have a subversive intent, art functions overall to maintain the status quo. This is hardly surprising, given that artists have traditionally worked for wealthy patrons, the church, or the state. Renaissance artists, for example, had to work within the context of the political and social messages their patrons hired them to convey graphically. Their only way to dissent, to express a different sentiment, was through the formal elements of the work. While fulfilling the literal obligation of the contract, the artist could express a different or even contrary intent through style and treatment of the specified subject. Thus, form can reinforce or contradict content.

An individual art work is a compromise between the artist's vision and social dynamics that limit its expression and reception. Today, one sees this contradiction directly in the ritual of the gallery *vernissage*: a cocktail party to celebrate the opening of an art "show." However earnest, moving, or disturbing the artwork might be in another setting, received in this commercial and social context it is disarmed, reduced to a consumer product, the subject of party gossip, a backdrop for a certain form of sociality. Art is often thus essentially entertainment. This may be so whether it is romanticized as portraying lofty ideals of beauty, dismissed as merely decorative, or denounced as frankly ugly or vulgar. For, *entertainment* simply means "holding between." Cinema is the modern paradigm of

entertainment—and the monumental art form of our age (which includes the genres of horror). In the gallery or museum, as on the screen, we are held between birth and death, momentarily suspended from more pressing concerns.

6. Individualism

The scientific revolution suppressed individual idiosyncrasy in observing nature; paradoxically, this was possible only in a society that insisted on individualism. Science then emerged as the dominant way of knowing the world. It drew upon the earlier rationalism of the Greeks, and also upon the creationism of the Christian religion, which separated God from nature. The Deists in particular held that a distant creator initially set the creation in motion and left it to obey his providential laws. This also left the individual alone, without traditional resources, to make sense of the "system of the world." Protestantism emerged as a movement to assert the individual right to think for oneself about religious matters; in fact, this had become an obligation imposed by the confusion of competing theologies. Capitalism rebelled against the closed feudal order, in favor of individual opportunity for social climbing. Art emerged in the early modern period as individual expression, distinguished from the medieval period when it anonymously served the needs of the church. Giotto, at the turn of the 14th century, was perhaps the first celebrated and fully individuated "artist."

To the extent that medieval Catholicism denied personal experience in favor of approved theology and ritual, it made inevitable the Protestant rebellion. The protest was not only against the exploitive materialism of clergy, but also against the standardization of faith, constrained to a single view. While Protestantism liberated the perceiving mind in religious thought, the Scientific Revolution disciplined it in natural philosophy, in search of a single objectified truth. The revolution of modern art utterly freed the artist as subject, but also dissolved the conventions that had traditionally made art meaningful to other subjects.

The Reformation can also be viewed as a protest against the extent to which the Church had compromised the quest of the Great Mystery. Of course, it was hardly formulated as such. The Protestant sects were but variations on the themes of Catholic theology—with an added twist of individual conscience. Luther's complaints were specific; he had no intention of forming a new religion, let alone of reverting to raw mysticism or pagan nature worship. But he did insist on individual experience as the basis of faith. The rising merchant class and the collapse of feudalism encouraged individual striving in knowledge as well as economics. This new "middle" class sought authentication in the trappings of culture, which included surrounding themselves with a coterie of intellectuals, including artists who now saw an opportunity for status equal to that traditionally accorded the poets and philosophers. Artists henceforth would no longer be mere artisans, members of guilds, but creative geniuses working on the shoulders of such giants as Leonardo and Michelangelo. Yet working, nevertheless, to the dictates of wealthy patrons.

Medieval art in Europe had been predominantly religious. By the time of Vasari, however, religious art grew daily more secular under the auspices of the rising merchant class. Paintings that were ostensibly devotional began to incorporate new elements; into the scene of a triptych, for example, crept the portraits of the donors—who were sanctified by implication. The devotional painting was an emblem both of their worldly and their spiritual standing. But the very notion of such standing had nothing to do with the mystery of existence or the individual's earnest relationship to it; it was a mundane matter of the social pecking order, of being richer and superior to others. It referred to doctrines of Church orthodoxy that could affirm one's status after death and one's moral superiority in life, proving that one's wealth and power were deserved. The extreme of this pretention was the claim of kings, popes, and emperors to divine sanction for their rule and even to divine status as heaven's representatives on earth. The elaborate décor of palaces, cathedrals, and the Vatican bore awe-inspiring proof of their occupants' merit.

