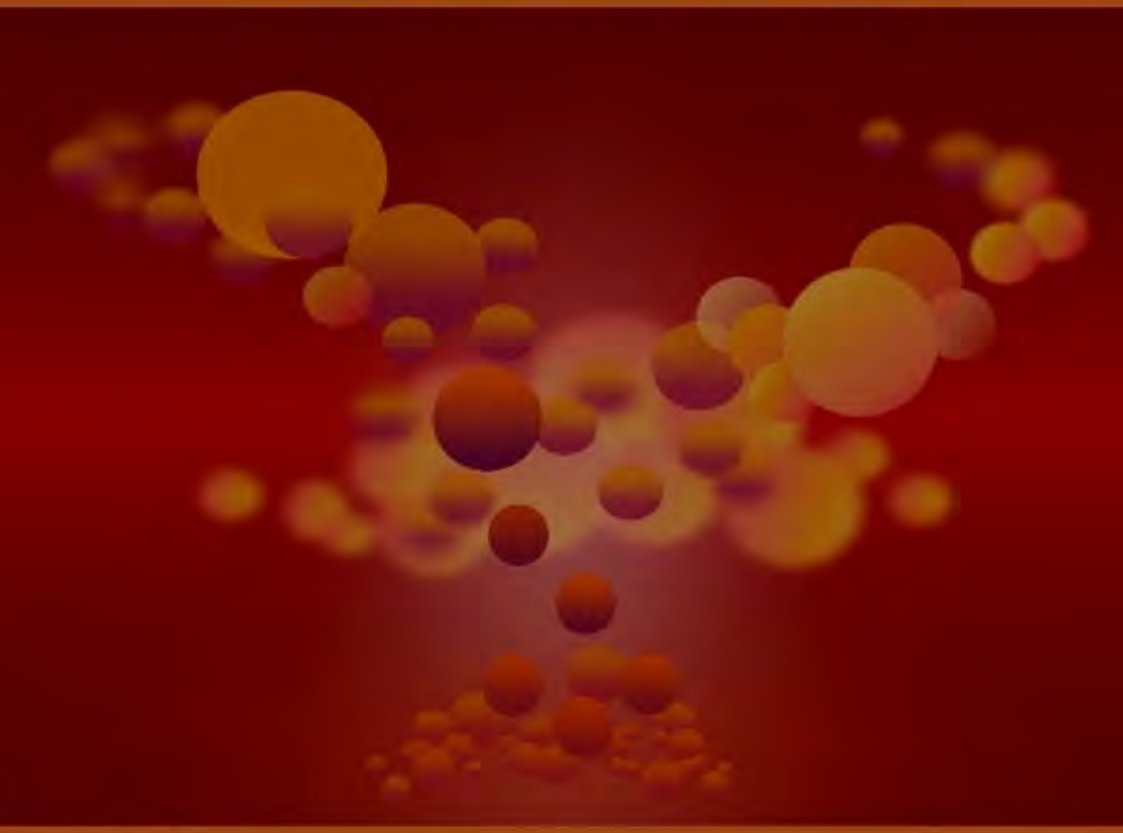
Homospatial Thinking



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Given a grasp of what is so far known about janusian thinking, it is possible to explore and to clarify further the role in creativity of homospatial thinking. One function of the homospatial process is to operate in conjunction with the janusian process in order to produce integrated aesthetic entities, and scientific discoveries and formulations. I have already emphasized a preliminary or preparatory aspect of the latter process: the tendency to operate in early stages of the creative process with a later alteration or transformation into completed creations. I have pointed out that other types of cognition operate in conjunction with this one to produce various types of overt effects in the substance of a final created product. In science, philosophy, and other types of rationalistic discourse, logical, dialectical, or technically oriented forms of thinking may operate to render janusian formulations into formats necessary for communication, consensus, or experimentation. Such formats may consist of resolutions, combinations, reconciliations, and syntheses of the particular simultaneous antitheses and oppositions in a janusian construct. In art, such operations and effects may function to produce plausible representation, moral and logical consistency, or effective communication. But both in science and in art, janusian formulations are overtly, and with little alteration, frequently incorporated

directly into integrations, unities in which the elements retain their individual qualities rather than combine.

Either at the very moment of formulation or at some later time, homospatial thinking operates in conjunction with janusian thinking to produce integrated entities such as artistic and scientific metaphors or more fully developed paradigms and models. By means of homospatial thinking, opposites and antitheses in a janusian construct are superimposed or otherwise fused in space and integrations are produced. Earlier, we saw an example of this effect in the poetic creative process when the janusian formulation of the horse as simultaneously human and beastly was followed by the fusion of these opposites in the visual conception of the riderless horse together with the horse and rider, and then by integrated presentation of horse and rider in the poem. In the scientific creative process, Einstein's initial conception leading to the general theory of relativity, the janusian construct of falling and being at rest at the same time, was couched in an arresting spatial image—"a man falling from the roof of a house"—that suggests the concomitant operation of the homospatial process. As janusian formulations usually lead to an integration of antitheses and opposites—simultaneous operation or existence is not the same as unification or effective representation[1]—homospatial thinking is frequently conjointly operative. Moreover, janusian constructs are intrinsically abstract; oppositions and antitheses are by themselves abstract, and simultaneous opposites and

antitheses are even more so. Homospatial thinking and other cognitive processes are required to render janusian constructs into apprehensible, concrete, or even comprehensible entities.

Aside from this function in conjunction with the janusian process, homospatial thinking operates independently and extensively in the creative process. The homospatial process is directly responsible for the creation of all types of effective metaphors and it has a considerable and wide effect. Earlier, I cited several instances of this form of thinking in the achievement of important scientific discoveries. Since effective metaphors, both narrow and highly extensive ones, have a far-reaching function in all creative intellectual accomplishments, homospatial thinking can be assumed to have operated in religious and philosophical creations as well. But, in order now to provide some further documented evidence of the creative function of the homospatial process and to clarify its diverse types of operation and various effects, I shall turn to the areas of the visual arts and music. Following that, I shall return to poetry and literature, where there are yet some striking manifestations and extensions to describe.[2]

Visual Arts

Because homospatial thinking often involves visual imagery, we might expect to find it widely operating in the visual arts, namely, painting,

sculpture, architecture, and related forms. This is indeed the case. In order to explain the particular manner in which homospatial thinking operates in these arts, however, I must first clarify some aesthetic and psychological matters. For the person not accustomed to think in visual terms, there is the need for "seeing" a particular constant factor in visual works of art, and for the psychologist accustomed to the traditional terminology of perceptual psychology—particularly gestalt psychology—there is a need to go beyond those terms. Postponing a direct focus on the creative process in the visual arts, we shall consider a factor in the completed work.

The constant factor in the visual arts to which I refer is the *visual metaphor,* a factor defined and described by the aesthetician Virgil Aldrich. Although others, including Picasso, have used similar terms or have at least recognized aspects of the phenomenon, Aldrich explicated it rather fully in two seminal papers.[3] A particular example of such a visual metaphor discussed by Aldrich should clarify the meaning of the term. In a landscape painting called *Courmayeur* (or *Courmayeur et les dents des geants;* see fig. 32), by the expressionist Kokoschka, Aldrich calls attention to the particular area where the roofs of the houses of this Alpine village are in direct juxtaposition with the mountains in the background, and he says:

> Look . . . at the roof-mountain area of the picture. . . . The similarity of the colors and shapes . . . draws the part of the mountain . . . forward and tends to recess the house similarly qualified until they appear in the same plane in the picture. The result of this sort of fusion is *partly* a denaturing of

> house and mountain ... a structuring [of] picture-space without the influence of representation. But only partly. One does not get entirely away from seeing the pictorial elements as a roof and part of a mountain. But . . . the *represented* distance between them [is overcome] by placement in the same plane, there is fusion of house and mountain natures. Thus is a part of the mountain domesticated, and the house (domicile) takes on a mountainous character. If "organic" unity has ever meant anything as applied to a work of visual art, it means interanimation or fusion in this latter sense, where different sorts of things with separate natures in routine life are transformed into a single (though complex) nature. Such transfiguration by metaphor is accurately reported in linguistic metaphors, such as "the roof *is* a part of the mountain" or the other way around; though . . . unifications of elements within the content of the picture are not usually verbally reported but are more an affair of what is visually sensed.[4]

Central to the concept of visual metaphor is an integration of elements into a whole or a unity, an integration with its own identity and also with individual elements that are recognizable and retain discrete characteristics. As I pointed out in the previous chapter, such integration is the essence of linguistic metaphors, such as "How long can my hands be a bandage to his hurt?" and Aldrich aptly alludes to a direct analogy between the visual and linguistic types. Moreover, Aldrich points out that seeing the visual metaphor involves fusion and the visualization of the elements of house and mountain *in the same plane* in the picture.

Fig. 32.
Oskar Kokoschka. Courmayeur et les dents des geants, 1927. The roofs of the houses and the mountains interact with each other to produce a visual metaphor; the mountain is "domesticated" and the house aggrandized. The Phillips Collection, Washington, D.C.

Let us turn now to the sculpture by Henry Moore entitled *Helmet Head No.* 5, shown in figure 33. I chose this particular sculpture for discussion partly because it will readily be perceived, by both the naive and sophisticated observer (psychoanalytic or not), as a rather blatant example of sexual symbolism. The inner solid structure has definite phallic features and the outer encapsulating portion is clearly reminiscent of the female womb. We can properly assume that Moore himself definitely had this aspect in mind as either a satirical or serious aspect of the piece. But the visual metaphor does not consist of such symbolic representation, the visual metaphors in this sculpture serve, as other types of metaphors do, to integrate form and

content.

Fig. 33.
Henry Moore. Helmet Head No. 5, sculpture. Private collection.

Both the symbolic sexual content and the military content referred to in the title of the work are integrated with form and shape. Note first the massive nature of the solid aspects of this piece: the elongated structure with the phallic features and the concave outer structure. Next, focus on the geometric aspects: the elongated inner solid is rather linear, sharp, and pointed, while the outer structure is round and partly spherical as well as partly cylindrical with a suggestion in the crossing band of a somewhat helical shape. So far, we have paid attention only to qualities of the separate elements; much more could be said about these. But now I would venture to say that, after looking at the piece for a short time; it is rather difficult to continue to visualize the particular elements separately;[5] the juxtaposition of the elongated and concave structure and the spherical, cylindrical, helical and

linear shapes produce such a powerful impact that we begin to see effects based on the relationships among the various elements, we see the shapes and forms operating together as well as separately. At the moment of such a perception, we begin to be aware of, and to appreciate, the visual metaphor. There is a dynamic effect: viewing the inner phallic structure together with the outer, the former has an unmistakable quality of upward thrust while the latter appears just as unmistakably to be heavily rooted and moving downward toward the base or ground. This effect, it can be stated categorically, does not arise either from the inner structure or from the outer considered separately. If the viewer performs a visual trick of alternately imagining the inner structure and then the outer structure standing isolated somewhere and separate, he could then see the inner structure as heavy and rooted to the ground despite the tendency of upright linear forms to seem to move upward. On the other hand, when visualizing the outer structure or shell standing free and alone, the rather delicate curves at the base impart a sense of lightness and upward movement to this heavy form. All these complexities of the forms, taken both separately and together, surely add to the richness and complexity of the visual metaphor, but the major point to consider is that the sense of upward and downward movement together is derived from a perception oriented toward interaction or even fusion of forms, a way of seeing that begins to bring forms together toward a common location in the same space. The structures are seen both separately and

potentially overlapping; the quality of potential movement mentioned first is abstracted from their overall appearance and they interact in the "mind's eye." Such a sense of dynamic interaction activates and animates both the sexual and military content to produce an overall integration of content with shape and form.

Continue to visualize the discrete forms interacting and bring even more elements and aspects into the same spatial location. Particularly, bring the upper metal shell into the same visual plane as the empty area beneath it. Transpose and superimpose the shell, in your mind's eye, onto the area occupied by the inner empty space. This produces another visual metaphor that is perhaps even more telling than the dynamic one. When the entire inner empty area is viewed as being approximately on the same visual plane and occupying the same spatial location as the solid structure, it is seen not merely as a diffuse opening surrounding the inner elongated structure or enclosed by the outer shell, but as a shape and structure in its own right. When such a mental visualization is achieved, the inner empty area appears more extensive, larger, and more imposing than the solid structures. In metaphorical terms, the empty space is then stronger and more powerful than the solid stone. Noting that, I believe we experience more intensely the psychological and aesthetic impact of this fascinating piece of art. On one level, there is the ominous war helmet with its powerful and faceless inner aspect; on another level, there is the thrust of the phallus into the female

structure, the equal and downward force of the latter, and a merging of the two aspects across the "empty" space. Many will see more and more in all of this. The actual sculpture rather than the photograph yields other and deeper visual metaphors, the further merging of form and content characteristic of a perfect work of art.

The gestalt psychology description of the visual field in terms of a significant and discrete "figure" and a less significant, more diffuse "ground" does not provide an adequate basis for understanding the visual metaphor. The gestalt perceptual laws require that each aspect of the sculpture be seen in terms of a particular discrete and defined figure, say the phallic structure here, while the remainder is *at that moment* perceived as the more amorphous ground. As one continued to look at this sculpture, different aspects would accordingly be perceived successively as figures while other portions successively became the ground. Thus the womblike helmet would alternately become a figure and the empty space or even the phallic structure would become the ground. When an element previously seen as a figure, such as the phallic structure, becomes the ground, gestalt psychologists speak of figure-ground reversal. For gestalt psychology, the rather immediate integrative effects I just described would not occur because the visualizing operations would consist of successive figure-ground reversals. Major aspects of the visual field could never be perceived in the same spatial plane, and they could certainly not be perceived as occupying the same spatial location.

