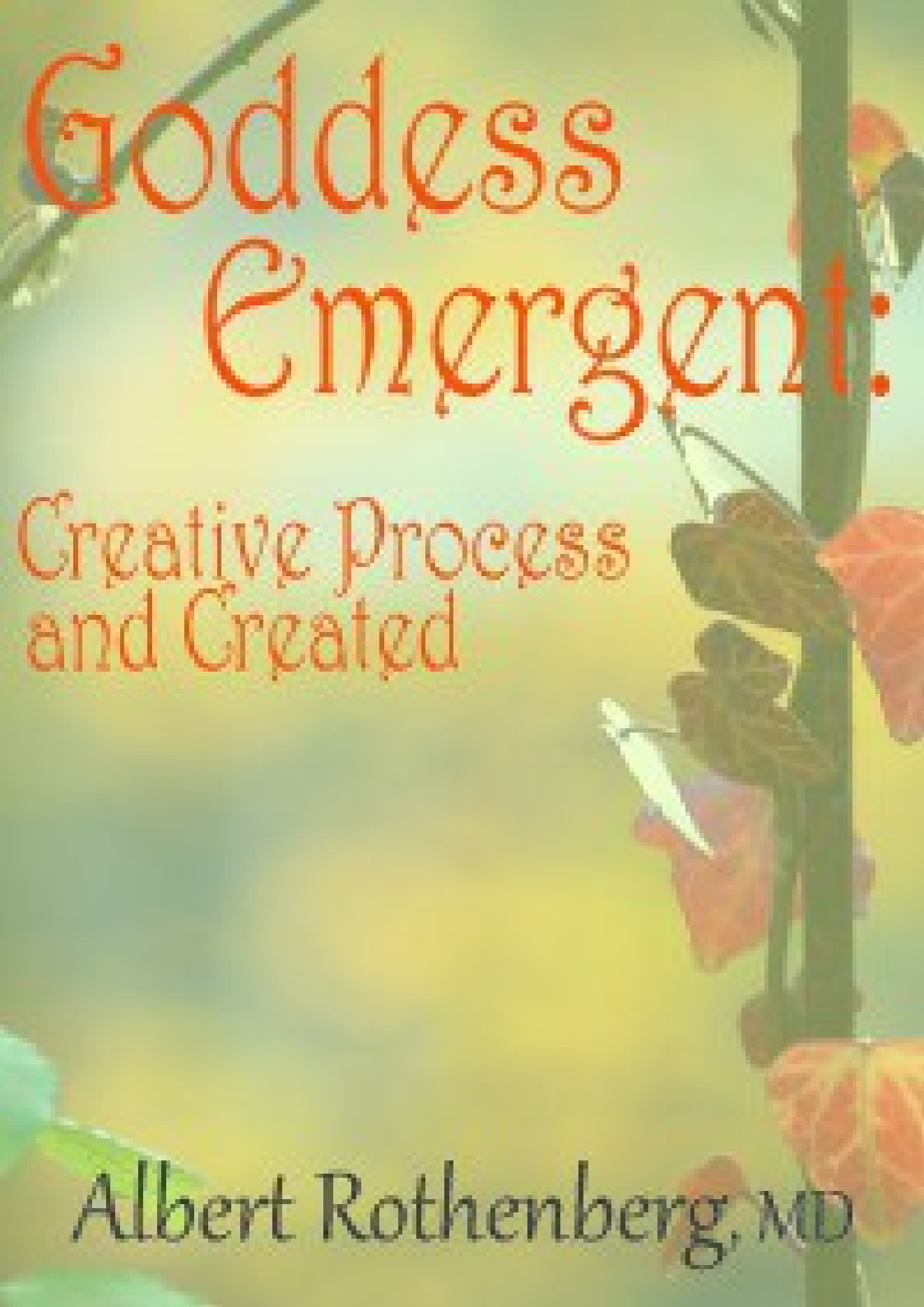
Goddess Emergent:

Creative Process and Created



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Creation involves intense motivation, transcendence of time and space, concentration, and the unearthing of unconscious material. The creative process is the mirror image of dreaming with special types of structurally and functionally reflecting and obverse cognitive operations producing creations. Dreams keep the dreamer asleep but creative processes and resulting creations arouse both creators and recipients. We value creations because they enlighten us, arouse us, excite us, awaken us, and enlarge our understanding of and our participation in waking life. With opened eyes, we are more adapted to the past, present, and future.

The picture of the goddess emerging is admittedly somewhat refined and abstracted. Missing are the richly detailed and concrete depictions of lives transformed and organized in the substance of creations, the day-to-day shaping and revising, the feats of memory and to some extent of intelligence, and the intense and rewarding love of materials including paints, sounds, words, formulas, test tubes, optical and electronic equipment, flow sheets, and ideas. That there is such diversity and richness in creation is one of the reasons I have conjured it all in the form of a goddess. No picture, especially a scientific one, could capture all the rich and diverse aspects of products that so directly incorporate the essences of life and of lives. Thinking of applying the model of creation as a mirror-image process of dreaming to all the concrete instances one knows about is, without copious psychological data, quite difficult. With respect to the matter of day-to-day shaping, thinking, and revising in the creative process, however, I want to make explicit a general conclusion arising from the account of the creation of the poem presented in early chapters. The mirror-image functions—janusian and homospatial thinking and others—operate throughout the course of the creative process from beginning to end. By and large, janusian thinking operates early during what has been called the inspiration or illumination phase, as distinct from the elaboration, working out, or verification phases later. But it also occurs later and during working out periods as well. Homospatial thinking occurs early, late, and throughout. Actually, the temporal distinction made between inspiration and elaboration in the creative process is an incorrect one; these phases or functions alternate—sometimes extremely rapidly—from start to finish. Both

janusian and homospatial thinking, therefore, operate during the long sequences of revising, shaping, and working out.

The rich details and the range of capacities associated with the emergence of the goddess should be borne in mind in the discussion to follow. Although specific backgrounds, motivations, and skills are required for creating in a particular field, I shall now be concerned with general aspects of creation in relation to resulting creations. I shall focus on the relationship between the mirror-image process of dreaming through which the goddess emerges from the mind of the waking and aroused creator and the nature and qualities of the prized and valued creation, the goddess herself. In relating the mirror-image processes to created products and creations, I hope to show some of the reasons for their wide operation in diverse types of creative processes. I shall be concerned not only with the new but with the valuable aspect of creations. Summarizing and elaborating suggestions made throughout this book, I also shall enter, in a broad way, into the domain of the psychology of art. Though I have rather scrupulously avoided this area up to this point—because, as I have emphasized, the creative process can be misunderstood when focusing primarily on the effects of its products—the psychological impact of the product does need to be taken into consideration. Factors in the creative process must have a connection to the nature of the product.

The creative process, as I have described it, consists of the creator struggling actively and adaptively to achieve certain goals. He works intentionally to produce a creation, although initially he may describe or formulate the task only in such terms as finding the best solution to a problem, capturing light on a canvas in the best way possible, or making an important "statement" about the nature of the world. Once he decides on making something, a painting, play, theory, or crucial experiment, he has directly begun the creative process, as I have defined and used this term throughout. During the course of the creative process, the creator predominantly uses abstract thought processes but to some degree he also unearths unconscious material. Although he is focused on the details and exigencies of the task, and therefore pays little attention both to the nature and structure of his thought processes and of the unconscious material unearthed, these factors determine important aspects of the product. Unearthing of unconscious material is not volitional in the same sense as deciding to create. The creator is always aware of wanting to find something out—the artist creator often is specifically aware of wanting to find out something about himself—but unearthing unconscious material is not a predominate goal. Creators intend to produce a

creation in a particular medium and they are consciously concerned about the stringencies of the medium—the scientific principles or the artistic rules and principles regarding color, composition, word use, content, and so on.[1]

The Creative Process and the Unconscious

Although creators are seldom manifestly or consciously concerned with uncovering their unconscious wishes, thoughts, and feelings, they derive some indirect gratification from this aspect of the creative process. Artists, for instance, often return to the same theme or image repeatedly in their works and, while they may not work through or resolve elements of unconscious conflict, they often arrive at some form of insight. Subjects of mine have reported a knowledge of searching for an adequate father, concern with ambivalent feelings toward a brother or a mother or a son, and concerns about heterosexual and homosexual feelings reflected in particular productions and throughout the corpus of their art. Visual artists also become focused on both content and formal factors having important psychological roots. The process of moving toward insight or uncovering unconscious material is gratifying in itself, regardless of the outcome.[2] Thus, it must properly be considered an unconscious, preconscious, or semiconscious goal of the creative process in art.

The unconscious material uncovered by the artist during the creative process is often incorporated, somewhat transformed, into the art work and this is one of the factors in the aesthetic appeal. Reassurance, identification, and insight, as well as a stirring of basic wishes, motivations, and emotions, seem to play a role. The appearance of what are usually frightening feelings and impulses in publicly exhibited form and the knowledge that the artist and other human beings share such feelings and impulses is reassuring to the recipient audience. There is also a heightened sense of recognition and an identification with the universal feelings and impulses presented; these produce a sense of expansion and a relatedness between the audience and the work, between the audience and the creator, and among the members of the audience sharing the experience. The audience may, in addition, experience an upsurge of their own unconscious feelings and impulses and, despite some anxiety, come away with newly achieved insights. Much has been written about the aesthetic appeal of the presentation of unconscious material in art and I shall not repeat it here.[3] Moreover, as I shall clarify later, the process of uncovering rather than incorporation of unconscious content into the work of art is very likely the more

critical factor in aesthetic appeal.

A common error in many psychoanalytic theories of art, that is, theories that relate aesthetic appeal to unconscious factors,[4] is the tendency to focus primarily on the content rather than the structure of artistic works. Thus, a good deal of attention is paid to the appearance of themes and plots embodying the Oedipus complex[5] as well as various types of symbolizations and manifestations of forbidden sexual and aggressive material. When structure is considered, it is almost invariably explained in terms of being a direct manifestation of the primary process mechanisms of condensation, symbolization, and displacement. Metaphors and rhymes are usually considered to be based on displacement, characters based on condensation, and images on symbolization.[6] According to such theories, whether explicitly stated or not, the structure of a work of art must have the same basis and psychological function as the structure of dreams. Carried somewhat further, manifestations of the artist's primary process thinking in works of art would appeal to, or reverberate with, the recipient audience's constant substratum of unconscious and primary process thinking during waking life.

