Perception: Connections Between Art and Science

Ronald H. Brady

Philosophers make a distinction between knowing as *recognition* — I know John — and knowing *that something is the case* — I know that objects fall at the same rate in a vacuum. A moment's reflection will show that scientific knowledge is identified with the latter. The results of science are, presumably, a compendium of true statements about the world, which statements allow us to predict the results of specific conditions and therefore to understand and control events in the world around us. Scientific discourse, it follows, is restricted to the generation of propositions that accurately record the relations of phenomena. This is why art seems to be so distinct from science. Art is not much concerned with the discovery of true propositions, but with — shall I say — an aesthetic *appreciation* of the world. When we read aesthetic theory we find that aesthetic experience, after the work of Immanuel Kant, was not considered to be cognitive — not a form of *knowing*, but only of appreciating, the world. This is a very neat dichotomy, but of course, it is not true.

Part I: Knowledge and Recognition

I have already pointed out that *recognition* is a form of knowing, and obviously what we cannot recognize we cannot appreciate. Nor, for that matter, can we generate many true statements about unrecognized objects. This much is obvious, but if we take the *knowing* within recognition seriously it becomes necessary to develop an epistemology that can account for *two* forms of knowledge rather than one, both equally valid and necessary. Thus while it is true that aesthetic experience cannot be identified with analytic, propositional knowing, it may yet contain, in recognition, a form of cognition necessary to both art and science, and to every waking moment of a conscious being. But such an epistemology is in its early stages. Recognition, while central to any act of perception, is a form of cognition about which we know little. Our present scientific knowledge, as I indicated above, is specifiable in terms of analytic propositions. Yet we cannot specify, in such terms, the elements of recognition. This will take a while to sort out.

Let us consider, to begin with, how organisms are identified in biological classification. Some years ago C. F. A. Pantin of the University of Cambridge (Pantin 1954) argued that his published account was purely analytic: all Xs and only Xs have characters 1, 2, 3, and 4. The resulting reasoning was straightforward: this individual has (or does not have) characters 1, 2, 3, 4; thus it is (or is not) an X. Pantin observed that such information is hard-edged — it consists of *yes* or *no* answers to a serious of questions. If the series is definitive the test will allow us to exclude everything that does not belong to the group.

As we see above, analytic keys identify by yes-no answers to a specified set of questions, or actually a specified list of characteristics. This specific set of characteristics reveals a hierarchical subordination of less general elements under more general elements, which allows the strategy to specify a particular species of animal. Thus, by saying "all animals that have vertebral columns" I specify a very large group,

but “animals that have vertebrae and jaws,” or “vertebrae, jaws, and four limbs,” are successively smaller collections. If I specify further and ask for placentas and mammary glands, the collection narrows by millions of potential specimens with each added character. At some point the addition of enough characters narrows the possible collection to one species, of which our student can collect examples.

In the field, however, such analytic keys would be unwieldy to apply, and would not actually facilitate *recognition*, which does not proceed by steps. Pantin notes that his analytic key includes only characters that can be easily submitted to a “yes” or “no” test. They are abstracted from the total impression of the organism, which includes a potentially inexhaustible multitude of parts, for the purposes of deductive identification. This is not done through any demand of the organism, but in order to facilitate my mental process, which is, in turn, aimed at identifying and relating species (in terms of characters shared and unshared). But, writes Pantin:

> After we have selected the “yes” or “no” characters, a very great deal of the impression which the organism makes upon us still remains “unused.” This residue is undoubtedly important in our recognition of species even though it cannot by analyzed in just this way.
>
> This residue, and indeed the whole impression made by the organism, is used when we recognize a species in the field. We are not only using more features of that impression than the “yes” or “no” ones we select in the museum for our systematic dichotomous keys, but further, we are using the impression in a different way.
>
> In the first place, our recognition of species in the field is commonly instantaneous. We do not consciously traverse a series of dichotomous alternatives, excluding one possibility after another before we arrive at the answer.

Field recognition is near instantaneous, but it is still learned. Pantin suggests a walk with “a really first class naturalist or with a gamekeeper. He will find ten specimens to your one.” And as the facility of field recognition increases so does its accuracy, although it is always possible to make an error. But even this is instructive, for the two methods of identification shows that they are subject to very different forms of error. Error in the application of an analytic key is like error in mathematical calculation — the wrong answer to one calculation throws every following one off.

> The errors of field recognition are quite different: “For a moment I thought you were my brother!” It is characteristic of errors of this sort that you can usually justify them. They are sometimes accompanied by a peculiar feeling of discomfort, that something is not quite right, followed by a sudden detection of the error....

He adds that after the instantaneous nature of the impression “the second great characteristic of field recognition is that it seems to depend on the whole available impression.” Every sensible impression that has been left unused by the analytic key is used here. Because the whole is taken in as a whole, individual features — that may also be used by the analytic approach — are grasped in a different manner. Stripes on a worm may or may not be useful in the analytic key, but if useful they would be coded "yes" or "no." In field recognition their *relation* to the rest of the total impression would be the crucial element, the manner in which they fit into the whole. Thus, suggestive or even metaphorical speech my be the best way to “point” at certain recognized qualities:

> Associations are an essential feature of the recognition of species in the field. Even a statement such as “The spines of the sea urchin I am looking for have something of Chippendale about them — whilst that one looks Heppelwhite” may be significant. And if, when we are collecting

> *Rhynchodemus bilineatus* together, I say, "Bring me all the worms that sneer at you," the probability of your collecting the right species becomes high.

