Aquarium, go anyway! I promise that you will find yourself wondering, as I did, why no one ever told you about the New England Aquarium.

3. Seeing Relationships: Paragraph Sequence I

The subject of these short paragraphs by poets, philosophers, artists, and psychologists is the mind in action. Each is followed by a brief comment that generally relates the points made in the paragraphs to the composing process. You are then offered *assisted invitations* to do some experimental thinking and writing. These are indicated by the little sign: ∿

Sometimes a particular composing exercise is suggested; sometimes I simply say "consider," although, of course, you can write out your "consideration." If you use the left-hand side of the open double page of a notebook—use your journal of observations—for notes and queries about the reading, then you could write on the right-hand side, following the assisted invitations, to find out what you are doing when you make sense of the world.

The experiments do not increase in difficulty; in fact, they may become simpler. There are no right answers. The experiments are ways of exploring the composing process as an ongoing operation, which includes getting ideas, seeing the point, thinking something out, inventing, arguing, dreaming—writing things down all along the way. Keeping everything together will enable you to return to an experiment and rediscover what it is about and, perhaps, to give it another go. Anything your instructor wants to read can be transcribed, but this is your notebook, a way for you to listen in on the inner dialogue you carry on when you are thinking.

Sensory Knowing: Muir's Girnel

Our diet was a curious one by town standards. We went without many necessaries, or what are considered necessaries—beef, for instance—and had a great number of luxuries which we did not know to be luxuries, such as plovers' eggs, trout, crab, and lobster: I ate so much crab and lobster as a boy that I have never been able to enjoy them since. Our staples were homemade oat bannocks and barley bannocks, butter, eggs, and home-made cheese, which we had in abundance;

white bread, bought at the Wyre shop, was looked upon as a luxury. In the kitchen there was a big girnel with a sliding top; inside it was divided in two, one compartment being filled with oatmeal and the other with barley-meal. The meal had to be pressed firmly down, otherwise it would not keep. The girnel, when the top was slid back, gave out a thick, sleepy smell, which seemed to go to my head and make me drowsy. It was connected with a nightmare which I often had, in which my body seemed to swell to a great size and then slowly dwindle again, while the drowsy smell of meal filled my nostrils. It is from smell that we get our most intense realization of the solidity of things. The smell of meal pressed tightly down in the girnel made me realize its *mass*, though I could see only its surface, which was smooth and looked quite shallow. My nightmares probably came from an apprehension of the mere bulk of life, the feeling that the world is so tightly crammed with solid, bulging objects that there is not enough room for all of them: a nightmare feeling powerfully conveyed in the stories of Franz Kafka.

Edwin Muir, *An Autobiography*

Human beings learn in childhood to read the book of nature. You come to understand what to expect when you tease a cat or toss a pebble in a pool or touch a hot stove. You don't have to go to school to learn how to judge distance or to tell whether it's early or late afternoon (assuming that you aren't suddenly transported to a different latitude). We learn in terms of the space things take up, the time things take to happen. We live in a world of space and time because it is of such a world that our senses give report. Learning to make sense of that world, discovering physical dimensions and the psychological limits of experience, is the work of childhood. It can be the happiest work we ever do—or the grimmest; more and more frequently for American children, it is simply missing. Watching a television program about burrs and frogs can't give you the same experience as exploring a vacant lot; seeing a documentary about life in an inner city slum is not the same thing as the remembered experience of being cold and hungry.

1. Muir observes that it is smell which gives us "our most intense realization of the solidity of things." What sense, would you say, gives

us our most intense realization of the fluidity of things? Tell about how you know from your own experience.

2. Can you remember an early occasion when you were conscious of *space* as well as of something little or big in space? Describe it.

3. Look up the "seven wonders of the world." How many were (are) famous because of size? What does your discovery tell you?