The first aspect of the formulation, the idea of dream structure and artistic structure having the same function, is surely incorrect taken by itself because artistic structure has many functions other than impulse expression and disguise. Moreover, if art derived its power primarily from its resemblance to dreams, we might well have dispensed with art some time ago and only reproduced, viewed, and contemplated dreams themselves. The second aspect of the formulation, however, has merit and empirical support; there is good reason to believe, on the basis of clinical and experimental evidence, that art stimulates unconscious processes and has its impact on both a conscious and an unconscious level. Extensive clinical work with patients in psychoanalysis has yielded constant indications that particular art works stimulate deep unconscious concerns.[7] Psychological experiments have also demonstrated "symbolic" or unconscious sexual arousal in response to artistic works.[8]

The impact of art on an unconscious level is primarily due neither to the appearance of dream processes in art nor merely to the representations of unconscious material in the content of art works. Rather, it is the mirror-image factor in creativity that plays a crucial role. As mirror-image processes of dreaming, the types of thinking described here function to instigate the unconscious appeal of art. Because of the similarity—not the identity—between these operations and certain aspects of dreams and

of primary process mechanisms, a work of art interacts directly with unconscious levels in the audience or viewer. Because the artistic work embodies qualities derived from such processes as homospatial and janusian thinking, it resonates with the primary process mode. A characteristic feature of dreams and primary process operations, for example, is equivalence of opposites. In the service of impulse discharge and disguise, primary process thinking uses and represents opposites interchangeably in dreams and in unconscious thinking. Consequently, when opposites are presented as overtly or tacitly incorporated in a work of art because of the operation and instigation of janusian thinking, there is an effect on an unconscious level. For the recipient audience, there is a resonance and recognition at the level of primary process and unconscious thinking. The structure and/or the content of the presentation in the work of art is deeply familiar and, for many reasons, both stimulating and gratifying. Presentation of opposites together in a work of art is isomorphic with, rather than equivalent to, unconscious material and primary process representations. Opposites are meaningfully and plausibly presented together and the wish fulfillment of dreams is thereby connected to the realm of reality. Plausible connections among opposites go beyond the magical equivalence of opposites in dreams and the unconscious. One can have things "both ways" or many ways at once in a work of art and satisfy the demands of rationality and reality as well. Thus, presented or suggested juxtapositions of opposites in artistic works, regardless of the specific opposites involved, appeal on an unconscious level. When the specific opposites have personal meaning to the recipient audience, the impact is even greater. For example, in O'Neill's title for his play, The Iceman Cometh, the catchy simultaneous opposition of the biblical and therefore sacred word "cometh" with the mundane or profane "iceman" is a grammatically and aesthetically plausible construct. The phrase has nowadays even become widely adopted as pithy metaphor. As I have shown in another work on that play, numerous other simultaneous oppositions arising from the context of the play are represented in this title, including the coming of Christ and the antithetical coming of bleak salvationless annihilation or death, and the coming of Christ and the antithetical sexual "coming" or orgasm of an adulterous iceman. The particular juxtaposition of a sexual and a religious coming has, for those who see it develop in the play, the effect of a rather direct interaction with an unconscious level. The equivalence of the coming of bleak annihilation or death with Christ's coming is less wish fulfilling but it nonetheless stimulates plausible intellectual debate and resonates, for several people, with particular personal conflicts.

Not only do the compressed juxtapositions of particular opposites contained in such a title as The Iceman Cometh interact directly with the unconscious level, but broader, more sweeping oppositions emerging from the substance of a tragedy have a similar impact. In a temporally extended literary work, the juxtaposition of such opposites as cruelty and tenderness in the tragic hero, ambition and debasement, love and hate, pride and humility, is a cumulative effect. These oppositions, while conceived simultaneously by the creator, gradually unfold in the completed work. Reader or audience re-experience the initial juxtaposition either along the way or by the time they reach the end portion of the work, and there is unconscious resonance.

Embodiments and derivatives of homospatial thinking in a work of art also interact directly with unconscious levels. Both in dreams and in primary process thinking, spatial restrictions and spatial dimensions are characteristically ignored and distorted. The literary or linguistic, the auditory, and the visual metaphors derived from homospatial thinking all evoke, appeal to, and otherwise stimulate the wishes and experiences of that spaceless and isomorphic unconscious level. On the basis of clinical evidence, linguistic metaphors invariably have unconscious significance[9] and it is reasonable to assume that other types of metaphors also have unconscious significance in art. Metaphors represent and embody obliterated boundaries and they thereby evoke the boundaryless unconscious world. Particular discrete entities in the homospatial process producing the metaphor have—just as particular opposites within the janusian process—particular impact and personal meaning. Metaphors such as "spiteful sun" or "smiling sun" can, and often do, have the unconscious (and uncanny) impact of the sun seen as an actual smiling or spiteful human face. A metaphor such as "a tower of emptiness" will, for several, evoke unconscious sexual feelings and conflicts. Visual and auditory metaphors with nonlinguistic or nonspecific content will, if viewed and heard intently, produce subjective experiences reminiscent of the spacelessness of dreams and of the vividness resulting from the spatial compressions and distortions of the primary process. Fusion of elements in metaphors and in other aspects of artistic creations is particularly interactive with the unconscious level because it is isomorphic with primitive wished-for fusions of the self with others, such as the narcissistic fusions mentioned earlier. And as the homospatial process produces meaningful connections in art through rhymes, rhythms, double meanings, assonances, and alliterations, the primary process uses the same kind of sound similarities and ambiguities.

Neither homospatial nor janusian thinking, it should be emphasized, are exact mirror images of

particular primary process qualities or operations. Janusian thinking roughly mirrors equivalence of opposites and homospatial thinking mirrors so-called spacelessness and certain aspects of condensation and displacement. Janusian formulations sometimes inversely resemble condensations in that extensive areas of opposition are juxtaposed and compressed. Also, abstract symbolization in art, which is sometimes traceable to homospatial and janusian thinking and sometimes is an independent mirror-image function, is roughly the reverse of primary process symbolization. While concrete entities and situations are used as symbols representing abstractions in art, abstract symbols are used by the primary process as representations of the concrete.

In sum, although homospatial and janusian thinking are not primary process or unconscious operations, the creations they produce do evoke and interact with unconscious levels. Although the creative process is not a form of regression or a type of unconscious functioning, created artistic products have definite unconscious effects and appeal. Works of art represent and incorporate unconscious material and they resonate with the unconscious level of the viewer or audience. Consequently, they both reassure and stimulate some degree of anxiety. Contrary to some prominent artistic and psychological convictions and beliefs, the unconscious material in art does not result from a direct outpouring of unconscious derivatives during the creative process, a direct outpouring that is subsequently or concomitantly disguised by various types of formal aesthetic devices or by undefined or standard types of ego processes. The janusian and homospatial types of thinking are both ego processes. These ego processes are themselves focused on formal aspects of a work of art; they have a good deal to do with determining formal structures, and they also serve to unearth unconscious material that is incorporated into the content of the work. In addition, some aspects of the formal structure of a work of art resemble unconscious primary process mechanisms and such formal aspects thereby interact with and stimulate unconscious modes and associated contents. The creative process does not consist of an upsurge of unconscious material held in check or made appealing through formal devices, the focus on form is present throughout. Form itself stimulates unconscious processes.

Anxiety and Arousal

In everyday life, the interaction between conscious and unconscious processes is a highly complex matter. And surely this interaction is no less complicated in art. At times, as we have learned from clinical

and psychotherapeutic explorations, an upsurge into conscious waking life of material derived from unconscious sources is fraught with intense discomfort and anxiety. At other times when material from unconscious sources enters consciousness in the form of insight, there is considerable relief. Depending on the mode and circumstances, presentation of a word, an idea, or a situation touching on a person's unconscious feelings and conflicts may instigate intolerable anxiety and feelings of aversion. Or a fairly similar presentation may be reassuring and even stimulating as well as instigating feelings of attraction. Much depends on circumstances and mode of presentation, but some things are certain: anxiety is closely linked to unconscious processes and the balance between discomfort and attraction is a very delicate one.

Both quantitative and qualitative factors play a role. Anxiety is adaptive for human beings because, at a minimum, it alerts us to the presence of danger and prepares us physiologically to respond. Under general circumstances, most people characteristically experience anxiety as an alerting reaction that leads to learning and mastery over danger. For others, anxiety may characteristically be too intense and, rather than mastery, there is flight or inaction and failure.[10] When material from unconscious sources comes into consciousness accompanied only by mild or moderate anxiety, insight and subsequent mastery often occurs, when there is a large amount of anxiety, the experience may be overwhelming. This delicate balance is a factor both in the creative process and in the reactions to works of art.

I have already outlined some of the roles anxiety plays in the creative process. To some degree, anxiety is defended against and kept out of consciousness. Unconscious material is presented indirectly and in conjunction with abstract and other types of thought processes, much as it is in everyday life. Janusian thinking, in its initial phases and disassociated from the homospatial process, operates in conjunction with a defense mechanism, negation, which—like all defenses—protects against upsurgence of unconscious material and overwhelming anxiety. But this defense is more revealing than other defenses and the overall progression instigated by the mirror-image process is toward unearthing unconscious material, an unearthing that must engender a good deal of anxiety along the way. In addition to the empirical data presented earlier in this book, and other confirmation from my research interviews with writers documented elsewhere,[11] the proposition that anxiety is engendered during the creative process has been subjected to the following experimental verification.

In two separate experiments, one carried out with creative high school students and the other with

the proven highly creative writers who have been my research subjects,[12] a special procedure was employed to assess the presence of anxiety during various phases of the creative process. Words and phrases from the manuscripts in progress of an author's own completed poem or short story were used to construct a special word association test. This test was administered to the author in a special session. Measurement of anxiety in connection with particular words and phrases was based on time of word association response, or "latency" of response. Under instructions to respond to a word or phrase stimulus with the first word that comes to mind, responses taking greater amounts of time indicate more conflict and anxiety than faster ones.[13] Deleted words and phrases from the manuscript were used as stimuli representing early phases of the creative process and substituted words and phrases represented a later phase. Successive manuscript revisions were tested and compared. All words and phrases were chosen randomly and, in order to control for recognition and other factors, words and phrases from other sources were also used. The results from creative high school students were compared to noncreative or less-creative matched controls writing short stories in the same classes.[14] No controls for the prominent writer group were used.

On a theoretical basis, it is reasonable to expect that most persons will, in carrying out any form of personal or emotive writing, manifest greater anxiety in connection with early deleted material in their writings and less anxiety in connection with material that is substituted later. Roxon-Ropschitz has provided some clinical evidence for this with patients writing notes and literary pieces.[15] Disguise and defensiveness, along with straightforward correcting for errors and with emotional conflict, presumably play a role in revision. And indeed, the control group of high school students attempting creative writing showed much greater latencies and therefore greater anxiety with responses to their own deleted words and phrases than to their own substituted phrases and words from successive manuscript revisions. The creative high school group, on the other hand, showed significantly greater latency of response and greater anxiety with responses to their substituted and later used words and phrases from successive manuscript revisions. Moreover, the group of proven creative writers (all poets) also demonstrated greater anxiety, as measured by latency of response, with their substituted or later used words and phrases from successive revisions than with all other types of stimuli.[16]

These preliminary experimental results tend to support the observations from my research interviews that the creative process involves increasing anxiety as it progresses. The creator engages in a

task that makes him increasingly anxious as he pushes onward. And, as we know, he does this again and again, usually taking up another creative task as soon as he has finished the last one. Why? There are several answers to this question, but I shall focus primarily on one of them, a biological factor relating to both the creative process and the created product.

