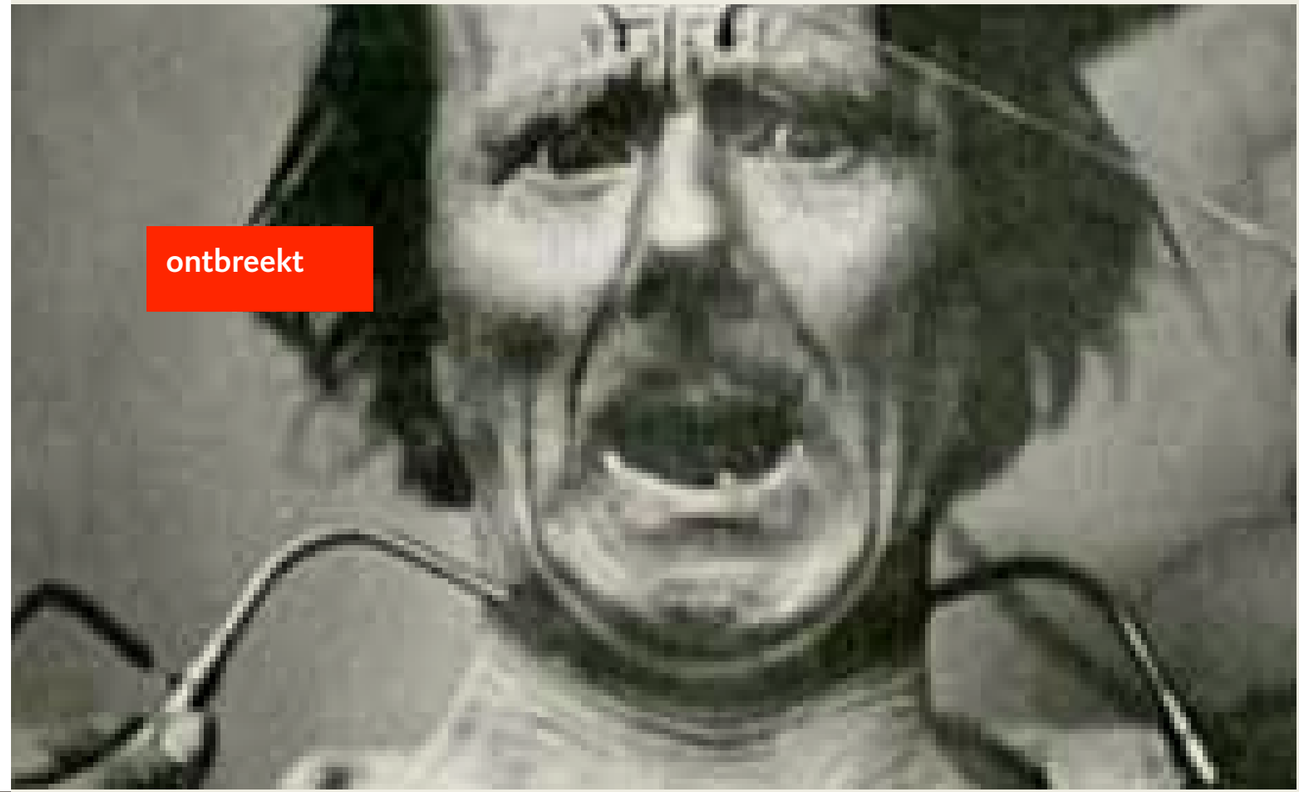
Notes

1 Weststeijn 2008, 171.
2 Miedema 1973, vol. 1, 169. Chapter 6, paragraphs 34-35 of Van Mander's *Foundation*.
3 Padel 1992, 13.
4 McEvilley 2002.
5 http://en.wikipedia.org/wiki/Stoicism. Accessed 21 July 2014.
6 Schmitter 2010, on which I have relied for the information in this section.
7 Verbeek 2008, 10, 17, 25.
8 Freedberg 2002, 402, 72, 403. Clark 2007 speaks of 'viewerly confusion' taking hold even earlier, so that Della Porta's book was already suspect on appearance. With thanks to Herman Roodenburg for this reference.
9 Aviezer et al. 2012.
10 Miedema 1973, vol. 1, 169. Chapter 6, paragraphs 35-37.
11. Junius 1991, vol. 1, 264-265.
12 Junius 1991, vol. 1, 264.
13 Weststeijn 2010, 272.
14 Weststeijn 2010, 267. See also Weststeijn 2008, chapter IV: 'The depiction of the passions.'
15 De Vries 2011, 24.
16 Goeree 1682, 295-296.
17 Roodenburg 2004.
18 Wikipedia article 'Norbert Elias,' accessed 5 July 2014. For Barbara Rosenwein's critique of Elias and a criticism of her critique, see Roodenburg 2014.
19 De Lairesse 1707, vol. 2, 151.
20 Dickey and Roodenburg 2010, 7.
21 Sturkenboom 2014.
22 Eerily, this effect has recently been published as a new psychological discovery. Researchers have found that people tend to display their feelings openly only when they are interacting with others. For details, see the essay by Machiel Keestra below.
23 For other still lifes by Cordua with prints by Rembrandt, see Gottwald 2006.
24 For the complete poem, with literal and interpretive translations by the present author, see http://schwartzlist.com/2011/02/23/lambert-van-den-bos-konst-kabinet-van-marten-kretzer-a-poem-on-an-amsterdam-collection-of-paintings-in-1650/. Accessed 14 July 2014.
25 Junius 1638, pp. 329-330. A more elaborate evocation of such a moment is found in *De schilder-konst der oude*, 1641, pp. 323-324.
26 Van Hoogstraten 1678, 94.
27 Van den Bosch's poem is given a column in the table of emotions on the front and back flaps of this volume. Only the emotionlike affective states are tabulated.
28 De Sousa 1987, 182.
29 Stechow 1929, crediting the interpretation to Willem C. Schuylenburg, director of the Centraal Museum in Utrecht.