Of course, this sort of experience is familiar to everyone, even if we do not all possess powers of species recognition. We understand that if recognition could be facilitated by analytic means, we would not need to see a picture of an individual in order to make an identification, but a list of characteristics would do. Yet unless the person has some rather unusual features, such a list does not lead to recognition. And actually when we say that we "know John" we mean to indicate more than an ability to pick out someone resembling him in a crowd (which is all a picture of a stranger allows). We mean that we could also tell him from a look-alike were we in the presence of both — an ability even further removed from what we can communicate in words — at least analytic words. Poetic speech is a different matter, but it may be better to worry about this later.

The peculiar manner in which recognition grasps the whole — not summing but integrating the parts — may seem rather obscure to memory, but after all we are merely *talking about* perception rather than *actually perceiving*. This omission can be rectified with relative ease, for the qualities of perception that lead to my qualifications above are easily discoverable from simple ambiguous diagrams. Consider, for a moment, Figure 1.

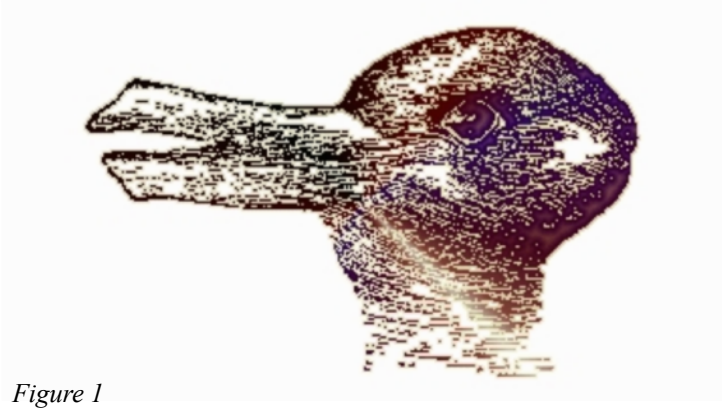

Figure 1

What the viewer will recognize in this representation cannot be exactly predicted, but we can be fairly sure that it will appear as *either* a rabbit or a duck. The ambiguity of the design allows the viewer to see one or the other, but not both at the same time. If my suggestion of rabbit/duck ambiguity has not produced the dual perception for the reader, then any remaining difficulty can usually be overcome by taking control of the representation and understanding the eye to gaze to the right (resulting in the rabbit), or to the left (resulting in the duck).

The shift is quite reminiscent of the "double-take," with the difference that, unlike the ordinary situation in which the second take will permanently replace the first, here each appearance is equally liable to give way to the other. Thus ambiguous diagrams, by making it possible to repeat the shift of representation at will, allow us to examine *how the thing is done*. That it calls for activity on our part, rather than merely passive reception, is the first and most important lesson. Actually this is a lesson that everyday experience should teach us, for when we experience the double-take we immediately assign the first appearance to *our own* mistake of recognition — i.e., something we have done. It follows that the second take, or the correct appearance, is also our own doing, and since we took credit for the first we ought to have similar credit for the second.

In order to investigate the point the reader can try governing the way he or she sees Figure 1. How is the shift performed? One can shift the gaze of the eye, or sometimes just thinking of the rabbit while seeing the duck is enough to let it happen. It seems obvious — or actually "feels" obvious — that we must look at the figure in a specific way if we are to recognize it. (The fact that we can "see" the direction of a glance at all, by the way, reveals a striking act of organization, which we perform easily at any moment of the day.) Notice that when the shift happens the paired appendages seen as ears on the rabbit

shift to upper and lower beak on the duck. And the fur of the rabbit, only suggested in the rendering, becomes the feathers of the duck, also merely suggested. Fur and ears belong together, just as feathers and beak belong together, but the first pair belongs to the rabbit, the second pair to the duck. In both cases *the parts are plastic to the recognition of the whole*, and their identity, for our perception, apparently *follows* from the identity of the whole rather than leading to it.

The mental activity by which we perform these recognitions is termed "intentionality" in phenomenology, a term reserved for that manner of thinking that formulates perception rather than reacting to it. The "formulation" indicated, however, is not a manufacture of anything. We do not "intend" the image, but the form of understanding that can grasp it. This activity, of course, is the key to recognition, although that moment now seems somewhat more mysterious than it first appeared.

Consider the implications of what we have already examined. The reader can control the shift from rabbit to duck or vice versa by "deciding" which way the eye is looking. It is quite possible to prevent involuntary shifts by this method, or to cause voluntary shifts at will. The decision is an intentional one, but it does not "invent" anything. If we propose (to our own understanding) that the central shape is an eye, we must also understand the eye to be looking in some direction. If we propose that it is looking left we see a duck; if we propose that it is looking right, a rabbit. This much is made possible by the unknown artist of the ambiguous figure. But notice that if we propose that the eye is looking straight up no intelligible result follows. If we were actually *making* the image, the mere proposal of an understanding would produce it. But we are only actualizing the possibilities already inherent in the given sensible situation.