Anxiety is closely related to arousal, both physiologically and psychologically. Which one of the two factors is more basic is difficult to determine definitely at the current state of our knowledge. Generally, there is an admixture of the two factors; while arousal may be the more general undifferentiated state that initially gives rise to anxiety, experientially there is a quantitative factor in the interrelationship between the two. Moderate anxiety is virtually synonymous with arousal. We feel aroused when anything stimulates (at least) a moderate degree of anxiety; anything that arouses us can also make us moderately anxious.[17]

In chapter 2, I pointed out some of the ways anxiety and arousal are experienced as gratifying in both the aesthetic experience and the creative process. Crucial are both the manner of generation and the extent to which these factors are produced. Merely instigating arousal and anxiety, regardless of the manner and degree, is not necessarily gratifying in creation or in aesthetic experience. As a mirror image of dreaming, the creative process is more stimulating and arousing than ordinary modes of experience and the created product can instigate fairly elevated levels of anxiety as well. But neither the process nor the product produce overwhelming anxiety, for just as nightmares wake the dreamer and force him to end the dream, too much anxiety forces both the creator and the audience to abandon the creation.

In a major treatise on the psychology of art, Berlyne has set down an impressive amount of evidence indicating that arousal is a key factor in aesthetic appeal.[18] Generation of arousal by a work of art is, according to Berlyne, related to "collative variables" of novelty, expectations, complexity, conflict, ambiguity, and multiple meaning, as well as other psychophysical and ecological variables. In addition, he cites evidence that too much arousal is uncomfortable and that there are arousal limiting and modulating factors contributing to aesthetic appeal. He distinguishes between phenomena he describes as "arousal jags" and as "arousal boosts," a distinction based in part on the role and type of relief of arousal factors. Arousal jag refers to "a kind of situation in which an animal or a human being seeks a temporary rise in arousal for the sake of the pleasurable relief that comes when the rise is reversed."[19]

Arousal boost, which somewhat overlaps with arousal jag, refers to pleasure derived directly from moderate increments of arousal, a pleasure that is independent of subsequent relief and reversal. Underpinning Berlyne's formulations are some relatively recent neurophysiological discoveries regarding the mammalian brain, particularly the functioning of the reticular formation and the presence of what appear to be primary and secondary systems for reward and gratification.[20] Based on Olds's experiments with rats under conditions providing for electrical self-stimulation of the brain, the postulated primary and secondary reward systems are complex types of neurophysiological functions. Direct production of pleasure results, it appears, from electrical stimulation of the primary system. Stimulation of the secondary system, however, operates indirectly by releasing the primary system from the inhibiting effects of an organized aversion function. Berlyne's postulate, then, is that this primary reward system is also stimulated by a moderate arousal increase, the arousal boost, while increase of arousal followed by relief, the arousal jag, brings the secondary reward system into play. Relief or reduction of arousal inhibits the aversion system and thereby indirectly releases the gratifying effects of the primary reward system.

I cannot go into Berlyne's extensive documentation and experimentation pertaining to the importance of arousal in the psychological response to art. It should be clear, however, that his formulations regarding moderate arousal, arousal boost, and arousal jag apply equally appropriately to anxiety. Terms such as moderate anxiety and increase and relief of anxiety could be readily and consistently substituted into these formulations. Although Berlyne's commitment to an information theory approach causes him to focus heavily on stimulus complexity as an instigator of arousal, there need be no conflict with the emphases on unconscious sources of arousal and anxiety I have presented. In short, both anxiety and arousal generated during the creative process and the related anxiety and arousal stimulated by resulting products, works of art, have intrinsic psychophysical and psychodynamic properties connected with gratification.

Moderation, modulation and control seem to be key factors relating the anxiety and arousal generated during the creative process to the appeal of the work of art. Though the creative process characteristically involves a progressive uncovering of unconscious material with attendant anxiety, the progression, as we have seen, is slow, gradual—an arousal boost—and highly controlled. Indeed, in the early phases of the creative process, and in janusian thinking, defenses play a prominent role. Both the

janusian and homospatial processes focus strongly on formal aspects of the evolving work, such as contrast, conflict, irony, paradox, unity, and such a focus on evolving form and structure serves to hold anxiety in check. Only mild to moderate anxiety is experienced. When material derived from unconscious sources eventually enters more fully into the creator's consciousness, there is usually relief of earlier diffuse anxiety and arousal—the arousal jag—primarily because the creator is at that point more prepared to understand and incorporate what he is experiencing. Both the adaptive fusions of the homospatial process and the ego reinforcement due to progressive mastery and accomplishment during the course of creating facilitate this preparation. Because of adaptive fusions and mastery, there is also anxiety followed by relief all along the way. It is difficult to spell out the exact ongoing details of the delicate balances between discomfort and relief, attraction and aversion, throughout the process of creation, but it is certain that the creator cannot be overwhelmed by the anxiety involved. When he is, progress is severely retarded. In some cases, work continues but the product shows the marks of incoherence and extreme distortion resulting from the overwhelming anxiety of its creator. It is the mirror-image and primarily secondary process nature of the creative process that functions to keep anxiety within bounds, when primary process thinking holds sway, the creator has already become overwhelmed and, should the work continue, the resulting product shows the disagreeable effects.

For the audience of the work of art, the structure imparted by the mirror-image processes and the amount and explicitness of unconscious material presented in a work of art are factors in the degree of arousal and anxiety experienced. Appearance of unconscious material can be reassuring but, in the delicate balance, a good deal of anxiety can be stimulated. The structured, implicit, and moderate amount of unconscious material in effective works of art stimulates only moderate levels of arousal and anxiety. Mirror-image processes merely resemble primary process mechanisms; hence, they interact with unconscious levels and stimulate and unearth rather than discharge unconscious material, producing only moderate anxiety and arousal. When material derived from unconscious sources is presented directly in the work of art, the creator's insight about this material is usually presented as well. There is arousal boost and arousal jag. When primary process thinking and a more direct presentation of unconscious material predominate in a purported work of art, there is often intolerable anxiety and discomfort, and aversion results. Despite both the seeming freedom and the acceptance of the ramifications of the Oedipus theme and other unconscious material in modern-day art and culture, in

fact, such aversion still occurs. The outright failure of such modern films as George C. Scott's The Savage Is Loose, an explicit portrayal of mother-son incest, and of Elmer Rice's last play, Cue for Passion, an explicit rendition of the Oedipus theme in Hamlet, was certainly due in some degree to such aversion. In most cases, the source and nature of the anxiety experienced remains unconscious; sophistication and psychological defenses require that we not acknowledge fear in art—or, for that matter, in life.

In addition to the controlled and moderate unearthing of unconscious material, the mirror-image processes instigate arousal in another way. For the creator, the formal conceptual attributes of the initial products of janusian and homospatial thinking are arousing and dramatic. Homospatial conceptions initially involve rather dramatic fusions and janusian formulations, the bringing together of extremes and polarities. Unmodified, such conceptions entail a high degree of cognitive strain and tension and are highly stimulating and arousing. Used in their initial form directly in a work of art, janusian formulations particularly might produce an experience of excessive arousal and aversion. Or there would be another type of reaction to excessive arousal and anxiety—laughter and derision. Slogans such as "War is Peace" and other Orwellian "double think"[21] ideas or Mrs. Malaprop's humorous mixing of extremes, such as "our retrospection will be all to the future,"[22] are useful within the particular artistic creations to illustrate the anaesthetization of the populace and Mrs. Malaprop's character, respectively. These phrases are not themselves artistic creations because they are not modulated and integrated into a context indicating they could have plausibility or meaning. They are artistic devices illustrating human foibles within a creation and they function to produce excessive arousal, aversion, and release in laughter along the way.

A work of art based on constant juxtaposition of polarities of good and bad, of extremes of political ideology, of primary colors exclusively, often produces aversion, derision, or the reaction to excessive and persistent arousal we experience as boredom. So too, constant fusion and lack of differentiation can be wearisome and boring. Within the creative process, however, the aroused creator modifies initial extremes and fusions, sometimes at the moment or else immediately after he thinks of them. Janusian formulations are integrated through the homospatial process, and discrete new elements are separated out of homospatial fusions. Throughout the creative process, other types of modifications and other elaborations occur, and the original conceptions appear in the final product usually much transformed. This transformation of extremes and fusions results in a product that still conveys, in modulated form,

attributes of the highly arousing original conceptions.

With this introduction of the formal conceptual attributes of the mirror-image processes, I can now turn to other types of created products beside artistic ones and consider more general aspects of the relationship between the creative process and creations. While anxiety and arousal play a role in scientific and other types of creation, it is a rather subtle and recondite one. Therefore, the function of anxiety and arousal in other fields is best considered within the more general context to be elaborated next.

Specification, Symmetry, Encapsulation

Earlier, in the chapter on opposition (chap. 8), I pointed out some salient features of opposites in comparison with contrasts and differences. Opposites bear a reciprocal relationship with one another and they are more sharply distinct than are contrasts and differences. Opposites represent definite points on a scale or in a dichotomy and they are therefore more *specific* than other related entities. Thus, "cold" and "hot" are more easily identified in diverse contexts and located more specifically on diverse temperature scales than are either "cool" or "warm." Opposites, and antitheses as well, represent sharp contrarieties and extremes and are therefore clear reference points.

This quality of specification may be particularly important for the scientist but it is also enormously useful for any creator in the task he faces.

Though creating by human beings is surely not a matter of bringing forth something out of nothing, there are analogies between human creation and those mysterious and universal events that have given the word "creation" such honorific significance. For the human creator surely faces some type of chaos at the start. Knowledge and experience, despite the notable backlog of achievement stored up by civilized man, are always essentially the "blooming, buzzing confusion" characterized by William James. For artists and scientists as well as others, the task of creating is always, to some degree, the bringing of order to some area of knowledge and experience where chaos and the blooming, buzzing confusion reigned before. Small as it may seem in the face of such an enormous undertaking, the specification and organization provided by formulating and designating the opposites and antitheses pertinent to a

particular area of knowledge and experience greatly help in the task of creation. For the scientist and theorist, designating salient opposites and antitheses is an important aid in conceptualization. Though he may move away from and modulate formulations structured in such terms, in early phases they are extremely valuable. And they are no less important for the experimentalist within any field, because crucial experiments are seldom performed without a previous formulation of clear and specific, if not exclusive, alternatives. For the artist, designating opposites and antitheses seems, as I said earlier, to function as his only method of arriving at absolutes, absolute truth or absolute aesthetic categories, in what appears to be a relativistic world. Saying this, I do not mean to indicate that I know that everything is relative, nor that every artist necessarily believes that, but I mean that designating opposites and antitheses is one of the important methods available to the human mind for formulating absolute categories. Absolutes are always extremes. Every absolute has an opposite, and designating opposites is a way of suggesting and defining immutable or absolute factors. To say that human behavior can be described as either good or as its opposite, bad, implies an absolute standard. To say that maleness and femaleness are opposites, as we well know today, also implies adherence to absolute standards. Akin to the scientist, the artist may transform and otherwise modify the extremes he begins with, but they help him to start and they remain as underpinnings in final creations.

