

# ***DESIGN GLOSSARY***

**abstract, abstraction** Theoretical rather than applied or practical; something considered apart from physical existence. In art: An "abstraction" is a type of painting that uses representational shapes or forms as a point of departure but freely adapts or subjugates these to the aesthetical purposes of the artist. The process of selecting and organizing the visual elements to make a unified work of art. Also a twentieth-century style of art in which the particulars of subject matter are generalized in the interests of formal (compositional) invention. (See **nonobjective**.)

**accommodation** The ability of our eye's flexible lens to change shape in order to adjust focus between far and near figures. The muscle movements required are detected by the brain as an indicator of a spatial station.

**achromatic** Denotes the absence of hue and refers to the neutrals of black, white, and gray. Achromatic colors are often called "neutral colors." (See **chromatic**; **neutrals**.)

**actual grays** Uniform value achieved by the continuous deposit of drawing media, such as blended charcoal or ink wash. (See **optical grays**.)

**acuity, visual** (See **distinctness**.)

**additive color** The color mixing system of light. When the primary hues, red, green, and blue are added together, the result is white light. Yellow is seen when red and green lights are mixed; cyan is a combination of green and blue light; magenta, of red and blue.

**aerial perspective** Our understanding of the effects of the atmosphere on the distinctness, contrast range, hue, and purity of colors.

**aesthetic, aesthetics** The criticism of taste. The sense of the beautiful. Of or pertaining to the sense of the beautiful and the accepted notions of what constitutes good taste artistically. Having a love of beauty. (Plural, aesthetics) A branch of philosophy that provides a theory of beauty and the fine arts. In common usage, this refers to the large and general sense of a person's taste. Preferences of color, form, content and scale add up to a person's aesthetic. (From the Greek *aisthetikos*, of sensory perception.)

**affect** To influence or bring about a change in. To touch or to move the emotions. Also, a strong feeling that has active consequences. (See **effect**.)

**afterimage** A psychophysical characteristic of vision in which an image persists after the original stimulus has been removed. The hues of the image are the additive complements to those originally observed. (See **simultaneous contrast**.)

**ambiguous space** A visual phenomenon occurring when the spatial relationships between positive and negative shapes are perceptually unstable or uncertain. (See **figure-ground shift**; **interspace**; **positive-negative reversal**.)

**ambiguity** Doubt or uncertainty in meaning. Ambiguous: capable of being understood in two or more possible senses; equivocal.

**analogous colors** Colors that are adjacent, or near one another, on any hue circle (color wheel) and therefore have strong hue similarity. One set of analogous colors is yellow, yellow-green, green, and blue-green. (See **analogous color scheme**; **color scheme**.)

**analogous color scheme** A color arrangement based on several hues that are

adjacent or near one another on the color wheel. (See **analogous colors**; **color scheme**.)

**analogy** An actual or an implied correspondence between things that are different in all other respects. Relationships may be based on any sorts of conceptual, formal (shape and structure), or perceptual characteristics.

**anamorphosis** Optical magnification ordinarily in one direction or along only one axis. Anamorphic drawings or paintings are distorted images that may be viewed undistorted from a particular angle of view or with the use of a special instrument.

**angling** The process of transferring perceived angles in the environment to a drawing surface.

**anomaly** Deviation from the common rule or form; in particular, an irregular, abnormal, contrary, or missing element (or motif) in an otherwise regular field or sequence of identical figures.

**approximate symmetry** A form of visual balance which divides an image into similar halves but which avoids the potentially static quality of mirror-like opposites associated with symmetrical balance. (See **asymmetrical balance**; **symmetrical balance**.)

**artistic block** The interruption of an artist's natural creative output. Often accompanied by feelings of severe frustration and loss of confidence.

**assimilation** A process by which a meaningful percept (a figure or an impression obtained by one or more of the senses) is compared to the vast body of personal knowledge and experience; placing things physically or psychologically in a familiar context.

**asymmetrical balance** Visual equilibrium achieved by adjusting such qualities as the scale and placement of elements in different parts of a composition. (See **approximate symmetry**; **symmetrical balance**.)

**asymmetry** The principle of the seesaw transposed into pictorial form. Parts of a composition, unequal in area (size), are balanced in visual weight on either side of an imaginary fulcrum. The fulcrum is the center of visual balance, not the center of the picture.

**atmospheric perspective** A means for achieving the illusion of three-dimensional space in a pictorial work of art. Sometimes called aerial perspective, it is based on the fact that as objects recede into the distance their clarity of definition and surface contrast diminish appreciably.

**autonomic** Spontaneous or involuntary.

**axial symmetry** (See **bilateral symmetry**.)

**background** The most distant zone of space in a three-dimensional illusion. (See **foreground**; **middleground**.)

**balance** A weighing device consisting of a horizontal beam with pans of equal weight on each end. A stable state characterized by cancellation of all forces by equal opposing forces. A stable mental or psychological state. Equality of totals in the credit and debit sides of an account. Equilibrium of opposing visual weights, hues, or psychological and physical forces or a combination of these. Our response to balance is intimately linked to our earliest childhood discoveries of our bodies. We instinctively value balance because it is necessary to stand, run, escape. From this primal physical reality we derive our general preference for balance in composition.

**basetone** The darkest tone on a form, located on that part of the surface that is turned away from the rays of light. (See **chiaroscuro**.)

**behavioral conditioning** A term that encompasses anything learned by experience and practice: observation, imitation, formal education, and any behavior modification due to reward and punishment. This concept is often generalized as "nurture" as opposed to "nature," which consists of innate or genetic characteristics.

**bilateral symmetry** A form of design in which elements repeat themselves as perfect mirror images along a vertical (or horizontal) axis or bisector.

**blind contour** Line drawings produced without looking at the paper. Such drawings are done to heighten the feeling for space and form and to improve eye-hand coordination.

**blind spot** The point where the optic nerve leaves the retina of the eye. As this area possesses no rods or cones, it does not respond to light or images.

**body color** The "colored" appearance of any matter or substance (like a paint film), caused by differences in the molecular structure of such substances. Molecular differences determine which wavelengths of light are absorbed and which are reflected. Such colors are affected by the spectral composition of the incident light.

**boundary** The outer limit, the edge of a shape, particularly as it stands in relation to an adjacent form or space. Boundaries separate a "this" from a "that," and a "here" from a "there." A frame around a picture separates the image from the space around it. The frame is a boundary. The visual strength of a boundary depends on its

contrast to adjacent elements. A gray frame on a gray wall will not separate a print from its environment as much as a gold frame, for instance.

**brightness** An ambiguous term sometimes used to mean "purity," sometimes "luminance"; more often used to refer to a combination of these two dimensions of color.

**brilliance** The vividness of a color.

**cast shadow** The shadow thrown by a form onto an adjacent or nearby surface in a direction away from the light source. (See **chiaroscuro**.)

**center** A point equidistant or at an average distance from all points on the outer boundaries. The middle. A point around which something revolves; axis. The part of an object that is surrounded by the rest; core. A place of concentrated activity or influence. A person or object that is the chief object of attention, interest or emotion. The ring circling a bull's eye of a target; a spot within this ring. A familiar danger in drawing is to locate early marks dead center on the page, creating a visual and emotional gravity that is hard to escape. There's not much happening at the center of a seesaw.

**change** A transition from one state to another, altered state: a movement from one place to another place; a passage from one moment in time to another; any sort of transformation such as metamorphosis, growth, decay, and erosion.

**chiaroscuro** The arrangement of light and dark shading as defined by light rays flowing over a three-dimensional form. Chiaroscuro defines volumes in two-dimensional pictorial works. Also, a style of pictorial art employing only light and shade without the use of contour lines. Refers to the gradual transition of values used to create the illusion of light and shadow on a three-dimensional form.

The gradations of light may be separated into six separate zones: highlight, quarter-tone, halftone, basetone, reflected light, and cast shadow.

**chroma** (See purity and intensity.)

**chromatic** Exhibiting a definite color or hue. Refers to color or the property of hue. (See **achromatic**; **hue**.)

**chromatic gray** Gray created by adding hue to a neutral or by mixing complements to achieve a neutralized color. Refers to grays with a little color in them as opposed to neutral grays with no discernible hues. (See **neutral**.)

**chromatic sequence** (See **spectrum**.)

**cliché** An excessively overused expression or image.

**closure** The act of closing or the condition of being closed. A finish; conclusion. A Gestalt principle that describes an innate perceptual tendency for us to perceive multiple objects as a group or totality; to close "gaps" and to make "wholes" out of discontinuous lines, masses, or contours. We have an innate desire to make sense of what we see, and often start by distinguishing "inside" as distinct from "outside". To achieve this we anticipate and complete a form. By allowing the viewer to complete a form, an artwork establishes a link with the viewer, who becomes part of the process.

**cognitive dissonance** An internal conflict between one's beliefs and one's knowledge or behavior or both, for example, the opposition to the killing of animals and the eating of meat. It is a theory articulated by Leon Festinger, which states that when belief and behavior are in conflict, either one or the other must change.

**collaboration** A joint intellectual effort. To elaborate is to extend an idea; to *collaborate* is to do so with partners.

**collage** An artistic composition or materials and objects pasted over a surface, often with unifying lines and color. Originating with the French word *coller*, to glue, a composition of materials and objects pasted on a surface, or portions thereof. Collage is frequently used as a verb, referring to the process of arranging and overlapping various parts to create a more powerful effect than these elements have as separate units.

**color** A property of light, not of bodies or pigments. As sensed by photoreceptors in the eye, our perception of color results from a certain bundle of wavelengths of electromagnetic energy bombarding the retina. Color has three "dimensions" or characteristics. (See **hue**; **luminance**; **purity**)

**color climate** Sensations of moisture or dryness associated with the color temperature of a hue.

**color scheme** An association of selected colors that establishes a color harmony and acts as a unifying factor in a work of art. (See **analogous**, **complementary**, **discordant**, **monochromatic**, and **triadic color schemes**.)

**color temperature** The sensation of "warmth" or "coolness" associated with colors. There are two types: *physical* color temperature, which is measurable in degrees Kelvin; and *relative* color temperature, which requires the presence of two or more colors (hues) for direct comparison. Though reds, oranges, and yellows are said to be "warm," and blues and greens are called "cool," there are cool and warm reds, cool and warm blues.

**color wheel** Used as an aid in painting, a color wheel is a circle with primary and secondary hues located at points equidistant from one another. The most prevalent version is based on one proposed in theories advanced by Louis Prang (1876). (See **hue circle**.)

**complementary colors** Hues that are directly opposite one another on any hue circle (color wheel) and represent the strongest hue contrast, such as red and green, blue and orange, and yellow and purple. (See **complementary color scheme**.)

**complementary color scheme** A color arrangement based on hues that are directly opposite one another on the color wheel. (See **color scheme**; **complementary colors**.)

**complex local color** The natural range of hues of some objects that, under normal light, create the overall impression of a dominant local color. (See **local color**.)

**composition** A putting together of parts or elements to form a whole; a combining. The overall pictorial pattern or arrangement. Gestalt psychology as applied to visual phenomena identified the fact that humans see the whole before we see the parts, suggesting that we have a natural tendency toward completeness or harmony. In visual language, following rules of composition should be seen as a stepping off point, a minimum standard. (See **design**; **form**.)