30 Suetonius.
31 Schmidt-Degener 1941, 109.
32 Stumpel 2000-2001.
33 Feldman Barrett 2011. Once more, with thanks to Ron Dotsch and Gijs Bijlstra.
34 Gottwald 2010, 207.
35 Browne 1968, 218.
36 From Schwartz 2006, 273, quoting Hoogstraten 1678, 75 and Houbraken 1718-1721, vol. 1, 264-265. See also Sluijter 2014.
37 This division was established by Anna Tummers and adapted with slight changes by Gary Schwartz.
38 With kind thanks to Loekie Schwartz for her insights into this aspect of the work and her unfailing help and support.
39 Pieter van Thiel, in Köhler 2010, 427.
40 Bikker et al. 2007, 406-407.
41 Freedberg 1989, 330.
42 Freedberg 1989, 359.
43 Pigler 1974, vol. 1, 107-108 (Leviticus), 218-228 (Susanna).
44 Freedberg 1989, 317.
45 Donovan 1829, 509-510.
46 Freedberg 1971.
47 Schwartz 1985, 118, quoting Hoogstraten 1678, 111. The tractate in question, *Verhandeling van de eere en dienst der heiligen, en aldermeest van de Maget Maria*, Antwerp (Jacobus Moons) 1676, was translated from Latin into Dutch ('for the edification of Catholics and non-Catholics') by none other than van Hoogstraten's brother Frans. Available on Internet on Google Books.
48 'Catechism of the Catholic church,' accessed on Internet on 5 July 2014, quoting St Thomas Aquinas, *Summa Theologica* I-II, 24, 1 *corp. art.*
49 J.F.M. Sterck, 'Het leven van Vondel,' in Vondel 1930. 10.
50 De Jongh 1986, 218-220, cat. nr. 48
51 Forum der Letteren 1967.
52 Slive 1989, 220.
53 Pieter Biesboer, in Köhler 2006, 535-536.
54 Pieter van Thiel, in Köhler 2006, 466-467.
55 Schwartz 2014, 19, quoting Katy Kist.
56 Huys Janssen 1998, 96-97, cat. nr. 10, calls this type of composition a 'Holy Household.' See also Jasper Hillegers in Salomon Lilian 2014.
57 Exalto 2005, 129
58 Seneca 1995, 50. For the theme in art, see Blankert 1967.
59 Van Mander 1604, fol. 25, book 6, section 29.
60 Van Stipriaan 1996, 322.
61 Dirkse 2001, 39-44.
62 Vondel 1930, 74.
63 Israel 1977, 67-70.
64 Montagu 1994, 8.
65 Freedberg and Gallese 2007, 202.
66 Frazzetto 2013, 11, 129.
67 De Sousa 1987, 188.

Mirrors of the soul and mirrors of the brain?