The creative process progresses from the formulation and specification of polarities, dichotomies, and extremes toward modulation. Rather than using diffuse or moderate elements and relationships at the start, and for some distance along the way, the creator is willing to deal with the risks of contradiction and conflict. He modifies and shapes the conflicting extremes in forming a creation. To leave things overtly as extremes would be uncreative. As reality seldom consists of extremes, his product would have little connection to the natural world. In the process of creation, there is a compromise between the needs of formulating along the way and the requirements of reality.

I have throughout this book given numerous examples of oppositions and antitheses conceived in the early phase of theory building and of artistic creation. Here, I want merely to point out a connection between opposition and creation that implicitly suggests a verification of the principles I have just described. In their accounts of the creation of the world and of the creation of all things, virtually all of the pre-Socratic philosophers described some type of separating out and interplay between various opposites: hot and cold, wet and dry, bounded and unbounded, fire and water, earth and sky. And

creation myths throughout the world and throughout the ages have very frequently emphasized formation of opposites of various types.[23]

Such ubiquitous connecting of opposition with the creation of the world does not, of course, necessarily point to an underlying fact about the nature of reality or about the origins of the world. Just because so many have postulated the idea does not mean it is intrinsically true. But the consistent connecting of opposition and creation could arise from a psychological fact. Human beings may have unwittingly connected opposition and world creation because they have, in their own creative activities, started with opposites.

Looking, for instance, at the account in Genesis as a product of human minds, such a factor seems to be operating. From the first words, the Creator is described as formulating and separating the oppositions of "heavens" and "earth."[24] There is "darkness upon the face of the deep," and the Creator produces light; next, He separates the light from the darkness and calls the light, "Day," and the darkness, "Night." Immediately following, He separates the waters above from the waters below. Then, gathering the waters below into one place, He creates the "dry land." The sequence of oppositions is dramatic. Hardly an accidental sequence, it seems to represent a projection of human thought processes onto the first creation. Considering it a product of the mind of men, some might relegate it to a dualistic or more primitive mode of thinking characteristic only of ancient pre-civilized times. However, without even considering the importance and any particular metaphysical interpretations of these lines, the durability of the passages throughout the history of Judeo-Christian civilization suggests acceptance at periods of highly sophisticated levels of thought.

Formulations of opposites are an aspect of the janusian process, and such formulations function in creating to bring specificity out of undifferentiation and chaos. The specificity achieved during the process of creation, though it is later modulated and transformed, helps to determine the eventual shape, clarity, and order of the created product. These resulting qualities are intrinsic to the value we accord to creations in art, science, or any field; they help provide definition, communicability, vividness, and comprehension. Formulating opposites and antitheses is not, of course, the only possible means of producing specificity. But janusian thinking is a sure, clear way of developing specificity, specificity that combines with other functions in imparting value to creations.[25]

Another function of the janusian process is the production of symmetry. When opposites or antitheses are brought together, the elements in the resulting conception are symmetrical. In the pure case, opposites or antitheses are totally reciprocal with each other, reversed or in conflict in one significant feature but in all aspects equal and fully matched. Thus "odd" and "even," "always" and "never," "Democrat" and "Republican," "north" and "south" are fully equal aspects of the contexts or the scales in which they are opposed: numbers, time, American political parties, compass direction, respectively. Earlier, of course, I emphasized that it is very difficult to establish perfect reciprocity in the case of a particular set of opposites primarily because of the difficulty in limiting words and concepts to any one context. Also, I emphasized the importance of the difference between opposites rather than the similarity. Nevertheless, the matching and the similarity must now be brought into focus because, regardless of whether it is possible to describe and define full reciprocity in any one particular case, the symmetrical quality of janusian formulations is clear and apparent. To say, for instance, that odd and even are the same would incorporate the entire world of numbers symmetrically; neither side of this janusian equation can have more numbers than the other. And this symmetrical quality, or, if you will, this thrust toward symmetry, is an aspect of janusian thinking that contributes to the construction of creations.

In science, symmetry characteristically plays an important role in conceptual model building. Scientific theories constantly move in the direction of formulating symmetries regarding each and every aspect of the physical world. Thus, there are levo and dextro molecules and compounds, dominant and recessive genes, anabolic and catabolic processes, and so on. Whether this tendency is derived from a deep intuition into the structure of the world, an anthropomorphic type of projection of the symmetrical qualities of our bodies onto the physical world, or an aesthetic feeling is not clear. Following the principle of constructing symmetrical models, however, has resulted in a great deal of scientific advance. An interesting case in point concerns the theory of the "conservation of parity," the postulate that the laws of nature applied equally to both left and right particles. When the Nobel Prize-winning physicists Lee and Yang produced evidence disproving and overthrowing this theory, there was consternation and shock throughout scientific circles. In recent years, however, new theories and new evidence have developed which seem to point to another more inclusive principle of symmetry in the physical world. Janusian formulations, as they may postulate the simultaneous existence of heretofore unknown opposites and

antitheses, facilitate the discovery of new symmetries.

In art, the symmetries formulated initially in the janusian process often function to impart fundamental balance and proportion to a completed work. Such balance and proportion also seems valuable in science, where theories that are elegant and aesthetically pleasing often seem to be the most salient and useful, and this could well be a major factor in the scientific creator's use of janusian thinking. It must be said, however, that symmetry alone does not impart value to a work of art, and an exclusive focus on symmetry in science also can be misleading.[26] In modem times, there has been a tendency in the visual arts especially to emphasize asymmetrical rather than symmetrical forms.

Essentially, the symmetrical thrust is an ordering principle, helping to give form and balance to the substrata of knowledge and experience that are bases of art and science as well as other pragmatic and theoretical fields. Janusian thinking, as it operates characteristically in early phases of creation, produces an overall order even when there is asymmetry in the completed work. Aspects of janusian formulations may be transformed into asymmetries. These aspects may function side by side with other processes oriented to asymmetry or, in cases where antitheses are not completely reciprocal, there may be some degree of asymmetry at the start. Regardless of the particular asymmetrical details in a creation, there is almost invariably a sense of overall balance, proportion, and order, whether it be the feeling of equipotent forces in a tragic conflict in literature, alternation between rest and motion in music, congruence between the bounded and unbounded in the visual arts, or coordination in various aspects of a scientific theory. The symmetrical structure of the janusian formulation leaves its mark.

Both symmetry and specificity are constant properties of opposites and antitheses, taken together or in sequence. Because of the simultaneous opposition and antithesis in janusian formulations, however, there is also a distinct tension among the elements. Both the symmetry and specificity, therefore, are in dynamic states; there are forces tending toward diffusion and reduction as well as toward elaboration and enhancement of these characteristics. Properly speaking, there is dynamic symmetry and dynamic specificity. Generative of other forms and formulations during the creative process, the dynamic specificity and symmetry produce constant shifts of affective and conceptual tensions and relationships. In art especially, the dynamic factor contributes to a constant interaction among elements that is retained in the final creation. Dynamic symmetry and specificity, rather than static balance, harmony, and fixed

meaning, characterize the artistic work. Beyond this, the simultaneity of opposition and antithesis in the janusian process relates to another creative function of this form of cognition, the function of encapsulation.

Although encapsulation potentially involves highly complicated enfoldings within protected boundaries, the janusian process only serves to provide the basis and structure for this phenomenon. The encapsulation function of the janusian process is best understood by focusing on opposites and antitheses as polarities or extremes. Polar opposites, such as liberty and slavery, good and bad, hard and soft, top and bottom, are the limits, respectively, of their categories: restraint, value, consistency, vertical direction. More complicated polarities, such as radical and reactionary, are the limits of complex dimensions of human ideation and behavior: politics, ideology, Weltanschauung, artistic preference. Regardless of the nature of the dimension or context, polarities are, by definition, the limits, and reference to polarities helps to define a context. Thus, we ask: "What is temperature?" and both our usual association and our answer are: "hot and cold, a scale from hot to cold." And: "What kinds of ideology are there?" Answer: "They range from radical to reactionary." Or: "What is vertical direction?" Again: "Going from down to up or vice versa." Of course, many variations on these answers are possible, but my point is that our understanding of a context, category, or dimension is inextricably connected to limits. Asked in the reverse way: "What are hot and cold?", the succinct answer would be: "The limits of temperature." Or, "What are radical and reactionary?" and a specific succinct answer would be: "Extreme types of ideology." And: "What are up and down?" Answer: "Verticality." Reference to limits and polarities, in other words, implies an entire dimension.

Reference to limits is one of the most economical or concise ways to concretize and define a field or dimension.[27] Knowing the limits provides a basis for storing and extending knowledge. Given a knowledge of the content of both the radical and reactionary points of view on a topic, many variant positions can be deduced. The limits clarify the nature and content of intermediary factors. With respect to encapsulation, referring to limits can stimulate associations to information and experiences pertaining to any or all the phenomena involved in an entire dimension. By bringing together polarities and limits simultaneously in a janusian formulation—even though they are in conflict—an entire dimension potentially is encapsulated. An entire system is suggested. And one of the reasons the creator engages in janusian thinking is that, consciously or unconsciously, he is attempting to accomplish just such a goal—

he is attempting to encapsulate a dimension or, in a sense, a world. When Einstein, for instance, brings motion and rest into a unitary conception, he is attempting to encapsulate the entire domain of gravitation and electromagnetic induction. When the artist brings human and beast into a unitary conception, he is attempting to encapsulate the world of sensate living things. Although particular polarities can refer to more than one context, little difficulty for the creator is produced. The scientist knows the context he is concerned about and the artist is quite pleased when a particular set of polarities defines and suggests several contexts at once.

With respect to opposition and antitheses based on cut or dichotomy rather than on polarity, the principle of encapsulation also applies. While left and right or man and woman may not necessarily be polarities, a set of such opposites does define a context, a dimension, and a world. Rather than defining limits only, opposites based on dichotomy define the halves of a dimension or contexts in a general way. Within the creative process, such opposites might be brought together first and the contents of their encapsulated type of world or dimension later elaborated. As there is such ready shifting between oppositions of dichotomy and oppositions of scale—left and right halves thought of as left end and right end, for instance—the difference can either be negligible or it can be used by the artist creator to formulate and work with more than one type of context. When an artist visualizes a scene for a landscape painting, left and right, for him, may encapsulate both the context and the contents of the scene entirely. And a poet may conceive both that left and right hands and that radical and reactionary are the same.

In scientific creation, the structure of encapsulation is, along with symmetry and specification, an exceptionally valuable tool. The scientist brings an entire dimension of knowledge into a unitary conception—Darwin brought the entire domain of adaptation and maladaptation together when reading Malthus[28]—and he thereby pinpoints and resolves basic questions. He formulates underlying polarities and dichotomies in an area of confusion, brings specificity and symmetry through particular salient opposites and antitheses, and through encapsulation his solutions incorporate and circumscribe the total context. Adaptation and maladaptation encapsulate evolution of living things and potentially apply to all evolutionary processes. In such fashion, scientific and other intellectual systems are created and developed.