*A few of the rules of composition:*

- avoid placement at dead center
- symmetry tends to promote stability
- diagonals are more active than horizontals
- proximity creates tension
- sameness is frequently boring
- regularity creates rhythm
- contrast exaggerates an effect
- placement in corners creates awkward tension

- arches support weight, inverted arches imply weight
- equal amounts of figure and ground confuse the eye

**compression** The actual or implied sense of forces pressing inward. The engine cycle during which gas or vapors are compressed. In the visual arts, compression can be used to pack energy into a composition. Like a jack in the box, loaded and ready to spring, a picture plane or sculptural space can be "loaded" with ingredients that press against each other to create an exciting energy.

**cones** Photo receptors in the eye that provide visual detail and detect color. There are three types, each capable of discriminating between very narrow wavelengths of light: one for red, one for green, and one for blue. Concentrated in and around the fovea, numbers decline rapidly moving outward, peripherally, around the retina. Cones respond primarily to bright light levels.

**cone of vision** A conical volume that constitutes the three-dimensional field of vision. Its apex is located at eye level; its base lies within the imagined picture plane. (See **picture plane**.)

**connection** Something that connects. To *connect* means to join, fasten, link, unite, or consider as related. *Connections* may provide a logical ordering of ideas, establish common interests, conjunction, or coincidence. *Connections of the narrow kind* establish visual relationships between internal pictorial elements within a composition, or establish associational pattern similarities between works in a series. *Connections of the broad kind* are specific references that join a work of art together with elements in the world at large: typically, the environment, society, culture, politics, or the sciences. These stimulate more creative

solutions to visual problems and also enhance communication.

**consonance** Agreement, conformity, harmony. (See **rhythm**.)

**constancy** (See **perceptual constancy**.)

**constellation** The grouping of points in a three-dimensional space to form a flat configuration or image.

**consumer behavior** A marketing term that refers to the study of factors that motivate human behavior. It concerns the general public's response to products, services, subjects, or sets of circumstances as determined by statistical research.

**content** The meaning or significance of a literary or artistic work, as distinguished from its form. The meanings inferred from the subject matter and form of a work of art. This broad term refers to the message, narrative, meaning or subject of a work. The question often asked of artists, "Where do your ideas come from?" is probably referring to content.

**context** That which leads up to and follows and often specifies the meaning. The circumstances in which a particular event occurs; a situation. Context becomes important in evaluating function, materials, size, etc. It's sometimes more appropriate to change a context than to modify an element. Just as we sometimes need context to help define a word, physical context is appropriate in evaluating design. The question, "Is it good?" should usually be rephrased, "Does it resolve the need here?"

**continuity** A Gestalt principle of organization that states that perception tends to move in one direction. Thus, we can easily follow the path of a single line, for example, even in a maze of many overlapping lines. Continuity is an uninterrupted succession, an unbroken course. Like closure, we

subliminally extend lines and forms to seek the largest, most unified whole. Continuity is the appearance of a logical and anticipated sequence. A little discontinuity might create interest, but too much will tax believability; our need for order is easily offended. Also, more broadly, continuity means to carry forward in natural order. In film, television, slide presentations, and storyboards or multi panel art, it is a natural flow of events in *chronological* sequence.

**contour** The outline of a figure-object or mass; a line that represents such an outline; a surface, especially of a curving form. The term commonly refers to the shape of a three-dimensional body as represented on a two-dimensional surface. When drawing, the outer edge of an object is rendered as a line. Contour lines do not exist in nature, any more than lines of latitude and longitude exist. Just as lines have a visual speed, we scan an object often by traveling along its contours skimming along the surface. This process is quick or slow depending on texture, complexity, angles and edges.

**contour line** A line of varying thickness-and often tone and speed-used to suggest the three-dimensional qualities of an object. Contour line may be applied along as well as within the outer edges of a depicted form.

**contour map** A two-dimensional representation of topographical data derived from any kind of three-dimensional surface.

**contrast** To set in opposition in order to show or emphasize differences; a striking dissimilarity between things being compared; the use of opposing elements such as colors, forms or lines in proximity to produce an intensified effect. Contrast clarifies and heightens an effect. To make a white paper brighter, place a black mark upon it. Punctuate muted tones with a spot of intense color. Contrast is used to draw attention to an area, to provide stability or clarity in a

composition, and to affect the figure/ground relationship, either by clarifying or confusing it. Contrast can exist in many realms at once. A thick, jagged, curved black line contrasts with a thin, smooth, straight red line. We can simultaneously experience contrast of scale, value, shape, direction, and surface.

**convergence** In the system of linear perspective, parallel lines in nature appear to converge (come together) as they recede.

**cool colors** Psychologically associated, for example, with streams, lakes, and foliage in the shade. Cool colors such as green, blue-green, blue, and blue-purple appear to recede in a relationship with warmer colors. (See **warm colors**.)

**craft** Skill or ability in something, especially in handwork or the arts; proficiency, expertness. In its first sense, craft refers to the quality of anything that is made. A painting, a building or a meal may be well crafted. Usually excellent craftsmanship is the result of talent, training, and experience. The pleasure of good craftsmanship is universal, transcending language, culture, and time.

**critique** A critical review or commentary, especially dealing with art; a critical discussion of a specific topic; the art of criticism. A critique, or *crit*, for short, is a staple part of an art education. It is a chance to examine work in a unique situation, pulled out, or separated from usual experience for this focused evaluation. Because criticism is largely (but not entirely) based on comparison, critique must take place within a context. To say, "This is good" begs the question, "Compared to what?" or "Good for what?" We critique, say, Michelangelo's paintings and find them to be good, within the unspoken parameters of Western ideals of the human figure, a Renaissance understanding of Christianity, and the confines of his medium.

**cropping** Using a format to mask out parts of an image's subject matter.

**cross-contour lines** Contour lines that appear to go around a depicted object's surface, thereby indicating the turn of its form.

**cross-hatching** The intersecting of hatched or massed lines to produce optical gray tones. (See **hatched lines**; **optical grays**.)

**cubism** A style of art developed by Pablo Picasso and Georges Braque that is characterized by figure-ground ambiguity, flattened perspectives, and multiple points of view.

**cue** A sign or signal that prompts someone to do something. In psychology, it is a perceived signal for action that produces an operant response.

**decorative** Serving to decorate; ornamental. Often used in the pejorative (negative) sense of unnecessary embellishment, arbitrarily applied to an object without regard to its form. Decorative additions are frosting on a cake: sometimes used to camouflage mistakes in what lies beneath, and sometimes appropriate additions that elevate what was good to something outstanding.

**delimit** To establish limits or boundaries.

**density, density factor (D)** Density in design is related to the "darkness" of a color, that is, its relative light reflection, which is a subtractive measure. This can be directly related to the deposit of pigment or ink upon a reflective surface in design and is often expressed in percent, as, for example, a 50 percent black (a middle-gray tone). A number 2 gray designers' color is a D 2.0. In the 11-step luminance scale, density is expressed in

D factors like 2.0, which are directly convertible to percent by moving the decimal one place to the right. (D factors may be converted to Munsell "values" and vice versa, simply by subtracting the original number from 10. Thus, the two systems are compatible.)

**density gradient** A perceptual depth cue in which objects and the spaces between them become smaller and smaller as they recede into the distance.

**design** To conceive, invent, contrive; to form a plan for; to draw a sketch; to have as a goal or purpose, to intend; a visual composition, pattern; a reasoned purpose, intention. Creation of pattern. Human-made order, structure, and form. This word is both noun and verb. When we attempt to arrange parts in a way that is most efficient, attractive and/or meaningful, we are engaged in the process of design. The result of the activity, which may be an intellectual property as well as a sketch or model, is also called a design. (See **composition**; **form**.)

**diagrammatic marks** Those marks and lines artists use to analyze and express the relative position and scale of forms in space.

**dialogue** A conversation between two or more people; an exchange of ideas or opinions; lines in a play. In a work, dialogue might refer to cross-reference between elements - a texture, hue, value or shape might indicate an association or relationship between parts.

**diminution** In linear perspective, the phenomenon of similarly-scaled objects appearing smaller as they recede.

**discordant color scheme** A color arrangement based on hues that compete or conflict. (See **color scheme**.)

**discrimination** The ability, act, or power to make fine distinctions, that is, to separate things by observing or distinguishing very small differences; differentiation; discernment.

**dissonance** Harsh or inharmonious in sound; discordant; disagreeing or at variance. If the effect of harmony is to create a sense of resolution, beauty, and order, the result of dissonance (its opposite) is to create tension, contrast, and lack of resolution.

**distinctness** The ability to resolve very fine detail in any visual field; visual acuity, sharpness, or clarity; also, a relationship or ratio between things such as hard and soft edges, wide and narrow luminance ranges.

**Divisionism** A technique developed and named by Georges Seurat and Paul Signac that attempted to apply the scientific concept of *optical fusion* to painting. The works were characterized by an overall pattern of tiny dots of pure colors. The term *Pointillism* is more commonly applied to these works, but in a manner that often distorts the painters' objectives.

**dominance** Preeminence in position or prevalence; ascendancy; the tendency for one element or group to command greater attention than another. Possessing the most influence or control; surpassing all others; paramount. When something is dominant, there must also be subordination. Dominance can be achieved by size, value, color, shape or position. If several of these factors are combined the effect will be more pronounced. A large bright object in the middle of a page will dominate most everything else. If these factors are used in contradiction (a large dynamic shape overlapped by smaller, less interesting ones) the result could be an appealing tension or a confusing irritation.

**dominance principle** A perceptual characteristic that establishes psychophysical

equilibrium in human beings. It is a rippling pattern of behavior in which first one thing, then another, is seen to dominate our field of view, mental state, or priority of action, preventing the sheer mass of sensory data from overwhelming us.

**dynamic** Pertaining to energy, force or motion related to force; characterized by continuous change; energizing, vigorous, forceful; variation of intensity, as in a musical sound. A composition that implies movement, that is, a dynamic composition, is more likely to grab our attention than a static one.

**dynamic line** Dynamic line is a line quality that is characterized by velocity, rhythm, and elasticity. It emphasizes a sense of movement and creates strong directional forces. Dynamic line is a responsive kind of line much like the gestural line used in life drawing classes. Dynamic line has an intensity about it that attempts to catch the spirit of the thing you are drawing.

**eclectic** To choose the best from diverse sources, systems or styles. The challenge of an eclectic style lies in defining what's best, determining the particulars of arrangement, and bringing the results to a physical reality. In the truest sense of the word, this describes the task of the arts: to select, assemble, and arrange the best parts of all that there is.

**economy** The careful use of resources; the management of the resources of a country, community, or business. In addition to the usual association with money this word means "the functional arrangement of elements within a structure or system". Economy is a matter of getting the most from given resources while keeping the house in order.

**edge** A rim, brink or crest; a dividing line or point of transition; a margin, a border. In a two-dimensional composition, marks at the center are locked into relationships with the

other marks on the page. Marks near the edge split their allegiance between other marks and the edge itself; they know where the paper ends. Center equates with stability, edges with instability.