The expression of emotions as the subject of art and science

Machiel Keestra



Art, emotions and our brain: a fascinating interaction

Is it not surprising that we look with so much pleasure and emotion at works of art that were made thousands of years ago? Works depicting people we do not know, people whose backgrounds are usually a mystery to us, who lived in a very different society and time and who, moreover, have been 'frozen' by the artist in a very deliberate pose. It was the Classical Greek philosopher Aristotle who observed in his *Poetics* that people could apparently be moved even by the imitation of a person or an act. And although we are usually well aware that it is a simulacrum, not a real situation, it nevertheless sometimes seems as if we ourselves are standing there on the stage or in the painting, so intense and emotional is our response, even though we are just spectators. Aristotle concludes from this that we have intellectual capacities that allow us put ourselves in another's place and consequently to react to simulated situations as though they are actually happening to us, here and now. In this process, he contends, observation, memory, imagination and emotions are crucial elements.[1]

In the past it was not customary to invoke human mental faculties to explain our response to works of art. The Ancient Greeks, after all, knew little about the human body or brain and usually referred to the extended world of the gods in their endeavours to comprehend the 'inner world' of human beings. In our time the situation is completely different – such an allusion to the brain no longer surprises us. Whether it is about the mystery of the consciousness, the question of free will or accounts of bizarre psychological aberrations or disorders, we have become accustomed to references to parts of the brain, to images of brain scans, to reports about neural networks and the like.[2] However, because there are so many factors that play a part in our appreciation of works of art we need a complex explanation for it, and it is not enough to look only at certain properties of the brain that are determined by evolution. Those properties are shared by every human being, and so are of little use in explaining people's different reactions to the same work of art. Evidently the brains of individuals differ so much that they make it possible for people to respond differently to one and the same work. This, of course, raises questions concerning the painted emotions that can be seen in this exhibition. Virtually everyone, after all, is fascinated by such paintings and usually recognizes the emotions they represent. The reactions to these painted emotions are also often similar. This is probably why works of art like this are generally highly valued, then and now, here and elsewhere: from the enigmatically smiling Egyptian Queen Nefertiti and the startled Rembrandt to a seemingly despairing African mask.

Aristotle observed that in the theatre players imitate actions that are associated with emotions in a number of ways and that these emotions are shared in a particular fashion by the playwright, the actors and the audience. The audience may even be carried away by these emotions to such an extent that they are in a sense purged of them and can subsequently leave the theatre relieved.[3] Are such emotional reactions perhaps related to the fact that emotions are universal and that brains respond similarly to them? Is this why we can so readily identify painted emotions? May we therefore also assume that the properties of the brain determined by evolution help us to explain these emotions?

In answering these questions we shall discuss a number of insights into emotions in psychology and brain science and explore some theories about the possible function of emotions and their expression.

Darwin on the expression of emotions and their evolutionary explanation

One important question is precisely what use the expression of emotions might be. After all, if a characteristic is not useful, evolutionary theory predicts that it will disappear over time. This question consequently occupied Darwin in the years following the publication of his theory of evolution in 1859. He noted that these expressions sometimes differ only subtly from one another. Dissimilar emotions like fear, pleasure and surprise are expressed with roughly the same facial muscles, which, however, tense or relax in a slightly different combination or configuration. Although the differences are so tiny, we can usually easily recognize the emotion a person or animal is experiencing at any given moment, even in small children or people from different cultures. The similarity between humans and animals obviously struck others, too, as the 1682 book illustration '28 heads of men and animals' by Willem Goeree reveals (fig. 1). Darwin concluded that these emotional expressions are not the result of experience, individual randomness or cultural influences, but directly betray a specific emotional state. This direct relationship between emotion and facial expression led him to suspect that there must be an evolutionary explanation for expressions. According to an explanation of this kind, an expression belongs to a specific emotional state because the movements of the facial muscles are functional and help a person in such a state to respond meaningfully to his or her situation.

In 1872 Darwin published his findings in *The Expression of the Emotions in Man and Animals*. In it he reported on his own research and that of many others all over the world with whom he had corresponded at length. It included anatomical research, comparative research into the facial expressions of humans and animals, and research into people of different ages and cultures. Interestingly, he also included in his book photographs of Guillaume Duchenne's groundbreaking electrophysiological research into the muscles involved in facial expressions (fig. 2).