4. Maria Montessori, one of the great women of our century, realized that what children learn they teach themselves, and that they can be totally involved—body, mind, soul—in that endeavor. In her schools, she developed a "prepared environment" to provide for Rome slum children occasions that would encourage the kind of experience from which children learn. I don't remember that she had any girnels on hand, but you might be interested in reading how she designed the equipment for her school. She gives a full account in *The Montessori Method,* but almost any book by or about Montessori will describe the prepared environment.

5. Edwin Muir's poems include several in which his boyhood in the Orkney Islands provides the imagery. Read, for an example, "The Horses." He was also a critic and, with his wife, the translator of Franz Kafka, whom he mentions in this passage. One of Kafka's stories that can give you an idea of this power of distorting the dimensions of the physical world so that we seem to be sitting in on a dream is "The Bucket Rider." In "The Burrow" and "Metamorphosis" the physical scale of experience becomes a metaphysical theme.

6. The environment of the country and the environment of the city are different; the world of space and time is the same. How do you think a city child might first gain a sense of mass?

Physiognomic Knowing: Gombrich's Ping/Pong

. . . What is called "synesthesia," the splashing over of impressions from one sense modality to another, is a fact to which all languages testify. They work both ways—from sight to sound and from sound to sight. We speak of loud colors or of bright sounds, and everyone knows what we

> mean. Nor are the ear and the eye the only senses that are thus converging to a common center. There is touch in such terms as "velvety voice" and "a cold light," taste with "sweet harmonies" of colors or sounds, and so on through countless permutations. . . . Synesthesia concerns relationships. I have tried out this suggestion in a party game. It consists of creating the simplest imaginable medium in which relationships can still be expressed, a language of two words only—let us call them "ping" and "pong." If these were all we had and we had to name an elephant and a cat, which would be ping and which pong? I think the answer is clear. Or hot soup and ice cream. To me, at least, ice cream is ping and soup pong. Or Rembrandt and Watteau? Surely in that case Rembrandt would be pong and Watteau ping. I do not maintain that it always works, that two blocks are sufficient to categorize all relationships. We find people differing about day and night and male and female, but perhaps these different answers would be reduced to unanimity if the question were differently framed: pretty girls are ping and matrons pong; it may depend on which aspect of womanhood the person has in mind, just as the motherly, enveloping aspect of night is pong, but its sharp, cold, and menacing physiognomy may be ping to some.
>
> E. H. Gombrich, *Art and Illusion*

Elephants, Rembrandt, and soup have nothing in common except that when they are placed in opposition with something else of a certain kind to be symbolized by "ping," they are "pong." It's hard to see if an elephant could ever be a *ping*, but if you put a cold soup—*gazpacho*—in opposition with chili, soup might then be *ping*. Rembrandt's shadows help make him *pong*, but shadows in a summer grove could be *ping* if they are in opposition to a stormy sea.

All of this categorizing has to do with how the interior of your mouth is shaped when you say *ping* or *pong* and how the sounds those words make are associated with objects. In making sense of the world, we use all our senses and associate one sense experience with another. But we also judge character and temperament and develop our expectations about feelings and ideas on the basis of those experiences. This game can teach you a lot about the interaction of sensory experience and thinking, which is seeing relationships.

1. Categorize as *ping* or *pong* two things of the same kind: two items of clothing, two cars, two games, etc. Exchange your *ping/pong* list with someone and see how much agreement there is on the *pings* and *pongs*.

2. The eighteenth century philosophers were fascinated by the notion that one sense corresponds to another. Locke reasoned that the color yellow could be explained to a blind man as being analogous to the sound of a trumpet. Try describing your favorite colors in terms of sound. Or how about sounds as colors—"the blues"?

Interpretation: Arnheim's Droodles

Visual knowledge and correct expectation will facilitate perception whereas inappropriate concepts will delay or impede it. . . . A Japanese reads without difficulty ideographs so small that a Westerner needs a magnifying glass to discern them, not because the Japanese have more acute eyesight but because they hold the *kanji* characters in visual storage. For similar reasons, bird watchers, hunters, mariners, physicians or microbiologists often seem endowed with superhuman powers of vision. And the average layman of today has no trouble perceiving human figures or animals in Impressionist paintings that looked like assortments of meaningless color patches eighty years ago.