**effect** Something brought about by a cause or agent; also, to produce a result. Do not confuse with *affect*, which means "influence."

**electromagnetic spectrum** The entire range of electromagnetic waves from very short, high-frequency vibrations, such as cosmic rays, through (in the order of decreasing frequency) gamma rays, Xrays, ultraviolet radiation, *visible light*, infrared radiation, microwaves, and radio waves to very long, low-frequency vibrations, which include heat waves and electric currents.

**emotion** Any strong, generalized feeling; subjective responses such as love, hate, or fear that involve physiological changes as a preparation for action.

**emphasis** Special importance or significance placed upon or imparted to something; stress applied to a syllable, word or passage by the use of a gesture or other indication; force or intensity of expression, feeling or action; sharpness or vividness of outline, prominence. Emphasis is a kindly hint from artist to viewer, a clue that assists in understanding a work. It follows that it is less necessary in obvious compositions and more necessary in subtle or complex ones.

**entropy** A measure of the capacity of a system to undergo spontaneous change; a measure of the randomness, disorder, or chaos in a system. This is in a way the reverse side of gestalt, which refers to the human tendency to visually assemble parts into a coherent whole. Order in the arts (representation, precision, control) is evidence of our apparent control over chaos. Others will argue that art is at its best when it

connects with the randomness of life, describing it by yielding to it.

**envisioned images** Depictions that are based wholly or in part on the artist's imagination or recall.

**equilibrium** A Gestalt principle of organization that states that every psychological field tends toward "excellence" or precision, that is, the most regular organization possible. The concept reflects physical activity of natural forces that strive for balance. A water drop changes into a sphere as it falls; water seeks its own level; and so on.

**equivocal** Capable of being interpreted in more than one way; ambiguous.

**expressionism** A type of artwork in which the artist permits his or her emotions to dominate the character of the color, structure, and imagery (if any). As this is a highly personal, subjective experience, the communication aspects of the art may be sacrificed totally or subordinated to such "expression." There are two types: *figurative expressionism*, sometimes called "German expressionism," in which representational forms are subordinated to the artist's aesthetical motives; and *abstract expressionism*, which is nonobjective in character.

**eye-level** The height at which your eyes are located in relation to the ground plane. Things seen by looking up are above eye-level (or seen from a "worm's eye" view); things seen by looking down are below eye-level (or seen from a "bird's eye" view).

**fatigue illusion** (See **optical dazzle**.)

**feminine** (stereotype) Qualities commonly associated with the feminine gender - beauty, softness, sensuality, romance, weakness, hesitancy, indecisiveness, and so on; also

those qualities when attributed to other figure-objects: flowers, for instance, or type styles. (See **masculine**; **stereotype**.) Note: Mixing perceptions of gender characteristics (masculine/feminine) can produce a girl/woman who is a tomboy, a feminist, or a businesswoman, for example; or a boy/man who is sensitive, aesthetic, an artist, or a Don Juan. Pushed to extremes, mixtures transmit meanings of homosexuality to the viewer.

**Fibonacci numbers** A geometric progression in which the Golden Section ratio 1:1.618 is a constant factor. Each subsequent number in the series is obtained by adding together the two that precede it, for example, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, and so on.

**field** A space or ground on which something is drawn or projected or that which is perceived as such.

**figure** Any shape or form perceptually enclosed by a boundary line (perimeter) or contour line that is seen as separate from the ground or background. Ground is neutral; figure is not. The term, as used in science, psychology, and in this text, does not necessarily imply a person as in the common expression *figure drawing*. The representation of a recognizable object or nonrepresentational shape (such as a tree, a letter of the alphabet, or a human figure), which may be readily distinguished from its visual context in a drawing.

**figure/ground** **Figure:** The outline, form, or silhouette of a thing; **Ground:** A surrounding area; background. Figure/ground refers to the relationship between what stands forward and what recedes in a composition. Whatever circumscribed area we look at is interpreted as figure and advances while everything else in the field of vision becomes background and recedes. The degree of tension or harmony between figure and ground contributes significantly to

the effect of a work. The three-dimensional equivalent of figure/ground is positive/negative. Through understanding and use of unusual figure/ground relationships, artwork is generally made more interesting. If the amounts of figure and ground are approximately equal, the effect can be confusing to the eye, which jump" back and forth between two conflicting options.

**figure-ground shift** A type of ambiguous space that combines aspects of interspace and positive-negative reversals. It is characterized by "active" or somewhat volumetric negative areas and by the perception that virtually all the shapes are slipping, or shifting, in and out of positive (figure) and negative (ground) identities. (See **ambiguous space**; **interspace**; **positive-negative reversal**.)

**figure-ground stacking** A sequential overlapping of forms in a drawing, making the terms figure and ground relative designations.

**fixed viewpoint** Refers to the depiction of an observed object in accordance with its appearance from one physical position.

**focal point** The dominant point or area in any visual or pictorial field wherever the eye is directed or impelled to look.

**folk art** Art by the common folk, that is, by persons who lack any formal art training or experience; sometimes called *naive art*, such works are characterized by a lack of sophistication in drawing and painting, and they often depict nostalgic subjects in a simplistic manner. Images, however, may be powerfully evocative and display an innate sense of beauty in patternmaking. Graffiti could be considered a form of folk art.

**force lines** Lines used to reveal the structure of a form by indicating the

counterbalancing of one mass against another.

**foreground** The closest zone of space in a three-dimensional illusion. (See **background**; **middleground**.)

**foreshortening** In foreshortening, the longest dimension of an object is positioned at an angle to the picture plane.

**form** The shape, structure, and volume of actual objects in our environment or the depiction of three-dimensional objects in a work of art (as opposed to their matter or substance). In the arts, the term is used broadly as a synonym for design or patternmaking; and it includes all aspects of composition, organization, and structure. (See **shape**.)

**formal** Refers to an emphasis on the organizational form, or composition, of a work of art. Pertaining to the essential form or constitution of something, in the same sense that "structural" refers to structure, in discussions of art, this refers to information received on a visual level, as distinct from issues of content or meaning. Form, like structure, is usually a fundamental aspect of a solid object. You can paint a grapefruit, or suspend it by a thread, or set it in the middle of a stadium but it will always, formally, be a sphere. Because of this, form is important to all design, a common denominator that separates the average from the exceptional. Superb decoration, craftsmanship, and exquisite materials on a mediocre form will yield a disappointing result.

**formal balance** (See **symmetry**.)

**format** The overall shape and size of the drawing surface.

**form-meaning** That aspect of content that is derived from an artwork's form, that is, the character of its lines, shapes, colors, and

other elements, and the nature of their organizational relationships overall.

**form summary** A simplified form description of a complex or articulated object, usually for purposes of analysis or to render a subject's three-dimensional character more boldly.

**fovea** A tiny depression in the center of the retina densely packed with cones. The fovea is responsible for visual acuity, that is, sharp, vivid, detailed images.

**fragment** A part broken off or detached from the whole; something incomplete; an odd bit or piece; to break up into fragments, fragmentize. In order for an object or form to be perceived as a fragment there must be a clear sense of a whole. Fragment implies a passage of time ... Then it was whole, now it is in pieces.

**frequency** The number of times that one wavelength of electromagnetic energy passes a fixed point in space in one second.

**function** The natural or proper action for which a person, office, or mechanism is fitted; to serve in a proper or appropriate manner; something closely related to another thing and dependent upon it for its existence, value or significance. An obvious use of function in design is as a solution to a specific problem. But function can change depending on context.

**futurism** An early 20th-century Italian art movement that focused on the violence, speed, force, and efficiency of modern society and on the mechanical energy exhibited by automobiles, trains, and industrial manufacturing.

**genetic, genetic memory** Pertaining to the biology of heredity; physiological body processes or characteristics, mental or physical predispositions, or actions due to

genetic makeup of an organism. These are often called innate. Genetic memory in humans is generally allied to what we call "instinct" in lower animals and is often generalized as "nature" versus "nurture." (See **behavioral conditioning**.) In this text, every reference is to genetic characteristics all human beings share, NOT to individual or family traits.

**gestalt** An observation of a unified visual field perceived in its totality; a total mental picture, or conception, of a form. A unified physical, psychological or symbolic configuration having properties that cannot be derived from its parts. This concept is borrowed by the visual arts to describe the phenomenon that images are perceived as unified wholes before they are perceived as parts. Our need for wholeness is so great that we assemble elements into as large a unit as possible. We will see a row of dots as a dotted line rather than a collection of small marks. When confronted with an image or form that lacks unity, a viewer finds the effect unrelated, busy or disturbing.

**Gestalt psychology** A branch of psychology originated by the German psychologist Max Wertheimer around 1912. Gestalt psychology emphasizes that behavior cannot be analyzed into independent units but must be studied as organized "wholes." Things are not a sum of their parts. Gestalt psychologists see relationships, patterns, and groupings as the primary elements of perception and have established a psychological basis for spatial organization and graphic communication.

**gesture** A motion of the body made to express thoughts and emotions, or to emphasize speech; to show, express or direct by movements. Gesture combines our given physiognomy with our learned movements - the length of our arm with the boldness of our stroke. Gesture is similar to attitude. Gestures can be coarse, abrupt,

soothing, angry, and so on. Medium affects gesture. A loose spontaneous gesture might be best captured in paint. The same gesture might be diminished-starved to death-by a pencil. A physical gesture is the collection of movement, form and pace. In the visual arts, we can use the same word to describe the subtle but essential qualities that result from a particular action by a particular person at a specific time.

**gesture drawing** A spontaneous representation of the dominant physical and expressive attitudes of an object or space.

**glaze** A thin, medium-rich application of transparent color over an underlying drawing or painting in order to add, alter, blend, enrich, or unify colors. It is a means of creating transparency and luminosity in works of art. Glazes may be used to alter any of the three dimensions of color: *hue*, *luminance*, and *purity*. Glazes may be worked over dry grounds or applied with a wet-in-wet technique.

**Golden Mean** A term often used as a synonym for the Golden Section. In this text, the term *mean* is used to identify a method of dividing any rectangle into proportions that approximate the Golden Section.

**Golden Rectangle** A rectangle in which the ratio of length to width - and all subsequent divisions of interior space to infinity - will exactly conform to the ratio 1:1.618.

**Golden Section** A ratio of 1 to 1.618, and the geometric progression or proportions associated with this ratio. (See **Fibonacci numbers**.)

**gradation** A progression of change in natural order, with discrete or blended steps; a flowing transition in which adjoining parts are similar and harmonious; modulation.

**gray scale** A series of stepped gradations from white to black; a luminance scale (see **luminance**); a range of lightness to darkness in any color system. This text recommends conforming to the ISCC-NBS (Munsell) standard consisting of 11 steps, white, nine grays, and black. It also recommends converting the additive notation *value scale* to a subtractive *density scale*, which is consistent with the majority of applications in design, painting, and applied art. (See **density**.)