Darwin believed that he could derive certain principles from the expression of emotions which, he said, applied in the same measure to all people and many animals. The most impor-

Fig. 1
Similarities between the facial expressions of humans and animals, reproduced from Giovanni Giacomo della Porta by Jan Luyken (1649-1712), *28 Heads of men and animals*. Illustration in W. Goeree, *Natuurlyk en schilderkonstig ontwerp der menschkunde*, p. 197. Amsterdam: Wilhelmus Goeree (I), 1682 Etching, 15.5 x 9.6 cm, Rijksmuseum, Amsterdam

Fig. 2
Manipulation of the facial muscles by Guillaume Duchenne to create the expression of disgust and terror
Illustration in Charles Darwin, *The Expression of the Emotions in Man and Animals*, 1998, p. 307 (adapted)

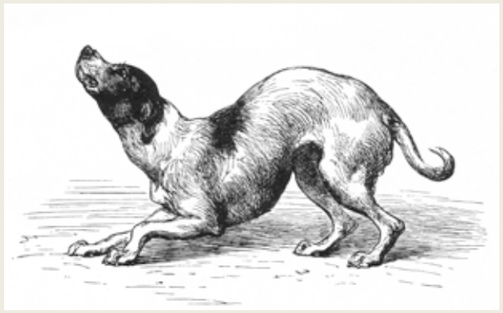


Fig. 3
Dog in a humble and affectionate frame of mind
Illustration in Charles Darwin, *The Expression of the Emotions in Man and Animals*, 1998, p. 57

tant principle is that a facial expression does not have to be necessary for survival at all times and in every situation to have originally had an evolutionary benefit. In the course of evolution, the movements of the muscles could nonetheless have become associated in a quite rigid manner with a particular emotion. A good example is the emotion of 'revulsion' or 'disgust', which is clearly recognizable from movements of the mouth and tongue that appear to be preparing to retch or spit out food. To our forefathers, disgust and the accompanying expression were evidently linked to food that had gone bad or was poisonous and had to be expelled. Darwin explains the expression that conveys 'fear' in a similar way: raised eyebrows make it easier to get a clear view of a threatening situation, the open mouth aids in the enhanced breathing that will be needed for a forceful reaction such as fight or flight, and he also puts forward functional explanations for other outward characteristics. Strikingly, Darwin asserts that some emotions are expressed in a way that visibly contrasts with the expression of the opposite emotion. An aggressive or hostile dog, for instance, makes itself appear as large and terrifying as it can, but we can only explain the submissive and affectionate demeanour of a dog that recognizes his master because of the contrast with that aggressive posture (fig. 3).

Darwin thought that the nervous system, including the brain, could play an important role in the explanation of emotions and their expression. Ignorant as he was of later insights into the influences of the environment, development and learning, he asserted that there was a 'direct action of the excited nervous system on the body, independently of the will, and independently, in large part, of habit'.[4] Nevertheless he considered it possible that animals and man could employ these hereditary expressions in communicating with one another – but that their use in mutual understanding had to be regarded as a secondary consequence of the evolution of these expressions. Primarily, however, our expressions of emotions came about because they are directly functional in situations that provoke specific emotions. We shall return to the communicative function of emotions later.

A view of the life of the soul through affect programmes and facial expressions

Darwin's theory of the specific and functional expressions of emotions has to a significant extent determined modern research into emotions and the accompanying behaviours. A very important component of his thesis is that emotions do not simply add colour to our experiences, they are also a crucial link between an animal (or person) and their environment. In the words of the influential Dutch psychologist Nico Frijda, emotions are a major contributory factor in an animal's 'readiness to take action'.[5] There are, however, a number of subjects that researchers debate and on which they sometimes strongly disagree. We shall go on to discuss two subjects, because they are relevant to our understanding of the expression of emotions and the role of the associated brain research. The first relates to the question as to whether every emotion is linked to a so-called affect programme, in other words a series of reactions to a particular situation that cannot be consciously controlled, even if these reactions are partially learned. This leads into the second question – namely to what extent expressions of emotions are developed because of their social or communicative function, which means that they may also be more strongly subject to social and cultural influences. This last question, of course, has added relevance in the context of an exhibition of painted emotions: are we seeing uncontrollable facial expressions determined principally by evolution, or are we looking at the faces of people who have perhaps made a particular effort to be recognized by us? In essence it is about whether we see an immediate and correct representation of a person's inner world by means of facial expressions, or we do not.