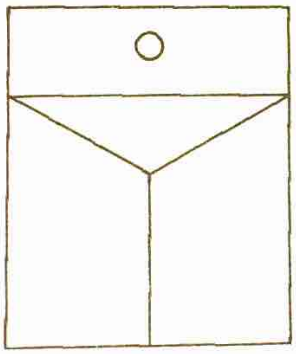
It should be noted that the effect of such "preperceived" images depends not simply on how often their prototypes have been met in the past but also quite importantly on what the nature of the given context seems to call for. What one expects to see depends considerably on what "belongs" in that particular place. The perception of familiar kinds of objects, then, is inseparably related to norm images the observer harbors in his mind.

Rudolf Arnheim, *Visual Thinking*

We construe—figure out what we're hearing or seeing—on the basis of what we have seen, but also according to what we think we might be seeing or hearing. Once, in the days before jet travel when transatlantic planes had to make fueling stops, I found myself in Iceland. After three months in Europe hearing very little English, I had expected that customers at the coffee bar in Reykjavik would be speaking Icelandic. I took in

with fascination the strange and wonderful sounds of a language I associated with stirring epic and wild, primitive song. As I listened, it became clear that what I was hearing was my native tongue spoken by two G.I.s from the Bronx.

1. Consider the role of expectation in instances of recognition, false and correct, from your own experience.
2. What role does expectation play in cryptography? In jokes?
3. Arnheim suggests that "droodles," which are "playful examples of visual paradoxes ingeniously exploited" can provide "good study material for any explorer of visual perception." One of his students created this droodle, captioned "Olive dropping into martini glass" or "Close-up of girl in bikini." One of my students, who has gone into the contracting business, saw it as "Hip roof with a paint bucket on the porch." How did he get that image? Can you see it as something else? Draw your own droodle. Ask your friends for captions.



Oppositional Structures: Ogden's Starfish

Opposites . . . may be either the two extremes of a scale or the two sides of a cut, the cut marking the point of neutrality, the absence of either of two opposed characters in the field of opposition. . . . The symbolic forms which have been developed in ordinary language for the expression of these distinctions have been crystalized not only in terms of two-dimensional projection, but also in a very special relation to the human body.

In the first place, the spatial cut has been identified with the body itself, and more specifically with its vertical axis,

in the opposition of *sides*, right and left, and the opposed rectilinear directions, right and left, along the arms in a horizontal position. Secondly, the *extremes* of the scale are represented by the head and feet, the two opposite ends of a single continuum, measured primarily upward, from the base to the top, as with the minimum and maximum of the thermometer. Hence the convention whereby *In front of* and *Behind*, which also give us the opposition of Before and After, Future and Past, are diagrammatically on the horizontal line of right and left—in terms of the position of the body (facing either right or left) and of a progress along the line; while Up and Down are primarily movements from one extreme of the vertical scale to the other.

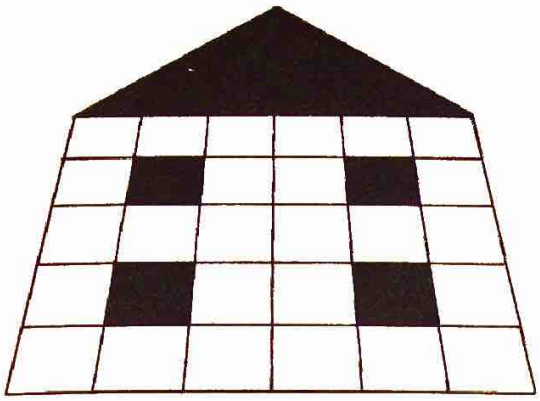
This dependence of our symbolization of opposition on the symmetry of the body is emphasized when we consider the oppositional requirements of such an actinian as the star-fish. We, too, have elaborated secondary oppositions for the upper and lower *surface*, the opposite ends of a *diameter*, *radial* opposition, etc.; but since they are not "our" surface, "our" diameter, and "our" radius, neither our primary projections and diagrams nor our linguistic metaphors are in these terms.