The rather oversimplified instance of the case of Rubin's double profiles (fig. 34) can clarify and sharpen this distinction from gestalt formulations further.[6] In order to recognize the outlines of the profiles, it may at first be helpful to focus on each in alternation. According to the gestalt formulation, this is the necessary condition: each face would need to become a figure, however rapidly, while the other receded into the ground or even disappeared. However, if the faces are thought of as both being on the same plane, it should be possible to see both of them together, interacting with one another. It is this sense of interaction, whether it be purely the visual interaction of shapes and forms or a slightly unfocused sense of two persons talking or kissing, that constitutes the visual metaphor, an integrated perception continuing to manifest discrete elements and identities.

Visual metaphor is derived not only from shapes, forms, and referential content, such as houses and mountains, but also from color. Albers, whose janusian thinking in artistic creation was described earlier, also gave some salient testimony with regard to color interaction and visual metaphor. In his color instruction course described in the book *Interaction of Color,* Albers indicates many conditions involving visual metaphor. Though not using that particular term, the stated purpose of the book and course is to increase the student's appreciation and perception of colors interrelating, modifying, and reinforcing each other. Task after task is designed to orient the student to look at a color field both as a unity and with discrete color elements operating

together. The tasks constantly emphasize the interactions among colors and the interaction between colors and shapes. His verbal designations, though necessarily far less eloquent than the visual tasks themselves, give some of the flavor of his presentation:

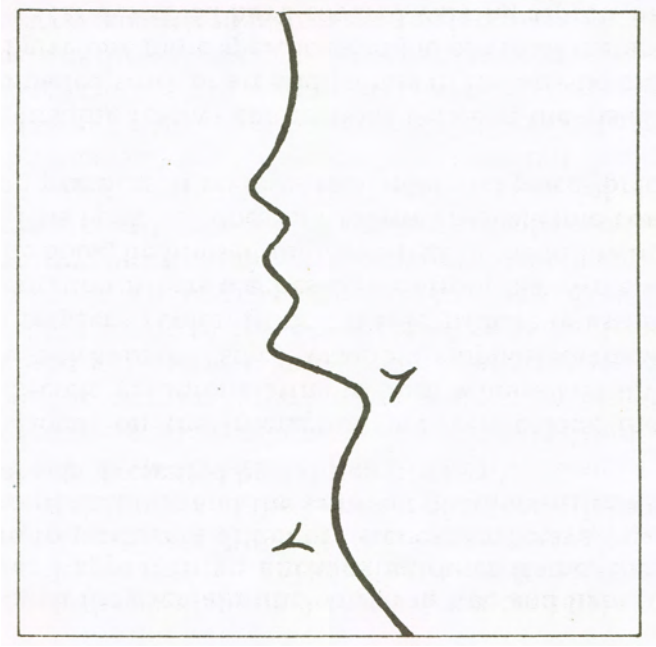


Fig. 34.
Rubin's double profiles. According to gestalt principles, the two faces in this drawing can only be seen successively. The homospatial perception involves seeing both on the same visual plane, and interacting with one another.

On the relationship between discrete colors and the whole:

when we see opaque color as transparent or perceive opacity as

> translucence, then the optical reception in our eye has changed in our mind to something different. The same is true when we see three colors as four or as two, or four colors as three, when we see flat, even colors as intersecting colors and their fluting effect, or when we see distinct one-contour boundaries doubled or vibrating or just vanishing.[7]

And on the purpose of the course:

> The purpose of most of our color studies is to prove that color is the most relative medium in art, that we almost never perceive what color is physically. The mutual influencing of colors we call—interaction. Seen from the opposite viewpoint, it is— interdependence.[8]

And, finally, using a "theatrical parallel" to explain a particular task:

> Although they remain unchanged in hue and light, in "character," and appear in an unchanging outer frame, the "stage," they are to produce 4 different "scenes" or "plays," each to be so different that one and the same set of colors will be seen as 4 different sets, presented by 4 different casts.[9]

Albers's focus on the interaction between colors, the seeing of colors as discrete yet interrelating to form wholes and unities in the same place such as in the "stage" example, emphasizes the visual metaphor with respect to color. I think it is legitimate to assume that the visual orientation Albers teaches derives from his own creative processes. In the book, he himself indicates that in the following prefatory remark: "This book . . . does not follow an academic conception of 'theory and practice.' It reverses this order and places practice before theory."

Before pursuing further connections between the visual metaphor in the completed work of art and factors in the artistic creative process, I shall give one more specific example of visual metaphor. While examples so far described have covered varying aspects of the visual arts including sculpture, general considerations about use of color, and factors relating to an expressionist but virtually representational painting *(Couimayeui* by Kokaschka), the artists themselves have been all fairly contemporary. Therefore, I shall once again move further back in history to the work of Leonardo da Vinci, particularly the painting *Mona Lisa.* So widely acclaimed, the outstanding qualities of this painting hardly need extensive recounting. There are the muted but living colors, the sense of movement, the soft and penetrating gaze and, as I discussed earlier (chap. 6), the famous Gioconda smile. The many and diverse adjective combinations used to describe the qualities of that barely perceptible smile emphasize its antithetical quality, a quality that has, for centuries, been an important factor in the painting's appeal. But where, I ask now, does this antithetical quality in the completed painting come from? Previously, I suggested that Leonardo's early conception must have consisted of a janusian construct, a smile having simultaneous antithetical properties. Now, I want to consider how this construct was rendered and integrated into the completed image on the canvas. Does the quality of simultaneous antithesis arise from the particular shape given to the mouth, or its color, or the shadows in the corners, or, to shift to a more

general focus, because of the expression in the lady's eyes? Surely all these factors play a role, but a careful viewing of the entire painting (see fig. 24) in accordance with the perceptual principles outlined here shows some other particular and crucial factors at work as well. If the so-called background of the painting[10] is viewed on the same visual plane as the woman, if, in other words, the foreground and background are considered superimposed upon one another, neither being dominant nor secondary but both occupying the same space, much of the effect of the painting can be understood and intensified. The two sides of the landscape are seen as sharply in contrast with each other: the left side consists of a rather gentle undulating road amidst somewhat rounded softened forms while the right side consists of a rough, tumbling river amidst sharp, angular rocks, the road on the left seems to move upward while the river goes down, the scene on the left is set in a much warmer season than the one suggested by the whitened peaks of the mountains on the right.

It could seem that, in comparing the attributes of the two sides of the landscape, one's eye is moving back and forth and one therefore is not experiencing a superimposition. If, however, the superimposition properly includes many different planes at once, that is, left and right, horizontal and vertical, foreground and background, such a reservation can be dispelled. Superimposing the left and right sides of the landscape especially should show most of the contrasts described. Such sharp contrasts, seen in direct

juxtaposition with the lady's face, certainly contribute strongly to the antithetical qualities perceived in her smile. Also, and perhaps more important, the features of this landscape in juxtaposition with, or in apposition to, the face and figure impact a dreamy overall quality to the picture. Landscape such as this is unreal: no such sharp terrestrial contrasts can exist as close together as depicted here. Moreover, the road on the left side seems to go off into a dimly imagined terrain or else to nowhere, while the river on the other side moves sharply forward toward the viewer and, ultimately, it too moves off the painting. Other unreal and contrasting qualities are present. The overall effect is that—viewed on the same plane as the face and figure—the landscape appears to depict something in the lady's mind, something seen with her inner eye rather than only as a scene behind her. In this, I believe, resides one of the most powerful and metaphorical aspects of the painting: the lady appears to be looking both inwardly and outside of herself at once, she looks out beyond the painting and inwardly into her thoughts. Through the particular qualities of the landscape scene interacting with the qualities of the head and face, we are drawn both into her inner world and into the receding dimensions of the painting as well. In short, while Leonardo mastered the art of perspective to present a lifelike and representational portrait of a woman, he also enhanced the metaphorical qualities, the visual metaphorical qualities, of the art of painting.

That superimposition and fusion of visual images, planes, and locations

were factors in Leonardo's thinking and working is evident from many of his preliminary and final productions. In figure 35, the preliminary drawing or cartoon for the famous painting *St. Anne with Virgin* (fig. 35*A)* shows two bodies superimposed and fused to the

Fig. 35A.
Leonardo da Vinci. Cartoon for St. Anne. The bodies are superimposed or fused to the point that there appears to be one body with two heads. Reproduced by courtesy of the Trustees, The National Gallery, London.

extent that there appears one body with two heads.[11] In the final painting (fig. 35B), the effect is continued and the child is included so that the three figures of Mary, Anne, and Jesus appear to form a single unit. Figure 36

shows two drawings. One is the widely known anatomical illustration of the proportions of the human body (fig. 36A),

Fig. 35B.
Leonardo da Vinci. St. Anne with Virgin, ca. 1498-99. The figures of Saint Anne and Mary are virtually fused in this final painting. Louvre, Paris. Photo Giraudon.

which Leonardo based on the writings of the first-century B.C. Roman architect Vitruvius. In attempting to idealize the proportions of the body as conforming to a square (span of arms equal to height)

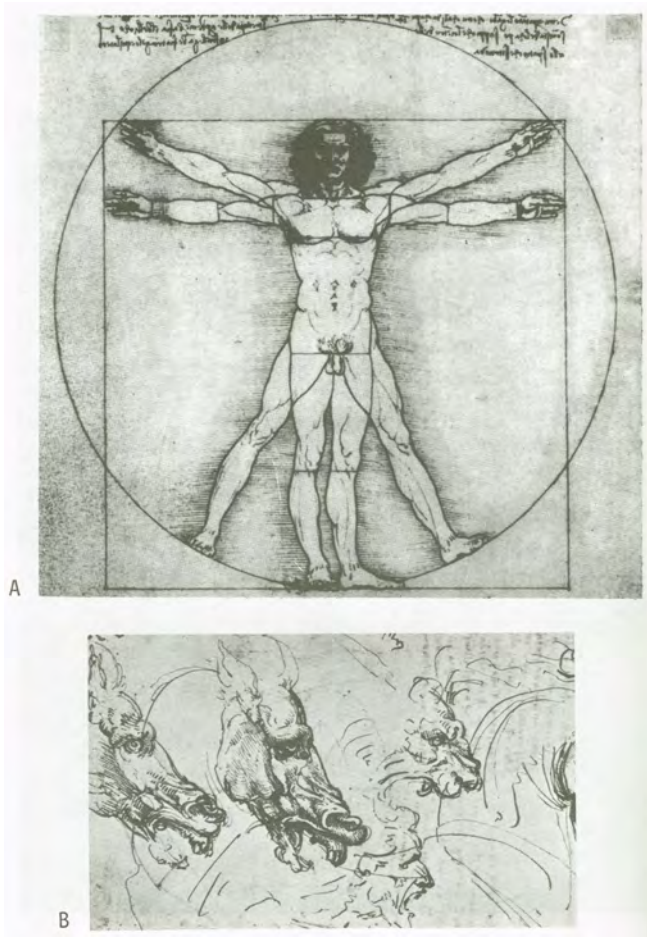


Fig. 36.
Leonardo da Vinci. Superimpositions and fusions. A. Leonardo's famous drawing illustrating the proportions of the human figure shows two men superimposed on each other. Accademia di Belle Arti, Venice. B. "Beastly madness"—horse, lion, and man's head in successive fusions of each with the others. Royal Library, Windsor Castle, copyright reserved.

and a circle (center at the navel) and an equilateral triangle (position of

spread legs), he superimposed two figures and these geometrical patterns upon one another. The other is a sketch for the cartoon of *The Battle of Anghiaii* consisting of a series of heads—a lion's, a horse's, and a human—each fused in sequence with one another which, according to Leonardo scholar Brizio, represents Leonardo's view of war as "beastly madness" (fig. 36b).[12] Consequently, it is a reasonable assumption that the visual metaphorical effect I have described in connection with a completed painting was a direct result of Leonardo's use of homospatial thinking during the course of the creative process. To produce the visual metaphor of the Gioconda smile, and of the figure looking both outside and within simultaneously, Leonardo transformed and integrated janusian conceptions by means of the spatial superimpositions and fusions of the homospatial process.