On the other hand, if a change in understanding is all that is necessary for a change in the perceived configuration, then either perceived configuration *is already an expression of a form of understanding*, rather than a perception to be understood. Of course we normally have no sense of this activity on our part, for it must be in place before we become conscious of any figure at all. Yet obviously the rabbit or duck that we saw first was already looking right or left, the organization of the glance and that of the entire physiognomy being impossible to separate. It appears that as we focus our eyes we also focus our minds, although this latter activity is an unnoticed aspect of mental life. Thus we had *already made* an intentional proposal by the time we saw, or visually recognized (for this is the same thing) *anything*. There was an unconscious preparation for this perception, which preparation has been brought to our conscious attention in our exercises.

Even so, we can often see that a specific intentional decision was necessary to obtain the figure we are looking at, even if the figure seems quite obviously "there." Consider, for instance, the Kanisza figures (designed by Gaetano Kanisza, an Italian psychologist), which produce "subjective contours" — edges which are seen without a corresponding "objective" change in the visual field.

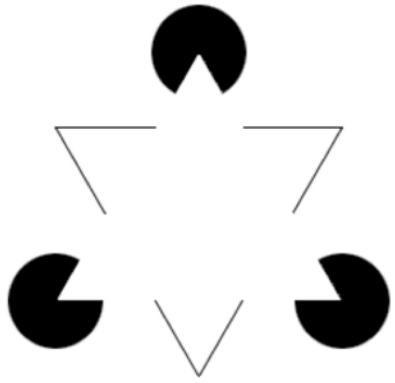

Figure 2

Discussions of the figure argue that the white triangle is "produced" by the viewer's response to the black elements in the configuration. Although it may seem slightly brighter than the background — which is why it seems to have visible edges — the figure is actually drawn by placing three "cheese wheels with slices missing," and three bent lines, in a specific relation, against an even white background. Notice, however, that to us the wheels are complete, as is the underlying line triangle, and the partial occlusions are caused by the white triangle laid over them. For this reason some have called the resulting figure a "visual hypothesis" which assumes the closure of the "underlying" forms. But of course it is not the resulting figure that *assumes* something but the intentional understanding by which we take it in. However we describe the figure, it is obvious that *if the white triangle is seen* we must understand the other figures — black circles and line triangle — to be complete. This understanding is already in place if the white triangle is to appear.

Another Kanisza effect is the transparent surface. In Figure 3 below, the white oblong in front of the black forms is produced in the same manner as the white triangle of Figure 2. But if the dark forms are closed with a gray rather than black continuation, the white oblong becomes transparent or translucent, as in Figure 4. In this case, as in the former, the oblong appears to be brighter than the surround, and a contour is produced between the slightly brighter oblong and its duller surround. (Another view is possible, discussed below.)

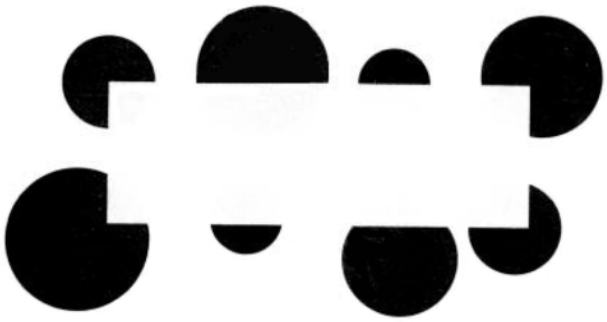

Figure 3

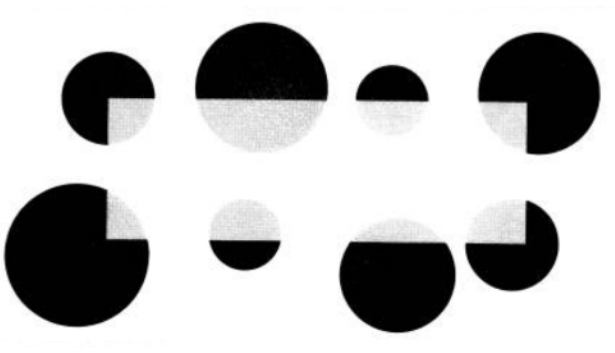

Figure 4

The translucent figure, of course, seems to arise in much the same manner as the original white oblong — i.e., seeing an oblong provides a parsimonious understanding of the gray areas — but such an understanding must be *seen* if it is to apply.

The temptation to suppose that *we see the oblong first and understand it later* — that is, to suppose it appears without any participation from thinking, so that our mental activity takes hold only after the fact, can be dissipated with a simple experiment. Let the viewer attempt to grasp the black areas as holes—in something like a slice of Swiss cheese — and see, *through* the holes, a gray oblong. Once the gray oblong is seen as a background figure, the apparent brightness of the foreground oblong has vanished. The new understanding of Figure 4 produces a new figure, which, of course, can be converted back into the old figure by a return to the old understanding. In such voluntary situations it becomes clear that what is seen is *prepared* for recognition by the intentional proposal. We see, as it were, what we are already thinking (intending), and become aware of what we are thinking by seeing our understanding reflected back to us in the perception. (Remembering, of course, that an impossible proposal will lead only to a double-take or

to nothing at all.) It was for these reasons that Goethe remarked: “We see only what we know,” and not because he was offering the impossible suggestion that we never see anything new.