C. K. Ogden, *Opposition*

Ogden's explanation of two fundamental kinds of opposition —the cut and the scale—can lead to interesting speculations about how we orient ourselves in the world of space and time. Paul Klee's notes on balance and symmetry will remind you of what you already know if you've ever done any layout for a newspaper, designed a poster, arranged furniture, decorated a store window or tried to teach someone to ride a bicycle. Klee was one of the most influential of modern painters. In his classes at the *Bauhaus*, a center for the study of design in all the arts, he taught the principles of motion and form by means of such exercises as these from his *Pedagogical Sketchbook* which explain how we read the environment according to our bodily orientation in time and space.

Re-cognition: Barfield's House

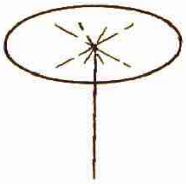
A little reflection shows that all *meaning*—even of the most primitive kind—is dependent on the possession of some measure of this power [the capacity to recognize significant



Once more the vertical

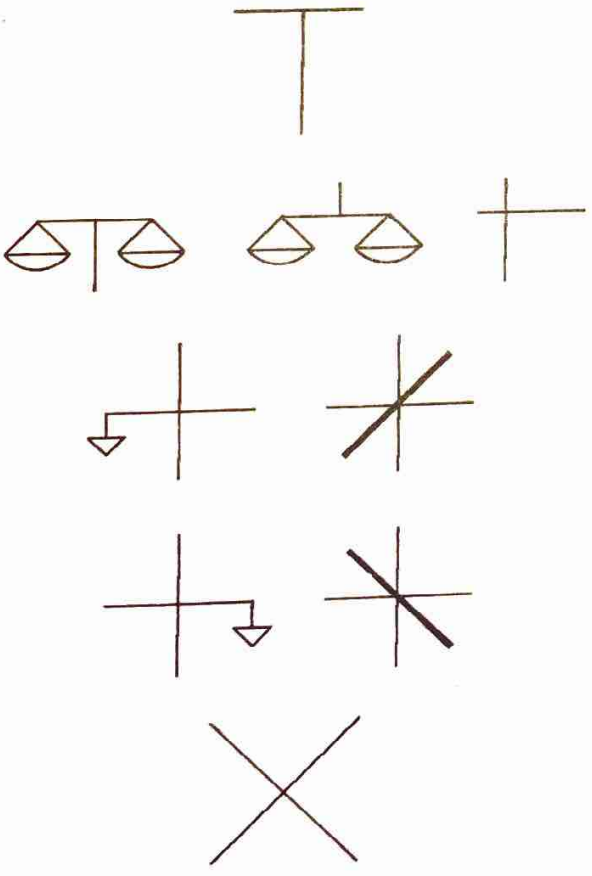
Why is this representation of a house wall incorrect? It isn't wrong logically. The lower window openings are closer to the eye than the upper ones, which means they are "larger" perspectively. As representation of a floor pattern, this perspective rendering could be easily accepted. This picture is therefore incorrect not logically but psychologically, because every creature, in order to preserve his balance, insists on seeing actual verticals projected as such.

The tightrope walker with his pole. Horizontality: The Horizon as actuality.



Horizontality: The Horizon as supposition.

The vertical indicates the straight path and the erect posture or the position of the creature. The horizontal indicates his height, his horizon. Both are completely realistic, static facts.



The scale

The tightrope walker is emphatically concerned about his balance. He calculates the gravity on both ends. He is the scale.

The essence of the scale is the crossing of perpendicular and horizontal.