While religion pretended to impersonal truth, it also serviced the psychological needs of believers and demanded personal allegiance as a condition of spiritual salvation. Caught in the crossfire between Reformation and Counter-Reformation, what one professed to believe could be a matter of life or death. Whereas people were not supposed to question doctrinal inconsistencies, they were now more or less obliged to think for themselves. Through printing, they had access to scriptures heretofore reserved to clergy. This was but one aspect of the rise of individualism, privacy, and subjectivity that characterized the early modern period. Independent thought threatened both the religious and sociopolitical hierarchies. Science made its peace with both by staying out of politics and by treating nature as separate from the spiritual realm and from the concerns of the soul or the state. Dependent economically on patronage, artists kept their peace and livelihood by dutifully serving the needs of their patrons. Only later, in changing political circumstances, would artists dare explicitly to criticize the social order.

Individual emotional expression had no place in science, which reduced the scope of subjectivity to the narrow role of the standardized, impartial and interchangeable observer. True, individual scientists gained social status through celebrated achievements. But their theories were not subjective creations in the way that artworks were beginning to be. True also, medieval art had provided little place for personal expression; but that was changing in the early modern period. The role of creativity and the place for personal expression were expanding in art, but were constrained in science by the answers nature gave to leading questions (to use the courtroom expression) posed in experiment. Imagination was limited to the optimal way to account for experience gathered through the scientific method. Bacon had provoke answers from nature, instead of the passive (but attentive) observation prescribed by Aristotle or the disregard of appearances enjoined by Plato. The scientist had freedom to invent the experiment but not its result, which rested on the authority of nature.

While an ideal of art in the early modern era was to be true to "nature," this often meant the idealized human body and the approach to representation rediscovered in the art of antiquity. (Natural philosophy too was initially supposed to recover the wisdom of the ancients.) The notion of *realism* in art is poorly named, however, for it presumes a universal concept of reality that hardly exists. The ancient depictions we term "stylized," such as those of the Egyptians and medieval Christian artists, often tried to represent what they considered an objective view, which transcended time and space. Thus, in the same painting or frieze, several periods or events in the life of a personage might be depicted together. The scene might be presented from several viewpoints in space at once—hardly what we today call

realistic, but which was for them the reality. The Renaissance discovery of perspective (the basis of realism) meant preferring the view as seen from a single position at a single time—in other words, from the literal and momentary point of view of a single subject. Such "realism" is not objectivity; quite the contrary, it is literally subjective.⁸ While artists were expected to be representational and to employ perspective, individual emotional expression was also gaining ground in art. The subjective self not only provided a spatial-temporal viewpoint for depictions, but also an emotional and intellectual point of view a new theme in art.

The rise of subjectivity in art mirrors the rise of subjectivity in society as a whole; it recapitulates the awakening of individuality. The medieval world—naïve, heroic, and earnest in its official credo—was rediscovering the Roman and Greek heritage, which had been anything but that. In truth, the medieval world was far from innocent, let alone unified in its convictions. Rediscovering antiquity put its own clandestine rebelliousness and hypocrisy in perspective— which had manifested, for example, in lude or profane figures carved in the choir stalls and other relatively hidden corners of churches. Through private commissions, the artist was charged with the task to give formal expression to the growing worldiness of the late medieval mind.

Many Renaissance artists were also architects or designers. At a time when individual artists were only just coming to be known as such and to be admitted to the educated circles of their patrons, it served them to be known not just as tradesmen but as intellectuals. Toward that end, it may have furthered their purposes to advance technical aspects of representation and building techniques, such as precise rendering in perspective. Preserving the trade secrets of the guilds had been an anonymous process almost by definition; but intellectual discovery and novelty, while collective in many ways, could now be identified with individuals. Greek society had been competitive and individualistic, which had stimulated a variety of styles and a striving for perfection. The Italian Renaissance rediscovered that individualism at the heart of Greek art.