In normal perception we do not notice this preparation — it remains unconscious — because we focus only on the perceptual result. In cases of voluntary control like those above, however, we can detect the connection between our prior proposal and the resultant perception, which brings us back to Pantin’s argument. The sudden grasp of the whole that he notices in field recognition cannot be attained through analytic keys, but can sometimes be prepared through verbal communication. He writes:

> Though difficult or impossible to express in direct analytical language, field recognition can nonetheless be communicated to others. It can often be conveyed vividly by metaphor, simile, and association; in fact by the ordinary modes of poetic expression....
>
> So we arrive at the conclusion that there are two distinct methods of recognition of species: the field method, which for convenience I shall call “aesthetic recognition,” and the analytical deductive method of laboratory systematics. Aesthetic recognition seems to be based on a peculiar sort of induction, an instantaneous inference from the entire impression made by the organism in some way based on a long series of past experiences. It is either inarticulate or it is expressed by metaphor and association; but when so expressed it is vivid and compact.

The type of intention that leads to perception *can* be communicated by language, exercising what might be called “the poetic principle,” by which I mean that quality of evocation that allows words to carry *more* than analytic propositional meaning. So a good poem, and indeed, good prose fiction, produce the “feel of the real thing” in a manner that prosaic writing can never approach. They are *concrete* rather than abstract, because what they communicate is experience, even if imaginary. But notice that when such linguistic resources are put to use in an attempt to train field recognition, they are not aimed at producing vicarious experience but real experience. The phrase, “the worms that sneer at you,” makes the hearer all the more likely to see *Rhynchodemus bilineatus* in terms of a sneer, and thus recognize it. Of course we cannot define a “sneer” — someone is sneering at you if and only if ... etc. — any more than we can define a “warm smile.” We can speak of these things only because we have first perceived them, and the language is derived, according to my “poetic principle,” from actual experience. But the same property of language allows it to act as a guide to new experience — as a *preparation for seeing* in this or that manner. Pantin’s locutions are teaching perception.

Metaphor and simile can do this because, as Aristotle noticed in his Poetics (Chapter 22, 1459A), “Good metaphor implies an intuitive perception of the similarity of dissimilars,” that is, of *likeness*. The worm does not have a human face, and thus cannot show human expression, but it can still be seen to resemble, in part, the gesture of a sneer, and by *looking for* that expressive gesture we manage to recognize the particular species we are after. Anyone who has been taught to recognize a particular plant in the field will have had a similar experience. When we learn to look in the right way, or if you like, with the right eyes (the right intention), the plant species seems to stand out from its surroundings.

[Editor’s note: The following text refers to four figures that you will find to be missing. All the figures were taken from the Chuck Close painting, “Roy II,” which depicts a human face in profile, with the face consisting of numerous small “glyphs.” Figure 5 showed a very small portion of the face, around the bridge of the nose and the eyes. Figure 6 showed somewhat more, Figure 7 still more, and Figure 8 consisted of the entire painting. Close denied permission for use of his painting in this online version of the article, and Ron Brady was in the process of developing alternative illustrations when he died in

March, 2003. You will find "Roy II" on Close's website and in the book, Chuck Close - Recent Paintings, published by Pace Wildenstein in 1995.]

We can do this because *relations* are never passively received but always grasped by an act of understanding — we must think them if we are to take them in. Thus we make things visible by intending the relations by which they are unified, and without which they could not appear to us. It is possible to provide an example of just this sort of learning. Figures 5, 6, 7 and 8 present a sequence of views of a Chuck Close painting ("Roy II") made at different magnifications. Figure 5 shows a section of the painting at such great magnification that one cannot grasp the context, and so it appears merely as a number of colored patches.

As we pull back from this part of the painting, however, it is integrated in the three following figures into a larger and larger field. By the time we have arrived at Figure 8 we can place the section in question in the context of the whole painting, and in this new whole it takes on a new meaning.

The section portrayed in Figure 5, was, of course, the eye and its immediate surround. But now we can examine the sequence in a different way. If the viewer will reverse this process, going back over the sequence to arrive at the section of greatest magnification, he or she will arrive again at the colored patches, but with a new possibility of seeing. Obviously in the step from 8 to 7 the eye is retained. With a little effort one can still see it when moving from 7 to 6. If the reader goes slowly enough, the eye can still be retraced from 6 to 5. Here — in Figure 5 — effort is needed, and the reader may experiment with his or her ability to lose the eye and then regain it without glancing back at the more inclusive figures. Of course, whenever the ability to do this appears lost, it can be quickly regained by returning to the series of all four.