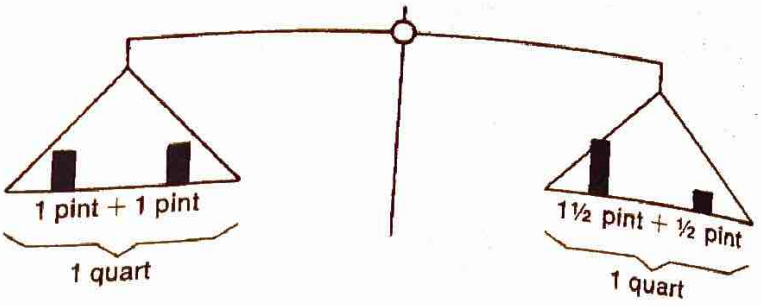
Disturbed balance and its effect.

Correction through counterweight, and the resulting counter-effect.

Combination of both effects, or diagonal cross (symmetrical balance as restoration).

Nonsymmetrical balance

(Symbol):

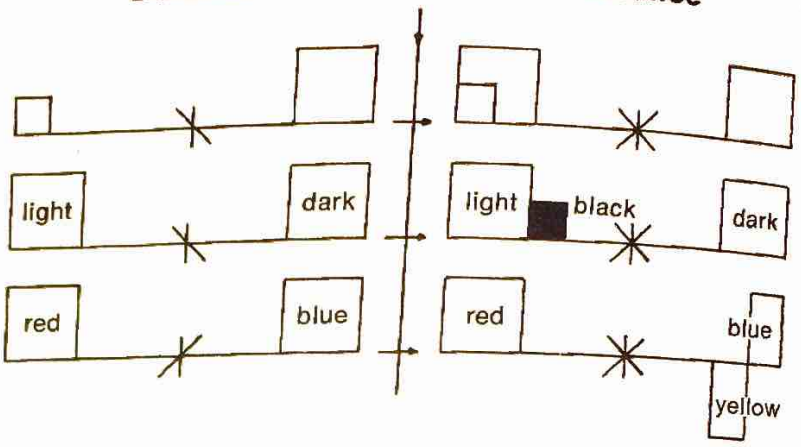


Disturbed Balance **Restored Balance**

(a) Metric:

(b) Weight:

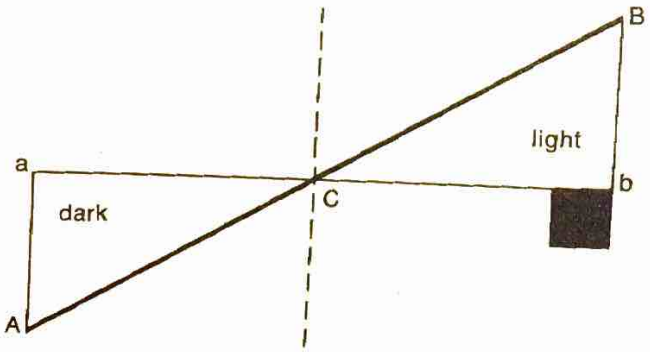
(c) Character:

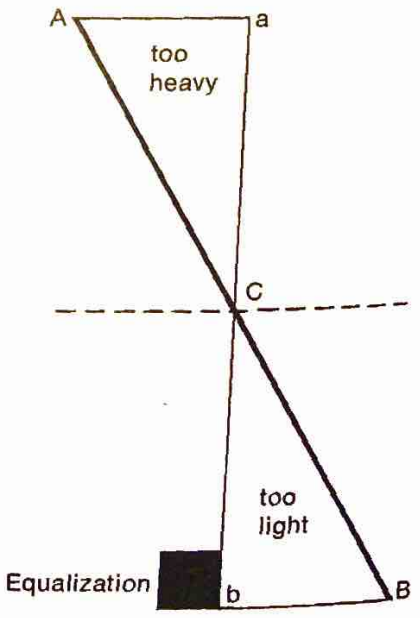


Left: Overloaded through the heavy dark, the axis AB has dropped from a to A, and has risen from b to B. Its original horizontal position was ab. Both axes, ab and AB, have the point C as a common pivot. As the result of a turn around this point, left-dark is now lower than right-light. To restore balance, black is added to the right-light.

