recognizing emotional qualities cannot be something we are simply hardwired to do. Anger at an insult, for instance, is the result of the belief and the judgment that an insulting comment has been made. Recognizing emotion, then, has cognitive dimensions, too; that is, some kind of inference or interpretation is required. The question then is how inference and interpretation might have qualitative dimensions of a kind appropriate to perceiving emotions or how judging and feeling might go hand in hand.

Scientific discoveries point to some striking new ways to understand expression. In particular, much has been made lately of the identification of mirror neurons in monkeys, which a number of scientists believe have counterparts in the human brain. Located in premotor cortex, mirror neurons are activated not only when an action is performed, but also when the action or its results are observed, even when they are depicted in a painting or photograph. This is said to be the basis for what has traditionally been called empathy, or the ability to grasp the feelings of characters in a scene, and those expressed by an artwork as well. The assumption is that perceived actions can be associated with the feelings that typically motivate them, without leading the perceiver to have them herself. Since mirror neurons do not cause the perceiver to reproduce the observed action, the relevant motor program must be engaged only partially or in a special way. The intention to act is simulated “off-line,” so to speak; thus, the emotion associated with it may be had off-line as well. It is experienced, but at a distance, in effect. According to this view, perceivers can empathize with Christ’s pain and feeling of being forsaken in Rembrandt’s The Three Crosses (1653) because mirror neuron activity puts them imaginatively in his place. They also grasp the emotional tone of the picture generally by simulating neurologically the hand and arm movements that might have produced the fine lines radiating down on the scene and the sense of effort or hopeful anticipation that might be associated with actions of that kind. However, the precise function of mirror neurons is a matter of ongoing debate, as is the claim that mimicking movements is, in fact, a way of understanding the emotions associated with them.

This discussion of representation and expression suggests how cognitive science might provide new answers to other controversial questions. How, for example, do we interpret art, or ascribe larger meanings to it beyond simply recognizing the objects that may be represented or the emotions that may be expressed? What is the relevance of the artist’s intentions in that regard? How do we evaluate art, and, more broadly, what is the place of aesthetic properties in art, such as beauty, and how are such properties ascribed? What is the nature of artistic style? Thus, by offering a neurological account of perception in science to questions such as these, the works in Art and the Mind-Brain open the door to new conversation about the nature and power of art.

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NOTES

“The Three Crosses
1653
2. Irving Massey, The Neural Imagination: Aesthetic and Neuroscientific Approaches to the Arts, 20092

The past decade has seen an explosion of interest in the bearing of cognitive science on the arts. Cognitive science is itself relatively new, an interdisciplinary effort that seeks to understand perception, memory, emotion, and thought using the combined resources of psychology, neurobiology, computer science, and philosophy—a science of the mind and its relation to the brain. A number of scientists, philosophers, and art historians have taken this research to open the door to a new field, neuroaesthetics, in which questions about beauty, artistic expression, style, and art history are addressed. The result is an exciting exchange of ideas that provides new ways of thinking about art. By considering select artworks from the collection of the Mildred Lane Kemper Art Museum in the context of this discussion, Art and the Mind-Brain brings out novel dimensions of the individual works and acknowledges the special power of art to reveal how we see and think. The exhibition invites critical reflection on the central principle of neuroaesthetics: that the aesthetic and art-historical interest of a work of art can be understood in terms of its power to engage the perceptual and cognitive systems of the mind-brain.

Two issues have been fundamental to philosophical investigations into art, art history, and art criticism: (a) How do pictures represent objects? (b) Does art express emotion, and if so, in what sense? The first question is important because understanding pictorial art depends, at bottom, on being able to identify the objects that a work depicts. Moreover, movements and styles are sometimes defined in terms of the types of objects they typically represent, such as landscapes in the Barbizon school or faces in portraits by Thomas Gainsborough or John Singer Sargent. The second issue has not only philosophical interest, but also art-historical and critical significance. Artists themselves often disagree about whether expressing emotion is a goal of art. These two topics can be taken as illustrative of a wide range of issues on which cognitive science might shed light.
REPRESENTING OBJECTS

The oldest and most intuitive theory of pictorial representation holds that, unlike words, pictures represent objects by resembling them. This resemblance theory has lately been revived in cognitive science, where it is taken to be a claim about perception: we see objects in pictures and, to that extent, our perceptual experience of a picture is like the one we would have if we actually saw the objects face to face. According to this view, the artist of the lithograph Crying Girl (1963) represents a crying girl only if we experience it perceptually much as we would a real girl crying (as we seem, in fact, to do). The problem is that, in many cases, the experience of the picture and its content is different from the experience of the real world. For example, the experience of Georges Braque’s Still Life with Glass (1930) is not very much like that of a glass on a table, yet the painting pictorially represents a glass on a table nonetheless.