When we return carefully to Figure 5 it is *organized,* in the original sense of the word (the *organ* is that which carries out a function). There was no hint of this unity when Figure 5 was first viewed, but now it is still possible to see the eye-eyebrow complex that became visible as a part of the whole painting. We have to understand the blue patch as the eye, see the direction of sight, and grasp its relations to the eyebrow and the rest of its context. These relations are both spatial and dynamic — the eye and eyebrow are expressive forms, that is, they are *doing* something. If we are successful they will *still* be doing it as we look at Figure 5.

If the reader will examine his or her own activity closely, it will become obvious that the functional *doing* that is expressed by the eye-eyebrow complex is not something added to that complex after we have seen it. We must bring forward an organizing intention to see it, but that intention is a sense of the expressed activity, which activity organizes the complex that expresses it. If we see it *seeing*, we see an eye. Of course, if we relax our effort to grasp the whole complex in an organizing activity and let our gaze rest on separate patches, the activity, and therefore the eye, can easily be lost.

The fact that perception must be learned as a skill and may require effort not only to learn, but also to maintain, can be a sticking point. We would like to say that we open our eyes and the things are just there. But on reflection this rather lazy notion appears to contradict experience. We are often confronted with perceptual situations that require both learning and maintenance effort: walking in the wood, for instance, and learning to pick out the deer, which, due to our presence, has frozen amid the cluster of trunks. Even after we have seen it, if the eye (or the mind) wanders just a bit, we must work to get the deer back. The body of the deer can too easily slip into the shapes of tree trunks if we do not maintain the idea that allows us to pick it out.

Presumably we *learned* to do this at some earlier time, even as we must have learned to make out the world as children, and did not originally see it as we see it now. After all, this learning process is still going on. Most people see only a jumble of leaves in the foliage along the road, but the competent field

botanist sees a mix of clearly discernable signatures and may have an immediate grasp of how many species are in the clump of weeds. Nor is it very difficult to alter one's perception in this direction. When I deliberately *look* for similarities in the shoots of plants of the order *Solanacae,* or try to find an intuited connection between the flowers of the apple, pear, and wild rose, I can gain, through repeated effort, the ability to recognize *at a glance* the flowers of the family *Rosacae,* or the close relation between tomato, eggplant, potato, nightshade, ground apple, and datura.

In a manner quite similar to the way we learn to "see" an eye in a collection of colored patches, we can learn *how to see* the *Solanacae* family in the structure of the shoot, provided that we make the effort and have a good number of representatives before us. We must only find the repeated relations and, when we intend these, the various members announce themselves as members of the same whole. As the reader probably already knows, this "finding" is often a tacit rather than self-conscious process. A botanist tells me that the relations I have detected in the *Solanacae* are probably in the shape, or rhythm, of the branching, rather than the shape of the leaves, but I cannot yet confirm the expectation. I can "see" the group members because I have developed a "wise eye" for the group, but I am not yet able to focus on the intentions by which I do this.

Of course this is another mark by which we recognize the similarity between recognizing plant groups and recognizing John. Without extensive examination of my own intentional processes I cannot always say, even to myself, how I do it, yet it is clearly a form of knowledge. Books on plant recognition will often have titles like: "How to know wild plants," and someone will attest that he or she "knows John" when asked how John will be recognized at the airport. Most readers will remember from experience, however, that *how* to do something, including how to ride a bike or how to see, cannot be communicated by any series of analytic propositions. Of course, we can state something about how one goes about such learning, but the actual learning always involves getting on the bike (and sometimes falling off) or actually trying to see. (Knowledge of this sort is termed "tacit knowledge" by Michael Polanyi, and his discussion of the domain makes the connection between perceiving and doing very well by investigating it as a *skill.* Polanyi 1962; 1969)

Where there is an identity between knowing and doing, the latter may not be separated from the former. The knowledge of how to do something, the basis of a skill, cannot be abstracted from the experience of doing it. Analytic propositions often pass from mind to mind without demanding experience to understand them, but recognition, by contrast, seems to require that we actually perceive the recognized object. The usual scientific language does not communicate recognition because *recognition is not separable from the experience by which it is learned*. Thus we turn to metaphor and simile, with the understanding that these are only guides on how to form an actual perception, which is the point of our communication since perceiving, as this paper has argued throughout, is an active rather than a passive reception.

As we have seen, the intuitions that unify recognizable entities within the sensible situations we encounter, and therefore enable us to *make* observations, must always be anterior to our subsequent reasoning *about* observations. This fact, however, has not caused much serious scrutiny of recognition knowledge in present science. We deal, in our arguments, with observation *statements*, not with observations. Of course, as any logician can testify, the logical machinery of a propositional calculus can handle only propositions. Thus present scientific reasoning deals with the implications of our propositions rather than the implications of experience, for, as we have seen, these propositions cannot contain the intentions so crucial to recognition. This situation, I think, will have to change. Although Pantin did not develop the implication, he clearly took field recognition to contain a form of knowledge independent of and excluded from analytic thought. That knowledge reveals the world of experience, without which no

observation statements could even be made. It can hardly be held to be a junior partner to propositional knowledge.