For the artist, encapsulation functions to compress[29] his world of absolutes produced through the

specificity and symmetry of opposites and antitheses. Bringing together the limits, halves, and polarities of a dimension of experience through a janusian conception, the artist suggests the contents and defines his realm. The resulting images, structures, and concrete objects are rich in suggestion and ramification throughout the realm, both for the artist himself and his audience. When an iceman and Christ are equated, the implications and ramifications extend throughout an entire domain bounded by sex and religion. For the artist especially, the more opposites and antitheses included, the greater are the ramifications and the worlds potentially encompassed.

To some extent, encapsulation, along with multiple opposition and antithesis, introduces ambiguity into artistic creations. Among modern critics, ambiguity has been heavily emphasized as a factor in aesthetic appeal. While production of such ambiguity could surely be considered to be one of the functions of janusian thinking, a particular caution about the term "ambiguity" must be stressed in connection with literature and with art. Aesthetic ambiguity could not consist merely of indefinite or indeterminate meaning. Such ambiguity would be merely confusing and incomprehensible, and consequently of little value. Structured and defined ambiguity suggesting and yielding multiple meanings is the valuable, or the aesthetic, factor. Such definition and structure is not overt but implied, and consequently there is a quality both of indeterminacy and of control. Because of the specificity of opposites and antitheses, there is definition within the ambiguities derived from the janusian process. There is creation rather than diffusion and disarray. The type of ambiguity developed, a specific and controlled type of ambiguity, contributes to the ordering and richness of artistic creations. Burgeoning out in the final product is the compressed, specific, symmetrical world encapsulated in the janusian process.

Unity and Fusion

The ordering features of janusian thinking have much to do with the process of separating out and creating out of chaos. More is involved, however, to produce the fully separated and organized entity we esteem as a creation. With art especially, we use the term "creation" because the art product is virtually a living breathing object, fully formed and distinct with all its parts interacting, nourishing, and enhancing each other. The outstanding art work has what is called "organic unity," a quality well highlighted by Emily Dickinson when she asked her sometime mentor, T. W. Higginson, "my verse . . . do you think it breathed . . . ?"[30] Although many factors surely come into play to produce such perfect lifelike unity as

Dickinson asked about, the homospatial process functions importantly in the production of organic unity in works of art. Through the homospatial process, discrete entities are fused and superimposed without losing their distinctiveness; they continue to interact and relate to one another. Both particular opposites and antitheses forming the encapsulations of the janusian process and other types of discrete entities are integrated into unified artistic images, conceptions, and metaphors. Horse and human are fused as the central unifying image of a poem. The coming of an iceman and a Bridegroom (Christ) are fused into the metaphor "the iceman cometh," a metaphor that embodies the central unifying conception of a play—that men need illusions about sex, faith, hope, and salvation but deception and death are the only realities. Fusion of particular rhymes, and sound similarities relate meanings with poetic images, producing unified form and content within a poem. In music and the visual arts, discrete sound patterns and visual entities are fused and superimposed to produce compositions in which elements interact and relate throughout. Unification in all forms of literature of the factors of concrete events of plot, values, and characterizations results from the fusion of author's self-image, images of other real persons, and plot constructions. And throughout all art forms, abstractions are rendered into related and interacting concrete forms through the homospatial process.

Metaphors, both the particular linguistic, auditory, and visual ones, and the more general type characterizing an entire work of art, exemplify the unity produced through the homospatial process.[31] As shown in chapters 9 and 10, metaphors are unities consisting of discrete and oftentimes disparate elements that interact and relate to each other within a larger context or a whole. The metaphor "the branches were handles of stars" has an impact as a whole unified phrase, suggesting a feeling of upward striving or an image of tapers and torches, and, at the same time, the particular elements—branches, handles, and stars—interact with each other and call our attention to particular qualities of sound, shape, and meaning. So, too, the play Hamlet and the character Hamlet can both be considered to be metaphors: they each have an impact as a whole. Also, there are the discrete interacting qualities of contemplation and action arising from defined sequences within the play, and the character Hamlet has discrete interacting features. Moreover, like all metaphors, both the play and the character Hamlet have no literal meaning; they are figurative representations of reality rather than direct or literal copies. The metaphor "the branches were handles of stars" surely does not indicate an actual equation of branches and handles; it represents an idea or experience. So, too, Hamlet, though he seems quite real in the play,

is not the product of a tape-recorded transcript; he, like any artistic product, represents far more than the literal facts portrayed.

Auditory and visual metaphors also have representational qualities because they are derived in some way from real sounds and sights. As sounds and sights are far less specific than words, however, representation is more diffuse. By and large, auditory metaphors are unities derived from the context of a particular work; they are fusions and superimpositions of patterns appearing in the particular work although these patterns also relate to, and to some degree represent, other works of music and other sounds and rhythms. But the differences between the various types of metaphors are matters of degree rather than of kind. Linguistic metaphors are highly referential and therefore they, more than auditory metaphors, relate to phenomena outside the work. Thus, also more than other types of metaphors, linguistic metaphors can be understood and to some extent appreciated outside of a particular work. Reference and representation, however, are not primarily responsible for their aesthetic effect. Just as with other types of metaphors, linguistic metaphors unify discrete and disparate elements in the work itself. They represent other elements in the piece as well as specific elements in reality, and they derive their fullest power as unifiers within the particular context of the work. The general Hamlet metaphor I described can only be fully appreciated by reading or by seeing the play.

Because metaphors both relate discrete and disparate elements in a work of art and are intrinsically related to the context of the work, they play a crucial role in producing organic unity. This unity is organic in a double sense: first, metaphorical elements are in a dynamic relationship with each other; they modify, interact, and relate within a larger whole. In this, they are quite analogous to the nourishing, enhancing, and interacting qualities we associate with organisms. Second, because metaphors are never literal, can never be understood as purely literal or as purely referential statements or structures, they do not have a one-to-one correspondence with reality. As non-corresponding and nonliteral statements, metaphors are sharply distinct and separated from reality. Thus, they help separate the work of art from the reality outside and around it, the world of actual sounds, sights, and doings. With this separation, metaphors help impart boundaries to the work of art, boundaries that are not merely the frame around a painting nor the beginning and end of a play, novel, or musical work, but psychological and aesthetic boundaries. They form an integument around the artistic work analogous to the skin and other boundaries separating and defining a living organism, they separate the work from

everything in its environment and interrelate with—nourish and are nourished by—other elements within the work.

When metaphors are developed from the encapsulation structure produced by the janusian process, the janusian and homospatial processes function concomitantly. By fusing and superimposing encapsulated elements and boundaries developed from janusian thinking, the homospatial process imparts integration and organic unity. In a sense, the homospatial process animates the boundaries and encapsulations derived from janusian formulations by interrelating them within a larger whole, a particular or a general metaphor. The oxymoron type of literary metaphor, for example, "penniless rich palms" of Hart Crane,[32] is an obvious example of the results of janusian and homospatial thinking operating close together. And, as Beardsley and others have so cogently shown, most literary metaphors have implicit oppositional and antithetical properties.[33] Explicit simultaneous antitheses, such as those displayed by many oxymorons, tend to be too arousing and therefore less effective in art. Implicit simultaneous opposition or antithesis, as produced by a more extensive fusion within the homospatial process, is a stimulating and vital feature of numerous literary metaphors. And auditory, visual, and other types of metaphors, including the larger metaphor of an entire artistic work, also often have oppositional and antithetical qualities.

Fusion, as Dewey and other aestheticians have suggested,[34] is a salient feature of artistic works and an important factor in aesthetic value and appeal. That homospatial thinking and other related thought processes account for much of the fusion experienced in connection with works of art is highly likely, but this is a topic for further research. I must restrict my discussion about this highly fascinating area to one aspect of the aesthetic experience of fusion that seems directly traceable to the effects of the homospatial process, what Straus called "homogenization of space."

In a remarkably insightful and provocative article concerning the nature of spatiality, Straus pointed out that all perceptual experience has spatial aspects.[35] With particular reference to the auditory sphere, he developed a distinction between the spatial characteristics of noise and music. Noise, he said, puts us in mind of particular locations in space while music does not; music therefore homogenizes space. When we hear a noise, we are distracted; we turn to find the source of it and we are put in mind of a specific location, a particular source from which the distracting sound arises. When we hear music, we

know that it is produced by an instrument or by instruments in a particular place, but, in distinction to the experience with noise, we do not search nor are we expressly mindful of definite and distinct location. Music homogenizes space in the sense that it seems to fill uniformly all space in our immediate environment. Moreover, music seems to penetrate our bodies and to fill our consciousness, obliterating all felt distinctions between inner and outer space and producing a sense of uniform continuity everywhere. The quality of distance between the hearer and the source of music is overcome.

Straus went on to state that all forms of art produce a similar experience: "art is able to overcome apartness and distance and to create a second world by proclaiming the harmony of appearances."[36]

His analyses and formulations regarding music and other types of art are surely cogent and meaningful for anyone who has introspectively contemplated the nature of the aesthetic experience. Although Straus himself made no explicit distinction between the effects of good and bad art, we can most assuredly consider that the homogenization of space and the overcoming of distance he described are connected only with successful creation. There is nothing intrinsic in merely producing musical tones or rhythms, nor merely putting visual forms on a canvas, working on novels, and the like that would automatically produce such experiences. Therefore, to extend his analysis, this homogenization of space can be explained on the basis of a fusing of elements in a good work of art, a fusing that obliterates boundaries and separations. In listening to a good musical composition, fusions of discrete patterns of sound and rhythm—not only tones or other individual elements—lessen the distance and homogenize space. In viewing a good painting, the viewer's awareness of the fusion of background and foreground, of sides, and of juxtaposed patterns of shapes, textures, and colors, intensifies and brings to consciousness an exciting sense of the painting transcending the boundaries of the canvas and the frame, filling the surrounding space, and "moving" toward the viewer.[37] In a complex way, literary metaphors and other fusions in literature produce a similar overcoming of the sense of distance.

Though a good art work is bounded and unified, it also has these properties of transcending its boundaries, interacting with the consciousness of the viewer or audience, and overcoming the sense of distance. In this respect, art is also analogous to a living organism, for, while we are aware of the separateness and integrity of a living being—particularly, of course, another human—we also experience variations in our sense of distance from others. Human interactions may also be said

sometimes to "homogenize" space and sometimes to emphasize distinctness and separateness.

Fusions in art to some degree, and unity in art to a larger degree, are the result of homospatial thinking. In scientific creations, the factors of fusion and unity seem not to play as important a role as in art except that, to reemphasize a connection, scientific theories often have definite aesthetic qualities, qualities intentionally sought by scientific creators. The unifying function of homospatial thinking seems actually to be most apparent during the course of the scientific creative process rather than in the direct construction of the final product. While working out early ideas and constructions, the homospatial process helps the creator to develop unities between abstract formulations and the world of concrete phenomena. Abstract ideas are translated into spatial or concrete terms, or spatial phenomena are fused to yield abstract ideas as in the example of Poincare's and Hadamard's discoveries. Janusian formulations are integrated, and specific metaphors are produced which aid in conceptualization and scientific model building. Such metaphorization is also important for creative thinking in philosophy, engineering, politics, advertising, and business, to mention some other fields particularly.