Or: I am stumbling toward left and reach out toward right to prevent a fall.

Right: The upper portion of my body is too heavy. The vertical axis shifts toward left and I would fall if correction did not take place in time by broadening the base through a step outward of my left leg.





> resemblances and analogies]. Where it was wholly absent, the entire phenomenal cosmos must be extinguished. All sounds would fuse into one meaningless roar, all sights into one chaotic panorama, amid which no individual objects —not even color itself—would be distinguishable. Let the reader imagine for a moment that he is standing in the midst of a normal and familiar environment—houses, trees, grass, sky, etc.—when, suddenly, he is deprived by some supernatural stroke of every vestige of memory—and not only of memory, but also of all those assimilated, forgotten experiences which comprise his power of *recognition.* He is asked to assume that, in spite of this, he still retains the full measure of his cognitive faculty as an adult. It will appear, I think, that for the first few moments his consciousness—if it can bear that name—will be deprived not merely of all thought, but even of all perception—unless we choose to suppose a certain unimaginable minimum, a kind of panorama of various light, which he will confront with a vacant and uncomprehending stare. It is not merely that he will be unable to realize that that square, red and white object is a "house," and to form concepts of an inside with walls and ceilings—he will not even be able to see it *as* a square, red and white object. For the most elementary distinctions of form and color are only apprehended by us with the help of the concepts which we have come to unite with the pure sense-datum. And these concepts we acquire and fix, as we grow up, with the help of words—such as *square, red,* etc. On the basis of past perceptions, using language as a kind of storehouse, we gradually build up our ideas, and it is only these which enable us to become "conscious," as human beings, of the world around us.
>
> Owen Barfield, *Poetic Diction*

The osprey dives from a great height above a broad river and takes off again with a fish in its talons; the boy runs after the ball, dodging cars in the busy street, snatching it just in time from in front of a truck. Are the two acts of the same kind? The cat about to give birth to her first kitten looks pained and perplexed, but the minute the first kitten pops out, she licks it, nudges it into place by a nipple, eats the afterbirth and gets ready for kitten No. 2; the pianist looks over the score for a minute or so and then plays it through without pause. Are the two acts comparable?

Re-cognition means *re-knowing*—but what is *knowing?* For a student of composition, it is instructive to keep asking that question: How do I know? What do I know? How do I know I know? Do I know my knowledge?

Barfield's difficult book is about the making of meanings by all those who use language; that's you and I and the poets, but not cats or fish hawks or even cute chimpanzees.

1. What does "coming to your senses" mean in the case of regaining consciousness after fainting? How about suddenly seeing that you've been mistaken about something important? Describe the experiences.
2. Look up accounts of persons who, having been blind or deaf since birth, are by surgical means given those senses. How do their experiences tally with what Barfield imagines would happen if we lost the power to recognize?
3. What role does "recognition," in Barfield's sense, play in the dilemmas of science fiction? Write a recognition scene from a chapter you could call "Galactic Roar." (Barfield notes that without the power of recognition, "all sounds would fuse into a meaningless roar.")
4. There are certain kinds of aphasia (loss of language power because of brain damage) in which a person can recognize objects but not their names; in other forms, the name will be recognized but not the object. Read Kurt Goldstein's *Human Behavior* for a fascinating account of early work in this field of psychology with soldiers wounded in the first World War.

Forming: Langer's "Things"

Our merest sense-experience is a process of formulation. The world that actually meets our senses is not a world of "things," about which we are invited to discover facts as soon as we have codified the necessary logical language to do so; the world of pure sensation is so complex, so fluid and full, that sheer sensitivity to stimuli would only encounter what William James has called (in characteristic phrase) "a blooming, buzzing confusion." Out of this bedlam our sense organs must select certain predominant forms, if they

are to make report of *things* and not of mere dissolving sensa. The eye and ear must have their logic—their "categories of understanding," if you like the Kantian idiom, or their "primary imagination," in Coleridge's version of the same concept. An object is not a datum, but a form construed by the sensitive and intelligent organ, a form which is at once an experienced individual thing and a symbol for the concept of it, for this *sort of thing*.