Part II: Art

Although the practice of science must often take the content of recognition for granted, as we see from Pantin's discussion such content is almost always left implicit or left out in scientific communication. Art, on the other hand, represents an institutionalized form of communication that often attempts to specify the content of recognition. This point was actually recognized by Alexander Baumgarten, (1988) in his *Aesthetica* (originally dated 1750/58), a treatise on what he termed "the science of sensory cognition," perhaps a nod to the Renaissance notion of "the judgment of sense." Baumgarten introduced the term "aesthetic" into the philosophical language of Germany in the eighteenth century, and treated aesthetic experience as an independent mode of cognition. Kant's *Critique of Judgment* (1987 — originally published 1790) was strongly influenced by Baumgarten, but while Baumgarten took himself to be setting forward a theory of *meaning*, Kant, while praising Baumgarten as "that excellent analyst," changed aesthetics into a theory of aesthetic *pleasure* rather than aesthetic cognition. The succeeding age followed Kant, but in the light of the present discussion this tradition appears to be founded on an unfortunate omission.

Surely it is clear that *seeing* a work of plastic art requires a particular skill, and thus a particular knowledge. This is the reason that artistic communication is more difficult to master and requires a greater effort on the part of the audience. Just as reading a work of imaginative literature — particularly poetry — demands that the reader master an uncommon use of words — i.e., the particular *diction* involved — so "seeing" a work of plastic art depends upon mastering the "viewer's diction" demanded by the work.

When a museum visitor does not find a particular painting or sculpture worth looking at, this result is usually charged to differences of taste. But there is an alternative possibility, namely, that the visitor *failed to see the work* by failing to master the required mode of perception. In this latter case a judgment has been made of something *other* than the work, which has not been recognized, just as a poem remains unread by the untutored reader who can make little of it. From this vantage point, viewing art, like recognizing plant species, must be a matter of *knowing* before it can be a matter of appreciation.

This was obviously the trouble in the court case brought by Brancusi against New York Customs (1926-28) for refusing to recognize the *Golden Bird* as a work of art. When Brancusi brought the Bird into the country, customs levied a duty of $210 on the piece for its metal value — an art work in possession of the artist, however, would be tax free. In the subsequent court proceedings witnesses testified for both sides. The testimony of the witnesses for the customs authority described a piece that was not the Bird, although it was indeed *something that could be seen* when using their descriptive phrases as a guide in order to perceive the work. (Giedion-Welcker 1959). We will return to this.
As an example of the requirements for seeing, consider Figure 9 below: Constantin Brancusi's *Newborn,* done in polished bronze.

Figure 9

Some years ago I came across a critic who was led by this title to see "a gastrulating embryo," just beginning to become articulated into the organism. (I have not been able to find the reference these many years later.) The critic, I speculated at the time, had probably been looking at the work of Jean Arp, and was unfamiliar with the particular "viewer's diction" needed to see Brancusi. Thus, his judgment (he thought the piece successful) could apply to Figure 9 only when seen as he suggested. Others, however, have found the sculpture successful for very different reasons.

A greater familiarity with Brancusi's works allows the viewer to place the piece within another context — another diction — by the same technique used to find the eye in the Close painting — i.e., by a juxtaposition with other images. The reader need only run through the sequence of 10, 11, and 12 before returning to 9. By then the necessary mode of seeing will be in place.

Figure 10. (The head of *The First Step*; the facial elements are reduced to the eye, eyebrow and nose complex, and the mouth — the head sat upon a child's body taking his first step, and the total figure was so obvious that no one would have difficulty finding the context for the head.)

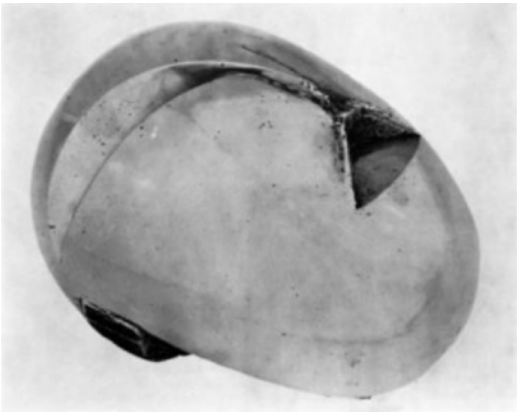

Figure 11. (*The First Cry*; the curve of eye, eyebrow and nose are retained from *The First Step*, and the ear is visible.)

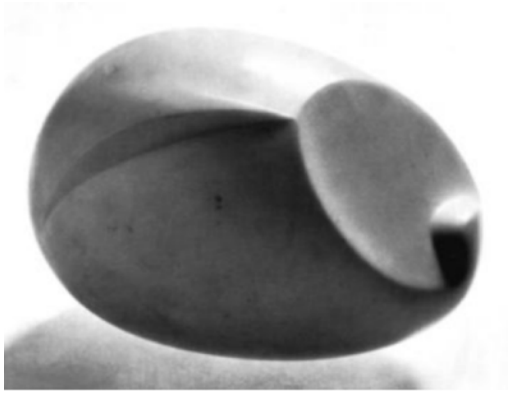

Figure 12. (Marble version of *The Newborn*; the eye-nose curve now extends to a flat plane — the wide-open mouth of the infant — punctuated by the chin. If an easier viewing angle is desirable the image may be rotated 90 degrees to the right, bringing the head upright.)