Scientific creations do not derive their value primarily from attributes of organic unity or fusion but they do, at times, manifest an amazing degree of unity, or similarity at least, between the structural properties of human thought and perception and the structure of nature. Left- and right-sided molecules, positive and negative electricity, matter and antimatter, are cases in point.

Articulation and Freedom

In the process of creation, the progression from chaos and the blooming, buzzing confusion to a formed new and valuable entity, there initially is separation of specific elements and then a unification. In the overall sequence, janusian thinking with its specification function bears the brunt of separating out specifics in the early phase. Next, homospatial thinking, through fusion and superimposition, effects a major proportion of the integrations and unifications. The janusian and homospatial process each also have both separating and unifying aspects; both operate independently and together as well as in somewhat different sequences. Symmetry and the encapsulation aspects of janusian formulations produce an aggregating effect that tends toward unification, the unifying function of the homospatial process serves to organize and thereby to give distinctness and boundaries to both portions and the

whole created product. Boundaries and limits are also defined by the particular opposites and antitheses involved in janusian formulations.

Whatever the sequence or the particular aspects responsible, and beyond the functions only of the homospatial and janusian processes, the creative process in any field is best characterized in terms of bringing together and separating. The creative process is a matter of continual separating and bringing together, bringing together and separating, in many dimensions—affective, conceptual, perceptual, volitional, physical—at once. There is differentiation, diffusion, redifferentiation, connecting, and unifying at every step of the way. All these functions produce entities that are independent and free from the initial chaos.

Best describing this phenomenon is the term "articulation." The term is appropriate in many different ways. First, as generally used, to articulate is to make something, give it form, or bring it into being; therefore, the term overlaps to some degree with "to create." Second, the root meaning of articulation is "joint," such as a joint between two bones in the body. The nature of a joint, though it may not be apparent without some thought and consideration, is to be both a connector and a separator at once; a joint both connects and separates bones or other objects. This quality of the joint is reflected in the use of the word "articulate" to apply to a style or characteristic of speaking and presentation. When a person is described as articulate, or as speaking articulately, the essential meaning is that he speaks both fluently and clearly. He both joins his words or ideas together into a smooth and flowing production, and he differentiates and separates his words and ideas clearly so that they can be readily understood.

The creative process is a process of articulation. To recapitulate the model: "The earth was without form and void, and darkness was upon the face of the deep . . . and God said, 'Let there be light'; and there was light. And God saw that the light was good; and God separated the light from the darkness. God called the light Day, and the darkness he called Night. And there was evening and there was morning, one day" (Gen. 1:2-5). In the description, light is first formulated as the opposite of darkness. Both light and darkness then coexist simultaneously until they are further separated. Next, they are brought together in the context of a day. Such bringing together and separating and bringing together—articulation—characterizes all phases of the creative process. Beginning with undifferentiated knowledge and experience, the creator proceeds through differentiation and joining, expansion and

constriction, stray pathways and returns, diffusions and sharpenings, fantasy and reality, world visions and narrow technical concerns, cultural concerns and individual preoccupations, art styles and personal styles, arousal and ratiocination, abstraction and concretion, breaking and making. Always, as there are factors and processes tending toward diffusion and expansion, there are equally strong factors and processes directed toward differentiation and joining.

A particular case in point, an illustration of the pervasiveness of articulation, is seen in the handling of errors during the creative process. Creative people, I have found, handle errors in such a characteristic way that it is fair to label this as a special mark of creativity. Whereas most people carrying out a very difficult task, as creating unquestionably is, tend to be rather careful, controlled, and constantly wary of making errors, such is not the case with the highly creative. While engaged in the creative process, they feel free to range far and wide, take chances and think thoughts that invariably lead to some error. Characteristically, when such errors appear, there is not a good deal of distress and consternation, but a virtually immediate attempt at articulation. Misses and mistakes are, if possible, joined into a whole. Significant elements in the error, ranging from a slip of the paintbrush to the growing of mold on a petri dish, are separated out, and an attempt is made to articulate them into the corpus of the work in progress and, at the same time, to join each together. In other words, the error may be incorporated into the work or, if it is suggestive, it may lead the entire work into completely new directions.

Such an approach to errors and mistakes could in part be classified as a type of flexibility of thinking, an attribute that has long been known to be a general characteristic of creative people. Also, there is a willingness to learn by experience and to consider the significance of wrong results, capacities that are very advantageous for creating or for any type of high-level intellectual pursuit. Articulating errors during the creative process, however, consists of more than these types of capacities and approaches. Not only is it seeing how an error changes an initial conception or belief, there is a special allowing of, almost a courting of, errors and mistakes. There is sometimes even some pleasure connected with their appearance because of past successes. They are not purposely introduced, but as soon as they appear the creator engages in an active process of making in which errors are transformed into something else.

The creator's willingness to articulate whatever arises, to commit errors and to range far and wide

in any direction during the creative process, connects to and, once again, mirrors, the experience of dreaming. Dreams appear also to be extraordinarily free forms of thinking in which anything happens and any image can appear. In distinction to the virtually limitless freedom of the creative process, however, there are definite limits and restrictions in dreaming. Representations in dreams appear free and wide-ranging but the underlying forces producing these representations are not at all free. When, as mentioned earlier, dreams come too close to revealing unconscious wishes and impulses, they are abruptly terminated and we wake up. In this respect, the creative process is a good deal less restricted. Because of the structural control of the mirror-image processes and because of the creator's willingness to articulate anything that comes up, he can often explore more perilously close to forbidden unconscious wishes and impulses. And he can tolerate considerably more anxiety in waking life than is possible during dreaming. Consequently, his entire range of thinking is freer. As the creative process unearths unconscious material to some degree, it is much less restricted by unconscious processes—unconscious factors exert their effect on consciousness because of being unconscious—than are dreams.

The mirroring similarity and reversal with respect to the range and freedom of thinking are paralleled with regard to arousal. Although dreams seem to be very stimulating and arousing while we are dreaming, they cannot actually be arousing to any degree or intensity because we would then be awakened. In the creative process, on the other hand, a good deal of arousal is possible because it is carried out completely in a waking state. When too much arousal occurs during creating, it leads to a desire or an attempt to escape including drowsiness or a wish to sleep—on the basis of recent dream research there is also perhaps a need to dream at such times—but sleep seldom is easy to achieve under such circumstances. Termination of the project or further articulation are often the only alternatives.

I have characterized the creative process as arousing and anxiety inducing and emphasized a progression toward unearthing unconscious processes. In relating arousal to moderate levels of anxiety, I have said little about other affects or impulses that can be included in the aroused state such as sex, love, anger, curiosity, attraction, aggression, and indeed the entire gamut of functions associated with stimulation and activation. All, depending on the type and the content of a particular process of creating, are, at different times, variously involved. Curiosity, for instance, could be said to arise out of a diffuse, alerted state of anxiety, both before and during the creative process. The creator is curious because of a diffuse feeling of mild or moderate anxiety that alerts him to the need for information or action. Sexual

impulses aroused during the creative process might induce conflictual anxiety because they are forbidden or because they require discharge. Or the alert, moderately tense state connected to creating gives rise to feelings of attraction and the need for sexual discharge. Little documentation of the manifestations and permutations of these factors is possible because little is known about the complex interrelationships of particular emotions, alerting and arousal, and particular impulses. With respect to the general emotions and motivations of the creative process, however, one matter surely returns yet again from the early portions of this book: why does the creator seem to court anxiety? Why does he engage in an activity and a process during which he could readily be overcome with anxiety when most people avoid such risks?

In emphasizing the progression toward uncovering unconscious processes, I have throughout this book drawn no sharp distinctions between artistic creators and scientific or other types of creators. This may, for some, have been surprising or possibly outrageous. The artist's search for personal truth and insight is readily apparent; both the artist and his audience are interested in confronting and understanding, to some degree at least, an internal psychological world. In insisting on the uncovering of unconscious processes in other types of creating, I have depended on a basic psychological dictum, as follows : it is highly unlikely that anyone would pursue a task or a problem to the degree that is characteristic of scientific and other types of creation unless that problem had some special personal meaning. All human choices have, to some extent, an unconscious and personal basis, and with most activities the choice also often relates to other, more significant goals. With creative activities, however, the characteristically intense type of absorption in a particular task, the creator's intense devotion and concern, indicates a significant personal connection. The scientific creator, for example, is interested in discovering something about external reality, and he, like the artist, often wants the rewards of success and recognition for their own sake. But he chooses a task or problem in the first place and is enabled ultimately to clarify or to solve it partly because of its personal meaning. Incorporated into the final scientific solution is little resembling a personal insight, or even a representation of unconscious material as in art, but some unearthing occurs. Recall, if you will, Einstein's statement about the problem he had chosen: "The thought that one is dealing here with two fundamentally different cases was, for me, unbearable." Surely Einstein was not given to over-dramatization nor to hyperbole, and the passion indicated by this remark was authentic. Why was this situation unbearable? Without more extensively

detailed knowledge about Einstein, we cannot know or even guess. But returning to his solution, we must note the stipulating of an observer falling from the roof of a house. Falling is surely connected with gravitation but the image of a person falling from a roof also seems affectively charged. We cannot know, but the particulars of creative scientists' thought are rich in such suggestive references. The unearthing of unconscious processes seems to have little to do with the value of the resulting scientific creation except perhaps in some structural way that currently is unclear, but it is of value to the creator. He experiences arousal and a sense of progression during the creative process. All creators court the anxiety of creation for deep and personal gains.

Earlier in this book, I emphasized the function of arousal as a preliminary to the attainment of control. In science and other fields besides art, arousal in the creative process also results from the especially dissonant and disjunctive cognitive, physical, and interpersonal tasks involved. Given the creator's personal involvement in such tasks, the tasks themselves generally consist of the most complicated, difficult, and challenging matters in the sphere of human experience. If this were not so, we would not accord the high degree of positive value we do to achievements designated as creations in those fields. Control is therefore involved in a double sense. All creators court the anxiety connected with the internal psychological effects of creative processes in order to experience gratifying effects such as Berlyne's arousal boost and arousal jag, and to experience a psychological sense of control. Also, nonartistic creators especially confront anxiety-producing tasks and problems in the physical environment in order to attain control over that environment. Such control, the mirror image of the control over internal wishes in dreams, is only one aspect—an important one—of the creative process overall. For control is not necessarily progressive; one may merely use control to stay in the same place. In the overall progression of the creative process, control gives way to articulation.

Articulation within the creative process also pertains both to the world of external physical reality and to internal psychological experience. As the creator separates and joins materials and elements in the external world, he articulates internal factors as well. Because articulation produces freedom and independence from chaos, the outcome of this articulation is a measure of freedom in both spheres. The ultimate achievement of the creative process is freedom.