The ideal of individualism remains the core of democracy, capitalism, and consumerism. And: of art. But just as the convention of accurate perspective limits the viewpoint of the artist to one place at one moment, and the subjectivism of individual expression can devolve into narcissism, so individualism in general limits a vision pertaining to the whole. Furthermore, the ideal of individualism is typically contradicted by the reality. Voting is a sham when the real decisions are made behind closed doors under the influence of corporate lobbies. The capitalist promise of individual opportunity is belied by the manipulations of Wall Street, as society as a whole is dispossessed and the rich get richer and fewer. Individual consumer choice is increasingly driven by an artificially maintained mass need to stay current with technology, a new form of keeping up with the Joneses. The individualism of the artist is trivialized by the demand for a niche or identity in a frenzied economy, a "style" to serve as a sales gimmick. Rather than facilitating better ways to confront the Great Mystery, artistic freedom becomes license to ignore it.

⁸ 'Realism' could more accurately be called phenomenalism, perspectivism, or even subjectivism, to the degree it strives to be true to literal appearances.

7. The Mystique of Art

Whatever the changing social, economic, and political context of actual works of art—and whatever their merit—a mythos of art and of the artist continues to be dear to society. Like all myths, this involves a certain amount of naiveté and hypocrisy, since myth rarely corresponds to reality and is not intended to. But the mythos of art also signifies an abiding awe of the creative spirit. At one time, painters and sculptors had been taken for granted as craftsmen, and "art" simply meant the skill to exercise that craft. Then, Vasari promoted the idea of a rebirth of the arts and the notion of the artist as a special kind of genius above the rank of mere artisan.

Before the invention of printing, pictures and sculptures had been an important form of religious propaganda. Artist/artisans did little more than execute themes determined by the Church, giving expression to ideas they may or may not have personally endorsed. (Even long before, the role of art had been to glorify the power of rulers, not to express the opinions of the artist.) The invention of printing changed the role of graphic art in Europe, as later would the invention of photography.

With the transition to industrial manufacture, the artist was further romanticized as a bohemian exercising a mysterious creativity in contrast to rote manufacture. With the further encroachment of photography upon the production of images, art was cut loose from representation altogether, and the artist was liberated from the skills required to copy reality. The modernist dynamic was to break with convention rather than follow it. The artist was deified as a free spirit, a wild card, a celebrity. Art became anything that such people do. The more incomprehensible the work, the greater the mystique of the creative genius! Many pandered to this image and still do. Yet, above all, artists of all periods seem themselves to have been obsessed by their work, and by materials and processes and the challenges they pose. Such dedication by itself inspires awe and contributes to the mystique of the artist.

A photograph may seem to present a scene as though viewed through an open window, whereas a painting of the same scene presents the artist's interpretation. Even when the intention is to copy the scene as perfectly as possible, it is re-worked and presented deliberately brush stroke by brush stroke. This intentional act reminds us that our normal perception is also an interpretation—an *oeuvre*, not reality itself. The subjectivity of the artist, brought to bear in the painting, recalls our own subjectivity and the right to perceive the world in an individual and unique way—beginning with how we perceive the work. It reminds us of free will, of the need to play, and of our responsibility for our own perceptions and behavior. In short, the creative freedom of the painter rubs off on us through the painting. Whether or not you yourself paint, the artwork vicariously affirms your membership in the human community of creative subjects, who moment to moment transform the world at least in perception. Art reminds us of our participation in the quest to create the human world as distinct from the natural one. It thereby serves both as means and as emblem for the human quest, in which we take pride.

Interpretation of an artwork attempts to fathom the artist's intentions, or else to ascribe to the work itself some objective qualities the interpreter claims to apprehend (usually without consulting the artist). On the other hand, interpreting nature necessarily involves consulting it. The essence of scientific method accords nature a crucial say in its

interpretation, which is a dialogue that cannot be presumed to reach a definitive end. In contrast, an artwork—like any text or artifact—cannot reply to our queries with new evidence.⁹ Its interpretation is more a dialogue with oneself, or else with other interpreters (among whom *could* be the artist), than with the object or its creator. Yet, to some extent, the artifact must be presumed to be a function of its author's intentions, whether or not we know what those are or whether even the artist knows. This is certainly not the case with nature; moreover, the scientist's intentions are supposed to be irrelevant to the science. The natural object is inherently ambiguous; only the theoretical model is well-defined. While the natural object may be indefinitely complex, a work of art (like the theoretical model) was finitely specified in the first place; it is the result of a definite number of actions (for example brush strokes). If human interpreters cannot agree definitively about its properties or meaning, it is more because of their own complexity than that of the work itself.