Researchers who believe that emotions are usually associated with an affect programme have said that we do. They argue that the evolutionary origin of emotions supports the assertion that we are able to recognize emotions from specific outward characteristics and behaviours precisely because they are functional in the situations in which these emotions are evoked. This is true, in particular, of some 'basic emotions', which are consequently more easily and generally recognized than many of the others. These include anger, fear, surprise, sadness, disgust, contempt and enjoyment.[6]

The evolutionary explanation is bolstered by the fact that most emotions have to do with a threatening or undesirable situation, because it is in these circumstances that animals and people have to display a fast and appropriate reaction. Conscious control in these cases would lead to unnecessary loss of time. This is why there is only limited scope for control and only minor differences between individuals: reaction patterns like this are largely fixed at birth.

It is therefore sometimes said that the principal areas of the brain that are activated in the case of the basic emotions are those with a long evolutionary history, which are therefore also found in most animals, are moreover established at an early stage of development and, lastly, are less involved in conscious and rational processes: particularly the amygdala, the limbic systems and the brainstem.[7] Other researchers into emotion hold that these areas of the brain are part of the networks that form emotions. Opinions differ, however, about the interaction between these networks and other brain activities.

The influential researcher into fear, Joseph LeDoux, for instance, has reconsidered his earlier view of the emotion of 'fear' and the way the brain makes that feeling possible. In his widely-read book on the 'emotional brain' he argued that

the amygdala was responsible to a significant extent for a series of automatic reactions to different emotional stimuli, including the accompanying feeling and behaviour. Usually, he argued, it would not be necessary to activate the cortical areas of the brain that are also involved in the mechanisms responsible for complex thought processes either for the reaction to fear or for the feeling of fear, because such a detour would take extra time and hence often be risky.[8] The conclusion to be drawn from this view is that fearful behaviour and the feeling of fear are virtually indistinguishable, so that the results of animal research into fearful conduct would largely apply to humans too. It would mean, after all, that the awareness of these feelings and dealing with them would not play a particularly important role in human experience and behaviour.

LeDoux recently reassessed this rather simplistic view and now advocates a more differentiated picture of the emotional brain and an emotion such as fear. The amygdala is still an important hub in the processing of emotions, but where people's conscious feelings are concerned, many other areas of the brain are involved. According to this view, the fast, autonomous reactions to a threatening stimulus are caused by a 'survival circuit'. It is only in addition to these that other parts of the brain can connect to this survival network, so that a conscious feeling can also occur and some influence of other brain circuits on the reactions becomes possible. He therefore suggests not referring to feelings when discussing reactions that are only supported by the survival circuit. The upshot is that he no longer attributes feelings of fear to rats, although he and his colleagues did this consistently in the past. He concludes that rats do not display fearful behaviour, just defensive reactions.[9]

This shift in the terminology and explanation of emotions and emotional behaviour may appear to be a purely academic concern, but it is also relevant to the subject of this exhibition. After all, if it is true that our feelings and our emotional expressions take place wholly automatically and unconsciously, it follows that painted emotions would give us a direct view of someone's inner world, since that inner world would 'leak out' to the outside world unhindered and automatically. If, on the other hand, such a direct rendition of the inner world applies to only a limited palette of behaviours or expressions and if this applies to an even lesser extent to humans because of the possible involvement of numerous brain mechanisms, then in most cases painted emotions should not be so easily recognizable. To put it more strongly, if human feelings are so complex and are facilitated by areas of the brain that are involved in the conscious regulation of emotions, this immediately raises the question as to whether these painted emotions are actually true and authentic. This question is important since Darwin pointed out that deception can be advantageous in the animal kingdom – and hence also in humans – because an individual is able to conceal from others what he experiences in a given situation. The chance of survival can sometimes be increased when the individual's own fear or surprise or desire is not displayed to another animal or person. The other side of this coin is that the situation in which someone finds himself should also play a role in the recognition and interpretation of his facial expressions. And indeed this context does prove to be taken into account, confirming yet again just how complex the expression and recognition of emotions are.[10] Such considerations have led various researchers in recent decades to argue that emotions are in a sense 'constructed'.