This is not to say that the creative process is a form of psychotherapy. The articulation of internal

psychological experience does not in any major way constitute a therapeutic process. The psychological insights achieved, as I have described them throughout, are relatively minor ones or they are somewhat distorted. Seldom does the creator apply them actively or systematically to his personality and his life.[38] By and large, the major form of psychological insight occurring during or after the creative process, in art especially, consists of the artist's dim or overt recognition that the material with which he had been dealing related, in some type of significant way, to his own unconscious concerns. He realizes that the "problem" of a poem or painting, or the anger expressed in a piece of music, was his own. Or he realizes that the discovery he was seeking was also some discovery about himself. When the creator has a significant psychological problem, it is touched on and emerges to a small or large extent during the creative process. But it is not worked through as it is in therapy, and the creator often returns to it again and again in subsequent works.

Progression itself, however, the progression toward uncovering unconscious processes, is beneficial. Regardless of whether meaningful personal insight is ultimately achieved, the uncovering progression involves an internal freeing up and a movement away from the stifling effects of the creator's own past. Unconscious material, steeped in distortions based on past experience, exerts an enslaving effect on the creator, as well as on all of us, because of its inaccessibility. During the progressive unearthing of this unconscious material in the creative process, there is an articulation consisting both of separating away the past and of bringing together of present with past. To the degree that this articulation is successful, to the extent there is some separation from the enslaving hidden impact of past experience on present behavior and thought, as well as some bringing together of a meaningful continuity of past and present, some psychological freedom is achieved. The bringing together of the continuity of past and present involves a sense of continuity of identity. Psychological freedom consists of breaking away from the need to repeat the past in the present; it also consists of being able to accept and even to value aspects of one's self that are rooted in the past and are unchanging. These latter help to define and to establish a person's individuality and uniqueness. While the creative process in itself does not produce such psychological freedom, there is a definite and consistent movement in that direction. Regardless of where the creator starts from, regardless of the degree of psychological freedom he possesses, there is always—given the inevitable residua and conflict within the human psyche—a need for more. And the struggle toward psychological freedom is one of the hallmarks of the creative process. It

justifies the risks and anxieties involved.

Basic to the value and appeal of art is the creator's struggle toward freedom. All great works of art reflect this struggle, all great works of art incorporate the energy and dynamism of the progression toward this goal. Worlds attempted to be conquered but not quite, truths begun to be revealed but never fully, and conflicts stated but not resolved are overriding characteristics of the works we return to and remember. The masterpiece reminds us of our dreams, but it goes beyond them. It reawakens the unconscious stuff of which dreams are made, brings the images and feelings into the fringes of our consciousness, and gives us glimpses of the underlying meanings and truths. But it never embodies them fully worked out, nor does it resolve their nagging tension. The great work shows us that the world we perceive has both separations and unifying relationships, that our feelings are both distinct and fused, and that our relationships to others are characterized both by total separateness and by being—almost joining—together. But none of this is static or complete, there is a constant struggle with appearances and with past experience— the past experience of the artist himself and the shared past experience of the race—and an attempt to overcome and move on. In Hamlet, for example, we are exposed to a man dealing with, among other things, an unconscious oedipal conflict and matricidal and patricidal impulses. The embodiment of such universal conflicts and unconscious impulses is certainly one of the bases of its touching universal chords. But the touching of these chords alone is not the basis of the play's appeal; it is Hamlet's struggle to free himself, his vacillation between the demands of his inner world based on antecedent experience and his understanding intellect focused on the present. Faced with the inevitability of death and punishment because of inner compulsion and external circumstances, he struggles to overcome and, in the end, he must succumb. We remember his death, and are saddened and moved by it, but we return to see the play or reread it, or think about it over and over again, not because of the reaffirmation of the universality of the oedipal conflict or the inevitability of death but because of Hamlet's (and Shakespeare's) struggle. We read or go to re-experience the ironies, the contradictions, the paradoxes, and the fusions in the structure of the play and in the poetry. We are interested in feeling and perceiving words, the flow of time, concrete and abstract spatial elements brought together and separated, and we experience both the rigid diffuseness of our unconscious world and the artist's attempt to use it, to structure it into connections and separations and, by so doing, overcome it.

In painting, even the most representational painting, the creator's struggle for freedom is

incorporated. Forms, colors, and objects—all rich in unconscious associations—are juxtaposed and rearranged, producing separations and fusions not seen in ordinary perceptual experience. Rembrandt's faces in his self-portraits alternately seem to look more inward than outward, to look more outward than inward, to fuse with their surroundings, to resemble his father (or another significant person) more and less. Light and shade are in continual dynamic tension with each other. Each portrait bears the marks of struggle, struggle with forms and colors and with what they represent internally as well as struggle with the limitations imposed by nature. The face of Leonardo's Mona Lisa takes on the qualities of harshness and softness representative of that painter's ambivalent view of women, but the smile in the creation is a fusion and an attempt to understand, alter, or otherwise develop the view. Remembered landscape scenes in the painting take on human qualities of harshness or softness, but also human separateness from nature is emphasized.

Composers also struggle for psychological freedom. Their struggle is primarily related to structural rigidities of time and of space, and of the Unconscious. Composers deal directly with dynamic factors of tension, separateness, and fusion, separating sound patterns from old associations and bringing them together, producing expectations and inhibiting them. To the extent that music is representational, it represents our basic struggle with separation, tension, and fusion in nature and in human relations. Music and dance also relate significantly to kinesthetic sensations, the movement of our bodies in space and the degree of restriction or freedom we experience or feel. To the extent that music is representational or symbolic of particular emotions and feelings, the composer struggles to define and fuse such represented emotions and feelings in order to clarify and express and/or to develop and overcome them.

The artist's struggle for psychological freedom is embodied in his work and we, his audience, participate in the struggle as well. Vicariously, we empathize with the dynamic forces embodied in the work. Touched are our own unconscious concerns, conflicts, and processes and, to the degree that the artist achieves some relief from the unearthing process, we experience some relief as well. But, more often than not, the work of art stimulates us to begin, or to continue, our own struggle for psychological freedom. On the one hand, experiencing unconscious material and structures reminiscent of dreams in a work of art is reassuring. Externalized, embodied, and shared are our images of sleep and our forbidden and frightening impulses and emotions. On the other hand, unconscious material and the perceptual

and cognitive characteristics of artistic structures, imparted by the mirror-image and other processes, produce moderate anxiety and arousal. Effective art arouses us and makes us anxious in this way, we remember it, we talk about it, and we apply it to our lives. We articulate and develop the unconscious and conscious processes embodied in the work. Anxiety is one of the most powerful motivating factors we know; it instigates patients to seek therapy, others to seek power or safety, and all of us to savor, re-experience, and think about art. We are, moreover, aroused by the creator's struggle for freedom, his exposition and definition of values, and his perceptions and reorderings and restructurings of experience. We follow his model and his achievements, and we adopt and learn from his values, his conceptual formulations, and his perceptions about nature and the world. The work of art stays with us and, as we articulate its impact—separate and bring together all the facets, intellectual and emotional—we are also engaged to some degree in a struggle for psychological freedom, freedom from our own unconscious distortions and the stifling aspect of past experience.

Newness itself is anxiety provoking to us all. While we inevitably seek newness and novelty—indeed it seems to satisfy a basic need of which the emotional component is, in all likelihood, arousal—we are always somewhat discomforted in the face of it. Accepting newness and clear-cut novelty always requires some type of realignment of previous feelings and conceptions as well as habits, an experience most human beings find in some measure difficult.[39] Because they almost invariably present something new or suggest a new organization of perception, knowledge, and experience, artistic creations induce anxiety on this basis. This anxiety in turn stimulates our own progression toward intellectual as well as psychological freedom. Moreover, as confrontation with newness promises mastery of the unknown, the greater is the freedom to be attained.

Beside their emotional and psychological impact, the particular values imparted by artistic creations stimulate freedom and independence both from the external environment and from internal psychological struggles. When the work of art embodies particular perspectives on death, tyranny, human relations, or even political processes, it helps us to formulate our own values and perspectives. To the degree that the perspectives are meaningful and adaptive—as they are in enduring works—they help to give us independence and freedom from the cloying entanglements of social interchange, the limitations of a restricted perception of nature and of natural processes, and they guide us to regulate internal psychological forces in accordance with reality and with our own freely formed goals. We learn

from art, both in a general way and from the particulars it gives us. We learn the details of history, of diverse experiences outside our ken, of the world of nature and civilization, and of undertakings tried and failed.

Scientific creation, of course, teaches also. Science bestows extensive information about our environment and also tangible products that contribute directly to freedom and independence. More than art, in fact, science frees us from dependence on our physical environment, and particular creations enable us to adapt both broadly and narrowly to this environment in the most effective way possible. Through scientific advance we adapt to the physical world by changing it to suit our needs. The scientific creator's struggle for freedom, however, is not experienced by an audience or recipient as is an artist's. When we sense the concordance with unconscious processes present in some scientific theories, such as the ideas antimatter, quarks, and of "strangeness" and color in subatomic particles, we may experience a twinge of both assurance and discomfort, but we prize scientific creation for the potential freedom it imparts us—even though we may not understand it immediately or directly partake of its effects—with respect to our environment.[40] Newness in scientific creations induces anxiety, just as it does in art. Often this newness has such far-reaching implications—the Copernican view of the universe, Darwin's concept of evolution, Einstein's theories of relativity, Freud's psychoanalysis—that it induces significant reformulation of each individual's conception of himself, including a new struggle for psychological freedom. Acceptance of the Copernican view, for instance, though it evolved gradually and did not occur in the span of an individual lifetime, eventually required each person's reappraisal of the notion of the centrality of man; it also required less absolute reliance on authorities who had insisted on the latter notion.

The motivation toward freedom of the creative person, scientific or artistic in type, is displayed in the daring nature of his thinking. Not satisfied merely with extant formulations, systems and knowledge, the creative scientist drives toward the new. He defies the laws of ordinary logic and is willing to conceive the apparently illogical or inconceivable. He is willing to conceive and to entertain the simultaneous validity of a postulate or body of knowledge that is as far from the known and accepted as possible, the antithetical or opposite postulate or body of knowledge. He is willing to conceive and tolerate mental images that defy the accepted data of the senses, conceptions that bring two or more discrete entities into the same space. Although I do not know how particular conceptual opposites or

specific sensory representations of discrete entities are chosen—especially by the scientist, the artist tends to develop an antithetical context or to choose particular representations because of his personal interest and understanding of social and moral concerns—I suspect that the motivation toward freedom is important. I suspect the scientist struggles to free himself from the tightly constructed and highly elaborated content and structure of his domain of interest. He searches either for essential oppositions and discrete entities underlying enormous complexity or else for more extended—grander, if you will—ones. Thus, Einstein's breakthrough conception was free of the highly elaborated particular substance and data of both gravitation and electromagnetic induction. It involved the essential elements, from both domains, of a person falling and of motion. It also contained Einstein's magnificent addition of the element of rest and the simultaneous manifestation of rest with motion. Darwin's breakthrough conception consisted of going beyond Malthus's presentation of the negative effects of population growth. He very likely conceptualized the maladaptive essence of the struggle indicated, and with daring freedom he conceived the never-before-postulated grand antithesis and the idea that this noxious circumstance was at the same time adaptive. These constructs of Einstein and Darwin are the quintessence of simultaneous opposition in that they contain both conflict and harmony. In our current ignorance of direct or reciprocal connections between a motive to freedom and cognitive operations, it is necessary only to emphasize the continuing stimulation and self-propelling power of such dynamic constructions. And despite our ignorance of the enormous panoply of particular sources of wisdom and intellect transmitted within great works—the scope and intricacy of the novel, scientific theory, philosophical exegesis, painting, or sonata—we can focus on the relationship between freedom and the overall genesis, development, and structure, the created aspect of these achievements.