A natural response to this fact is to hold that pictorial experience is a special kind. One prominent view focuses on representation as marked by twofoldness: we are simultaneously aware of the content of the picture and its surface properties or design features. Thus, what a picture represents depends on what can be seen in it, but the seeing takes a distinctive form. For example, in Riders in the Park (1918), Maurice Prendergast uses color and line to represent objects, but in ways that attract the viewer’s attention to the compositional and other artificial devices. In this view, twofoldness is a necessary condition for pictorial representation, and it may be sufficient as well. Non-pictorial artifacts can have design features, and any object can have an aesthetic interest due to its surface properties or form. Moreover, any object can symbolize something else. For instance, we can appreciate the craftsmanship or beauty in real boots and saddles, and also take them to stand for the rider to whom they belong. However, their design features do not serve a representational function, and we do not see in them the person they represent, as the twofoldness condition requires—which is to say, to symbolize as non-representational. Thus, twofoldness is the subject of controversy, but according to one account, it is a function of the fact that there are two systems in the brain, ventral and dorsal, that operate in parallel. While these systems also are engaged in everyday life, with art they are employed in different ways and so cannot locate the shapes. That function must be done by the ventral system (relying on color contrast and form), and that system is not well-equipped to do the job. As a result, the shapes seem to float and move. This contributes to our understanding of what the shapes are and, indeed, of the nature of the larger scene.

EXPRESSION OF EMOTION

To address the question of how art might express emotion, we must first ask, of what does expression consist? One answer is that an artwork expresses a certain emotion only if viewers can somehow recognize that it expresses that emotion. As a recent account of pictorial represen- tation, some theories attribute our ability to recognize emotion to basic, unlearned, universal abilities, while others ground it in what the perceiver knows and believes. In effect, the perceiver’s acquired knowledge and beliefs. In effect, perceiver’s conscious cognitive activity, and that the perceiver’s acquired knowledge and beliefs. In effect, we are simultaneously aware of the content of the picture and its surface or design properties. Moreover, there are qualitative dimensions to the picture as marked by twofoldness: we are simultaneously aware of the content of the picture and its surface properties or design features. Thus, what a picture represents depends on what can be seen in it, but the seeing takes a distinctive form. For example, in Riders in the Park (1918), Maurice Prendergast uses color and line to represent objects, but in ways that attract the viewer’s attention to the compositional and other artificial devices. In this view, twofoldness is a necessary condition for pictorial representation, and it may be sufficient as well. Non-pictorial artifacts can have design features, and any object can have an aesthetic interest due to its surface properties or form. Moreover, any object can symbolize something else. For instance, we can appreciate the craftsmanship or beauty in real boots and saddles, and also take them to stand for the rider to whom they belong. However, their design features do not serve a representational function, and we do not see in them the person they represent, as the twofoldness condition requires—which is to say, to symbolize as non-representational. Thus, twofoldness is the subject of controversy, but according to one account, it is a function of the fact that there are two systems in the brain, ventral and dorsal, that operate in parallel. While these systems also are engaged in everyday life, with art they are employed in different ways and so cannot locate the shapes. That function must be done by the ventral system (relying on color contrast and form), and that system is not well-equipped to do the job. As a result, the shapes seem to float and move. This contributes to our understanding of what the shapes are and, indeed, of the nature of the larger scene.

According to one standard theory, images express emotions by having features that are like those of people who are feeling the emotions; in the case of sadness, those might involve drooping lines, pallid color, or a person’s furrowed brow. However, another explanation is that, rather than responding to common facial expressions everywhere in certain characteristic ways. Just as those are universal, so too is the ability we have acquired through natural selection to identify emotions perceptually. That ability is simply carried over to art. The relevant features are cues, to be sure, but they may also work by way of an affective response. However, it may be objected that neither having emotions nor expressing it is quite as automatic and primitive as these views suggest. Therefore,