Emotions and their expression as the result of a complex construction process

The rejection of a particular theory or the limitation of its validity is a frequent occurrence in science. This is true, for instance, in the case of the theory of affect programmes that offered virtually no scope for the influence of context, development and learning on the interaction. This is not to say, however, that affect programmes or basic emotions are rejected altogether. They return essentially as process components in the theory that explains emotions as the result of a psychological construction process. Different phases of this process can be identified, not only as regards the confrontation with a particular stimulus and the immediate reaction to it, but also in terms of the process that follows, and from which the emotional reaction emerges. The preceding phase also plays a part in this theory, because an emotional reaction depends in part on the individual's previous state of mind. This reaction is also formed partly by what we think about the cause of our emotional reaction, how we react to it and then what we think about this reaction. Viewed in this light, the concepts we use in talking about emotions are somewhat misleading, because they suggest that very specific and easily distinguished processes or reactions are associated with this, and ignore the multidimensional construction process.[11] When emotions are the result of such a complex process, we can also expect that a number of different areas of the brain will be involved in it. For instance, if a particular emotional experience is influenced by the words and cultural significance we associate with that emotional situation, this emotion will also activate all sorts of processes and areas of the brain that have to do with language and our knowledge of the situation. Thus the disgust caused by food that has gone bad will usually cause less extensive brain activity than the disgust a religious believer experiences in eating – or seeing someone else eat – food that is regarded as taboo or unclean by his religion. Such influences of language and knowledge will not, however, be of the same magnitude in every emotional experience and so the associated areas of the brain will be less activated in some cases than in others. Extensive analysis carried out by Lindquist et al., which looked at many studies

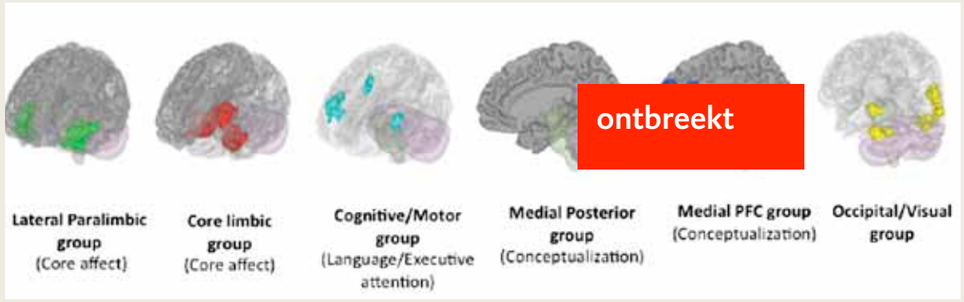


Fig. 4
Six different clusters of brain areas involved in the process of the psychological construction of emotion
Illustration in K.A. Lindquist e.a., 'The brain basis of emotion: A meta-analytic review', *Behavioral and brain sciences*, 2012 (35; 3), p. 127

into brain activations in the complex process that leads to emotions, suggests that six different clusters of areas of the brain can be identified.[12] Figure 4 shows the six clusters that, according to this analysis, are responsible for different constituent processes.

To start with there is what is called a 'core affect', in other words a very basic and predominantly physical response of excitement and pleasure or, conversely, aversion to a particular stimulus. The amygdala and the limbic system (clusters one and two) are involved in this core affect. The areas of the brain that are responsible for language and attention (the third cluster) also prove easy to discern, because they sometimes do more and sometimes less in the process. A particular perception or experience moreover activates in the brain extensive neural networks that are formed on the basis of earlier experiences and the way we deal with them (clusters four and five). As a result, a new experience is embedded in a context that contributes to the significance we give it. This part of the process is here called 'conceptualization' or 'situated conceptualization', because our physical and mental situation is important in the conceptual networks that are activated in a particular emotional episode. Finally, of course, areas of the brain that are responsible for our perception, such as our sight (cluster six) are also involved. Moreover, there is always an interaction between all these separate constituent processes. Our perception and attention, for instance, are partly controlled by our mood, our memories, the linguistic association we have with a situation and so on. In short, not only do several clusters of areas of the brain contribute to the processing of an emotional experience, there are also many other connections between them, some of which are structural and others that are only active in particular circumstances.

Readers will now be wondering what the result of all this is in terms of painted emotions, or more generally in terms of our recognition of the expression of emotions: Does what we have just learned mean that this recognition is unlikely because of the complex construction that is apparently responsible for emotions?

Emotions on canvas: artificial, not authentic?

If our experiences, our development, our language and our environment can be such important factors in emotional experiences and expressions, perhaps we should also look differently at painted emotions. Surely, moreover, it would be impossible for an artist, in his studio and armed with graver or paintbrush, to produce a true-to-life representation of an automatic and uncontrolled expression of a fleeting emotional response to a particular situation? Both considerations suggest that painters must often have made use of specific poses, in which they themselves or their models adopted a particular emotional expression and demeanour.