Now, let us go on to some evidence pertaining directly to the creative process. Visualizing or seeing the visual metaphors I have described requires the viewer to construct a mental image in which discrete elements occupy the same plane, spatial location, or area of space. That such metaphors as I have identified in completed works are derived from superimpositions and fusions on the creator's part during the process of creation is strongly suggested by the personal testimony of diverse types of artists. Here is an indication from the creator of the visual metaphor in sculpture I discussed, Henry Moore:

> This is what the sculptor must do. He must strive continually to think of, and use, form in its full spatial completeness. He gets the solid shape, as it were, inside his head—he thinks of it, whatever its size, as if he were holding it completely enclosed in the hollow of his hand. He mentally visualizes a complex form *from all round itself;* he knows while he looks at one side what the other side is like. [Italics added][13]

As Moore describes it, the sculptor has a mental image involving the multiple aspects of a form and of masses "completely enclosed" in a single spatial area, the figurative "hollow of his hand," a clear instance of homospatial thinking. Unlike ordinary perception involving a general sensing of other (nonvisualized) sides of a form, he indicates the bringing together of complex and detailed features into a single image. Though we lack exact data linking this thought process to any one of Moore's particular works, such as systematic observations gathered during the creative process, Moore's description of his conscious creative thinking can be readily related to those effects stipulated for *Helmet Head No.* 5. Kokoschka, with whose painting Aldrich explicated the visual metaphor effect, also made comments indicating conscious awareness of visual metaphor effects and of the experience of discrete entities occupying the same space. The following are remarks taken from a letter by Kokoschka to his friend, Hans Tietze, about his painting in progress, *Gamblers:*

> It represents my friends playing cards. Each terrifyingly naked in his passions, and all submerged by a color which binds them together just as light raises an object and its reflection into a higher category by revealing something of reality and something of its reflection, and therefore more of

both.[14]

Other artists of different types and periods have provided other descriptions of and evidence for the homospatial process in visual art creation. Auguste Rodin, the French sculptor of the nineteenth century, said it as follows:

> to make a bust does not consist in executing the different surfaces and their details one after another, successively making the forehead, the cheeks, the chin and then the eyes, nose and mouth. On the contrary, from the first sitting the whole mass must be conceived and constructed in its varying circumferences; that is to say, in each of its profiles.[15]

Michelangelo wrote some lines in a poem which, if they represented his own creative thinking, indicated a homospatial process. The lines are the following: "The best of artists hath no thought to show/Which the rough stone in superfluous shell doth not include." The suggestion is that the sculptor has already seen something in the stone when he starts to work, a superimposition therefore of a mental image onto the material. In another poem, a madrigal, it is even more explicit: "Lady, in hard and craggy stone the mere removal of the surface gives being to a figure, which ever grows the more the stone is hewn away."[16]

Claes Oldenburg, the modern pop art sculptor and originator of "soft" sculpture, documented a manifest and distinct form of the thought process in his notebooks of preliminary drawings and sketches representing ideas for

his works. Figures 37-39 show drawings involving fusion and superimposition of discrete entities and forms. The drawing labeled *Typewriter-Pie* (fig. 37) shows a fusion of an old typewriter with a pie shape,- both entities are integrated into a visual metaphor that Oldenburg designates as relating to an aircraft carrier.[17] For *Circus Girl on a Big Ball* (fig. 38), Oldenburg documented the following: "Sketch done after attending the circus. The interesting element here is the fusion of ball and body."[18] And for *Material and Scissors* (fig. 39), he wrote: "A sketch for a sculpture not yet executed. The conception here is that material and scissors are unified."[19]

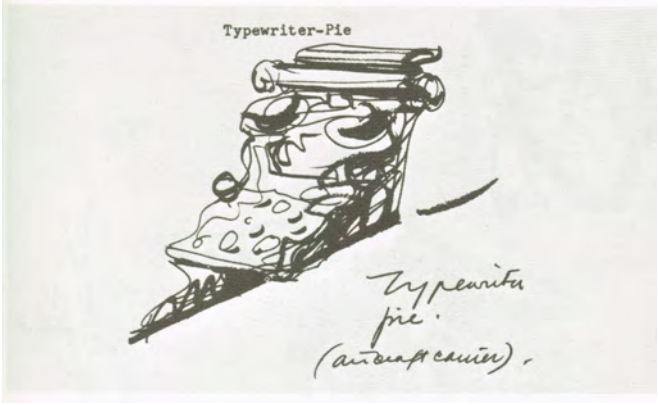


Fig. 37.
Claes Oldenburg. Typewriter-Pie. A typewriter superimposed onto a pie. From Claes Oldenburg, Notes in Hand (London: Petersburg Press, 1972).

As Oldenburg is sometimes considered not to be serious, and therefore is a difficult creative artist to evaluate, it will be of interest to focus on

evidence gleaned from the creative work of Klee. Klee, cited earlier in connection with endotopic and exotopic perception (chap. 7), provides a stepwise account of the nature of the homospatial process (see fig. 40)[20]—though he does not call it that—involved in his creation of the watercolor entitled *Physiognomic Lightning* (and other works). As the material comes from his notes for teaching art students, the conception is presented in sequence and alternatives are discussed analytically. Fie first presents the problem of how to fuse a circle and a line. Then he differentiates between combination (fig. 40a), repetition (fig. 40b), transposition (fig. 40c), compromise or "evasion" (fig. 40d), and the active striking of the middle (fig. 40e) that is the solution of the problem and the fusion of homospatial thinking. As this is a didactic format, there is little reason to believe that Klee himself developed the conception for the painting in the plodding, stepwise fashion described. On the contrary, it appears to be Klee's retrospective explanation of his own more spontaneous cognition.

Another leading German expressionist painter, Max Beckmann, less analytic and didactic than Klee, described a rather global bringing together of discrete entities into the same space in his creative work: "What helps me most in this task is the penetration of space. Height, width, depth are three phenomena which I must transfer into one place to form the abstract surface of the picture."[21]

Fig. 38.
Claes Oldenburg. Circus Girl on a Big Ball, 1958. Ball and body are fused. From Claes Oldenburg, Drawings and Prints (London: Chelsea House Publishers, 1969, p. 25).

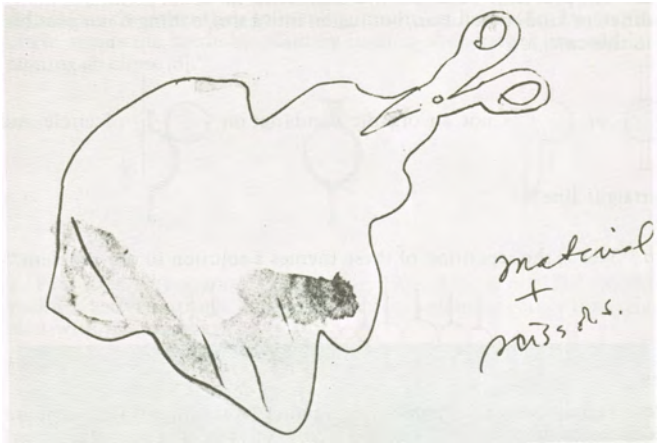


Fig. 39.
Claes Oldenburg. Material and Scissors, 1963. The material and the scissors are fused. From Claes Oldenburg, Drawings and Prints (London: Chelsea House Publishers, 1969, p. 127).

Two further instances come from completely different types of painters. These painters, the English satirist of the eighteenth century, William Hogarth, and the unclassifiable French original of the twentieth century, Henri Matisse, advocate an emphasis on visual integration in creation and, by implication, homospatial thinking. First, Matisse. He discusses his experience with the art movements of divisionism and fauvism to which he had belonged:

These rebellions led me to study each element of construction separately—drawing, color, values, composition; to explore how these elements could be combined into a synthesis without diminishing the

eloquence of any one of them by the presence of the others and to construct with these elements, *combining them without reducing their intrinsic quality;* in other words, to respect the purity of the means. [Italics added][22]

As I discussed earlier, combining *without reducing* intrinsic quality is the essence of integration. In integration, elements retain their identity within a whole. Hogarth advocated a similar approach in his discussion of the creative use of color in his classical treatise on art: "By the beauty of coloring, the painters mean that disposition of colors on objects, together with their proper shades, which appear at the same time both distinctly varied and artfully united, in compositions of any kind." And also, "the utmost beauty of coloring depends on the great principle of varying by all the means of varying, and on the proper and artful union of that variety."[23]

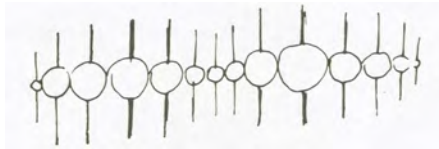
Homospatial thinking in the visual arts is not connected to particular styles, time periods, schools, or movements, it is intrinsic to the creation of art. Neither is this type of thinking limited to visual imagery or mental seeing. Although visual imagery is frequently a major ingredient of homospatial thinking in the visual arts, as I stated earlier, all sensory modalities and all types of sensory imagery are also involved. Discrete kinesthetic, tactile, gustatory, olfactory, auditory as well as visual sensations are also conceived as fused, superimposed, and occupying the same space. Kinesthetic sensations of moving both frontways and sideways in the same space, tactile

sensations of smoothness together with lumpiness or sharp together with round, influence and direct the artist's creation. In sum, homospatial thinking may involve all sensory modalities at once and, in a related way, the artist may conceive of *himself* as occupying the space of the work or of the materials of which it is to be constructed. The cubist painters Gleizes and Metzinger described such a phenomenon as follows: "To establish pictorial space, we must have recourse to tactile and motor sensations, indeed to all our faculties. It is our whole" personality which, contracting or expanding, transforms the plane of the picture."[24]

a. "The problem: 'Fusion of two characters' no doubt permits of many different kinds of solution, but fusion into a single thing is not possible in this case, for

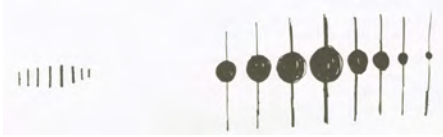
 or  is not an organic combination  of circle and straight line

b. "Not is the repetition of these themes a solution to our problem."



c. "Perhaps we can appraise the situation more easily if we transpose

our forms into matter. Then we might conceive of a row of unequal sticks, a bit like piano keys, each with the top of a tin lying over it.

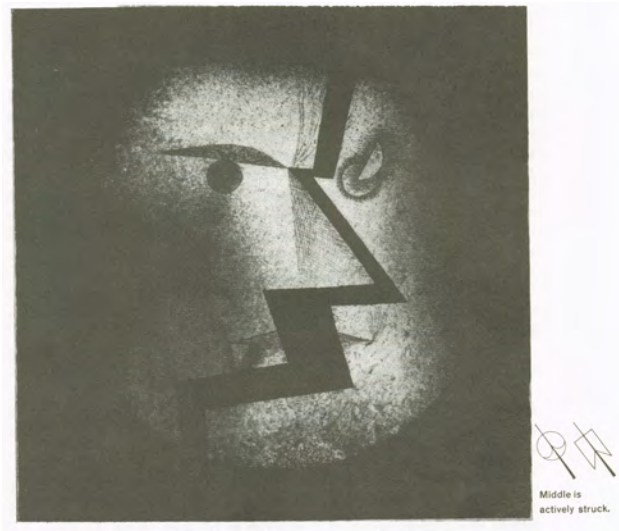


In this case we no longer have unified objects but rather two material items without visible relation between them, just one on top of the other, quite meaningless."

Fig. 40.
Paul Klee's steps toward the creation of the painting Physiognomic Lightning, from Klee's The Thinking Eye (New York: Wittenborn Art Books, 1961).

d. "Adaptation by evasion; in the first case they go round on one side [1], in the other they split and go round on both sides [2], Or the circle avoids the battle by adapting itself to the straight line and becoming an ellipse [3]."

e. Paul Klee. Physiognomic Lightning, 1927. Klee says: "The middle realm is actively struck. Two heterogeneous elements enter into relation with one another. . . ."



Moore even more pointedly describes the superimposition of an image of the self onto the object: "he [the sculptor] identifies himself with its [the solid shape's] center of gravity, its mass, its weight, he realizes its volume as the space that the shape displaces in the air."[25] And is it not likely that he "identifies" with its hardness as well? In another place, Moore indicated the intrinsic nature of the superimposition of material and mental image, and the factor of psychological interaction, as follows: "Every material has its own individual qualities. It is only when the sculptor works direct, when there is an active relationship with his material, that the material can take its part in the shaping of an idea."[26]

Such interaction between mental image and the materials with which

the artist works is crucial in every type of visual art. The painter visualizes lines, colors, and shapes all occupying the same space or spatial location as the textured canvas itself, and he allows visualized images and texture to interact, mutually modifying and influencing each other. The creative artist brings into a single mental percept the qualities of his material together with his conception; his work develops from the intense unbridled co-mingling of image and object and results in an integration of qualities of line, color, and texture. The paintings of Rembrandt, where the striking sense of emergent soft light results from both dark and lighter pigments mixing with the finely textured but flat surface of the underlying canvas, surely suggest that such conceptions are necessary. In another type of fusion of image and material, the heavy swirls of paint characteristic of van Gogh must have derived from a mental conception in which the qualities of paint and brush were as distinct and prominent as the subjects and scenes they depicted. Indeed, numerous artists after van Gogh have intentionally focused on just this particular fusion and this type of visual interaction. Covering large canvases with a single color or with a simple arrangement of lines and colors, they celebrate the interaction of these colors and lines with the texture and shape of the canvas, the qualities of the paint, and the action of a brush or other implement.

Graphic artists, especially, approach their task by superimposing visual conception with tangible material at every step of the way. Working with wood, metal, glass, or stone, they are constantly mindful of grains and

surfaces and they capitalize on the nuances of shape and shadow produced by every cut or scratch they make. Every aspect of the material—smoothness, hardness, blemishes, and lines—provides continual sensory impressions and feedback that intermingle and interact with the artist's mental image. Totally immersed in his material, the graphic artist continually touches, looks, and smells wood, rose paper, or rice paper as he goes along. At times, he even seems to have a sense of the material's taste.

Interaction with the object, spatial fusion or superimposition of mental percepts of the work in process with mental images and conceptualizations, is a crucial aspect of the creative process in other areas beside the visual arts. But before leaving the visual arts to discuss other art forms, I will again consider architecture, the complicated enterprise that defies strict categorization as a type of art. Even a cursory reflection on architecture should, in the light of what I have shown so far, suggest that homospatial thinking is very important there. Architects are preeminently concerned with space and they conceptualize in spatial terms. Functional considerations of developing "multiuse space"[27] and artistic considerations of keeping in mind multiple spatial aspects—similar to conditions of sculptural creation —all suggest the operation of homospatial thinking. Just as in valued sculpture, empty space is an object to be manipulated by creative architects. But, in addition to considering its perceptual interaction with solid massive areas, the architect must manipulate empty space for functional use.