To lay people, the genius of the scientist and technologist can appear as recondite as that of the shaman may have seemed 10,000 years ago. The artist also appears as a kind of shaman, and accordingly mysterious. Yet, the artist's creativity represents a more personally accessible, more emotional, and less technical-seeming mentality than that of the scientific genius or inventor. Art formalizes *general* human creativity; for, *everyone* can be creative in some way or other. The artist specializes in this creativity, channeling it into socially and economically useful occupations. With good reason, perhaps, we fear mad scientists; mad artists are at worst eccentric and disturbing. They do not intend to control nature beyond the mastery of their materials.

Medieval textual exegesis had been largely allegorical, telling a story, a tradition inherited by Renaissance artists whose graphical compositions were also allegorical. Paintings could be read in terms of symbols familiar to the educated and deliberately used by painters. It was a game of deciphering encoded meanings. Having the wealth to commission such a work in the first place was a sign of status. To this could be added the intellectual credit of being able to appreciate the complexity of symbolism, classical reference, and compositional principles. The connoisseur and the creator shared a base of cultural knowledge in order to play this game, which leant credibility to both. Especially in the modern period, this developing game evolved perpetually changing rules and elements divorced from external reference ("art for art's sake"). Because it was thereby relatively freed from traditional symbology, art thenceforth required expert interpretation—especially of its current and more esoteric doctrines—somewhat in the manner that modern science requires interpretation by popular science writers. This intellectualized aspect of artworks stands in contrast to whatever direct emotional, aesthetic, or "common" appeal they may have.

The notion of *forgery* implies an *authentic* version of which it is a copy. The painting and its forgery are both artworks nonetheless. It is unlikely that the intention of a forger is the same as that of the original artist, though both are "artists" and demonstrate a similar skill (if the copy is good). Part of the mystique of art is that we value the creativity of the original far

⁹ That is, new evidence of the sort that simply meets the eye. Forensic techniques and historical evidence may, of course, provide new relevant information.

more than that of the imitation. The intention of the forger is almost by definition to defraud for personal gain, however worthy the copy as a work in its own right. On the other hand, many "original" contemporary artworks could be said to put one over on the public for the sake of personal gain!

The mystique of art implies a naive viewer, with lack of experience upon which to base judgement of the work's merit. If you are skilled as a painter, you have some idea what goes into a particular painting and what doesn't. You may have respect for the vision and skill behind it, but it is probably not a complete mystery. To the extent that modern urban dwellers lack manual skills, they may also lack a grounding upon which to judge modern art. They may also *wish* to believe in the mystique, for the same sort of reasons they may wish to believe in capitalism, in God, or in the truths of science. This willing suspension of disbelief leaves the public vulnerable to predatory art: work that is valued simply because others seem to value it, or because (circularly) it must have value because it is art! As soon as an artist becomes "branded," the market tends to accept whatever that artist does as legitimate and of value—which could be anything from a quick sketch on a restaurant napkin to a shark pickled in formaldehyde.

8. Form and Content

Language is largely about content, the meaning communicated. Yet, it must possess conventionalized form to communicate successfully. The content of logical propositions is their reason for being; but in order to communicate or evaluate the truth of a proposition, it must be formulated properly. Form in language can also be important in its own right, as it is in poetry, and syntax can even reign over semantic content in whimsical expressions of nonsense.

Graphic expression lends itself naturally to emphasize form over content; yet "meaningless" abstraction runs the risk of alienating the viewer. Content in Renaissance paintings often was allegorical and symbolic, a "language" readable to varying extent. Most painting of the time depicted religious or mythological themes that all could recognize and identify with. However, into these evident themes were integrated more subtle symbols and formal principles that were intended for more educated audiences. In the twentieth century, formal principles would dominate, with art becoming inbred to the extent that it could be appreciated largely by those in the know, who could interpret it for those who were not.

Whatever its serious themes, all art involves play, both for the producer and the consumer. The experience of beauty is a form of pleasure, and "form" is a form of play with (syntactic) elements that do not of themselves (semantically) signify anything or have any practical use. For the left brain, meaning is propositional, the content of a message. It is goal-oriented, tied to survival and Freud's reality principle. But for the right brain, art rather expresses the pleasure principle, at play with the formal elements of what may or may not otherwise bear a message or serve a practical function. Modern art would liberate form from content, if not from economics.