Perhaps it was not at all coincidental that, as Aristotle observed, an author, an actor and their audience could recognize one another's emotions and expressions so well. In Classical Antiquity there were already extensive and systematic descriptions of the different emotions with their accompanying expression characteristics based on Aristotle's psychology. Such lists are found in the work of rhetoricians like Quintilian and may well have influenced theatrical practice in Antiquity – for instance the masks with clearly recognizable expressions used in the theatre (fig. 5).

Some 1,500 years later, Descartes' mechanical psychology inspired others to start compiling such lists again.[13] A work that had considerable influence among artists was Karel van Mander's 1604 *Schilder-Boeck (Book of Painting*), in which a chapter is devoted to the depiction of the 'Affects, passions, attractions, and sufferings of Man'.[14] A century later, the Frenchman Charles Le Brun published a method for painting the emotions that became widely followed internationally. Such prescribed or codified relationships between emotions and expressions were used across all the arts: in poetry, theatre, dance and music as well as in painting.[15]

Sung and danced expressions of emotions, like painted ones, were thus in part the result of social conventions – conventions that enable us to communicate with one another about our emotional state, or at least an element of it. Research has indeed revealed that emotions are particularly accurately identifiable when a person has a direct interaction with another. This was based among other things on analyses of television broadcasts of Olympic gold medal winners during the award ceremony, in other words during one of the happiest moments of their lives. This celebration breaks down into three stages: stage A, when the winner stands waiting behind the podium, stage B, the actual presentation of the medal by the officials, and lastly stage C, when the national anthem is played and the winner listens to it (fig. 6). Remarkably, their facial expressions are only readily recognizable during stage B, when they have contact with other people, and not in the other stages, which they essentially experience alone. Although the winners' feelings of happiness proved to be equally strong during all three stages, that emotion could only be read in their faces during those moments when they had contact with other people.[16] It therefore certainly

Fig. 5
A tragic and a comic theatre mask on a mosaic from the Villa Hadriana, second century AD

seems plausible that the interaction with other people has immediate implications for the continuing and complex process of constructing our emotions and their expression. We can therefore conclude that their identifiability is the result not so much of their survival function as of their role in social contact.

After all these considerations, readers will wonder what conclusions they could draw in terms of painted emotions. How do we actually interpret these paintings, and what has modern-day cognition and brain research contributed to our understanding?

Painted emotions are invitations to us, the viewers

In a letter to Constantijn Huygens dating from 1639, Rembrandt wrote that he strove to depict 'the greatest and most natural emotion' in his art. It is not unlikely that in this endeavour he keenly observed himself and others, and also used the prevailing conventions regarding facial expressions. Van Mander's *Book of Painting* would have been a rewarding source for this. It is probably no coincidence, therefore, that the *Self-Portrait in a Cap, Laughing* of 1630 shows the half-closed