A striking example of homospatial thinking in architectural creation comes from the work of the American architect Louis Kahn. Although it was never built, the design by Kahn for the "Palazzo dei Congressi," the Congress Hall in Venice, was honored in a Single Building Exhibition in 1968, Kahn's last exhibition during his lifetime. In creating the design for this civic theatre, Kahn reported that he was from the first confronted with the problem of providing for the assemblage of a large crowd of people in a building to be constructed on a narrow and extended lot. The solution to this problem, he said, was represented in a diagrammatic drawing shown in figure 41 (left). His comments about this drawing, in response to a question from an interviewer, were as follows:

> I don't know how one identifies the first idea, but for me it is usually the sense of the building in its core, its full meaning, its nature, *not* its shape. Its nature was that of involvement, of participation. A simple shape which only emphasizes a direction [meaning the narrow parallel lines] doesn't have the nature of participation in it. It is, on the contrary, analogous to watching or hearing, not participation. The circle, to me, was participation. The fact that I could adjust to a site which was narrow has to require that one side looked to the other. But the shape should not be adjusted to that narrow site in such a way that it becomes purely directional, because there would be no participation. . . .
>
> In the center of this is the organizational position, and this center was the dimension I had to include to make sure that people saw people. It was a confrontation of people with people.[28]

The final ground plan Kahn developed is shown in figure 41 (right) and it details his idea of a circular center merging with longer areas to allow for

participation. In addition to its salience as an example of homospatial thinking, the sequence Kahn describes provides a particularly full account of the rapidly occurring steps in the process.

Kahn emphasizes that his first idea was a particular formulation or conception: he was aware of the narrow building lot but he wanted to produce a sense of involvement and participation in that space. This sense of involvement he thought of in terms of a particular shape, the circle. He then superimposed the circle upon the narrow lines representing the dimension and shape of the building lot. He conceived of the discrete shapes as occupying the same space because he felt they *ought* to do so. Then, he used this image as the basis for the actual ground plan he designed.

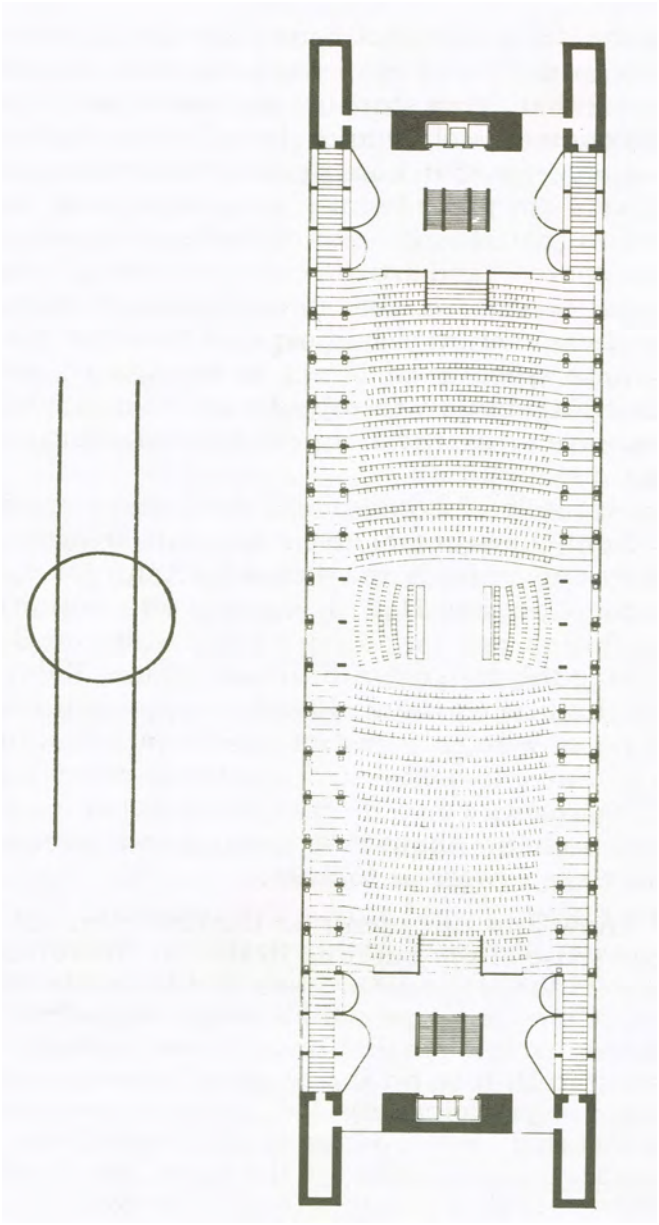


Fig. 41.
Louis Kahn's development of a design: diagrammatic representation of his first conception of the Congress Hall in Venice (left) and Congress Hall, ground plan (right). The superimposition of a circle onto parallel lines resulted in the design allowing for participation. From Conversations with Architects by John W. Cook and Heinrich Klotz. Copyright c 1973 John W. Cook and Heinrich Klotz. Praeger Publishers, Inc. Reprinted by permission of Praeger Publishers, Inc., a division of Holt, Rinehart and Winston.

Fusing and superimposing because discrete entities *ought* to be together is a cardinal feature of the homospatial process. The creator does not bring them together because of accidental or random association, nor merely because of learned similarities or contiguities. He *willfully* and *intentionally* brings them together for aesthetic, practical, scientific, emotional, or philosophical reasons. He wants, for instance, to provide for a particular function in a particular space or to explore the visual qualities of particular forms, or to relate emotionally charged objects or colors, or to plumb the meaning of a personal or universal experience. There are often similarities between aspects of the discrete entities brought together in this way but such similarities *do not dictate* the superimposition and fusion, they merely facilitate it to some degree. Commonly, unexpected similarities are discovered after the specific homospatial conception: a woman's face superimposed on a white marble block may suggest a particular milky pallor to be emphasized. With literary metaphors, as I shall shortly describe, this is usually the case. For Kahn, the flat sides in the center of the narrow lot became similar to a circular form when he saw that people could be placed to look across at each

other in varying ways. As he so vividly described, his visual conception of a circle superimposed upon the elongated straight lines enabled him to develop that particular design.

All homospatial thinking in the visual arts proceeds in the manner Kahn has indicated. The sculptor, painter, graphic artist, and the architect begin with a vague thought or intention. The thought may consist of a functional idea such as the need for assemblage or it may be primarily a visual or sensory one, such as contemplating a possible painting based on a scene, on several colors, or shapes or lines. At some point in the process, discrete entities are conceived as occupying the same space and a visual metaphor or, in conjunction with other processes, a more elaborated visual creation is produced.

Music

Because music is an auditory and temporal art, consisting of sounds occurring in time, it is difficult to discuss in terms of spatial experience. Primarily, this is because we tend to think of space as consisting only of visually perceived phenomena. While there is a fascinating and continuing philosophical controversy about the spatial attributes of music as well as about the nature of space itself, I shall for the moment bypass those issues.[29] With respect to psychological experience, we characteristically perceive

distinctly differentiated relationships within music, designated as high and low and as foreground and background. Such designations are, at the very least, appropriately used to refer to a psychological experience of space in music. Auditory patterns with foreground and background features and directional features of high and low are subjectively experienced as real attributes. In all likelihood, the directional features are based on the portions of the human body involved in the physical production of sound. Rapid sound waves associated with high-pitched sound are produced by the upper or higher portions of the human vocal apparatus and slower waves associated with lower-pitched sound are produced lower down. Because, moreover, all sound is derived from waves occurring in a physical space generally perceived as distinct from our own spatial location, we organize it in terms of patterns having spatial characteristics. These factors form the basis for the considerable importance of homospatial thinking in the creation of music.

Just as there is visual metaphor in painting and the other visual arts, there is auditory or sound metaphor in music. Auditory metaphor is just as essential to music as is visual metaphor to the visual arts. Because music may depend more on so-called formal qualities than does visual art, metaphor as a formal integration may in fact be more important for music. By auditory metaphor, I am referring to an experience or a structure that is familiar to sophisticated music listeners: a sound unity in which variety continues to be discernible, an integration of multiple elements—be they melodies,

harmonies, rhythms, or types of instruments—in which the discrete elements are heard.[30] All good music contains such integration throughout and all good music listening discerns and appreciates it. Successful polyphonic music is a clear instance, such music consists of many voices or types of sounds heard both as effectively unified and effectively separate, a broad type of auditory metaphor. And music based on traditional harmonies, on tonality or atonality, and even on electronic sources contains it. In harmonic music, for instance, one of the effects of thematic progression and development is to emphasize various harmonic elements accompanying the melody, an emphasis that stimulates and intensifies the hearing of interactions between melody and harmony. Such interaction, the sine qua non of metaphor, is produced on hearing the musical work itself; it is not derived from "extra-musical" sources such as visual or even emotional associations of the sounds, although these latter factors may also play a role. It is an auditory experience of unity with diversity, a sense of polyphony within homophony, and of homophony within polyphony. Its presence is a criterion of excellence throughout all forms and types of music.

To produce such metaphors, the composer uses homospatial thinking. Just as the visual artist brings foreground and background into the same visual plane, superimposing and fusing the images in his mind, so too the composer superimposes auditory patterns and images. Such a process is described by Beethoven in a description of his creative experience:

> I carry my thoughts about with me for a long time, often for a very long time, before writing them down. I can rely on my memory for this and can be sure that once I have grasped a theme, I shall not forget it even years later. I change many things, discard others, and try again and again until I am satisfied; then, in my head, I begin to elaborate the work in its breadth, its narrowness, its height, its depth and, since I am aware of what I want to do, the underlying idea never deserts me. It rises, it grows, *I hear and see the image in front of me from every angle, as if it had been cast, and only the labor of writing it down remains. [Italics added]*[31]

In referring to the casting of an image, the great composer draws a direct analogy with sculpture and this description of his creative thinking is strikingly reminiscent of the previous description by Henry Moore. Every angle of the image is seen within the same space. For Beethoven, auditory images already formed are spatially manipulated and superimposed; for another composer, Robert Schumann, there are diffuse spatial superimpositions and fusions of sounds and shapes even earlier in the creative process, at the point of attaining his initial musical ideas:

> People err when they suppose that composers prepare pens and paper with the predetermination of sketching, painting, expressing this or that. Yet we must not estimate outward influences too lightly. Involuntarily an idea sometimes develops itself simultaneously with the musical fancy; the eye is awake as well as the ear, and this ever-busy organ sometimes holds fast *to certain outlines amid all the sounds and tones, which, keeping pace with the music, form and condense into clear shapes.* The more elements congenially related to music which the thought or picture created in tones contains within it, the more poetic and plastic will be the expressiveness of the composition, and in proportion to the imaginativeness and keenness of the musician in receiving these impressions will be the elevating and touching power of the work. [Italics added][32]

Both Schumann and Beethoven allude to visual images in these experiences during the creative process, but there is no reason to assume that purely auditory factors could not be handled in a similar manner. The composer conceives a thematic pattern in which high and low sounds define a vertical auditory dimension while rhythm is experienced as moving along the horizontal. He then fuses and superimposes these discrete dimensions to develop a mutually interacting unity. In more general perceptual terms, the composer, in the purely auditory sphere, superimposes figural patterns and ground patterns.[33]

Arnold Schoenberg clearly refers to auditory experiences in his formulation of a principle of creative thinking in music:

> the last century considered . . . a procedure [such as mine] cerebral and thus inconsistent with the dignity of genius. The very fact that there exist classical examples proves the foolishness of such an opinion. But the validity of this form of thinking is also demonstrated by the . . . law of unity of musical space, best formulated as follows: *the unity of musical space demands an absolute and unitary perception. . . .* Every musical configuration, every movement of the tones has to be comprehended primarily as a mutual relationship of sounds, of oscillatory vibrations. . . . To the imaginative and creative faculty, relations in the material sphere are as independent from directions or planes as material objects are, in their sphere, to our perceptive faculties. . . . Our mind always recognizes, for instance, a knife, a bottle or a watch, regardless of its position and can reproduce it in the imagination in every possible position.[34]

For Schoenberg, as for Beethoven and Moore, there is the experience of mentally perceiving all aspects of an entity within the same space. Musical

entities are independent of spatial constrictions for the composer because he freely superimposes and fuses them in a unified space.

Mozart reputedly used purely auditory imagery in his composing. That a homospatial process of superimposing prominent and subordinate themes and patterns occurred in Mozart's creating is suggested by observations based on manuscripts of his work such as the following one: "in the *Andante Cantabile* of the C Major Quartet (K 465) he [Mozart] adds a coda in which the first violin openly expresses what seemed hidden beneath the conversational play of the subordinate theme."[35] This observation was made by the Mozart scholar, Einstein, who intensively studied Mozart's musical creating through the manuscripts of his works and the construction of the works themselves.