Long before science had been invented, Plato dismissed art as dealing only with appearances, not the truth or reality of things. According to him "art is a form of play, not to

be taken seriously." However, it is precisely as a variety of play that we now do take it seriously. What we find beautiful or interesting about a work of art often involves its formal qualities, which reveal the artist's playfulness at work. Art may *depict* an imagined world; but it may also simply *establish* one, through suggestion, by assembling the right elements in creative play. Just as the world of Monopoly comes in a box, so the artist's studio is a "box" from which emerges the world of a painting, sculpture, or gallery installation. The studio itself is a microcosm, a local world (and playground) for the artist.

Art makes its own kind of sense, if not that of the "real" world. Like Lewis Carroll's famous Jabberwocky poem (a paradigm of nonsense), art may be grammatically correct while semantically gibberish. Art objects are hypothetical alternatives to the practical objects of consumer society, and sometimes parodies of them. Often they are made of similar materials, using similar technology, but put together to express an arbitrary logic or no apparent logic at all. Invention in the art world parallels invention in science and technology, though usually toward a different sort of benefit. At the highest levels of both realms, large teams undertake monumental projects. Extravagance expresses the pleasure principle, even to make money.

Looking back through time, aesthetics seems universal and timeless. Whatever their original uses, the most ancient artifacts (such as the Venus of Willendorf or the paintings at Lascaux) demonstrate what strike us today as formal qualities. They are hardly what we would identify as strictly realistic, but represent some kind of ideal, if not one corresponding to modern taste. The prehistoric "venuses" have been so named precisely because, though grotesque, we recognize an idealized vision of woman in them as much as we do in the Venus de Milo or the Venus of Botticelli. Whatever the particular meaning of prehistoric art to its makers, which we will never know with certainty, what comes down to us through the ages are its formal qualities, to which we relate as interesting and mysterious if not beautiful. We admire also the skill with which the animals of the cave paintings were drawn, and those intimately etched on bone. But we have only dubious ideas about why they were made, or what was on the minds of their creators. Indeed, one motivation now for doing art is to try to understand those minds of other eras. By trying to make the same sort of object in the same materials, artists today may to try to re-create the experience of their predecessors. Such experiments are not confined to ancient history. By copying a contemporary work, one might hope to gain insight into the mind of its creator, or at least an appreciation for the technical challenges involved. Art students still copy the great masters in museums, perhaps not only to hone their skills but also to glimpse what the other saw.

Art played a significant role in Christian Europe precisely to the extent it used imagery that was not purely decorative, but conveyed a message. Both art and science were initially "handmaidens of religion." Religion imposed official constraints on what could be written, or even thought, and on what could be depicted in art. Science became controversial when it suggested a view of reality not aligned with church doctrine. And art became controversial when it served interests that were not chastely religious. Both domains became testing grounds for the development of a secular culture. Bruno was burned at the stake, and Galileo imprisoned, for what they wrote. While artworks were sometimes burned, defaced, or destroyed, there do not seem to be comparable instances of a painter or sculptor being

executed or imprisoned for heretical art.¹⁰ Perhaps this is because artists were still considered merely laborers and tecnicians. But, also, an artwork is not simply true or false like a verbal statement. Works of art were not considered artists' intellectual statements, for which they were accountable, but were commissioned by church authorities or wealthy individuals.¹¹ If an artist did not fulfill a commission to the satisfaction of the patron, probably at worst he would have to redo it or not be paid or offered future commissions.¹²

From the very inception of civilization, art has often served as propaganda. Mesopotamian kings had built imposing monuments to their victories in war, giving a clear message to potentially rebellious vassals. Themes of Breugel's paintings warned his rich patrons against hubris. David's painting of the *Death of Murat* was intended to stimulate support for the revolutionary regime in France. Some of Delacroix's "romantic" paintings supported political causes.

The role of art in churches was from the beginning a divisive issue. There was, on the one hand, the biblical proscription against "graven images." On the other hand, the Church needed a form of propaganda that worked for an illiterate populace. The first Christian art was probably funerary. Early Christian sarcophagi imitated the relief style of the prevailing Greco-Roman culture. By the time of the high Gothic, this was simplified and stylized, to refer more to spiritual than to worldly things and relationships.