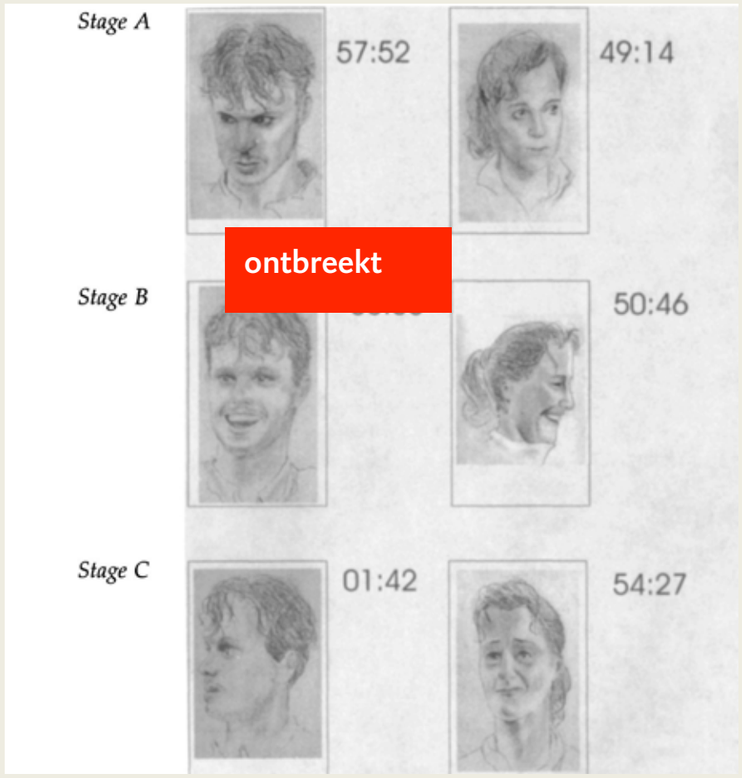


Fig. 6
The faces of two Olympic gold medal winners drawn during the three stages of the medal presentation ceremony. It is only during the actual presentation of the medal by the officials in stage B that their feelings of happiness are recognizably reflected in their faces.
Illustration in J.A. Russell and J.M. Fernández-Dols (eds.), *The Psychology of Facial Expression*, 1997, p. 266

eyes, the parted lips and a smile revealing the teeth in accordance with Karel van Mander's instructions for depicting mirth.[17] The expression looks rather contrived and artificial and might cast some doubt on the young artist's powers of observation and drawing skills. Now that we know more about the complexity of emotions and their expression, however, we can draw a very different conclusion.

A gifted observer and painter like Rembrandt probably realized that normal emotional episodes are associated with easily recognizable expressions to only a limited extent. He must therefore have confined himself to those moments when a person is conscious of a viewer, because this is when the emotions are more identifiably expressed. When we look at a painted and recognizable emotion, therefore, we are not catching out someone who believed himself to be unobserved. In essence it is partly up to us that the emotion is recognizable. Without our contribution as the viewer, the face of the subject would probably not be as revealing as it now is. Even the self-portrait can be regarded as part of a hermeneutic 'game' in which both players – regardless of the distance between them in time and place – do not expect a spontaneous and natural consensus, but do their best to achieve mutual understanding.[18]

Because our brain is also involved in such social interactions, psychology and brain science can offer us an insight into relevant constituent processes, neural network activities and so on. As well as this, however, we will have to call upon other sciences to get a fuller understanding of these social interactions, which are determined after all not just by the properties of the brain, but also by sociocultural factors, individual characteristics and much more.[19] It is as true of our dealings with one another as of our dealings with art: these phenomena are so nuanced and complex that they elude simple explanations and interpretations. In that sense, they are akin to the painted emotions that also continue to fascinate and surprise us.

Notes

1 Halliwell 1987.
2 This can sometimes lead to ‘neuro-centrism’ or ‘neuro-determinism’. Ramachandran, for instance, postulates that there are even ‘universal laws of art’ that cognitive neuroscience has discovered (Ramachandran 2003).
3 Much can be said about the concept of *catharsis* in Aristotle’s *Poetics*, but it is likely that this son of a physician was referring here to the medical phenomenon of purging. See among others Bremer 1969. As we shall see later, a similar belief was also held in the Golden Age.
4 Darwin 1998, p. 345.
5 Frijda 1986.
6 Various lists have been compiled, and this one is presented by Paul Ekman, an important author in this field (Ekman and Cordaro 2011). In parallel with his own intercultural and psychological research, Ekman has also written a commentary to Darwin’s publications on the subject. He also advises a number of security services on the (fully automatic) recognition of threatening, genuine and false expressions of emotions.
7 Ekman and Cordaro 2011.
8 LeDoux 1999.
9 LeDoux 2012. Facial expressions can also have a social function for animals. This emerges, among other things, from the fact that greater social cohesion in animal species correlates with the complexity of their communicative signals (Waller and Micheletta 2013).
10 Barrett, Mesquita and Gendron 2011.
11 Russell 2003.
12 Lindquist et al. 2012.
13 Descartes and Rembrandt probably met at some time between 1630 and 1632. Descartes’ ideas were quite popular at that time, as was his interest in the anatomy of the body. The same was true of his view that the soul resides in a body that can be conceived of as a machine and so represents the life of the soul almost mechanically (Wright 2007).
14 ‘Affecten, passien, begeerlijckheden, en lijdens der Menschen’; Van Mander 1969 [1604].
15 Rogerson 1953.
16 Fernández-Dols and Ruiz-Belda 1997.
17 Chapman 1989.
18 Gadamer 1986.
19 A complex interdisciplinary explanation of human behaviour and our ability to understand other people’s behaviour is required, and brain science, social sciences, psychology and philosophy can contribute to it. Development and learning also play a major role in this, which makes the explanation even more complex, as is argued in Keestra 2014. This obviously also applies to our production and appreciation of art.

Werken uit de tentoonstelling