**grisaille** The arrangement of an image into varied steps of gray values.

**grid** A framework of parallel or crisscrossed bars; gridiron. A pattern of horizontal and vertical lines forming squares of uniform size on a map, chart, or aerial photograph" used as a reference for locating points. A pattern of lines commonly at 90° to one another like a checkerboard. Grids, however, may employ diagonal lines, circles and arcs, or arbitrary or freely chosen configurations. Grids are a series of alignments and intersections that can be used to assemble, organize, or separate elements. They can be seen or inferred. Grids are categorized as *regular* when they consist of geometric arrays of lines and as *arbitrary* if they consist of random or irregular lines.

**ground** The background against which figures are perceived. The actual flat surface of a drawing, synonymous with a drawing's opaque picture plane. In a three-dimensional illusion, ground also refers to the area behind an object (or figure). Grounds are fluctuating entities depending on whatever in the visual field is the focus of our attention. Note: The term is also commonly applied to any of several materials, like gesso, applied to a support in preparation for painting or drawing.

**ground plane** A horizontal plane parallel to the eye-level's plane. In nature this plane

may correspond, for instance, to flat terrain, a floor, or a tabletop.

**grouping** An organizational principle of Gestalt psychology. The act or process of arranging in groups; a collection of objects arranged in a group. Understanding how grouping takes place perceptually enables the artist to improve the unity of compositions and their structure. Artists use grouping to convey subtle messages and to guide a viewer through a piece. Elements are commonly grouped by: *similarity* (size, color, shape, textures, etc.), *proximity* (close, touching, overlapping), or *orientation* (visual or psychological).

**halftone** After the highlight and quarter-tone, the next brightest area of illumination on a form. The halftone is located on that part of the surface that is parallel to the rays of light. (See **chiaroscuro**.)

**harmony** Agreement or consonance between forms, shapes, colors, concepts or ideas, and so on; a perceptual understanding identified by the Gestalt psychologists as the principle of similarity. Agreement in feeling, approach, action, disposition; sympathy; accord. The pleasing interaction or appropriate combination of the elements in a whole; a mutually beneficial relationship between parts; the effect of various parts supporting, augmenting or complementing each other. From the Greek word for joint, connoting the way parts are joined together. A lack of harmony is described as being "out of joint."

**hatched lines** Massed strokes that are parallel or roughly parallel to each other. Used to produce optical gray tones. (See **cross-hatching**; **optical grays**.)

**heavy line** A line (or bar) that is very thick and bold, many times the thickness of a single stroke of pencil or regular brush. It is usually produced with a large, thick, or wide

brush or a specially lettering pen (nib), or it is constructed with drafting instruments as an outline and filled in.

**hierarchy** A clearly defined relationship between things that establishes differing levels of dominance, emphasis, or influence, with each level subordinate to the one above it. A body of elements arranged according to rank, authority or capacity; a body of entities arranged in a graded series. Overall patterns with equally emphasized figures are sometimes called "nonhierarchical designs." In the visual arts, hierarchy is the presentation of certain elements as more important than others. By conveying a clear sense of hierarchy an artist provides stability, sequence, and movement within a design. Hierarchy can be established by any of the devices in the artist's repertoire-position, value, form, contrast, rhythm, etc. The time-honored tricks to test hierarchy are to either turn a composition upside-down, or stand back and squint. Though apparently childish, these devices show the eye not what it "thinks" is most obvious, but what really is most obvious.

**high key design** A composition in which the overall or prevailing luminances are all above middle gray.

**highlight** The brightest area of illumination on a form, which appears on that part of the surface most perpendicular to the light source. (See **chiaroscuro**.)

**history painting** A picture that is usually painted in a grand or academic manner and represents themes from history, literature, or even the Bible.

**horizon line** The line formed by the apparent intersection of the plane established by the eye-level with the ground plane. Often described as synonymous with eye-level.

**hue** The traditional color "name," such as "red," which is attached to a specific wavelength of visible light (electromagnetic energy). Red, for example, is 700 nanometers (nm). If 700 nm is the dominant wavelength in the reflection of light from an apple, our brain interprets the hue of the apple to be "red." The dimension of color that refers to a scale of perceptions ranging from red through yellow, green, blue, and circularly, back to red; A particular gradation of colors; tint; shade. The term chromatic is sometimes used to refer to the property of hue. (See **chromatic**.) Most commonly, hue refers to the "color" of a color, that which, for instance, we call red. The hue is then modified by saturation, value, tint, or shade, as in bright red, dull red, and so on. It is often useful to speak of the temperature of a color. This might have a reference to genuine temperature, such as red, which is the color of glowing embers and is a hot color, but mostly it is an intuitive scale that identifies an optic quality that is different from value and saturation.

**hue circle** A circle composed of primary, secondary, and intermediate hues in any color-mixing system. (See **color wheel**.)

**icon** An image, representation; a simile or symbol. An icon is a graphic symbol of almost universal nature - a visual shorthand that is understood by most members of a community. Icons enlarge communication within the community of viewers who understand them ("A picture says a thousand words") but alienate those who do not.

**illusion** A perception that fails to give the true character of the object perceived; an unreal or misleading image presented to our vision; a deceptive appearance.

**imbrication** The overlapping of edges in a regular fashion like roofing shingles or fish scales.

**incandescence** A type of original (prime) light source created by a burning body. The sun is an incandescent light source as are common items such as light bulbs, candles, campfires, kerosene lamps, projector bulbs, and carbon arc spotlights. One of two broad categories of light. (See **luminescence**.)

**incident light** Light received directly from a prime light source (like the sun) rather than light reflected from a surface. Sometimes the term "ambient" light is used, meaning merely the light that is around us.

**inference** The act or process of drawing a conclusion from evidence or premises. Inferences are not necessarily the result of step-by-step logic but often are a consequence of deduction and supposition (a kind of sixth sense) that sees similarities or relationships between dissimilar things, activities, or mechanisms.

**installation art** A form of mixed media, multidisciplinary art that interfaces with the architectural space or environment in which it is shown.

**integration** The resulting whole made by bringing all parts together; unification. The organization of organic, psychological or social traits and tendencies of a personality into a harmonious whole. Desegregation; a successful relationship of elements. Parts can relate through their differences (contrast) as well as their similarities (harmony). In society, integration is achieved not when all cultures have given up their uniqueness, but when all elements can celebrate what sets them apart. Similarly, a composition does not seek to homogenize all its elements, but to create an environment (structure) that will accommodate the unique contributions of each.

**integrity** Rigid adherence to a code of behavior. To remain consistent with larger, often moral, dictates; the state of being

unimpaired; soundness; completeness; unity. The thousands of decisions that go into the creation of a work of art or design must eventually be tested against some form of measurement. A field test of integrity asks: If I remove this does the piece suffer? In a fully integrated design there is nothing extraneous. In the same way that moral integrity means staying true to a philosophy, visual integrity is the result of remaining consistent to a concept or approach.

**intensity** The saturation, or purity, of a color. (See **purity**.)

**interference** An interaction of waveforms whereby the overlap of two sets of waves weakens some waves but reinforces others. If one peak coincides with another, the wave is reinforced; if a peak coincides with a trough, the waves cancel out one another. Light wave interference is responsible for the iridescent colors we see in soap bubbles, record grooves, and some butterfly wings and birds' feathers. (See **moiré**.)

**intermediate colors** Hues that are mixed from one primary and one secondary hue to form a hue that is "in between"; also, more broadly, any color or hue perceived to lie between any two others.

**intersection** A place where two or more roads cross; the point common to two or more geometric figures. The crossing point of two lines, forms or movements. Typically a stable point. Intersections can be actual or anticipated. Two sloped lines climbing a page might not actually cross, but we extend them in our imagination to create an intersection. There is likely to be a sense of completion or resolution associated with this subconscious activity.

**interspace** Sometimes considered synonymous with negative space. In many works of modern art, however, it is more accurately described as a type of ambiguous

space in which negative shapes have been given, to a certain degree, the illusion of mass and volume. (See **ambiguous space**.)

**interval** A space between two objects, points or units; the temporal duration between two specified instants, events or states; an intermission. The amount of spatial or chronological separation between things such as lines, figures, colors, areas, spaces, or points in time. Intervals are *regular* when spacing is all the same and *progressive* when the spaces change in natural order whether based on a simple numerical progression or on a geometric ratio. An interval is the visual equivalent of a "rest" in musical notation. If the interval is too large, the elements drift apart and create an unresolved composition. If it is too small, the effect is compressed space, often with a corresponding tension.

**intuition** Direct mental insight without the use of rational processes; immediate cognition; a sense or something not evident or deducible. A deep-rooted, subconscious response to any specific stimulus that is produced by the sum total of each person's life experiences up to that point, including instinctive responses like emotions (genetic components). Also, a capacity to make inferences from incomplete or missing data. Contrary to popular belief, our intuitive faculties draw on all assimilated knowledge and, therefore, can be developed and enhanced. Intuition is, the saving grace that prevents art from being reduced to formula. It is the charming stumble, the rebellious bellow, the step off into the dark. Intuition is what we know automatically, without having learned it. We can improve our ability to listen to intuition and to trust it. Intuition is the tool that lets us cross-reference our senses. Through it we know how to cool down a hot color or quiet a noisy composition. Intuition can't be shared but it can be communicated.

**iridescence** An effect produced by the interference of light waves in which materials

or surfaces, like soap bubbles, appear to reflect all the hues of the spectrum. (See **interference**.)

**irradiation** A perceptual illusion in which our brain makes a dark edge darker and a light edge lighter in order to clarify and strengthen the formation of the edge. Some psychologists call this "contrast"; the term irradiation avoids confusions with the broader meanings of the word *contrast*.

**isometric perspective** A form of parallel line perspective in which no construction lines are parallel to the picture plane. Three faces of an object are viewed simultaneously.

**Join** Putting or bringing together, uniting or making continuous; putting or bringing into close association or relationship; the way elements are attached to each other. Joinery always asks the question, "Should these elements be joined?" The root meaning of "art" is "to join, or fit together." Joinery imposes a relationship. Picture the difference between a book set upon a table and a book nailed to a table.

*Kinds of Joins:*

permanent - temporary  
obvious - subtle  
familiar - exotic  
integral - superficial  
organic - mechanical

**kinetic** Moving; pertaining to motion; produced by motion.

**layout** The placement of an image within a two-dimensional format.

**lens** In reference to the eye: a flexible, oval-shaped transparent body behind the iris, which changes shape to bring near or far objects into focus on the retina.

**leveling** Making things more alike; emphasizing similarities; commonly a stereotyping procedure.

**light** A small portion of the electromagnetic spectrum capable of stimulating the photoreceptive cells (cones and rods) in the retinas of our eyes. The *band of visible light* extends from about 400 nm to 700 nm. (See **electromagnetic spectrum**.)

**line** The locus or a point having one degree of freedom. Theoretically a closely spaced series of points; a thin, continuous mark, as that made by a pen, pencil, brush, or other writing or drawing instrument applied to a surface. Also, any conceptual, intellectual, or theoretical correspondence to this figure. There are lines of vision, lines of motion or movement, contour lines, and so on. In the visual world, lines are generally a shorthand for edges. We perceive objects because of the dozens of ways they differ from their surroundings. We abbreviate these differences by drawing a contour line. "Shaded" lines go from thick to thin and create a subtle illusion of space'. Thin areas recede while thicker sections advance.