Schoenberg was one of few composers leaving a well-documented verbal account of successive steps in the composition of a particular musical work. Emerging from this is a concrete description of the use of a homospatial conception in a specific creation. After reporting the nature of some alternate versions of the beginning of his First Chamber Symphony, Schoenberg says:

> In all these cases there was no problem which one would call complicated. There was no combination of voices whose contrapuntal relation required adaptation, as in the [previously given] example from *Verkldrte Nacht.* In these first notations, there were even no harmonic progressions which demanded control. There was at hand from the start a sufficient amount of motival forms and their derivatives, rather too much than too little. The task, therefore, was to retard the progress of development in order to enable the average good listener to keep in mind what preceded so as to

> understand the consequences. To keep within the bounds and to *balance a theme whose character, tempo, expression, harmonic progression, and motival contents displayed a centrifugal tendency:* this was here the task. [Italics added][36]

Schoenberg strove for and achieved this "centrifugal tendency." In order to experience such a tendency for the theme to move in an outward direction from a central core, it is necessary to experience all the discrete elements he mentions as moving together and occupying the same space. The point is not merely that this composer is using a spatial term; that could be merely a figurative expression, an analogy. The point is that the particular spatial term, "centrifugal," describes a feeling about the qualities of the theme that could only be derived from a homospatial conception of discrete aspects of the theme occupying the same space.

With respect to electronic music, much is so new and criteria so fluctuating that it is difficult to discuss the work of any particular composer without arousing a good deal of controversy. Moreover, specification of the spatial elements in this form of music is complicated by the inclusion in the creative process of visual factors connected to the physical wave properties of sound. Nevertheless, I shall quote an interesting observation made by the modern Israeli composer, Joseph Tal, because, despite its visual emphasis, it pertains to some of the particular spatial superimpositions in music I have discussed:

> We are now able to produce electronically the most rapid variations in time with a precision which has hitherto been unobtainable. These are added to the timbre characteristic of the basic tone and produce finally, *by a combination of vertical and horizontal relationships, a frequency structure where individual organisms are absorbed into serving the whole.*
>
> It follows from this suggestion that a systematic number of experiments may lead to a formulation of ideas from which the composer may choose and elaborate suitable tone material. Such a sound, coming in this way from a number of sources, is indeed to be found in every score of Ravel and indeed, based on this tradition, we should gain sufficient knowledge and confidence to be able to find our way in a more or less intelligent manner in the new area of electronic music. [Italics added][37]

Here, in the electronic music laboratory, is the interaction and superimposition of spatial relationships with sound qualities to construct integrated wholes.

Although visualization is often absent from musical composing and creating, those composers who routinely employ visual imagery make use of a form of homospatial thinking. Beethoven, for instance, indicated a constant superimposition of auditory and visual imagery during composing in a confession made to his poet friend, Neate. While walking in the fields near Baden, Neate made a comment to Beethoven about his Pastoral Symphony and his power of painting pictures in music. Reportedly, Beethoven stated: "I have always a picture in my mind, when I am composing, and work up to it."[38] In stipulating the "working up" to a visual image, Beethoven describes not a synaesthetic experience, a mere association of sounds with visual imagery,

but rather an active interaction between auditory and visual imagery in his mind, a superimposition of entities from discrete sensory modes. As Richard Wagner stated in an interview with his colleague, Englebert Humperdinck: "I see in my mind's eye definite visions of the heroes and heroines of my music dramas. I have clear mental pictures of them before they take form in my scores, and while I am holding fast to those mental images, the music—the Leit-motives, themes, harmonies, rhythms, instrumentation—in short, the whole musical structure, occurs to me."[39]

Active or purposeful superimposition, fusion, and interaction of discrete entities—whether purely auditory, or auditory and visual, kinaesthetic, or other sensory modality together—is a criterial feature of homospatial thinking in music just as in visual and other arts. Because the superimposition and fusions are often very rapid and, for many composers, completely routine, the willful and intentional aspect tends to escape their notice. In conceiving such musical organizations as polyphonies, or even the simple concatenation of rhythmic patterns executed by multiple drums, the integration produced is not random or accidental, but willfully conceived. This is true whether the music is improvised, as in jazz, or carefully constructed before it is performed; in both cases, consistently successful integration is "composed" or made. In improvised music, the superimpositions and fusions are carried out in ongoing and split second fashion; in written music it is merely somewhat more leisurely done.

Although John Cage and other proponents of so-called random music might insist that such willful intention is not necessary to produce worthwhile music, their position does not apply to musical creation as it is customarily understood—or else the type of integrations they produce exists on a different level than the one I am discussing here.

That superimposition of discrete entities is intentional is evident on careful reading of the following statement by Hindemith. This statement is frequently and erroneously quoted as a description of a mystical unconscious inspiratory experience, but, despite the sense of an extensive and comprehensive vision, the key emphasis in Hindemith's account is on the conscious and purposeful superimposition of the whole structure or form onto its discrete parts. Moreover, there is the suggestion of a superimposition of visual (seeing the form) and auditory (the sound details) elements within the same space.

> We all know the impression of a heavy flash of lightning in the night. Within a second's time we see a broad landscape, not only in its general outlines but with every detail. Although we could never describe each single component of the picture, we feel that not even the smallest leaf of grass escapes our attention. We experience a view, *immensely comprehensive and at the same time immensely detailed,* that we could never have under normal daylight conditions, and perhaps not during the night either, if our senses and nerves were not strained by the extraordinary suddenness of the event.
>
> Compositions must be conceived the same way. If we cannot, in the flash of a single moment, see a composition in its absolute entirety, with every

> pertinent detail in its proper place, we are not genuine creators. . . . Not only will he [the composer] have the gift of seeing—illuminated in his mind's eye as if by a flash of lightning—a complete musical form (though its subsequent realization in a performance may take three hours or more); he will have the energy, persistence and skill to bring this envisioned form into existence, so that even after months of work not one of its details will be lost or fail to fit into his photo-mental picture. [Italics added][40]

Suddenness and drama, even possibly some unconscious and mysterious factors, but the conscious use of homospatial thinking as well!

Literature

Homospatial thinking operates in numerous and diverse ways in literature. In addition to producing metaphors and integrating janusian formulations, this form of cognition operates in poetry to produce meaningful and effective rhymes, alliterations, and assonances. Entities which are connected or juxtaposed, such as the opposites in a janusian construct, words with similar graphic or phonetic properties, and words that are homographic homophones yielding double meanings are subjected to the superimposition and fusion of the homospatial process. In the case of some of these connections and juxtapositions, such as sound-alike or rhyming words, the initial coming together may be the result of a trained association process: the poet teaches himself to remember words with similar phonetic properties and they come to mind as associations to other words.[41] But the homospatial

process is not associational; here again the principle is based on "ought," the words are superimposed or fused because the poet wills it. For emotional and/or aesthetic reasons, the poet wants to unify the words or to elaborate their intrinsic meanings and relations. After arriving at a juxtaposition of similar sounding words by association, he superimposes or fuses them in his mind and the resulting conception *generates wordings and ideas.*

In the creation of a poem about a scene on a beach, one of my research subjects had followed the line, "Or lathered magmas out of deep retorts," with the beginning of a new stanza, thus:

> Welling, as here to fill
>
> With tumbled rockmeal, stone froth, lithic fire
>
> The dike's brief chasm and the sill . . .

And there he stopped. He had earlier adopted a rhyme scheme based on the pattern ABABCC, and the line to be written would need to rhyme with the second line end word "fire." Not satisfied with any ideas involving such a rhyme, he stopped working on the poem that day. When he returned the next morning, he began thinking of the image of the beach, and of the ocean, and he thought of the word "spray." Deciding to change the word "fire" to "spray,"

he then searched for rhymes for the latter word and thought of "day." Next—and here the particular homospatial conception occurred—the words "day" and "spray" *together* produced an idea and image embodied in the following line, the line that became the fourth in the stanza:

Weathered until the sixth and human day.

As he described the conception, the printed words "day" and "spray" were clearly superimposed upon one another and an image of day's brightness and the watery spray were also superimposed. Words and images are always mentally connected—for everyone—and these superimposed words and images produced the idea of "weather" and "weathering." Though it is not accurate to describe this conception sequentially, as it occurred virtually all at once, the biblical reference to "the sixth and human day," the reference to the Creation, developed from the image of the weathering by both spray and day (i.e., time). In addition to brightness, the connotation of day as a temporal factor—the passage of days and of time—led to the idea of God's Creation in this context. Diagrammatically, the process could be described as shown on the accompanying figure (fig. 42).

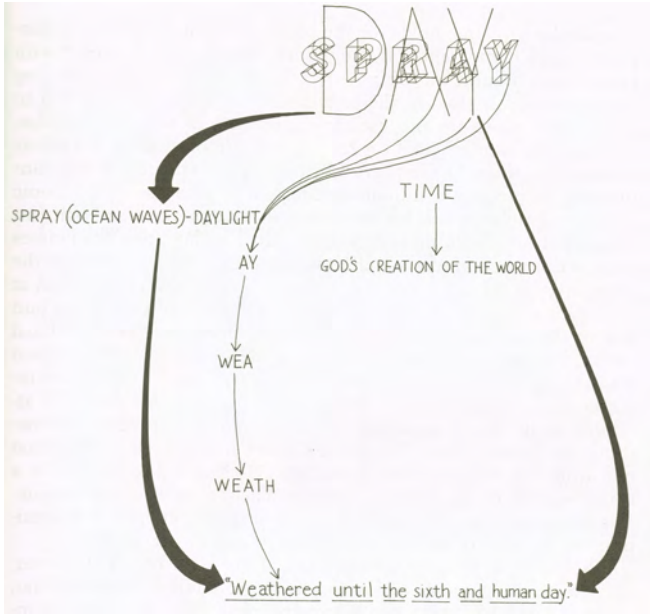


Fig. 42.
Diagrammatic representation of the homospatial conception consisting of images of watery (ocean) spray and bright day (daylight), day as elapsed time, and of the printed words themselves led to the poetic line: "Weathered until the sixth and human day."

Hence, the homospatial conception of day and spray superimposed and occupying the same space led to the construction of the entire line and to the introduction of the first reference to God's Creation in the poem. Though the poet had a dim idea of connecting the beach scene to this larger idea when he worked on the earlier portions of the poem, it only became a realization through the development of this line. It is hardly necessary to decide with certainty whether the Creation idea generated the homospatial conception or

the latter generated the idea: the concrete realization of the idea, the poetic creation of this line, and the subsequent references to Creation in the poem were clearly made possible through the homospatial process.

A similar principle holds for the poetic use of homographs, homophones, and homographic homophones. Words such as "rifle" with two or more discrete meanings—the weapon and the act of searching—are notoriously used in the ordinary construction of puns. But in poetry such words are also used in a more serious way. Shakespeare, for instance, is often cited for his copious use of puns in his poetic dramas. But while Shakespeare and other poets frequently use puns in order to produce a humorous effect, they also use homophonic and homographic words for more profound and serious embodiment of aesthetic multiple meanings or so-called ambiguities. Sometimes these serious and humorous effects cannot be separated because the artist intends the same words or phrases to serve several purposes at once. Quite separate, however, are the psychological roots of the pun and of the aesthetically intended multiple meaning. As mentioned earlier, the pun is a technique of wit that depends, for its effect, upon what Freud called "rediscovering what is familiar."[42] When, for instance, the punster uses the word "rifle" in a context that calls attention to its double meaning, we laugh upon recognition of something we already know. The pun calls our attention to the fact that one word has two disparate meanings. Used as a joke, a pun is a manifestation of the primary process mechanism of condensation. It is

experienced as pleasurable because of the experience of recognition and because of an attendant relief of psychic expenditure.

When homographs or homophones are used in poetry, however, they are often elaborated to develop an appreciation of the unfamiliar, an experience that may actually involve initial discomfort and an increased psychic expenditure. Depending on the context, little humor or relief may be involved. Generally, a creative poet uses the homophones or homographs in contexts that integrate the meaning with the sound or written form; the disparate meanings of the word are related to suggest identities of meaning paralleling the identities of sound and written form. This was demonstrated in the creation of "In Monument Valley" with the poet's use of the homophone "gait" where the motion of the horse was related to a figurative passing through the gate of heaven (chap. 3). In the case of the word "rifle," an effective poetic construction might emphasize the violence of the weapon and the violence of an act of searching or rifling through a drawer. When such an integration is produced, it is the result of homospatial thinking and the intentional superimposition of images suggested by the two meanings of the word. It does not result from condensation and primary process thinking. The difference can be characterized as follows: the punster is satisfied to call attention to a double meaning, to point it out and leave it alone so to speak; the creator, however, does something with these meanings, namely integrates them into an aesthetic whole. When the punster is also a creator, such as

Shakespeare, he often uses the pun both as a joke and in an integrated, more serious way. In context, the pun produces comic relief or illustrates a speaker's character and also has a deeper impact. The first effect of producing laughter gives way to slight discomfort or thoughtful consideration. Note in *Macbeth,* for instance, the porter's wry punning comment on drink: "[it] equivocates him in a sleep, and, giving him the lie, leaves him" (act 2, sc. 3, line 34).

To return to metaphor, it is in production of metaphors that homospatial thinking plays one of its major roles in literary creation. Fortunately, unlike with visual and auditory metaphor, instances of literary metaphor require little exegesis or explanation. One bit of caution, however: although particular instances of literary metaphor are readily identified and agreed upon, there is nowadays a good deal of disagreement in psychological, philosophical, and linguistic quarters about the nature of metaphor in the general sense. And an even more important caveat: when discussing metaphors in literature, one must bear in mind the distinction between the tired metaphors and clichés of everyday language and the fresh and penetrating created metaphors in poetry and other types of literary art. Only in the construction of these latter types of metaphors does the homospatial process play a crucial role (N.B.: except, as with the integration of puns, it also integrates clichés into new metaphors).