Brancusi's images progress toward specification of a particular object of knowledge. The series moves from a simplified representation of an infant's features to the full specification of expressive gesture — the wide cry of the mouth. The head of the first step was only part of a greater whole that did not focus on the head (although the expression can be read as tentative — perhaps right for a first step). *The First Cry* attempts this focus, concentrating on the moment of awakening at birth (presumably when the doctor slaps the rear of the newborn to make the child use his or her lungs). In the next piece the title is replaced by *The Newborn*, dropping any reference to a cry, for this title is all we need. If the latter work is seen as an infant's head at all, it is a crying infant — howling in fact. It is a stunning improvement on the former piece. By comparison, the gesture of *The First Cry* is far more ambiguous — it might be, for instance, the "first stuffed nose." The solution was relatively new to European art of the time, for the open mouth in the *Cry* was indicated by a real cavity, and thus the mouth in these works was, in one sense, more "realistic." The flat plane of the later work, however, represents the open mouth far more definitely than the "realistic" cavity, for *The Newborn* presents the gesture rather than the geometry of the face.

Again we see that the parts are dependent upon our recognition of their context, which is the whole within which they are integrated and, in this case, with which they can carry out their function. We must propose the correct whole in order to see, which is helped by the title of the piece, but once we see the head as that of a newborn the traumatic moment becomes lucidly clear. The meaning of the perception is recognized, but the *knowing* within this recognition is of a different order than our usual perceptual recognitions. Art does not attempt anything so complex as reality, but presents only a *semblance*, and this — i.e., the semblance — develops only that aspect of the reality under consideration. *The Newborn* strives for the gesture of the crying infant, and in doing so it refines away everything extraneous to that end. Thus the final image seems more transparent to the inward meaning than an actual child might be, although our sensitivity to the actual gesture may be improved by our understanding of Brancusi's piece.

Seeing the "transparency" to inward meaning is a perceptual ability that we all share, for it is the foundation of interpreting gesture. The briefest reflection will show that without this "diction" our ability to know the world would be catastrophically reduced. Gesture is recognized immediately, holistically, and fairly accurately, and in human affairs, or our dealings with animals, even with plants, it is irreplaceable. Brancusi was so affected by the power of the gestures he witnessed in the world that he developed a form of sculpture to present them. For example, his early bronze, *Torment* (Figure 13), done in the atelier of Rodin, was conceived when he saw an apprentice being beaten by his master, and the gesture of helpless resignation gave form to the statue. Figure 13 is a museum photograph of the piece, and as anyone familiar with the artist will know, Brancusi also developed a photographic approach to his own work.

Figure 13

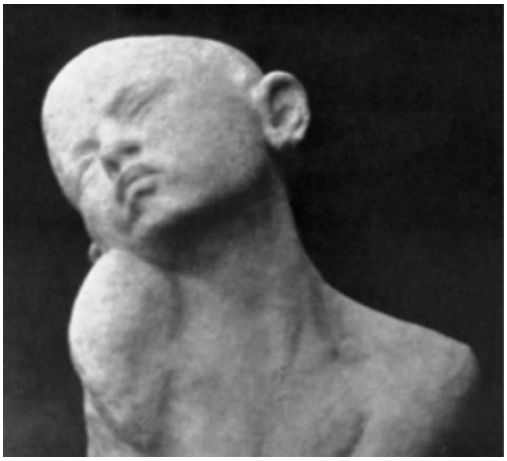

Figure 14

In Figure 14 we have Brancusi's own photograph of the plaster version from which the bronze was cast. Brancusi's soft focus, shot angle, and lighting have provided a different approach to the work than the conditions of the museum photograph. The recognition of this difference is usually instantaneous. The guide of the Brancusi photograph makes the piece all the more transparent to the inward meaning: the gesture and the form are clearer, the piece is more "alive" because its nature is more deeply seen, and thus known, by the viewer. Brancusi's purpose was clearly interpretive — the "diction" of his photograph leads to a way to view his art. The photograph of the marble *Newborn* in Figure 12 is, of course, also made by Brancusi.

Art, or at least the sort of art that desires this end, shows us a world in which recognition contains a deep knowledge of its object, knowledge that one might even call wisdom. I do not mean the sort of wisdom that can be separated from experience, but rather just the type that is gathered from much experience. An art of this sort can present the distillation of experience to those who have learned to use their eyes. I suppose this says much about the witnesses at the Customs trial who insisted that Brancusi's works had little or no relation to their titles. The *Bird* was not a bird, said one, nor could "any flexion of changes" bring about a resemblance.

Figure 15.

When the earlier *Maiestra* (Figure 15) — the name of a magical bird of Romanian folktale — was brought in, the Customs witnesses argued that while it had some resemblance to a bird, it was not a competent piece, and looked as if it were executed by a savage or a child.

The sculpture may seem odd to someone looking for a resemblance of physical detail, which it refuses to offer. When the movement of the bird, its gestural context, is considered, however, the whole impression changes. The chest and shoulder muscles, and the lifting head, bring to mind the world of birds, as we see them daily when we really see them. And of course the statue may be viewed from the opposite direction.