*Types of Lines:*

Long / Short  
Thin / Thick  
Solid / Broken  
Straight / Curved  
Uniform / Irregular  
Neat / Sloppy  
Planned / Random  
Vertical / Horizontal

**linear** Situations or compositions in which line is the dominant element, as compared, for instance, with plane, form, or surface. Things in a line or in an obvious sequence; a process that moves logically from point to point.

**linear perspective** The representation of things on a flat surface as they are arranged in space and as they are seen from a single point of view. A method of encoding a two-dimensional surface to create an illusion of three-dimensional figure-objects. The term is

usually meant to describe Renaissance perspective (vanishing point perspective) wherein parallel straight lines appear to converge on the distant horizon. However, there are other types of linear perspectives, including isometric, oblique, and orthographic, in which parallel lines remain parallel. The latter forms have been commonly employed by cultures other than our own and are especially important in 20th century art.

**local color** The color of figure-objects seen independently of shadows, reflections, atmospheric effects, unnatural lighting conditions, or any other variable. (See **body color**; **complex local color**.)

**local value** The inherent tonality of an object's surface, regardless of incidental lighting effects or surface texture.

**low key design** A composition in which the overall or prevailing luminances are all below middle gray.

**luminance** An index of the amount of light reflected from a surface viewed from a particular direction. It relates to the lightness or the darkness of reflected colors and is compared to a gray scale. The term *luminance* is able to accommodate a gray scale based on density, a subtractive measure. (See **value**.)

**luminescence** (loo mi NES' enz) Any prime light source not attributable to incandescence, that is, all non thermal lights such as those produced by chemical, biochemical, or electrical processes, including fluorescence and phosphorescence. Do not confuse this term with luminance (LOO' mi nans).

**luminosity** Certain visual effects achieved through color or tonal interaction, for example, the effect of an illusion of light that

appears to emanate from "inside" a color area.

**masculine** (stereotype) Qualities usually attributed to the male gender-strong, forceful, muscular, bold, hard, mechanical, cold, insensitive. Also, similar qualities as applied to figure-objects like machines or type styles. (See **feminine**.)

**mass** Any body of matter perceived to be unified but without regard to specific shape; any cohesive group of objects so perceived. The weight or density of an object. The major part of something; majority. In science, the effect of gravity as registered on an object or particle. The total accumulation, as in a numberless crowd; the masses. Visually related to the bulk of an object-the accumulated sense conveyed by its external dimensions or surface. This often translates to the presence of a work, its ability to dominate the space it occupies. This sort of perceived mass is not measurable like physical mass but it is an important aspect of design.

**mass gesture** A complex of gestural marks used to express the density and weight of a form.

**meaning** In this text, the term is used in its most generic sense: to refer to perceptual recognition, naming, or identification of a figure-object. The term, as used here, does not necessarily imply *message*. (See **message**; **assimilation**.)

**measuring** A proportioning technique using a pencil to gauge the relative sizes of the longest and shortest dimensions of an object.

**melds** A variety of artistic devices that merge figure with ground by exploiting Gestalt "continuity" - for example, extending figure contours, colors, or textures, into the negative space or ground (particularly at

sharp changes in contour); softening or "blurring" edges; retention of normally invisible construction (compositional) lines; and so on. A leveling procedure, melds add homogeneity and unity to works.

**message** A correlation of "meanings" in a specific context or structure for the express purpose of communication - transmitting a purposeful thought, concept, or idea.

**metamorphosis** A transformation, or evolutionary change, from one form into another - appearance, character, structure, or function. (See **serial**.)

**metaphor** A figure of speech in which one object is given attributes characteristic of another object from which it clearly differs in order to suggest or to point out likenesses between them not ordinarily observed; a visual equivalent to this literary form.

**middleground** The intermediate zone of space in a three-dimensional illusion. (See **background**; **foreground**.)

**model** A preliminary pattern, prototype, or design, especially an example to be emulated. The term *paradigm* is preferred. (See **paradigm**.)

**Modernism** An historical movement initiated in the mid-19th century and continuing to the present day. Modernist art is largely characterized by the conviction that content resides chiefly in artistic form. Modernist art, often abstract or nonobjective, recognizes the autonomy of the art object. (See **Postmodernism**; **abstraction**; **nonobjective**.)

**module** A part of a construction used as a standard to which the rest is proportioned. A sub-unit that goes to make up a whole, generally through repetition of similar or identical units. A uniform structural component used repeatedly in a building. A

self-contained unit that performs a specific task. There is a modern feeling to this word; it is used to convey an industrial notion of repeatability and versatility. Furniture and housing are often modular.

**moiré** The "beat" or visual reinforcement created by the overlapping (superimposition) of the same or similar wave patterns or periodic patterns. (See **interference**.) A pattern like that of watered silk, which results from laying one pattern on top of another (such as the stripes of a zebra seen through the bars of a cage). Moirés may be observed in overlapped window screens, curtains, and so on.

**monochromatic** Consisting of one color. Possessing only one hue, though possibly varying in luminance and purity; consisting of only one wavelength of light. In addition to a single hue, *monochromatic color schemes* commonly include white, grays, and black. (See **polychromatic**.)

**monochromatic color scheme** A color arrangement consisting of value and intensity variations of one hue. (See **color scheme**.)

**monocular vision** Vision that uses only one eye, and therefore only one cone of vision, to perceive an object.

**motif** A design fragment, reduced to its most simplified form or configuration, that is used as a basic theme in a work of art. The repetition of a visual element, such as a line, shape, or unit of texture, to help unify a work of art. The motif may be repeated rhythmically, fractionalized, enlarged, and elaborated on; however, its presence always helps to provide coherency and unity in the work.

**motion** The action or process of change of position; a meaningful or expressive change in the position of the body; the way in which a body moves; gait; a prompting from within; an

impulse or inclination; to signal or direct by making a gesture. Real physical motion has direction, speed and duration. Visual motion is usually implied through shape, value, and lines. In composition these are used to lead a viewer through a piece, or back into the implied depth.

**movement** The visual act or appearance of change. The progression of events through time and space or across a two-dimensional surface. Visible displacement in space. When we observe movement it is called *direct* or simultaneous; when it is too fast or slow to be observed, it is called *inferred* or implied. (See **kinetic**.)

**Munsell, Albert H.** Inventor of the first practical color notation system. His system is now incorporated into the ISCC-NBS System adopted by the U.S. Bureau of Standards.

**nanometer** One-billionth of a meter (10<sup>-9</sup>); approximately 0.000000039 inch. Formerly called a "millimicron," this unit of measure is applicable to wavelengths in the visible light band.

**natural luminance** Every pigment, when compared to a gray scale, has a luminance ordinarily associated with that specific pigment. For example, Cadmium Red Light is a middle gray, D 5.0.

**natural order** In regular or normal order or sequence: hues according to their spectral sequence (red, orange, yellow, green, blue, violet); even steps of gray from white to black or vice versa; and so on. Such sequences are psychologically comfortable, natural, easy, fast, and so on. (See **unnatural order**.)

**negative shape** The pictorial, flat counterpart of negative space in the real world. Neutrals Refers to black, white, and gray. (See **achromatic**; **chromatic gray**.)

**negative space** (See **ground**.)

**nonobjective** A style of art in which the imagery is solely the product of the artist's imagination and therefore without reference to things in the real world. "Pure" abstraction, that is, pictures that make no reference or bear no resemblance to the forms of nature or the natural world or to manufactured objects or structures; nonrepresentational.

**normal value** (See **natural luminance**.)

**objective** Based on knowledge; factually presented without influence of, or regard to, emotions, supposition, or personal prejudice. Also, things viewed dispassionately; the opposite of *subjective*.

**one-point perspective** In one-point perspective, a rectangular volume is centered on the line of vision, thus causing all receding (horizontal) parallel lines to appear to converge, or meet, at one point on the horizon line.

**Op art** A contraction of optical art. An art movement of the 1950s and 1960s that employed optical illusions, optical dazzle, simultaneous contrast, and other perceptual phenomena as a basis for their works.

**optical color** Refers to the eye's tendency to mix small strokes of color that are placed side by side or overlapped.

**optical dazzle** A type of pulsating, shimmering, and dazzling optical effect attributed to the fatigue of photoreceptor cells (rods and cones) in the retina. Generally, strong contrasts of black/white or complementary hues are required.

**optical grays** The eye's involuntary blending of hatched or cross-hatched lines to produce the sensation of a tone, (See **actual grays**; **cross-hatching**.)

**optical fusion** The blending in the eye of two or more discrete elements in any visual field so that each loses its separate identity. For example, if we spin a disk half white and half black at high speed, we will see a shade of middle gray, not black or white. The variety of colors on a TV set are created by the optical fusion of tiny triplet patterns of red, green, and blue phosphors.

**order** A condition of logical or comprehensible arrangement among separate elements; a condition of methodical or prescribed arrangement to achieve proper appearance or function. Sequence; the customary procedure. Tidy, precise, an orderly arrangement. We each have a need for order (a threshold of tolerance for disorder). One description of art is that it is humankind's attempt to impose order on the universe. This could be given as a definition of science as well. Order is often a prerequisite to communication. Order implies a pre-existing structure. Things rarely fall into order by accident.

**organic** Related to growth in nature or representative of that process; simple, basic, and close to nature; having properties associated with living organisms; an integral part of something; fundamental; constitutional; structural. Pertaining to living things or the attribution of the characteristics of living things to inorganic, nonobjective, or conceptual design forms. The word organic is usually associated with rounded forms (snowdrifts, beach pebbles, plant forms) but because nature often works with geometric precision (such as crystals) the term is more accurate when describing a process.

**orientation** Alignment or positioning of anything with respect to a specific direction, reference system, or axis; also, familiarizing oneself or adjusting to any situation.

**originality** Pertaining to the beginning of something; initial; first. Freshness of aspect,

design, or style; the power of independent thought or constructive imagination. One of the hardest tasks in design - or in life for that matter - is to deal with excessive freedom. In the absence of a limiting context, design becomes movement without direction, fickle and unproductive.

**Orphism** One of several similar styles that were characterized by surface patterns composed of dashes, dabs, or dots of paint, used as a means of endowing the works with a poetic quality. Objectives were very different from those of *Divisionism*.

**orthographic** Characterized by perpendicular lines and right angles. A form of linear perspective in which multiple views of a solid object are presented as if they were all in the same plane - the "plan" view used by engineers and architects.

**outline** Usually a mechanical-looking line of uniform thickness, tone, and speed, which serves as a boundary between a form and its environment.

**overall image** The sum total of all the shapes, positive and negative, in a drawing.

**overlapping** An effective way to represent and organize space in a pictorial work of art. Overlapping occurs when one object obscures from view part of a second object.

**paradigm** A model or a blueprint, especially one perceived to be definitive.

**paradox** A true, but apparently contradictory, statement, circumstance, or image. Also, what is illogical, inexplicable, or contrary to accepted opinion or expectations.