A consequence of the modernist break from representation is that the content (when any is intended) is less obvious or self-explanatory, more subject to speculation, and must be amplified by verbal statements by the artist or interpreter. Hence, the supercilious titles sometimes given to completely abstract paintings or sculptures. Hence, also, the plethora of high-toned manifestos and gallery-world artspeak. In a sense, formalism and abstraction are more democratic than representation, since they do not presume a knowledge of allegorical references and simply allow viewers to project whatever they like into the work. This is at the risk, however, that viewers may not be able to project *anything* into it without the aid of experts, nor be able to appreciate its purely formal properties for their own sake, without the aid of some rationalizing story about it.

A driving value of the contemporary art world is radical progress. The imperative is: never do anything that resembles anything done before! Such perpetual revolution paradoxically requires intimate knowledge of the past—if only to avoid repeating it. The cutting-edge artist must know well what to revolt against. Without such knowledge, or without reference to the work of others, how is one to find a purpose and a subject, to carve a

¹⁰ A near exception was the case of Veronese, called before the Inquisition in 1573 to account for some inappropriate details in a large painting in the refectory of a monastery. Following very careful answers to probing questions, he was required to change the offending details, on pain of further prosecution. In fact, he simply changed the title of the painting, so that it was no longer a depiction of the "last supper."

¹¹ Thus, Michelangelo's ceiling in the Sistine Chapel was controversial for its naked figures, and a later generation painted over the genitalia, but the artist was not persecuted on that account. It had, after all, been commissioned by the Pope.

¹² For example, in 1602 Caravaggio was obliged to repaint a commission to represent St. Matthew writing his gospel. His original version was more personal and touching than the second, accepted version, which was more conventional. [Gombrich *ibid*, p31]

niche? How to legitimize one's own work? The artist who happens accidentally to do something never before seen could yet remain a naïve outsider to "official" art. One must build deliberately on the past, with liberal references to other works as landmarks, in order to situate itself in a legitimizing tradition. This aspect of the art world resembles academia, where scholarship is commentary on the commentaries of others, in a language that identifies one as a member of the profession.

Pure play with form and materials can be more amusing for the artist than for the viewer. Completely arbitrary whims may leave the public curious but cold. On the other hand, art with a heavy-handed message may simply insult or assault the viewer's sensibilities. The extremes, of propaganda and sheer formalism, suggest a middle ground in which meaningfulness involves a balance of content and form. Content was often determined by someone other than the artist, who was then in the position of a servant required to fulfill the other's wishes. Even in that position, artists could express their own intentions through the handling of materials and formal elements, the aesthetic treatment of the content. While medium and message can be separated, ideally they reinforce each other. Interest in form alone may indicate a paucity of vision to serve as content. Art that addresses people's deepest concerns is at least potentially meaningful, regardless of how the contemporary art world might judge the result or assess its place in history.

Perhaps the overall function of art in this age of automation and commercialism is to promote creativity without the usual goals: doing for its own sake rather than for practical, commercial or ideological reasons. Such creativity reflects the need to freely define ourselves and the world we live in, and not to be prisoners of biology, social conditioning, self-interest, money, mechanism, practicality, or reason. Science serves survival insofar as it accurately represents natural reality and allows us to predict and control it. Through technology, it helps us shape the world to our needs and liking, to free us from insecurity and material want. Yet it leaves unfulfilled a longing for sheer gratuitous activity, not bound by reason or the external world. Here art (like sport) comes literally into play and (like mysticism) reminds us there are no final answers. In a society dominated by practical goals, rational pursuits, reliable certainties, and the standard of objectivity, art reminds us of the spirit of play, the arbitrary, and the freedom to see and enjoy the world in one's own way, divorced from "reasonable" concerns. It also reminds us that the reality principle reflects our biological nature. Art may seek to reveal the Great Mystery that lies beyond the reality principle and the need to know. It cannot do this by arguing with reason, which is master of its own ground. Rather, it must show another way of perceiving and being.

9. Process or Product?

For many artists, doing art is a meditative experience more than the means to a product. As an activity, making art can free one from mundane or personal concerns and the ordinary passage of time. It is not just a means to an end, unless that end is getting out of one's skin or the everyday mindset. Art is then less a result than a process, in which each further step reveals itself, perhaps without conscious deliberation. Each brushstroke is a non-verbal revelation and also a choice, involving all the associations and rational connections the artist has made in previous reflection and study, potentially leading to new connections.