The photographer Edward Steichen purchased *a Maiestra* (there are several versions) and mounted it on a stone column in his garden. His daughter, seeing the sun fall on the statue, snapped a picture of it with a simple camera (Figure 16). The result is surprising. Perhaps the piece would make a good bird-warder for the garden, for from behind, with the light right, the brooding gesture of a great bird of prey is impossible to miss. This remarkable presence is created by a minimum of articulation, but that purge of unnecessary elements is what makes the piece so powerful and Brancusi's style so striking. The extreme transparency of the piece depends upon a reduction that allows our intuition of inward identity to unify the outward elements into a single gesture, giving us a world in which inner and outer approach each other closely. Notice that inward nature is revealed through

Figure 16.

outward shape because *the former brings about the organization of the latter*. Without our way of looking — the intention we advance — we could not see the bird of prey. After all, the unifying intuition belongs both to the bird, as its nature, and to us, as our knowledge.

I can speak of the approach of inner and outer due to the character of everyday perception, which presents a world of outsides without clear insides. The world is enigmatic just because of this character of experience. Let me explain. Perception is not knowledge *about* — which is the realm of the proposition — but immediate knowledge *of*, a direct grasp of the perceived object. But obviously this knowledge is incomplete — I mean perceptually incomplete as well as propositionally. The intentions we bring forward in order to recognize an intelligible world are inadequate to the full task. They fall short on two fronts: they leave a great deal unknown that we have come to only through the supplement of scientific investigation, and they leave too much *unseen*.

It is the nature of the perceptual image (taking sight as the model, although analogous relations will hold for the other senses) that it can, and must, present an inner ground for the outer form. The intuition we bring forward to grasp the whole is itself that ground, but the outward form that results from its grasp will often be far less transparent to it than is the case with the Brancusi images above. (12,14,16). The reason for this is apparent in Brancusi's method. How often do we find, in nature, an image that is, in all details, so unified that it is as lucid as his sculptures? In any reality more is expressed than the simple nature of the thing, for the rest of the world impinges upon it. Brancusi got around the nexus of causes potentially appearing in every natural image by either refining away everything that was not the intended gesture (12, 16) or by taking a subject whose gesture showed a total surrender to the mood it expressed (14). On occasion, as in the case of the model for *Torment,* the phenomena of the world approach this character, but this is the rare moment. Of course, if the world normally had this character there would be little need for art, or at least for an art of the character described here.

That we do recognize such a need suggests that we also recognize, at least subconsciously, that the normal perceptual image is incomplete. A world that was fully our own would not only be propositionally known, but would also be fully recognized. The cultivation of our powers of recognition is an accepted cultural task for each individual — we expect everyone to learn to know the surrounding world. But the fact that such cultivation remains largely an individual task rather than a community effort — as is the development, for example, of scientific theory — is evidence that our society has taken the perceptual image to be complete for its adult members. As we have seen, this is not true, and the average perceptual image is quite plastic and capable of considerable development.

This is why art must be given particular credit for extending the world of knowledge. The semblances constructed through artistic activity can often teach a good deal about their originals, but, more importantly, they teach the viewer about the nature of his or her perceptual images. It is largely in artistic productions that our culture incorporates knowledge of the evolution of phenomena, however tacit this knowledge seems. After all, while the unusual skills of the field botanist, gamekeeper, herb-gatherer, field geologist, etc., remain distant and mysterious accomplishments for our cultural outlook, the skills involved in *seeing* or *hearing* artistic works are widely recognized. Unfortunately, these skills are thought to bear only upon artistic productions. Natural phenomena, in common assumption, do not call for them, and thus connections between such skills and those of the various professions mentioned are rarely made.

Yet each of these pursuits extends the powers of recognition; that is, they make the perceptual image more complete. The botanist making field identifications, for example, recognizes a species with ease because he or she has been able to make it more transparent to an organizing intuition than it was, say, as an anonymous weed. But the scientist does not have the aid of the artist's rendering in the effort to clarify vision, and therefore must be, in principle, even more active than the audience of art. As recognition

expands it must penetrate that "nexus of causes potentially appearing in every natural image," bringing it forward in signatures that can be directly grasped by the trained observer. With further study our botanist may also be able to detect the interaction of other species, and the effect of other environmental elements, in the formation of the particular specimen examined *in situ*. In this manner the recognized world grows toward intelligibility.

Skills such as these have usually been thought purely individual because they could not be communicated as propositions separable from experience. Only the second clause is accurate. In the moment of recognition, perceiving and knowing are identical: *only those who see can know*, and alternately, *only those who know can see*. But if such knowledge results from a developed skill, it does not follow that it must remain individual. This unity of seeing and knowing has been central to artistic expression for ages, and both the gamekeeper and the field botanist have been able to train others to be like themselves.

At every turn in the road we see images that reveal, to the sensitized eye, an incomplete character and thus a potential for growth. The question I am raising is not whether we will accept this task as individuals, although each individual decision is already an advance, but whether we will accept it as a communal task. I think it obvious that new modes of seeing carry with them new revelations of being, even as new theoretical propositions in science carry similar import. The answer, of course, can only arrive in the somewhat distant future. The question is with us today.

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