Earlier in the book I cited the instance of a central literary image or metaphor (horse and rider in one accord) resulting from my research subject's homospatial thinking. Now I shall reproduce and discuss some documented material on metaphor creation from other poets who have not been subjects of mine. Although some of the works I shall examine would not be generally considered as effective or as valuable as "In Monument Valley," the particular metaphors discussed are, I believe, definite creations with artistic value in their own right. Moreover, as the following descriptions come from published material written by poets who were not my subjects, these are creative sequences free of any possible influence, even small or indirect, on my part.

In an appendix to the 1942 edition of the book, *An Anatomy of Inspiration* by Harding, the British poet Robert Nichols presented an account[43] of the thoughts and events connected to his writing of the following poem:

Sunrise Poem

The sun, a serene and ancient poet

Stoops and writes on the sunrise sea

In softly undulant cyphers of gold Words of Arabian charactery,

And the lovely riddle is lovingly rolled

With sound of slumberous, peaceful thunder

Around the sky and sea thereunder Toward my feet. What is here enscrolled?

Is it a poem or a story?

I cannot command this charactery,

But I think it is both and that it reads

This glorious morning as of old

When the first sun rose above the first sea,

As read it will while there is sea And sun to scribe with quill of gold.

It is both a story and a poem,

A hymn as also a history Concerning the mightiest of mages,

The best that has been or shall be Writ for any throughout the ages,

Writ for any, whoever he be

Or the most scholarly of sages

Or the most awkward of those who plod,

For Greek, Jew, Infidel and Turk—

As it was written too for me—

One page, two eternal sentences:

"The Heavens declare the Glory of God And the Firmament showeth His Handiwork."

With respect to the creation of the metaphorical first line (also the theme) of the poem, "The sun, a serene and ancient poet," Nichols describes the following sequence: while on a Mediterranean cruise, he had an unusual period of preliminary poetic productivity. Having many poetic ideas including fragments of lines, he wrote down some and some he totally discarded, but he did not actually complete a poem. Then one morning he awoke quite early and began to deliberate about whether to stay in his room until breakfast or to go on to the deck of the ship to see the sunrise. He had the following thought: "You're in fine fettle, so refreshed, that undoubtedly a poem will be waiting for you. By and large I'd say that it will probably be about the rising sun." Shortly, he decided to go on deck.

Standing on deck, Nichols noted that the sun was red but not so bright that he couldn't look at it; he also felt there was an amiable and "easygoing" quality in the scene. Soon, he began to experience feelings both of loneliness and excitement while looking at the reflection of the sun on the water, and,

with that, a particular emotional sense of there being some form of writing on the water. His description of this emotional sense and the sequence leading up to the creation of the first line of the poem is as follows:

> I. . . apprehended that these figures *weren't* in a book but were, at that very moment, in the most literal sense *being written on the sea by the sun,* a being who was a poet. I *did not say to myself "the sun is a poet" but 1 felt the emotion such a person as myself might be expected to feel were he to find himself in the presence of a being both capable of doing what 1 now beheld being done and accustomed to doing it.* There was then a fractional pause, a halt in my attention as if that attention didn't wholly apprehend what was presented to it, the halt in fact that precedes recognition. . . . On an instant there was presented to my consciousness a favorite picture-postcard I had twice or thrice bought at the British Museum. Almost simultaneously there formed in my mouth the line
>
> "The sun an ancient, serene poet."
>
> The picture on the postcard—that of a poet, possibly Persian, seated on the ground, wearing a rose-pink turban, a green caftan and a little pair of black slippers, and gazing to the spectator's left—and the line were indissoluble.[44]

Thus, as Nichols described it, the initial line of this poem, a metaphor, was produced by a homospatial conception: the image of a poet, the sun, and the words comprising the poetic line were fused and were occupying the same space. Notice, for instance, that the word "serene" describes both the idea of the "easygoing" quality of the scene and a quality of the postcard poet's gaze. And the word "ancient" describes both a poet from an older civilization and the ageless sun. Notice, too, that the homospatial conception

was not merely the result of undirected mental associations to the visual sensations of the scene: despite Nichols's use of passive grammatical constructions in the description, it is clear that he had an interpretative idea of a personage which led him to superimpose the image of the postcard poet onto the scene and to construct the line. A few lines further on in his essay, Nichols makes the guiding intentionality of his emotion clearer: "Did the postcard precipitate the line or the line the postcard? Neither. The emotion of being in the presence of an august personage engaged, as I beheld him engaged, precipitated both the line and the image."

For the poet, the homospatial conception produces the metaphor *and* its specific content. The superimposition and fusion of the postcard poet with the scene yielded not only the explicit equating of the sun and a poet, the structure of the metaphor, but suggested the particular words "serene" and "ancient" as content. It appears that the poet generally brings such images together into the same space, scrutinizes and savors them for interlocking features and similarities fitting *his emotional and cognitive orientation at the moment,* and then labels these in words to produce the metaphor. I realize, in saying this, that I seem to be describing a far more plodding, deliberate process than what Nichols describes as a dramatically sudden event. Further, Nichols's use of passive constructions such as "there formed" or "the emotion precipitated" may not seem to jibe exactly with my discussion of a willful, intentional sequence. I shall again emphasize, therefore, that I am analyzing a

very complex though momentary event. All the steps I mentioned probably came together in a flash. Before describing the particular thoughts connected to the creation of the poetic line, Nichols explicitly stated that he had *intentionally* set out that morning to write a poem about the sun. His use of a passive grammatical construction rather than an active intention- connoting one need not be taken as a literal description of his thinking, but should be considered a stylistic device. Finally, when Nichols suggests that an "emotion" brought about this line and image, our knowledge of mental processes allows us to insist that conceptual thinking played a role as well.

The final form of the line he used is, of course, slightly different from the initial wording. In this regard, Nichols merely explained that he thought the wording "too jumpy" and he therefore changed the order of the adjectives. Many such judgments were made during the course of constructing the entire poem and other types of thinking also were applied. But overall, Nichols's description makes clear that neither the emotion and conception of the august personage alone, nor the mere association of the sun's reflection with writing, produced the initial metaphor. A supravening and superimposed image of the poet on the postcard was required. The indissoluble line and image he describes was a portion of the homospatial process.

Readers of poetry, literary critics, and psychologists analyzing a completed poem implicitly assume that metaphors are produced by an

immediate experience involving perception of similarities through association or analogy. Or else they believe that a full-blown image of a particular scene comes to mind, seemingly out of nowhere, and this provides the structure and the content of the metaphor. For example, when such people are asked, as I have informally done, how they think the following metaphor "the road was a rocket of sunlight" was created, they invariably say something like the following: standing above a road on a sunny day, or, thinking about standing above such a road, the poet *noticed* or fancied he saw that the sun made the road look like the trail of a rocket. Or they suggest that the poet felt like a rocket while driving his car on a sunny road. When asked how the metaphor "the branches were handles of stars" was created, they generally say: walking in the country (or in a park) at night, the poet looked up at the trees and he *noticed* that the branches of the trees seemed to connect to the light points of the stars shining through them, or that he visualized such a scene.

These answers are incorrect. They are incorrect not because they are too simple or too unimaginative—some people elaborated the basic ideas in highly detailed and interesting ways—but because they are based on an incorrect assumption. This assumption is an automatic and intrinsic one and, aside from the people I have surveyed, it has been unquestioningly and unconsciously adopted throughout the history of art. For creativity research, it is a particularly insidious and confounding assumption that leads to

frequent error. The assumption here is that the work of art is always created in the same way as it is experienced by a receiving viewer or reader. The answers as given derive from the associations instigated in the receiving reader's mind about the poetic scenes indicated by the metaphors. The answers are derived from the reader's perception of the impact of the metaphors. But the sequence and circumstances of metaphor creation are quite different from these perceptions, visualization of a particular scene or analogizing does not itself produce an effective metaphor. Because of homospatial thinking, a creative poet brings together elements on the basis of various types of conceptions. When actually creating the metaphor "the road was a rocket of sunlight," the creator was sitting at his desk and thinking about the alliterative properties of the words "road" and "rocket." He was also visualizing the shapes both of roads and of rocket trajectories and trails. Other conceptual as well as emotional factors brought the words and images to mind. Then, through a homospatial conception, he mentally superimposed the images (and, more vaguely, the words themselves) and fleetingly thought, "What connects road and rocket?",- "When do they relate to each other or look alike?" The answer came as, "in sunlight," and almost simultaneously the full metaphor, "the road was a rocket of sunlight," was conceived.

Similarly, "the branches were handles of stars" was created at a desk through superimposition and fusion of words and images. Attracted to the words "branches" and "handles" because of their assonance, their emotional

and conceptual meanings, and their similarly elongated shapes, the creator mentally brought them together to fill the same spatial location. The connecting idea of "stars" was suggested both by the plausibility of branches and handles looking similar at night and by the sound qualities of the word. "Stars" is assonantal both with "branches" and with "handles"; mentally superimposing the two latter words emphasized and intensified the common "a" aspect and quality, and suggested the word "stars." After the full metaphor was created, the creator—like the reader—perceived and enjoyed such associations as the torch-like quality of the entire image, the sense of strength and supportiveness, connections between near and far, and the sense of branches reaching. He too visualized a scene of seeing the stars contiguous with the branches of a tree at night. All these associations convinced him that he had created an effective metaphor. Thus, a series of mental events, rather than the perceptions of similarities and contiguities in particular scenes, or of analogies among elements, served to produce these metaphors. Occurring so rapidly that the series of mental events sometimes seems to happen almost all at once, such a sequence is responsible for the creation of metaphor even when a particular scene seems to be the instigating factor. Even, for instance, when walking in the country or a park in the evening, a homospatial conception of a branch and handle occupying the same space is responsible for producing the effective metaphor.

A similar type of series of events was documented by the American

publisher-poet Melville Cane. In his *Making a Poem,* an unusual book largely devoted to recounting instances of poetic creation,[45] Cane describes developing a poem entitled "The Dismal Month" as follows:

> The first half of the poem was actually written in the dismal month of March. My mood, if not dismal, was certainly one of impatience and dissatisfaction, as I looked back on too long a period of unproductiveness. With a calculated act of will I set aside a half-hour in the middle of a professional working day. Soon my habitual tensions and concerns disappeared; I had taken myself out of the city and found myself contemplating a country landscape. The date happened to be March 21, and as I noted that fact and looked out on the murky sky, I said to myself, wryly "This is spring."
>
> The point of view for a possible poem resided in that stray observation, which, translated and extended, came to this [transcribed in a notebook]:
>
> "A fine kind of spring! Not the standardized spring of the poets, but the last chapter of winter down-at-the-heels. Shabby green."
>
> "Shabby green" took hold. . . . Shabby green represented the color and shoddiness for my unspring-like season. Letting my fancy roam at will, I began to fill in the details, to picture the struggle of life breaking through the coils of inertia, really my own personal problem at that moment.[46]

The homospatial conception consisted of a superimposition of the imagined country scene and the murky sky outside the poet's window. While the poet does not use terms such as superimposition, occupying the same space, or others I have used to describe the homospatial process, his exposition makes clear that the phrase "shabby green" resulted from such merging and fusion of the images in his mind. Here are the first three stanzas

of the poem he wrote:

The Dismal Month

Struggling to shake off

The clutch of sleep,

To strike off

Winter's irons,

Spring, imprisoned maid

Stirs, arises,

Bedraggled, disheveled,

Dead leaves sticking to her hair.

March is the dismal month of her delivery.

Cautiously,

In gown of shabby green

She picks her way unsteadily

Under lowering skies

Over ruts still frozen,

Through dregs of snow.[47]

Although I have included only the first half of this poem, the personification of spring, which is the central image or metaphor throughout, came, as he says, from filling in the "details" following the "shabby green" homospatial conception. It was not the result of an association or a remembrance regarding a particular element in a country scene, actual or imagined. The construction of the remainder of the poem consisted of a continual filling in of details generated by the tension in the original conception.

A particularly interesting aspect of this account is Cane's description of the emotional elements accompanying the homospatial conception. Here is a recounting in somewhat elaborated detail of some of the steps in the homospatial process, a process consisting of a complex interaction of many types of psychological phenomena, only one of which is the cognitive fusion of discrete entities. Embroiled in feelings of tension and discouragement, the poet initially conjures up a country scene in order, it seems, to become more relaxed and to write a poem. Then he brings himself back to his immediate

surroundings by noting the date as demarcating the season of spring. The phrase "shabby green" not only fuses the visual images of the country scene and the murky city sky, but it also represents a fusion of the disparate aspects of his emotional condition: discouragement with hope, tension with relaxation, a sense of inertia with a sense of life. If we consider the psychological content of the words themselves, there are suggestions of the fusion of an aggressive and a sexual component I spoke of earlier as the psychodynamic basis of the homospatial conception. The word "shabby" suggests an unconscious aggressive aspect, while the word "green" suggests an unconscious libidinous impulse pertaining to nature and growth. In constructing the above stanzas, such images as the faintly erotic one of the imprisoned maid and the aggressive one of striking off winter's irons could have developed through a process of uncovering further unconscious sexual and aggressive content through the mirror-image function of homospatial thinking.