**parameters** Fixed limits or boundaries; characteristic element; the outside dimensions, boundaries, particularly in reference to a task, a brief. Design often starts by determining parameters, or by

testing their flexibility. A mediocre designer might settle for the limitations as given, but a great designer pushes the limits of conventional thinking. In design this term refers to the restrictions and challenges of a given project. It might include materials, size, cost, or many other factors, all of which will impact the decisions. Some parameters are visual (must be bright, must have a flat surface) and others are related to function (must have no sharp edges, must stand up to handling).

**pattern** An archetype; an ideal worthy of imitation. A plan, diagram or model to be followed when making things. A representative sample; specimen. To cover or ornament with a design. Patterns, or recurring activities and responses, are the very stuff of science. There is no doubt about the importance of visual pattern, or that our ability to perceive pattern matures as we widen our experience of the world. It takes a while to discover the finer differences between shapes, colors, and textures that will become the building blocks of pattern. Geniuses, particularly in science and mathematics, are often credited with the ability to discern patterns that the rest of us miss. Pattern recognition is a large part of the business of being human. Pattern gives us control-or the appearance of control.

**perceived color** The observed modification in the local color of an object, which is caused by changes in lighting or by the influence of reflected colors from surrounding objects.

**percept** A more or less single impression in the mind of something perceived by our senses.

**perception** An awareness of everything around us obtained through our sensual organs: Sight, hearing, smell, touch, and taste.

**perceptual accentuation** That quality each individual brings to a figure, object, concept, and so on, that causes it to stand out or assume unusual importance; the result of past life experiences or perceptions; a factor in psychological weight.

**perceptual constancy** A human being's understanding that certain things remain the same regardless of the changing image sizes, shapes, and light qualities on our retina. It is part of the brain's mechanism to stabilize our environment. For example, we have no doubt that a person seen in the distance is of average height, five to six feet tall, even though the image on the retina appears smaller than that of a hand held up beside. This is size constancy; among others, we also have object, color, and shape constancy.

**perceptual imperative** An autonomic psychophysical drive to find meaning in every visual field or, more broadly, to derive meaning from all sensory data.

**perceptual selectivity or set** A process allied to assimilation. We see what we look for, that is, *what we expect to see*, while remaining unaware of things we do not expect to see.

**periodic** Recurring at regular intervals.

**periodic patterns (or structures)** Patterns of lines, dots, or other simple elements spaced at equal intervals or at geometrically progressive intervals. When a periodic pattern of vertical lines is overlaid on itself at right angles, the result is called a grid. (See **grid**.) Periodic patterns are inherently rhythmic.

**perspective** A mechanical system to represent three-dimensional objects and space relationships on a two-dimensional surface. The relationship of aspects of a subject to each other and to a whole.

Subjective evaluation of relative significance; point of view. Aerial perspective exploits the effect of the atmosphere on perception, as for instance when distant mountains appear lighter and less distinct. We use the term to describe a specific impression, referring intuitively to the understanding that when we move around we change the view in front of us. Perspective also implies a larger, more comprehensive view, as in "Let's put this problem into perspective."

**photo receptors** Light-sensitive cells in the retina of the eye: the rods and the cones.

**physics** The science of matter and energy and of the interactions between the two.

**physical** Pertaining to the body as distinguished from the mind; pertaining to matter and energy.

**physiological** Pertaining to the biological science of life processes, activities, and functions.

**pictorial** Refers to a picture, not only its actual two-dimensional space but also its potential for three-dimensional illusion.

**pictorial space** Illusionary three-dimensional space as observed from depth cues encoded on a two-dimensional surface.

**picture plane** The actual flat surface, or opaque plane, on which artists draw or paint as bounded by the edges of the material (the canvas, board, or frame) or by a line that circumscribes the area in which the artist composes a design or picture, length by width. It also refers to the imaginary, transparent "window on nature" that represents the format of a drawing mentally superimposed over real-world subject matter.

**pigment** A substance (mineral or dye) used as coloring matter in paint and other artists' materials. *Pigments are not hues* although

each has its own distinctive hue. Cadmium Red Light is a pigment, orange-red is a generic hue.

**planar analysis** A structural description of a form in which its complex curves are generalized into major planar zones.

**plane** Any flat or level surface. A level of development, existence or achievement. In the visual arts, an imaginary flat surface that unifies or at least describes a series or points. A *picture plane* is the flat surface of a drawing, print, or painting. In this instance the picture plane is real but the illusion of space within that plane is false. "Planar" does not necessarily refer to flat, though that is the common usage. It is sometimes thought that an opposite of "planar" is "organic," but crystals prove this to be incorrect.

**Pointillism** (See **Divisionism**.)

**polychromatic** Consisting of many colors. (See **monochromatic**.)

**Positive/Negative** **Positive:** Moving in a direction of increase, progress or forward motion; explicitly or openly expressed, irrefutable. **Negative:** Indicating opposition or resistance; a thing or concept considered to be the counterpart of something positive. In three-dimensional work, "positive" refers to the space that is materially occupied (the wood, stone, metal, etc.) as distinct from the areas of open space that are delineated by the positive areas. A hole in a donut is an example of a negative space. The two-dimensional equivalent of negative/positive is figure/ground. By understanding and manipulating the interaction of positive and negative areas, an artist is able to activate a composition, making it more interesting and unusual.

**positive-negative reversal** A visual phenomenon occurring when shapes in a

drawing alternate between positive and negative identities. (See **ambiguous space**.)

**positive shape** The pictorial, flat counterparts of forms in the real world.

**Postmodernism** A movement initiated in the mid-20th century in reaction to Modernism in which emphasis on subject-matter meaning displaced the modernist artist's preoccupation with form. (See **Modernism**.)

**positive space** (See **figure**.)

**pragmatics** That part of language that exhibits interrelationships with the reader, listener, or viewer- the existence of shared knowledge.

**primary colors** The irreducible number of hues in any color system from which theoretically all other colors may be mixed. The three fundamental colors - red, yellow, and blue - that cannot be produced by mixing other hues or colors. When mixed in pairs or combined in admixtures containing all three, the primaries are the source for all the other hues on the color wheel. (See **secondary colors**.)

**Principles of Design** The means by which artists organize and integrate the visual elements into a unified arrangement, including *unity* and *variety*, *contrast*, *emphasis*, *balance*, *movement*, *repetition*, *rhythm*, and *economy*.

**progression** Movement toward a goal; development. Steady improvement; a movement from one tone or chord to another; a succession of tones, chords, etc. Course or lapse or time; passage. Even though most visual art is stable, a sense of movement is created as a viewer experiences the work. The way a viewer's eye is led into and through a composition is part of the effect of a work. Like any journey, this can be fast or

slow, interesting or boring, simple or complex. Some of the techniques used to direct this movement are *rhythm*, *value*, *scale*, and *proximity*. The effect, however it is achieved, is called progression.

**proportion** The relative size of part to part and part to whole within an object or composition. Parts as related to a whole; wholes as related to one another with respect to length to length, width to width, girth to girth, and so on, or when compared in quantity, magnitude, or degree. Proportional relationships establish *geometric ratios* mathematically.

**proximity** Being near or next to; closeness; referring to the closeness of elements. In Gestalt psychology, the principle in which things spatially close together in a visual field join to make perceptual wholes or figures. (See **tension**.) Proximity functions in design like the force between two magnets. When far enough apart they have no effect on each other, but when they come close together the pull is so strong they become one unit. In between there is a place where the tension of attraction is strong. A similar visual tension can exist between elements in a composition. Proximity is dependent on the physical action of the eye and brain, and is probably influenced by our physical size. The speed with which the eyes can take in a composition will determine whether the elements are read as a unit or separately. Three dots scattered on a page have almost no relation to each other, but if they are placed close enough together (or if you stand far enough away) they will be perceived as a triangle. This effect is the result of proximity.

**psychological** Pertaining to the mind or the emotions.

**psychophysical** A term used by psychologists to indicate a response that is dependent on combined physical, biological, and mental processes.

**purity** One of the dimensions of color that identifies the monochromatic quality of any hue, that is, its relationship to light of a single wavelength. This relationship establishes a scale ranging from the most vivid hue physically possible to neutral gray. There is no universally accepted term or description for this dimension. Although some persons use the term *purity*, other persons prefer *intensity*, and still others prefer *saturation*. Some say intensity and saturation mean different things, and both terms are required; some persons prefer the term *brightness*, but it is a term most frequently used to describe a combination of dimensions rather than a single one. In the Munsell system, this dimension of color is called *chroma*. No term is accepted by a majority of persons. The term *purity*, as noted above, is easily tied to monochromatic light of a single wavelength giving it a precise meaning.

**push-pull** Spatial tension created by color interaction.

**quarter-tone** After the highlight, the next brightest area of illumination on a form. (See **chiaroscuro**.)

**radial symmetry or balance** Mirror images on either side of both a vertical and a horizontal axes or along any even number of equally spaced radii.

**ratio** Relation in degree between two similar things. In design the mathematics are less important than the sense or relationship, which is critical to a design-in fact, maybe the essence of design. It's not so much the parts, it's their arrangement that counts. The quantities and intervals of those arrangements are ratios. In the arts they are usually arrived at intuitively rather than by calculation, but they are no less important, even if they seem automatic.

**rectilinear** Formed or bounded by straight lines at 90° angles.

**reflected light** The relatively weak light that bounces off a nearby surface onto the shadowed side of a form. (See **chiaroscuro**.)

**reflection** Light waves bounced back to the eyes from any surface.

**refraction** The bending of light waves as they pass through one transparent medium into another, for example, a lens or a glass of water.

**relative position** A means by which to represent and judge the spatial position of an object in a three-dimensional illusion. Generally, the higher something has been depicted on a surface, the farther away it will appear.

**relative scale** A means by which to represent and judge the spatial position of an object in a three-dimensional illusion. Generally, things that are larger in scale seem closer; when there is a relative decrease in the scale of forms (especially if we know them to be of similar size) we judge them to be receding into the distance.

**Renaissance** A period of revived intellectual and artistic enthusiasm from roughly the 14th century to the 16th century; also, pertaining to the styles, characteristics, and attitudes of that period.

**repetition** The use of the same visual effect a number of times in the same composition. Repetition may produce dominance of one visual idea, a feeling of harmonious relationship, an obviously planned pattern, or a rhythmic movement.

**resolution** Having determined to do something, to be resolute. The process of separating or reducing something into its constituent parts. An explanation, as of a

problem or puzzle; a solution. In photography or magnification, acuity or sharpness; focus. The word is often used in art as an alternative to "finished", brought into focus. A composition is resolved when its elements are well chosen, well-placed and of a color and texture that best serves the needs of the work. Once it is resolved we can still ask if it is good.

**response** A reaction or reply to a specific stimulus; all behavior that results when sense organs are stimulated. Motor responses occur when muscles are activated; glandular responses, when glands are activated; conscious responses are awarenesses that result when the brain is activated. (See **subconscious**.)

**retina** A multilayer, light-sensitive membrane lining the inner surface of the eyeball that is connected by the optic nerve to the brain. The retina contains the eye's photoreceptor cells.