. . . Mental life begins with our mere physiological constitution. A little reflection shows us that, since no experience occurs more than once, so-called "repeated" experiences are really *analogous* occurrences, all fitting a form that was abstracted on the first occasion. *Familiarity* is nothing but the quality of fitting very neatly into the form of a previous experience. I believe our ingrained habit of hypostatizing impressions, of seeing *things* and not sense-data, rests on the fact that we promptly and unconsciously abstract a form from each sensory experience, and use this form to *conceive* the experience as a whole, as a "thing."

Susanne K. Langer, *Philosophy in a New Key*

In the daily entries in your journal of observations, you can begin to test the truth of Langer's argument. Perception, which is a process of composing, involves differentiation and selection, amalgamation and elimination. As you describe your "thing," you are selecting and differentiating, saying what it reminds you of, setting it apart from others of the same kind. You can listen in on your own thoughts to find out how it is that what you see becomes familiar.

1. When you are studying a difficult passage like Langer's, it's a good idea to read it straight through first. Then compare the final sentence with the opening sentence and see if you understand how the last one repeats the first. Then reread. Finally, look up the words that you still can't make sense of (*hypostatizing?*) and reread.
2. For the final sentence, is *form finds form* an adequate "translation"? Why or why not?
3. You know the old story of how the blind men described the elephant: can you describe the object of your observations in terms only of touch?

4. Consider seeing each of the things listed below for the first time. Then describe the appearance and your experience. You can do this in narrative form: "When we reached the top of the hill, there we saw below us on the plain. . . ."

a man on horseback
snow
a used-car lot
a metropolis

Forms of Limitation: Whitehead's Squirrel

That day in the history of mankind when the vague appreciation of multitude was transformed into the exact observation of number, human beings made a long stride in the comprehension of that interweaving of form necessary for the higher life which is the disclosure of Good.

I remember an incident proving that at least some squirrels have not passed this borderline of civilization. We were in a charming camp situated amidst woodland bordering a Vermont lake. A squirrel had made its nest in our main sitting-room, placing it in a hole in brickwork around the fireplace. One day she decided that her family had grown up beyond the nursery stage. So, one by one, she carried them out to the edge of the woodland. As I remember across the years, there were three children. But when the mother had placed them on the rock outside, the family group looked to her very different from its grouping within the nest. She was vaguely disturbed, and ran backwards and forwards two or three times to make quite sure that no squirrel had been left behind. She was unable to count, nor had she identified them by christening them with names. All she knew was that the vague multitude on the rock seemed very unlike the vague multitude in the nest. Her family experiences lacked the perception of the exact limitation imposed by number. As a result she was mildly and vaguely disturbed. If the mother could have counted, she would have experienced the determinate satisfaction of a job well-done in the rearing of three children; or, in the case of loss, she would have suffered vivid pain from the absence of a determinate child. But she lacked adequate experience of any precise form of limitation.

> Thus the rise in vivid experience of the Good and of the Bad depends upon the intuition of exact forms of limitation. Among such forms number has a chief place.
>
> Alfred North Whitehead, *Modes of Thought*

Whitehead's contention in the chapter from which this passage is taken is that, although the feelings we have about the Good are often associated with infinitude (absence of limits), it is our capacity to count, to move from a sense of "vague multitude" to a "precise form of limitation" that allows us to suffer and enjoy moral feelings. Enumerating and naming are vital to the development of a specifically human moral sense.

1. What devices for "counting" have you developed other than numbers? What ways do you have of remembering license numbers and phone numbers, etc.?
2. You probably know some counting games (e.g., "One potato, two potato, three potato, four . . ."). Write one for the squirrel.
3. Argue that the need for counting might have a biological basis, as well as having moral implications.
4. Does a cat suffer the same confusion when she moves her litter?
5. Consider the "Old Woman Who Lived in a Shoe" ("She had so many children she didn't know what to do . . ."). How is her dilemma different from the squirrel's?