Cane also mentions the conjunction between his more extended conception of the poem, the representation of the struggle of life against inertia, with his own personal problem at that moment. For the poet, this conjunction between the self and its circumstances with the developing conception of a poem is directly analogous to visual artists' interaction with their materials described earlier. Indeed, as the poet proceeds with a particular poetic creation, there seems to be a complex type of

superimposition of the image of the self with the material and vice versa: words merge with mental images and ideas, and there is mutual interaction and modification. All aspects of the words, their sounds and associated images, exert an influence as do all aspects of the mental image of the self. At the completion of a good poem, both the poet and the words or phrases he uses are literally altered and changed from what they were at the start. Thus, this is a comprehensive form of the homospatial process, involving all sensory modalities at once.

Such a comprehensive form of homospatial thinking operates in other arts as well. In the performing arts, actors experience a sense of fusion between the mental image of themselves and the character they portray, dancers experience such fusion and superimposition of their bodies and the "empty" space surrounding, and musicians a physical fusion with their music. And in other forms of literature besides poetry, this general type of homospatial thinking plays a role. While production of metaphor as well as creative use of homophony, alliteration, assonance, and even rhyme plays a role in all types of literary creation, homospatial thinking also tends to operate in broader ways in the creation of novels, short stories, and plays. Creating these latter forms of literature especially involves the continual interaction between the author's conscious image of himself and his materials, as well as fusions and superimpositions of scenes, sequences, and attributes of persons.

Data from my research subjects illustrate these phenomena in novels and plays. Arthur Miller described to me his initial idea for his play *Death of a Salesman* as consisting of the following: "the first idea was the image of the [salesman] character Willie moving around *inside his own head;* he was searching for, and checking on, various aspects and remembrances of his life much as one would search in a library. The first title for the play was to be *The Inside of His Head*,"[48] The initial conception or image therefore consisted of an entire man superimposed upon or occupying the same location as the entire inside of his own head.

A more complicated manifestation of the homospatial process, consisting both of fusions of scenes and of fusions of the author's self-image with the developing work, is contained in the following report.

It is based on a "natural" experiment performed with an outstanding American novelist engaged in creating a novel:

> In the course of an interview series with this research subject, I introduced an unusual procedure. We had been working together from the time of the inception of the novel and, now that he appeared to be halfway through, I proposed the following: during the week's interval between our usual sessions, I would call him up before he started the day's work—he always started at the same hour—and ask that he write down everything he thought of in conjunction with constructing the first sentence for the novel that day. I would not tell him in advance which day I would call, because I did not want him to be specifically prepared either on the night before, or on arising that particular morning. We had good rapport; therefore I believed he would try to write what was on his mind without censorship

or distortion. He consented to the procedure.

During the following week, I called him in the morning on a day selected by a random procedure. I merely stated on the phone, "Today is the day," and we engaged in no further conversation. When I met with him for our usual session later that week, he said he had done the task and he produced the material to follow. Although I had no idea of what I would find at the time—I had not then defined or discovered homospatial or janusian thinking—the following shows both fusion and superimposition of mental imagery and the author's attempt to "get himself into" or fuse himself with the work. The part of the novel he happened to be working on that day was the beginning of a new chapter, and it became a description of a college protest scene. I have edited this presentation of *his exact notes of his thoughts* only slightly for clarification of references:

"Read what was written yesterday—made some changes on page 129 of the manuscript—got lost in a fog while reading, remembered to write things down from now on—thought of speech to be given at the White House—returned to reading and became conscious of watching my thoughts: no good— changed the word 'intercepting' to 'bisecting' on page 132. At the end of the book will use phrase 'still too far to walk'— picture in mind of a street scene, strongly—mob scene in the novel *Day of the Locust.*

"Scene of the street between the old campus at the U. of California and the town of Berkeley—students rocking a street car—scene of a football rally. Fear of consequences but being drawn in [researcher's note: this refers both to the author himself and to the main character in the novel at this point—background scene of Durfee Hall and Battell Chapel at Yale comes together with Berkeley scene—Were these images put in my mind by reading an account of a riot 3-4 years ago?—See motorcycle policeman swerving into the crowd: his white crash helmet—start to read back over these notes.

"Get up and pull shade to shut out light from window— conscious of bird singing outside. Should I start this page or another one?

"Write down number of this chapter—Feel relieved about not going to Russia as originally planned.

"Set my hand up at the top of the paper [note: this is in order to "shut out" distraction and to focus]—Write: 'Down the center of Planique Street came the first surge of the riot.'

"What is John [the main character, a student] doing? How did he get there? Why do I see that particular spot so strongly? Memories of earlier pictures associated with the novel come in. Write second sentence: 'Six motorcycle policemen were sitting on their machines, abreast, blocking the throat of the street at the crossing with Fourth.'

"John will have come through an arch before the riot."

Having constructed the first as well as the second sentence for that day, the author made no further notes about his thoughts and continued to work on his novel. The experiment, as I had outlined it to him, was completed. In this written account of his thoughts on starting, which is surely as accurate and honest as it would be possible for any person to produce under the circumstances, there is a definite indication of the fusion and superimposition of two discrete images: the scene of the street between the old campus at the University of California and the town of Berkeley proper is fused with and superimposed upon the scene of the Durfee Hall-Battell Chapel area at Yale. And it is clear that this fusion and superimposition is immediately followed by—and therefore in all likelihood generated—the concrete idea of the motorcycle policemen, the substance of both the initial creation here and the second sentence he wrote. To recapitulate the sequence: it appears from the notes (this was later corroborated by the author himself) that he had a general notion of writing a riot scene before setting to work that day. In approaching that task, he thought first of a nonspecific street scene, and then he had a visual image of the Hollywood mob scene in the novel by Nathanael West, *Day of the Locust.* This image was succeeded by the image of the street at Berkeley. Up to this point, his mind was preoccupied with memories, nothing new had been generated, that is nothing that pertained directly to the novel as an entity, to its particular world. Only when he consciously

experienced the Berkeley and Yale images together, occupying the same space, did he think of the motorcycle policemen and begin to articulate further the realm and world of the novel, its scenes and images.[49] Though the images were fused and superimposed, he continued to see discrete aspects of them as he elaborated the scene. In a later paragraph of the chapter, he wrote: "for some reason [John was] vividly conscious of the dirty stone of the heavy nineteenth-century buildings behind him," an inclusion of something from the Yale scene.

The broader type of manifestation of homospatial thinking, the author's superimposition and fusion of his self-image with his material, is also conveyed here in his orientation toward the main character and in his rather dramatic action of setting his hand at the top of the page as a barrier against distraction before he could actually begin writing. The author called my attention to this second matter himself. It could, of course, be merely considered a means of facilitating concentration. He seems to have been struggling at that point with the imposed and distracting task of having to write out his thoughts. In his difficulty, however, he became hypersensitive to the physical surroundings outside himself and, in discussing it with me later, he said that he put his hand at the top of the sheet in order to *separate both himself and the work from his surroundings.* He demonstrated the definite gesture with a slam of the side of his hand on his desk. The action, in other words, conveyed the sense of this author's blocking out the outside and putting himself in a space together with the work.

Creation of short stories, novels, plays, and poetry characteristically involves the types of homospatial thinking in this experiment. Creative writers tend to make use of visual imagery to a very high degree but not merely as the content of passive fantasies, reveries, or stock mental representations. In a questionnaire study of more than 100 fiction writers carried out by the editor Arthur Hoffman in 1923, for instance, eighty-one out of ninety-five responding reported a tendency to experience visual imagery.[50]

None of the eighty-one reported habitually using stock or standard mental pictures (of such things as a church, student, cowboy, or a village) in their work, and only twenty-three reported having such pictures in mind to some degree or in certain circumstances. Although some of the writers surveyed in this study were producers of presumably not-so-creative slick magazine fiction, very highly creative authors such as Sinclair Lewis were also included in the group. Another particularly interesting feature of this study was the large number of writers reporting a heavy use of visual imagery in an era prior to current times, when there is an extraordinary and general influence of motion pictures and television on the use of the visual perceptual mode.

The writer's use of imagery, visual or otherwise, without resort to stock representations is really nothing new nor should it be surprising. Coleridge some time ago made a distinction between fancy and imagination, by which he meant that mere random, undirected, and standard ideas and images—fancies or, to use the modern term, fantasies—were not sufficient to produce art.[51] Active or constructive shaping—imagination—was required. And Freud, while he emphasized the important role of fantasy and daydreaming—and, by implication, imagery—in creative writing, also emphasized that the writer was able to shape and actively structure his fantasies through his special talents and abilities.[52] Freud could not specify the nature of these talents and abilities; homospatial thinking is one of them. The empirical and theoretical emphasis on imagery, but not on stock images, fancies, or

fantasies alone, is supportive of homospatial thinking in literary creation. Creative writers report that they do not use stock or everyday images in their work, even though they, like everyone else, experience such images, because they convert images into literary creations through that cognitive process.

Related to the fiction writer's superimposition and fusion of his mental image of his self (all sensory modalities) with his materials are the homospatial processes operating in another significant aspect of literary creation, the construction of literary characters. Important in all types of literature, character creation is especially crucial in the writing of novels, short stories, and plays. It is well known that fiction writers often draw their characters from actual persons they have known. In a chapter entitled "Where Do Novelists Get Their Characters?" George G. Williams lists 100 well-known alleged connections between literary characters and real persons, ranging on an alphabetical list from Louisa May Alcott's parents and Mr. and Mrs. March in *Little Women* to Owen Wister's main character in *The Virginian* and Wister's friend, Colonel George R. Shannon.[53] But, just as creative fiction writers do not directly use standard or everyday sensory images in their work, so too they do not directly use, copy, or reproduce real persons. The process is neither a matter of copying, nor adding and combining parts, nor is it a matter of remembering snatches of conversations and incidental gestures. In creating a literary character, the effective writer has a full representation of a person or of persons in his mind including speech, actions, physical

characteristics, and entire life history insofar as he knows it. As an ongoing process in time, this representation is superimposed and fused both with conscious representations of the writer's self and with action and representations emerging from the work in progress. The novelist Elizabeth Bowen, while not explicitly describing this (homospatial) process, makes the following points about character creation:

> The novelist's perceptions of his characters take place *in the course of the actual writing of the novel.* To an extent, the novelist is in the same position as the reader. But his perceptions should be always just in advance. . . .
>
> (N.B.—The unanswerability of the question, from an outsider: "Are the characters in your novel invented, or are they from real life?" Obviously, neither is true. The outsider's notion of "real life" and the novelists are hopelessly apart.). . . .
>
> The character is there (in the novel) for the sake of the action he or she is to contribute to the plot. Yes. But also, he or she exists *outside* the action being contributed to the plot.[54]

Bowen's assertions, although sometimes stated in other ways, are quite universally acknowledged and accepted by creative fiction writers. Superficially somewhat mystical perhaps, the remarks can be explained through an understanding of the function of homospatial thinking in character creation. Characters are neither from "real life" nor are they totally invented because they result from an interaction between the author's mental representation of real persons and his materials. The words, actions, and circumstances of the work in progress are superimposed and fused with the

author's remembrance of real sequences and of real persons in order to produce literary characters. The author does not, for instance, decide in advance to construct a character who (1) looks like his wife, (2) talks like his mother, (3) acts like his mistress, and (4) is somewhat reminiscent of a childhood sweetheart. Moreover, it is not merely a matter of conscious decision making versus unconscious influences. Although psychoanalytic biographers have often retrospectively discovered that such combinations as just described—appearing like products of the unconscious primary process mechanisms of condensation—occur frequently in fiction, this does not mean that they result primarily from unconscious operations. The author is quite aware of having a real person in mind and of sometimes including actual remembered events, conversations, and actions in the fabric of his short story, novel, or play. He is also aware of altering such remembrances in relation to his constantly changing perception of what he has already written. While some aspects of the process are unquestionably unconscious—usually, of course, the inclusion within certain characters of parental qualities and behavior associated with unacceptable feelings—the continual superimposition and fusion of representations of real persons, of the self, and of the work in progress are always in consciousness. Because there is a conscious process of fusion, the characters are new integrations rather than combinations. Characters are neither the result of the unconscious combining function of condensation nor of some type of conscious combining operation.

They are neither completely derived from persons in real life nor are they completely invented.

One author, for instance, was consciously aware of modeling a character after his own son. As he constructed scenes involving the character's interaction with the father in the novel, the author also thought about feelings and impressions pertaining to his own father. In writing the scenes, he brought together images of his son and himself, and images of himself with his own father. Moreover, the character in the novel had already been described as having experiences that were unlike both the author's own and those of his son. The discussions between the son and the father in the novel, therefore, resulted from a conscious merger and a fusion of words and ideas of the three types of images and persons: the author's son, the author himself, and the son character in the novel.

Another instance comes from the creation of *All the King's Men* by Robert Penn Warren. The narrator-character in that novel is named Jack Burden. In a retrospective discussion, Warren told me that he had decided to have the narrator of the novel be a character in the story in order to avoid having a removed, omniscient, and impersonal author relating the events, and also to provide a dramatic center, or "model" for the effect of the main figure Stark in filling some spiritual or psychological vacuum in others—the source of his power. He noted that while creating Jack Burden he had in his mind an

actual young man he had known. Also, at one point in the writing, he said, he began to be concerned that the novel would lack a "moral center," that it might turn out to be merely a thriller. It was then that he gave Jack Burden a background as a graduate student of history who had decided to turn away from pursuing his doctorate [Warren: "Trying to find an indication of the point of the novel, I made up the story of the historic document of Cass Mastern. Jack, from a sense of contrast between the moral sense of this, his own family's document, and his own condition, gave up his doctorate. Or, at least, this was his alibi"]. Strikingly, at an important turning point or "moral center" of his own life Warren himself had decided to give up his graduate studies as well: during the period at Oxford, where he was taking a B.Litt., he had begun to write fiction as well as poetry and began to envisage a primarily literary career by which he could live, and so he resigned a fellowship at Yale which would have allowed him to return there to do a dissertation for the doctorate. He "swore" never to write even an article for a learned journal [Warren: "swore, perhaps—superfluously"].