Creation and freedom are inextricably connected because a creation in any field is a testification to, and an embodiment of, freedom and independence. Creations always stand apart from nature. They derive from nature, they represent nature, and they refer to it, but they are independent entities. The work of art is a unity unto itself, and the scientific creation stands above and outside of nature with its own internal coherence. The work of the creator is the result of free and independent thinking; regardless of whether the product is a work of art, a scientific discovery or theory, or another type of creation, it bears the stamp of his uniqueness. Watson and Crick's discovery of the double helix structure of DNA bears the characteristics of Watson and Crick's unique formulation; others would have described

it differently, or even emphasized different aspects, such as the single-strand functioning more recently uncovered. And Einstein's general theory of relativity is surely Einstein's alone. Each person carves out the particular dimensions of the blooming, buzzing confusion he or she will articulate. Freedom itself resembles creation—it always consists of separateness along with bringing together or connectedness. As human beings, we are neither free nor independent unless we observe, and are mindful of, our contacts and connections with others and with nature. And we must be mindful of our intrinsic separateness, uniqueness, and individuality. When we glimpse the goddess emerging from the head of the creator, it must remind us of the nature of our freedom.

Notes

1 Some contemporary artists consider art and the representation of unconscious contents to be synonymous. In their attempts at attaining a direct outpouring of unconscious material through personally directed free association or drugs, they often are going about unearthing unconscious material in the wrong way.

2 It is doubtful that the artist is driven to work on the same themes over and over only because he cannot work them out and therefore must repeat them. This explanation would be appropriate if art were merely a symptom of psychological illness and, like all symptoms, bound to be repeated. But good art, as we know, shows progression of theme, both within a single work by a particular artist and in the corpus of his productions. In the light of this, and the other evidence presented throughout this book, the emphasis should be on the gratifications of progressing toward insight (see section below, "Articulation and Freedom," and Rothenberg, "Poetic Process and Psychotherapy").

3 Lesser, *Fiction and the Unconscious;* N. Holland, *The Dynamics of Literary Response* (New York: Oxford University Press, 1968); F. Crews, ed., *Psychoanalysis and Literary Process* (Cambridge, Mass.: Winthrop Publishers, 1970).

4 To some extent, the above critique applies to Jungian as well as Freudian theories of art. Jung talked about the artist's use of autonomous complexes to structure the content of the Collective Unconscious, but never explained the nature of these complexes very fully. As the Jungian theory of dreams differs from the Freudian, however, the above comments applying to condensation and displacement do not apply to Jung's conceptions. See the following by C. G. Jung: "Psychology and Literature," *The Collected Works of C. G. Jung,* vol. 15, ed. H. Read, M. Fordham, G. Adler, and W. McGuire, trans. R. F. C. Hull (New York: Pantheon Books, Bollingen Series, 1966), pp. 84—105; *Psychological Types* (New York: Harcourt Brace, 1946), reprinted in *The Collected Works of C. G. Jung,* vol. 6, ed. H. Read, M. Fordham, G. Adler and W. McGuire, trans. R. F. C. Hull (Princeton, N.J.: Princeton University Press, Bollingen Series, 1971); "On the Relation of Analytic Psychology to Poetic Art," *British Journal of Psychology* 3 (1923) :213-31, reprinted as "On the Relation of Analytical Psychology to Poetry," in *Collected Works,* vol. 15. See also Neumann, *Art and the Creative Unconscious,* for a theory of art based on Jungian psychology.

5 Or Jungian archetypes.

6 See, e.g., Arieti, *Creativity.* Although Arieti postulates a "tertiary process" as responsible for creativity, he considers artistic structures to be derived from primary process mechanisms.

7 See R. Novey, "The Artistic Communication and Recipient: *Death in Venice* as an Integral Part of a Psychoanalysis," *Psychoanalytic Quarterly* 33 (1964) :25-52; S. Schreiber, "A Filmed Fairy Tale as a Screen Memory," *Psychoanalytic Study of the Child* 29

(1974) :389—410; E. Buxbaum, "The Role of Detective Stories in a Child Analysis," *Psychoanalytic Quarterly* 10 (1941):373-81; J. L. Rowley, "Rumpelstilzkin in the Analytical Situation," *International Journal of Psychoanalysis* 32 (1951): 190—95; S. Freud, "The Occurrence in Dreams of Material from Fairy Tales" (1913) (London, 1958), 12:279-87.

8 See review of such experiments by M. A. Wallach, "Thinking, Feeling and Expressing: Toward Understanding the Person," in *Cognition, Personality and Clinical Psychology,* ed. R. Jessor and S. Feshbach (San Francisco: Jossey-Bass, 1967), pp. 141-72. See also review of experimental work pertaining to unconscious factors in art in H. Kreitler and S. Kreitler, *Psychology of the Arts* (Durham, N.C.: Duke University Press, 1972), esp. pp. 286-93.

9 H. M. Voth, "The Analysis of Metaphor," *Journal of the American Psychoanalytic Association* 18 (1970) :599-621.

10 Of course, in the face of overwhelming danger from some threatening source in reality, such as a predatory animal, flight might well be the only appropriate response.

11 Rothenberg, "Poetic Process and Psychotherapy."

12 A. Rothenberg and B. Nagle, "The Process of Literary Revision/' and A. Rothenberg, "Anxiety in the Creative Process," manuscripts. So far thirty- one subjects have participated in these experiments.

13 The use of latency of response on word association as a measure of anxiety is well established; see C. G. Jung, *Studies in Word Association* (London: William Heinemann, 1918), reprinted in *Collected Works,* vol. 2 (1973) ; D. Rapaport, "The Word Association Test," in *Diagnostic Psychological Testing* (Chicago: Year Book Publishers, 1946), 2:13-84. For the principle of using the word association technique to measure anxiety associated with written documents, I am indebted to George F. Mahl, personal communication, and G. F. Mahl and L. McNutt, "Disturbances in Written Language as a Function of Anxiety," manuscript.

14 Creativity ratings were made by teachers, and also independently by Robert Penn Warren and by James Moffett (educator and designer of curricula in the language arts), both of whom have had considerable experience with assessing creativity in students.

15 I. Roxon-Ropschitz, "The Act of Deleting and Other Findings in Writings of Neurotics," *Psychiatry 9* (1946) :117-21.

16 For all three groups, creative and control high school students and proven creators, mean latency of responses to words from other sources roughly paralleled mean latencies in that group's lower latency of response category (either deleted or substituted).

17 Cultural factors surely play a role as well. In Anglo-Saxon culture, the nonresponsive steady mode is prized and sensations of arousal are viewed with suspicion or outright guilt. In such cultures, there is anxiety about becoming or feeling aroused.

18 Berlyne, Aesthetics and Psychobiology.

19 Ibid., p. 136.

20 The terms "primary system" and "secondary system" should not be construed to have any connection to primary and secondary process thinking discussed throughout this book.

21 G. Orwell, *1984* (New York: Harcourt Brace, 1949).

22 R. B. Sheridan, "The Rivals," in *Twelve Famous Plays of the Restoration and Eighteenth Century,* ed. C. A. Moore (New York: Random House, 1933), p. 849.

23 See M. L. von Franz, *Creation Myths* (Zurich: Spring Publications, 1972), esp. pp. 61-86, 150-69; Allen, *Greek Philosophy;* Bleeker and Winden- gren, *Historia Religionum,* vols. 1 and 2.

24 "Heavens" or "sky" and "earth" are generally rated as opposites in most experiments and rating tasks. Quotations here are from the Revised Standard Edition of the Bible.

25 Specificity in janusian thinking sharply distinguishes it from perception of incongruities (see Burke, *Permanence and Change)* or bringing together of habitually incompatible modes (see Koestler, *Act of Creation, Janus)* mentioned earlier. More precisely, the distinction from both Burke's and Koestler's formulations is that both incongruity and incompatibility are potential aspects of the janusian process. They are—so to speak—way stations toward the construction of simultaneous antitheses.

26 See discussion by Albert Solnit, regarding the problem of exclusive reliance on symmetry in theory building in psychoanalysis, particularly with regard to the theory of aggression. Solnit, "Aggression."

27 Pollio et al. (see n. 25, chap. 8) also refer to opposites as defining a dimension in their notion of "conceptual convenience." However, opposition is too abstract, and the types of oppositions discussed here especially are too extensive and complex to be considered only as convenient memory storage factors. Moreover, janusian formulations characteristically engender cognitive strain rather than qualities of ease and convenience.

28 See Gruber and Barrett, *Darwin,* pp. 105 ff. for Gruber's discussion of this point.

29 I abjure using the word "condense" in this context because of its use in connection with primary process, and because of the specific differences between janusian thinking and primary process condensation I have already described. It is compression rather than condensation because elements are kept discrete in janusian thinking, not combined or entered into compromise formations.

30 E. Dickinson, letter to T. W. Higginson, April 15, 1862, in T. H. Johnson and T. Ward, eds., *The Letters of Emily Dickinson,* (.Cambridge, Mass.: Harvard University Press, 1958), 2:403.

31 It should be emphasized that here, as throughout earlier portions of the book, the idea of metaphor is used in the sense of an effective, vital entity. It is not used to connote the merely figurative or nonliteral entity that also is commonly designated as metaphor.

32 H. Crane, "Voyages II," *The Complete Poems and Selected Letters and Prose of Hart Crane,* ed. B. Weber (Garden City, N.Y.: Doubleday, 1966).

33 Beardsley, "Metaphorical Twist"; Hausman, Discourse on Novelty and Creation; M. Black, Models and Metaphors: Studies in Language and Philosophy (Ithaca: Cornell University Press, 1962); Burke, Permanence and Change.

34 See S. C. Pepper, "The Concept of Fusion in Dewey's Aesthetic Theory," *Journal of Aesthetics and Art Criticism* 12 (1953) :169-76. Also see M. Beardsley's discussion in his *Aesthetics: Problems in the Philosophy of Criticism* (New York: Harcourt Brace, 1958), pp. 299 ff., of what he calls the fusion theory of art which he attributes to Walter Abell and a considerable group of followers.

35 Straus, *Phenomenological Psychology.* Actually, Straus contends that all perceptual experience is "controlled by modes of the spatial," but I will here adopt only a more limited form of that assertion.

36 Ibid., p. 17.

37 Such viewing of art does connect the artistic product with the creative process. It could be legitimately described as creative perception in its own right.

38 Here I am not referring to cognitive insight about, e.g., knowledge, values, religion, or reality.

39 So-called novelty seeking is often motivated by anxiety about serious commitment either to the old or to the new.

40 When scientist peers hail a new discovery or theory as a creation, they may vicariously appreciate, or imagine, their colleague's struggle for freedom.