Thinking about Thinking: Burke's Trout

All living organisms interpret many of the signs about them. A trout, having snatched at a hook but having had the good luck to escape with a rip in his jaw, may even show by his wiliness thereafter that he can revise his critical appraisals. His experience has led him to form a new judgment, which we should verbalize as a nicer discrimination between food and bait. A different kind of bait may outwit him, if it lacks the appearances by which he happens to distinguish "jaw-ripping food." And perhaps he passes up many a morsel of genuine food simply because it happens to have the characters which he, as the result of his informing experience, has learned to take as the sign of bait. I do not

mean to imply that the sullen fish has thought all this out. I mean simply that in his altered response, for a greater or lesser period following the hook episode, he manifests the changed behavior that goes with a new meaning, he has a more educated way of reading the signs. It does not matter how conscious or unconscious one chooses to imagine this critical step; we need only note here the outward manifestation of a revised judgment.

Our great advantage over this sophisticated trout would seem to be that we can greatly extend the scope of the critical process. Man can be methodical in his attempts to decide what the difference between bait and food might be. Unfortunately, as Thorstein Veblen has pointed out, invention is the mother of necessity: the very power of criticism has enabled man to build up cultural structures so complex that still greater powers of criticism are needed before he can distinguish between the food-processes and bait-processes concealed beneath his cultural tangles. His greater critical capacity has increased not only the range of his solutions, but also the range of his problems. Orientation can go wrong. Consider, for instance, what conquest over the environment we have attained through our powers of abstraction, of generalization; and then consider the stupid national or racial wars which have been fought precisely because these abstractions were taken for realities. No slight critical ability is required for one to have as his deepest enemy a people thousands of miles away. When criticism can do so much for us, it may have got us just to the point where we greatly require still better criticism. Though all organisms are critics in the sense that they interpret the signs about them, the experimental speculative technique made available by speech would seem to single out the human species as the only one possessing an equipment for going beyond the criticism of experience to a criticism of criticism. We not only interpret the characters of events (manifesting in our responses all the gradations of fear, apprehension, expectation, assurance, for which there are rough behavioristic counterparts in animals)—we may also interpret our interpretations.

Kenneth Burke, *Permanence and Change*

Kenneth Burke's disquisition on how a trout responds to the world makes the point that it is language that enables non-trouts to go beyond the interpretation of signs to the interpre-

tation of interpretations. The trout lives in a world of stimuli and responses; nontrouts live in a world of meanings. Even if it is called "verbal behavior" in an attempt to bridge the worlds of animal and human life, *language* as a mediation differs profoundly from *language* as a system of signals. The retinal cells act according to certain codes that are stored neurologically, but when we look at something, when we see relationships, there are numberless other intervening acts by which the brain/mind transforms signals into symbols. Throughout this book there are passages from the writings of psychologists and philosophers about the nature and character of those transformations; for now, what we need to note is that interpreting our interpretations is made possible because language gives us a means of making meanings.

1. "No chimpanzee thinks he thinks": that is the poet W. H. Auden's way of putting the point about the world of meanings in which we live. Thinking about thinking; observing your observations; interpreting our interpretations: How would you explain these formulations?
2. What's the difference between Kenneth Burke's trout and a trout in a Walt Disney animated cartoon? What does *animation* mean?
3. How would you explain the difference between Morse *Code* and a *code* of ethics?

4. Form Finds Form

When you're faced with a blank piece of paper, what you need in order to get started is not philosophy but a method; nevertheless, if a method is not going to degenerate into a set of do's and don't's, it must have a philosophical foundation. A method should be grounded in certain principles that can account for what you do when you compose. Those principles all concern the making of meaning. Here they are in summary form:

The composing process by which we make meanings is a continuum. We don't take in the world like a camera or a set of recording devices. The mind is an agent, not a passive receiver; experience isn't poured into it. The active mind is a composer and everything we respond to, we compose.