On the other hand, the practice of art may border on autism. It may neurotically establish a private realm that becomes the artist's sacred refuge and interface with the rest of society. To the degree it is valued economically and mythically by society, the public existence of an end product enables and justifies this refuge. The process of creating becomes an enclosed world, not so much because it excludes other people as because it intrinsically provides the elements of a self-contained realm—a game of solitaire played with imagination and real materials and processes. The studio, in particular, is the artist's *world*, a laboratory where the artist is undistracted and in charge.

Art is a form of self-employment. It not only inspires alternative objects and visions, but also provides an alternative work environment and relation to gaining a living. You can be your own boss, if at the price of an uncertain income. On the other hand, some artists now are rich venture capitalists and some collectors are but speculators. As in society at large, a small elite enjoys a disproportionate success. The headiness of the contemporary art world mirrors that of the world of investment, with its quick money and financial abstractions, raising questions about the very meaning of wealth—and of art.

While making art may be a private process and experience, as soon as it is shared it becomes consensual, interpersonal, subject to comment, judgment and categorization. It often becomes a commercial transaction. It also becomes an act of communication, or at least inadvertently reveals the mind of the artist. What was a subjective experience for the artist is then also an object for other people, who may have their own subjective experiences of it, including the pleasure of ownership. The artist herself may find a relationship to the finished work different from the involvement of the original process.

While religious art in the West served a didactic purpose, it could also serve as an aid to contemplation. In other parts of the world, too, it traditionally served that purpose, even when not explicitly religious. Indian and Tibetan mandalas, traditional Chinese and Japanese "landscapes," even calligraphy and flower arrangement have all been used to foster a meditative frame of mind both for the doer and the viewer. While there are now public art museums and galleries in modern Japan, art appreciation was traditionally a private experience—or one to be shared with friends in an intimate setting—focusing on a single art object.¹³ The context and setting was integral to the intended use and effect.

Marcel Duchamp was a meticulous artist who valued process over product. He singlehandedly began the destruction of the paradigm of art that had reigned since the Renaissance: the notion that art consisted of a certain type of object, usually with a definite meaning. On one level, this was a protest against "fine" art as a category and as a commercial product different from ordinary industrial products. On a deeper level, it reaffirmed art as a process, an investigation parallel to science yet complementary insofar as it affirms the role of subjective experience that science excludes.

Modernism freed artists from the goal-orientation prescribed by the representational paradigm. To the extent that artists could also transcend the need for commercial success (perhaps relinquishing even the claim to be doing "art"), their work could become an

¹³ Fosco Maraini Meeting with Japan Viking Press, 1959

exploration and an experience for its own sake—a path more than a product. Hence, many artists struggle less with acceptance by an art establishment than with the sheer economics of survival, trying to balance income against personal satisfaction. Some simply reject the prospect of showing in commercial galleries. For some it remains in the category of a hobby.

Of course, despite Duchamp, there is an ongoing art establishment. Art is big business as never before. In the first decade of the 21st century, annual world sales of contemporary art totalled around \$20 billion.¹⁴ Yet price is not the ultimate measure of the value of art in the upper echelons, where everyone has money, if not taste.¹⁵ It is rather the other way around: one's worth is validated by possessing coveted art treasures, which serve as the ultimate sign of class and repository of wealth. But what constitutes a "treasure"? A stuffed shark? Is something coveted simply because it is expensive, extravagant, or outrageous? Art (and modern art in particular) raises the problem of value in a general sense. Does it mean use value, exchange value, market value, status value, speculation value, education value, spiritual value, the value of enjoyment? How much money one would prefer to the valued object or service depends on a comparison with the other things that it can buy. The success of the capitalist economy depends on quantification of value, which nevertheless remains strongly subjective and qualitative.

The success of the international art market depends on gallerists setting and maintaining prices that establish, more than reflect, the market value of the artwork. Unless an artist gets represented in a mainstream gallery within a couple of years of graduation, her work is unlikely ever to achieve high prices, appear at auctions, be shown in magazines, or be re-sold for more than the original price.¹⁶ But, how to establish the price of talismans that are cherished because they put one in mind of the right attitude to have in life? Apart from the demands and illusions that determine market value, and the pronouncements of art academics, how does one assess the worthiness of a work of art?