**retinal fatigue** Overloading of the retinal system commonly experienced when viewing contrasty linear patterns or hues of high purity. It may be a result of eye tremors slightly shifting the image on the retina, causing photoreceptors to signal on/off, thus sending a heavy load of confusing signals to the brain. The effects may also be due to the fact that once a photoreceptor cell has "fired," it is momentarily blind, and a sensation of the additive complementary color appears. (See **afterimage**.)

**rhythm** Any kind of movement characterized by the regular recurrence of strong and weak elements; nonrandom variation, especially uniform or regular variation in a process. The effect or recurring or repetitious lines, colors, forms, etc. In music, the specific arrangements of accents and the relative duration or sounds. Visually, repetition of any component - interval, shape, color, or motif (figure) - in a regulated

patternmaking process. Shapes or motifs may be repeated in their entirety, fractionalized, compressed or expanded, and so on, throughout a work. *Repetition*, which is related to rhythm, creates the opportunity for interval and rhythm. These in turn can create pattern, harmony, dissonance, and a sense of movement. Rhythm can be regular, progressive, alternating, or syncopated. Rhythm requires multiplicity; one element cannot have rhythm. Rhythm is widely used in art, but predominantly in those branches of decorative arts that supply the sense of our day-to-day life-fabric design, wallpaper, architectural detail, and landscape. Remove from that list all examples of rhythm and you will have stripped the world of most of its ornament.

**rods** The most numerous light receptors in the retina of the eye; important to vision at low levels of illumination. They are essentially color-blind.

**saturation** A term originally referring to the amount of pigment or dye a substance (textile or photo emulsion, for example) could absorb (soak up) as reflected in the vividness of colors that resulted. The term is now also applied to color purity factors (intensity) in TV picture tubes and computer monitors. (See **purity**.)

**scale** A system of ordered marks at fixed intervals used as a reference. An instrument or device used in such measurement. A calibrated line, as on a map or architectural drawing. A progressive classification of size, amount, importance, or rank. Relative proportion, degree. A visual relationship drawn between differing figures according to some easily recognized standard such as the human body. In art, where the usual comparisons are less helpful, the artist or designer can provide a comparison and thereby create scale. We have a tendency to make size comparisons based on relationship to human scale. Return as an adult to a place

known as a child and it seems so much smaller. Scale can be used to direct a viewer through a site or image.

**scattering** Random dispersion or deflection of light from any surface, substance, or airborne particle.

**scumbling** A technique in which paint is stippled, dabbed, or rubbed on with a very "dry" brush, dauber, rag, fingers, or anything else in a controlled application of opaque pigment over a darker color. In this way, a variety of textures may be developed with the underlying paint layer or ground showing through speckles of the scumbled color.

**secondary colors** Hues mixed by combining any pair of primary colors; the three hues - orange, purple, and green - that are each the result of mixing two primaries.

**semantics** In the grammar of any language, the recognition, tagging, or naming of a word or "figure" - its fundamental meaning.

**sensual** Pertaining to the senses or sense organs; referring to the gratification of the senses and sexual appetites. Artists and designers rely on the senses of viewers to collect and sort the stimulation provided by their work. The biology of the senses defines the boundaries of art. *Sensuous* can refer to any physical sense but usually applies to the intellectual or aesthetic enjoyment of the arts, music, and nature. *Sensual* is generally restricted to bodily sensations and to the satisfaction of physical appetites particularly sexual. Most art today appeals to the mind, which has, no sense organs but contains memories of the senses.

**serial** Arranging in or forming a series or sequence in natural order. Serial development is the process of engaging in such an activity. Animation is serial

development, and picture stories (like comic strips) are serial presentations.

**shade** A color darkened by adding black.

**shape** The outline or characteristic surface configuration of a thing; a contour; form; developed, definite or proper form; something used to give or determine form, as a mold or pattern. The overall outline or contour of any perceived unit, figure or ground, particularly when related to a two-dimensional surface. A flat area with a particular outer edge, or boundary. In drawing, shape may refer to the overall area of the format or to the subdivided areas within the format. "Shape" typically refers to a two-dimensional unit; "form" is a parallel term for three-dimensional units. Shape is the result of a line that travels back to its beginning, an enclosed space. (See **form**.)

**shape aspect** The shape of something seen from any one vantage point.

**shape summary** Recording the major areas of a three-dimensional form in terms of flat shape, usually for purposes of analysis.

**sharpening** Making things less alike; emphasizing differences between things - contrast.

**similarity** The Gestalt psychology principle that states that like elements perceptually join to form wholes or figures.

**simultaneous color contrast** The enhancement of contrast between two different colors that are placed together. The psychophysical effect of our visual mechanism where the stimulus of any color on our retina generates a subtle sensation of its opposite, additive complementary hue. The presence of red will make blue appear greener along common edges; blue will cause the red to appear to contain more yellow-to look orangy. The principle is this:

The perception of a color moves toward the additive complement of the color that is next to it or surrounds it. The maximum color effect occurs when complementary hues of equal luminances are placed together causing "vibration." (See **optical dazzle**.)

**size** The physical dimensions, proportions, magnitude or extent of something. Considerable extent, amount or dimensions. To arrange, classify or distribute according to size. Beyond the obvious measurable aspect of size, the term refers to relative measures-our automatic response to an element as "bigger than" or "smaller than" something else, usually whatever is closest. Size is always relative. To prove it, answer this question: "Is this big enough?" Experience has taught us that size is often related to time. Plants, animals, and people increase in size as they get older, up to a point. This intuitive link between size and time is unique among design elements. We do not assume that color, proportion, texture, etc. change as time passes.

**space** The intuitive three-dimensional field of everyday experience characterized by dimensions extending indefinitely in all directions. An interval or area between or within points or objects; an interval of time; period, while. In the environment, space may be defined as area, volume, or distance. In drawing, space may be experienced as either a three-dimensional illusion or as the actual two-dimensional area upon which a drawing is produced. Space in a composition can allow entry and movement as the eyes "read" or travel through a work. If this space is cramped or vast, the experience of the work will be affected. Space, in both two-dimensional and three-dimensional work can become charged or loaded with heightened power because of form, scale, proportion and other factors. If two marks are set on a page with a small gap between them, the space between draws our attention more than other spaces on the same page. Flat space has

two dimensions-it is a mental construct that does not really exist. Equal parts of figure and ground create an ambiguous space. (See **pictorial space; picture plane**.)

**spatial attitude** The position of any body relative to its normal or innate vertical axis, usually a position that takes the physical effects of gravity into account. Every figure-object possesses three axes about which it may rotate.

**spatial configuration** The flat shape or image produced by connecting various points in a spatial field.

**spatial gesture** The gestural movement implied by a perceived linkage of objects distributed in space.

**spectrum** More specifically, the *color spectrum*: the distribution of hues in natural order according to their wavelengths. Also, the colored image formed when light is spread out after passing through a prism. Spectral sequence or chromatic sequence describes hues in prismatic order.

**station point** In the system of linear perspective, the fixed position you occupy in relation to your subject (often abbreviated SP).

**stereoscopic vision** Normal perception using two eyes. In stereoscopic vision two slightly different views of an object-two separate cones of vision-are combined to produce a single image.

**stereotype** A vastly oversimplified model, concept, opinion, or belief in which things typify or conform in an unvarying manner and without individuality.

**structure** A complex entity; that which is constructed; a combination of related parts such as a building or machine; the position or arrangement of parts; constitution; make-up.

Natural processes such as organic growth, crystallization, erosion, and sedimentation have been refining structural systems since the planet was formed. These offer valuable models for artists, architects, and craftspeople. Sometimes structure dominates a form (the Eiffel Tower) and sometimes it is less obvious (a cloud). If a surface or ornament is faulty it can be removed without affecting the structure. If the structure is at fault, no amount of superficial correction will set it right.

**stylize** To make conform to a style or mode; to conventionalize. Stylization refers to a nonspecific or generalized presentation. It can be achieved through:

**Exaggeration:** Cartoonists often overstate physical features to create an image that does not read as a portrait of the person but as a symbol representing the person.

**Simplification:** An oval with wings on the side and a thin triangle of a beak at one end is understood to be a bird, though it lacks enough detail to tell the species. Most children's drawings are stylized in this way. As powers of observation and skill at representation improve, drawings become more detailed.

**subconscious** Below the level of conscious awareness. Subconscious responses are those usually associated with our autonomic nervous system, like breathing. (See **autonomic**.) Also, referring to deep-rooted psychological (perceptual) responses related to negotiating our world - instinct.

**subject matter** Those things represented in a work of art, such as a landscape, portrait, or imaginary event.

**subject-meaning** That aspect of content derived from subject matter in a work of art.

**subjective** Existing only in the mind of the person having the experience; therefore, not

possible to confirm scientifically. Also, an individual personal experience or response not necessarily like, or even similar to, those of any other person; the expression in the arts of any such experience, response, or attitude; the opposite of *objective*.

**subjective color** Refers to arbitrary color choices. Such arbitrary color choices can be used to convey emotional or imaginative responses to a subject and to compose more intuitively or expressively.

**subliminal** Below the level of conscious awareness. It is a term commonly used to describe affective responses in an individual from stimuli (images or words) hidden or concealed in any sort of visual or audio materials - a secretive influence.

**subtractive color** The basic form of color mixing and viewing we experience with paint, ink, and most color photography. Pigments absorb (subtract) certain wavelengths of white light. The color we perceive consists of only the reflected or transmitted wavelengths. The primary hues are yellow (white light minus blue); magenta (white light minus green); and cyan (white light minus red).

**successive contrast** (See **afterimage**.)

**surreal** Derived from a literary and artistic movement launched in 1924 based on the liberation of the unconscious. An attempt to express the workings of the subconscious mind. Surrealism is an artistic style that uses peculiar juxtapositions to trigger unexpected or irrational associations. In this way it resembles dreaming, where impossible things happen as if they are normal. Some surrealist artists compose through a conventional, rational process while others prefer to conjure up images through mind-altering activities like hypnosis, sleep deprivation, or drugs. Surrealism asks fundamental questions about reality by

suggesting that "real" means more than the physical world around us.

***symbiotic, symbiosis*** Relating to the "living together" or the living in close union of dissimilar organisms usually where such association is necessary or advantageous to the survival of both. In the arts, *connections of the narrow kind*, that is, the consequences of a variety of means by which dissimilar elements are unified and brought into harmonious relationships in a composition.

***symbol*** Something that represents something else by association, resemblance, or convention; a printed or written sign used to represent an operation, element, quantity, quality, or relation. A figure or a sign that "stands in" for something else; something that represents an entire idea or concept. A kind of "shorthand" that may be used to indicate an operation, quality, relationship, and so on. An icon is a pictorial symbol; to know the object is to understand the symbol. A stylized picture of a hand will carry its meaning as a pictogram. Other symbols need to be learned: mathematical functions like + or - for instance. Some symbols are simple icons (cross, swastika, etc.), but symbols can be complex and dynamic. A symbol is defined by what it does, not what it is. Symbols direct or confine a work of art to an audience.