That writers have not heretofore come forward to describe the process in these terms does not mean it is out of awareness. Introspection about the precise nature of mental events during the creative process is a hindrance and writers have wisely avoided it. Under the circumstances of my interviews with writers as research subjects, recall of thoughts in conjunction with a day's work in progress is high. There is sometimes a good deal of motivation

to be open and cooperative, and clear memories of previous important creations arise. Consistently reported is a continuing awareness of images of real persons, and of thoughts and images about the material in progress in relation to images of the self. These images fuse and interact, and specific descriptions, dialogues, and elements of character are produced. Multiple discrete entities occupy the same space in the author's mind and the author integrates character, plot, and personal experience.

In the next chapter, some reported results from another type of empirical study of the literary creative process shall elucidate further the operation of homospatial thinking in the creation of literary character. And I shall attempt to clarify some differences between this particular psychological process and others with which it can be confused.

Notes

1 Needless to say, the oxymoron is only one type of metaphor, and sometimes a rather banal type as well.

2 I have not, and shall not, systematically discuss here such art forms as dance, theatre, film, or the opera. This is not because such forms are less important but only because all are partly covered through consideration of the broader areas of visual arts, music, and literature. All, particularly dance creation, in which homospatial thinking plays a large role, deserve extensive further comment and consideration.

3 V. C. Aldrich, "Visual Metaphor," *Journal of Aesthetic Education* 2 (1968) :73-86, and "Form in the Visual Arts," *British Journal of Aesthetics* 11 (1971) :215-26.

4 Aldrich "Form in the Visual Arts," p. 223. References to Aldrich's overall philosophy of art involving first, second, and third orders of formulation are deleted in the quotation. The visual metaphor concept clearly is an autonomous one.

5 This effect is apparent even though looking at this photograph of the sculpture; it is far stronger when viewing the sculpture itself.

6 Anton Ehrenzweig, the brilliant and discerning art teacher, also had recourse to this diagram in his attempt to show the limitations of the traditional gestalt figure-ground formulation as applied to art. Ehrenzweig formulated an unconscious "dedifferentiated" perception to account for artistic "seeing." A suggestive concept, possible points of contact with the processes I am describing are altered and weakened by the emphasis on *unconscious* perception. The homospatial process is conscious, as should be evident after applying the visualizing principle to the Rubin profiles; see Ehrenzweig, *The Hidden Order of Ait* (Berkeley: University of California Press, 1967).

7 Albers, Interaction of Color, p. 73.

8 Ibid., p. 72.

9 Ibid., p. 44.

10 Some controversy exists about whether this is an actual scene of Florentine countryside or merely, as Kenneth Clark states, a typical da Vinci background. Regardless, it is not a scene that would have been directly seen and copied from such a room as in the painting. Its particular visual features are the important issue, whatever the source; see Clark, *Leonardo da Vinci,* pp. 118-19. Anna Maria Brizio takes the following position: "It is not a real landscape, but a kind of geological composition in which, in the stratification of the rocks, in the shape of the waters, the temporal stratification of centuries past is reflected" ("The Painter," in *The Unknown Leonardo,* ed. L. Reti [New York: McGraw-Hill, 1974], p. 24).

11 Both Freud and Neumann, the discerning explica tor of the Jungian aesthetic, focused extensively on this cartoon and painting and both emphasized psychological factors pertaining to the content rather than the formal perceptual effect. Neumann saw the archetypal image of the Great Mother in these forms and Freud saw the two mothers of Leonardo's childhood (E. Neumann, *Art and the Creative Unconscious: Pour Essays,* trans. R. Manheim [New

York: Harper St Row, 1959]; S. Freud, "Leonardo da Vinci and a Memory of His Childhood" [1910] [London, 1957], 11:59-138). In passing, Freud even gauchely criticized the fusion and the artistic form as follows: "One is inclined to say that they are fused with each other like badly condensed dream-figures, so that in some places it is hard to say where Anne ends and where Mary begins. But what appears to a critic's eye as a fault, as a defect in composition, is vindicated in the eyes of analysis by reference to its secret meaning [i.e., the two mothers]" (p. 114).

12 Brizio, "The Painter," p. 44.

13 H. Moore, "The Sculptor Speaks," *Listener* 18 (1937) :338.

14 Quoted from a letter written by Oskar Kokoschka to Professor Tietze (ca. 1917-18), in E. Hoffman, *Kokoschka: Life and'Work* (London: Faber St Faber, 1947), p. 158.

15 Quoted in J. Cladel, *Rodin the Man and His Art: With Leaves from His Notebook,* trans. S. K. Star (New York: Century, 1917), p. 108.

16 Michelangelo Buonarroti, Sonnet 15 and Madrigale 12, quoted in J. A. Symonds, *Life of Michelangelo* (London: John C. Nimmo, 1893), 1:110.

17 C. Oldenburg, *Notes in Hand* (New York: Dutton, 1971), p. 47.

18 C. Oldenburg, *Drawings and Prints* (London: Chelsea House, 1969), p. 24.

19 Ibid., p. 126.

20 Klee, *The Thinking Eye,* pp. 328-30.

21 M. Beckmann, From a lecture given at the New Burlington Galleries, London 1938, quoted in Protter, *Painters on Painting,* p. 211.

22 H. Matisse, "La Chapelle du Rosaire," quoted and translated in A. H. Barr, *Matisse: His Art and Public* (New York: Museum of Modern Art, 1951), p. 288.

23 W. Hogarth, *The Analysis of Beauty* (London: J. Reeves, 1753), p. 113, and pp. 119-20.

24 A. Gleizes and J. Metzinger, "Cubism," in *Modem Artists on Art,* ed. R. L. Herbert (Englewood Cliffs, N.J.: Prentice-Hall, 1964; orig. pub. 1912 by Figuiere).

25 Moore, "Sculptor Speaks."

26 Moore [Untitled], in *Unit 1.*

27 See the architect Bertrand Goldberg's use of this term and a related term, "kinetic space," in J. W. Cook, and H. Klotz, *Conversations with Architects* (New York: Praeger, 1973), pp. 122-46, esp. pp. 130-31, "kinetic space," and p. 142, "multiuse space."

28 Ibid., p. 203.

29 Some of this controversy derives from what recent philosophers have pointed to as a Western tendency to spatialize time (see chap. 12 below). As music is primarily temporal, figurative spatial terms applied to music produce serious conceptual problems, particularly when they become reified and are used as though such dimensions directly apply. Moreover, there is a tendency to think of space in music as equivalent to something static, stationary, or abstracted, in distinction to the dynamic, moving, concrete quality of time. This, I believe, is an invalid polarization of attributes and it derives in part from conceptualizing space solely in visual terms. Erwin Straus has developed an excellent analysis of the phenomenology of space in music in which he posits that music "homogenizes" space,- it is experienced as overcoming a boundary between inner and outer space and fills the distance between the hearer and the source. While I think Straus's discussion is valid, and strongly recommend a careful reading of it (E. Straus, "The Forms of Spatiality," in *Phenomenological Psychology* [New York: Basic Books, 1966], pp. 3-37), it cannot be used as a basis for the consideration of space in music specifically, because the homogenization he describes occurs in other art forms as well. I shall discuss his analysis later in chap. 13 in discussing homospatial thinking and the basis of its creative effect. For the definition of space used throughout the remainder of this chapter, see chap. 12.

30 The model for the definition of the nature of metaphor must be the linguistic metaphor. As used here, visual and auditory metaphors differ from linguistic metaphors only because the latter, being composed of words, have clear and specific referents.

31 L. van Beethoven, From a written conversation with Louis Schlosser (1822 or 1823), in *Beethoven:*

Letters, Journals and Conversations, trans. and ed. M. Hamburger (New York: Pantheon, 1952), p. 194.

32 Quoted in M. Agnew, "Auditory Imagery of Great Composers," *Psychological Monographs* 31 (1922) :282.

33 A student of mine has suggested that the musical staff represents vertical and horizontal relationships in music together. Such a formulation, though it could conceivably incorporate a hitherto undefined intrinsic psychological factor in music, is essentially restrictive because it tends to identify the spatial aspect of music with the purely visual matter of notation. The perceptual laws discussed in this section apply both to visual and auditory experience and are more basic than the visual notation scheme. Moreover, many alternative notation procedures not using vertical and horizontal are possible for music.

34 Schoenberg, *Style and Idea,* p. 113. Deletions in this quotation of Schoenberg's reference to Swedenborg's heaven and an absence of absolute direction in musical space are made for the purposes of clarity.

35 A. Einstein, *Mozart: His Character, His Work* (New York: Oxford University Press, 1945), p. 156. v

36 Schoenberg, *Style and Idea,* p. 162.

37 J. Beckwith and U. Kasemets, *The Modem Composer and His World* (Toronto: University of Toronto Press, 1961), p. 117. The word "combination" used in this context suggests interactions rather than a compromise or reconciliation of the horizontal and vertical relationships.

38 A. W. Thayer, *The Life of Ludwig van Beethoven* (New York: Schirmer, 1921), 2:316.

39 Quoted in A. M. Abell, *Talks with Great Composers* (Garmisch-Parten- kirchen: G. E. Schroeder, 1964), p. 184.

40 P. Hindemith, *A Composer's World* (New York: Doubleday, 1961), pp. 70-71. I have referred to Hindemith's comprehensive image earlier in the chapter on janusian thinking. For janusian thinking to he involved, it would be necessary to assume that Hindemith was also referring to simultaneity of opposing temporal orientations. While it is difficult to ascertain such a reference in the above, it is, in any event, quite common to find both

janusian and homospatial thinking operating conjointly in a particular aspect of the creative process.

41 I use the expression "remember" advisedly here; it is a shorthand formulation used merely in the service of an uncluttered exposition. There are many reasons for the poet's great storehouse of sound and sight associations to words, including a possible inherited capacity and an intense interest in and sensitivity to words. Moreover, poets often carry out a directed association procedure, writing out—on the margins of their manuscripts —all the rhymes to a particular word that they bring to mind.

42 Freud, "Jokes and Their Relation to the Unconscious."

43 R. Nichols, "Birth of a Poem," in R. M. Harding, *An Anatomy of Inspiration,* 2d ed. (Cambridge: W. Heffer &. Sons, 1942), pp. 105-26.

44 Ibid., pp. 110-11.

45 M. Cane, *Making a Poem* (New York: Harcourt, Brace & World, 1962). Numerous examples of both janusian and homospatial thinking abound in this book. See especially the origin of the metaphor "tree of time" in a homospatial conception superimposing twelve apples onto twelve tones of the clock (pp. 49-51) and the origin of the poem "Humbly, Wildly" in the janusian conceptions of boiling as "both hot and cold" and water as "both responsible and irresponsible" (pp. 31-38).

46 Ibid., pp. 60-61.

47 Ibid., p. 59; see pp. 59-60 for remainder of poem.

48 Miller wrote the following in the introduction to his collected plays: "The first image that occurred to me which was to result in *Death of a Salesman* was of an enormous face the height of the proscenium arch which would appear and then open up, and we would see the inside of a man's head. In fact, *The Inside of His Head* was the first title. It was conceived half in laughter, for the inside of his head was a mass of contradictions. The image was in direct opposition to the method of *All My Sons*—a method one might call linear or eventual in that one fact or incident creates the necessity for the next. The *Salesman* image was from the beginning absorbed with the concept that nothing in life comes 'next' but that everything exists together and at the same time within us; that there is no past to be

'brought forward' in a human being, but that he is his past at every moment and that the present is merely that which his past is capable of noticing, and smelling and reacting to" *(Arthur Miller's Collected Plays* [New York: Viking, 1957], p. 23). The passage represents the matter essentially as Miller did to me personally. What is of some additional interest, however, is the shift of emphasis and consequent omissions. In the above passage, Miller doesn't mention his conception that Willie, the salesman, was inside his own head. He stresses in the written passage the stage setting and the abstract meaning of the idea. This emphasis is clearly appropriate here as Miller is discussing the aesthetic issues in the play, not recounting the steps in the creative process to a researcher.

49 The author's use of the passive grammatical construction "comes together" with respect to the Berkeley and Yale scenes is more equivocal than an active construction such as "I brought together," but the latter type of phraseology is seldom applied to personal mental events. Nevertheless, it is certain that this author was consciously searching for ideas and he *intended* to construct a scene from the images in his mind. Moreover, he is not describing a process of free association nor a regressed state of consciousness. These assertions and my formulations in the text have been corroborated by the author himself after reading the material here.

50 A. S. Hoffman, *Fiction Writers on Fiction Writing* (Indianapolis: Bobbs- Merrill, 1923).

51 Coleridge, *Biographia Literaria,* 1:50 ff.

52 Freud, "Creative Writers and Daydreaming."

53 G. G. Williams, *Readings for Creative Writers* (New York: Harper, 1938), pp. 181-87.

54 E. Bowen, *Collected Impressions* (New York: Knopf, 1950), p. 251.