Artists today frequently are concerned with process more than product, form over content. On the one hand, this responds to the potential of art to counterbalance the scientific and commercial ethos of our culture. On the other, it permits the artist to shirk responsibility for an overarching vision. By limiting its scope to process, materials, and the conceptual rules of an arbitrary art game, art may remain a relatively closed and parochial affair. Sometimes it is little more than an inside joke. It may thus remain safe from dismissal by the cognoscenti as naïve, unsophisticated, or amateur. On the other hand, it may remain safe from exploitation by political forces for "heroic" purposes (though they might denounce it as decadent). The artist in modern times passes between a Charybdis and a Scylla, between vacuous formalism and overblown pretention. The Renaissance artist was spared this dilemma and for the primitive artist it would have been inconceivable. While the imagery of Catholicism was certainly over-the-top, it was universally accepted for centuries and hardly perceived as a pretention. Whatever was on his or her mind, the Neolithic carver was not making a personal statement that risked ridicule. But the modern artist labors under a self-conscious history and

¹⁴ Don Thompson *the \$12 million stuffed shark: the curious economics of contemporary Art* Doubleday Canada, 2008, p57

¹⁵ ibid, p16 ¹⁶ ibid, p 42

personal subjectivity. From such a perspective, it is all the more challenging to conceive an art that is objective in the sense that, while honoring and using all one's subjective resources, it focuses on the Great Mystery that underlies all.

10. Conclusion

Vasari believed that art culminated in his own age. Perhaps that is a perennial fallacy, just as scientists have more than once thought their generation was converging on a finished portrait of nature. With modern hindsight, we can see that the evolution of art has moved far away from Vasari's vision, who no doubt would have viewed the history since Michelangelo as degeneration. Yet, we should by now know better than to predict where "art" will go next—which is only to say where people will go next in their creative expressions.

We began with the idea that art, like science and religion, is both an approach to the unknown and a defense against it. Art may criticize the reigning social order even while endorsing it. Just as science can be viewed as a lens through which to view nature, so art is a lens through which to view the human condition. A lens narrows and focuses awareness. It literally distorts the path of light, in a way that is felicitous for some purposes (such as seeing up close or afar) and perhaps not for others (such as having a wide field of vision). The lens of science translates natural phenomena into mathematical terms, which allows "seeing" into the future or past, but at the cost of looking only at very simplified phenomena. Art allows us to see alternative visions, which are also simplistic in comparison to natural reality. Like science, art is literally artifice. Yet it engages a different mentality, other ways of seeing, a different aspect of the human being, possibly a different worldview. While science attempts to close in on nature, art attempts to open up our vision of existence. Yet, visionary art can only exist in the context of business as usual—which in our era means under the blinding ethos of money, power, and dominant left-brain thinking. A "rational" player in economic terms has been defined as one who strictly pursues self-interest. It remains to be seen how long a civilization can exist under the reign of such a notion! However misguided, disorganized, and irrational art may seem as a human phenomenon, it names a diversity of efforts to save us from the consequences of imbalance. At the very least, it tends to be pacific and innocuous as an activity, keeping hot tempers off the streets! However kooky, as a presence in our culture it fosters diversity, curiosity, and appreciation—when not of beauty, at least of the dedicated efforts and insights of others. It incites tolerance.

What we need, of course, is wisdom, while what we have is a glut of information. We are overwhelmed by the seemingly known, which stands in for the less savory prospect of being overwhelmed by the unknown. This is the very function of modern busy-ness (and, of course, of business): to reduce holy terror by saturating it in the mundane. As Wordsworth complained, when modernity was only getting underway, the world is too much with us. For many people, religious icons no longer serve as *memento mori*, as reminders to wake up from the daily trance. There are few stop signs to prevent us from sailing blithely through the intersections of life. Tragedy serves that purpose for some. But art can too, even without a supporting religious context. That, I believe, should be the intent of art at the highest level: to lead us to wonder at the mystery of existence. Artists and curators can serve this end by clarifying their own intent, by not playing any but the highest and most worthy game they

can imagine. There is a corresponding truth for the consumer of art: value only what truly moves you and aids you in your own contemplation. Yet, regardless of artists' conscious purposes, and regardless of the uses to which their work is put, art continues to affirm an essential aspect of the human project in all its diversity.

ACKNOWEDGEMENTS

My grateful thanks for their ideas, comments, and suggestions go to Amnon Buchbinder, Gordon Payne, Alastair Heseltine, Rich Conover, Gail Sibley, Judith Snider, Grant McFetridge, and Judith Rudolph.