***symmetrical balance*** Symmetrical balance is achieved by dividing an image into virtually mirror-like halves. Exact repetition or correspondence of shapes on opposite sides of an axis or a point. When correspondence is not exact, but still similar, it is called "approximate" symmetry. (See **approximate symmetry; asymmetrical balance; bilateral symmetry; radial symmetry.**)

***symmetry*** An exact correspondence between the opposite halves of a figure, form, line, or pattern; beauty or harmony of form resulting from a symmetrical or nearly

symmetrical arrangement of parts; due or right proportion. Generally symmetry creates harmony, balance, and order, but risks being boring.

**Kinds of Symmetry:** *Horizontal* uses an imaginary horizon or left-to-right line as the divider, top and bottom sections mirror each other. A landscape reflected in a still pond is an example of horizontal symmetry. *Vertical* uses a top-to-bottom line as a meridian, with identical images on either side of the line. *Radial*, through radiant, implies an outward direction. Radial lines are just as likely to draw attention inward, as for instance in a mandala. *Intuitive* symmetrical images approach symmetry but are not exactly the same on the opposing parts. They feel symmetrical, but aren't. The human face is a good example.

***synectic*** Relating to the merging of different and incompatible things into a new cohesive and unified whole; that is, to synthesize.

***synesthesia*** A subjective sensation or event in which the responses of one sensory organ are linked to those of another; a phenomenon in which one type of stimulation evokes the sensation of another, as the hearing of a sound resulting in the visualization of a color; crossover between sensual perception. The use of terms from one domain to describe the effect of another, as in "hot colors" or "bright sound". The use of cross-over descriptions not only makes for more interesting language, it can lead to untried solutions. When you have identified a shape as "quiet" you might more clearly create its opposite by imagining a "loud" shape.

***syntax*** Language structure, that is, the way in which words, sentences, or images are put together to form phrases or sentences - visual "strings" - in relative agreement and position sequentially according to rules of grammar.

**tactile** Perceptions gained directly from or through memories of the sense of touch.

**tangent** A shape touching another or an edge, creating a point of emphasis usually, an undesirable effect except in formal design.

**taste** The power to determine what constitutes beauty or excellence and the expression of that power.

**template** A pattern or gauge used to convey a correct shape. Often made of a durable material, so in this sense it retains or perpetuates a shape. A template conveys information about size, shape, and location, and in this way can span time and distance. A template often contains important information that is not otherwise easily available. The template might be more valuable than the finished piece. In computer software a template is a generic version upon which a customized program can be built.

**tension** The condition of being stretched tight; mental strain; intense nervous anxiety; a force tending to produce elongation or extension; strained relations between persons; uneasy suspense. The interaction of figures that tends to draw them together ("magnetic attraction") visually - a factor in Gestalt proximity. In general, the closer the figures, the greater the tension; the further the figures are apart, the less the tension up to the point where figures are perceived to have no relationship at all. Tension sets up stress points within a work of art that increase a sense of *movement, direction, and dynamism*. Physical tension is the result of pulling in opposite directions. Visual tension can result from disparity in media and content, symbol and message, or pattern and form. An example of the latter is camouflage, in which tension between real forms and painted shapes create so much visual ambiguity that the eye prefers to "not see" the object. Tension describes situations or

structures in flux; unresolved, about to happen. It is important not to confuse tension with agitation or chaos. Tension is present in the quiet before the storm. Tension results from a dynamic opposition of formal elements, and suggests unresolved relationships.

**tertiary colors** Colors made by mixing a primary and an analogous secondary color. Mixing red with orange, for example, produces the tertiary red-orange.

**texture** The appearance of a fabric resulting from its woven arrangement or fibers; a grainy, fibrous, woven, or dimensional quality as opposed to a uniformly flat, smooth aspect; surface interest; the representation of the structure of a surface as distinct from color or form.

*Three categories of texture:*

1. Literal texture that is the result of the surface of a material or object. We know the texture of the skin of an orange by feeling it. We generally use the term to indicate rough texture.
2. Remembered or implied texture such as when we see a photo of an orange. We don't physically experience the texture by touching the photograph, but we nevertheless distinguish the surface of the orange as being different from the table on which it sits.
3. We also use the term conceptually to refer to a complex or vague pattern, particularly when considered abstractly or from a distance. We might refer to the texture of an argument, or piece of music.

**texture gradient** (See **density gradient**.)

**three-dimensional space** The actual space of our environment, or the representation of it, through a pictorial illusion.

**three-point perspective** The kind of linear perspective used to draw a very large or very close object. In three-point perspective, the

object is positioned at an angle to the picture plane and is seen from an extreme eye-level, with the result that both the horizontal and the vertical parallel lines appear to converge, or meet, respectively at three separate vanishing points.

**time** A nonspatial continuum in which events occur in apparently irreversible succession from the past through the present to the future. An interval separating two points on this continuum, measured essentially by selecting a regularly recurring event, such as sunrise, and counting the number of its occurrences during the interval. A suitable or opportune moment or season. In music, the beat; the pace of the rhythm. Time is the fourth dimension - just as every object must have a measurable height and width and depth, so everything can only exist in time. To say it another way, as physical beings we cannot imagine the absence of space or the absence of time.

**tint** A color lightened by the addition of white.

**tonal key** The coordination of a group of values in a drawing for purposes of organization and to establish a pervasive mood. Tonal keys may be high, middle, or low.

**topographical marks** Any marks or lines used to analyze and indicate the surface terrain of a depicted object. Cross-contour lines and hatched lines used to describe the inflections of planes are both topographical marks.

**transformation** To clearly alter the form or appearance of a thing; to change the nature, function, or condition; to convert. In one sense, this is the primary description of what an artist does - canvas and pigments become a portrait; a lump of clay becomes a cup. Intangible ideas are translated into tangible objects. Some transformations are one-way -

once the clay becomes a pot or sculpture we don't tend to see it as a lump of clay. In some compositions the parts disassemble; the work is dynamic and seems to coalesce into an image, then dissolve away. This makes the viewer part of the transformation process.

**transition** The process of changing from one form, state, activity, or place to another; passage from one subject to another; (music) a passage connecting two themes. Transitions happen as we view any object. Artists and designers manipulate them to give the work direction, pace, and structure. Transition occurs along lines of movement and in a direction, as in "horizontal, slow, left-to-right" or "radial, two-dimensional and rapid."

**triadic color scheme** A color arrangement based on three hues that are equidistant from one another on the color wheel. (See **color scheme**.)

**triangulation** Angling between a set of three points on the picture plane to accurately proportion the overall image of your drawing.

**two-dimensional space** The flat, actual surface area of a drawing, which is the product of the length times the width of your paper or drawing support. Synonymous with the opaque picture plane and flat ground of a drawing.

**two-point perspective** In two-point perspective, a rectangular volume is positioned off-center-that is, it is not centered on the line of vision-thus causing the receding (horizontal) parallel lines of each face to appear to meet at two separate points on the horizon line.

**unity** The state of being one; singleness. The state, quality or condition of accord or agreement; concord. The combination or arrangement of parts into a whole. The ability of a composition to coordinate its various

parts into a stable whole. The quality of any work of art that pulls it together and forms one whole as opposed to a random association of parts. Unity is the effect of the whole exerting a greater force than would be expected from a simple collection of the parts. When you taste the ingredients in food, that's analysis. When you sit back and savor, that's unity. Unity defies formulation but will often include careful attention to hierarchy, rhythm, and balance. Unity is the positive effect of establishing a sympathetic relationship between parts. The more diverse the parts, the greater the challenge - and the reward.

**unnatural order** Any arbitrary sequence like 7, 1, 5, 9, for example, or orange, blue, and red. Typical affective responses are "unnatural," slow, disturbing, jarring, and chaotic. (See **natural order**.)

**value** The relative lightness or darkness of color in a picture. That aspect of color by which a sample appears to reflect more or less of the incident color. Black, white, and the gradations of gray tones between them, or the lightness or darkness of a color when compared with a gray scale. A Munsell System term for lightness/darkness using additive notation (white is 10.0; black 0.0 - the absence of all light); the obverse of the luminance density scale. (See **density**; **luminance**.) Value can be used to organize a composition: by placing areas of changing value strategically, a viewer's eye is guided into and around a picture plane. The degrees of contrast and relative amounts of value will give movement and speed to the work. Because distant objects appear lighter in nature, value creates the illusion of depth. In painting and drawing, value is usually created with media (black paint; gray paint). In graphics such as typography, value is usually created by density (tightly grouped, loosely grouped). In three-dimensional work value is usually the result of hollows or cavities that create shadows, or "hold onto the light".

When we see a black and white photograph, we are seeing the world rendered exclusively as value, as the colors without the hues.

**value shapes** The major areas of light and shade on a subject organized into shapes, each of which is assigned a particular tone that is coordinated with the values of other shapes in the drawing.

**vanishing point** In linear perspective, the point on the horizon line at which receding parallel lines appear to converge, or meet.

**veridical** Pertaining to the properties of things considered objectively such as can be determined by measurement and without dependence on viewing conditions.

**viewfinder** A homemade device that functions as a rectangular "window" on your subject. It is a useful aid for proportioning and layout.

**visual attraction** The quality of "difference" in a visual field, observed uniqueness or novelty of any kind. Differences may be related to any form of change such as motion or metamorphosis.

**visual elements** The means by which artists make visible their ideas and responses to the world, including *line*, *value* (or tone), *shape*, *texture*, and *color*.

**visual field** Essentially anything we see before us although, in specific instances, a visual field may be conceptually limited by perimeters such as a picture frame. In that case, it may be called a *pictorial field*.

**visual literacy** Comparable to literacy in language, it is the ability to understand and to use effectively all characteristics of the visual language.

**visual weight** The potential of any element or area of a drawing to attract the

eye. The degree of attention or sustained interest that any single figure-object (or mass) commands related to all other elements in any visual field.

**visual weight volume** The overall size of an object and, by extension, the quantity of three-dimensional space it occupies.

**volume** The size or extent of a three-dimensional object or region of space; broadly, the capacity of such a region or of a specified container; a large amount. This word traditionally refers to an interior space, particularly a space that is contained. A bowl has volume, as do a lake, a coffee cup and a cathedral. This is a first cousin to mass; both words refer to the overall size of a form, but mass is generally concerned with outside dimensions, while volume refers to a measure of the interior.

**warm colors** Psychologically associated, for example, with sunlight or fire. Warm colors such as red, red-orange, yellow, and yellow-orange appear to advance in a relationship with cooler colors. (See **cool colors**.)

**wavelength** The distance between any two similar points on a given wave; usually specified as the center of one wave crest to another.

**weight** A measure of the heaviness or mass of an object; the gravitational force exerted by the earth or another celestial body on an object; influence, importance, authority. In addition to their measurable weight, objects have visual and psychological weight. A black smear on a white field has visual weight. Physical weight can be measured, but psychological and visual weight cannot. Weight can help to give structure to a composition because it commands a viewer's attention. In the same way weights are used to balance a scale, units of varying visual weight can be arranged within a composition

to achieve balance (if that's what's wanted). Two large black shapes on opposite sides of a page are an equal distribution of weight, but are boring. Alternate elements with the same visual weight would be a better solution.

**weighted line** A line that varies in thickness (width) throughout its length usually a gradation from thin to thick or a variation of luminance from light (gray) to dark (black).

**working drawings** The studies artists make in preparation for a final work of art.