

Introduction

The problem of laughing, Stendhal used to say, “should be written about in anatomy’s style and not in the academy’s style.” The anatomists did not doubt that the laugh, like any other emotion, is dependent upon the body. But they were not able to describe the relations between muscular actions and the expressive surface. Jean Cruveilhier, the first holder of the chair of anatomical pathology, directly testifies to this: “I willingly agree with Santorini that it is almost shameful for the anatomists to find that the muscular apparatus that is entrusted with the expression of the mobile tableau of our passions should be the least well known in all physical economy.”¹ Due to its archaic methods, the framework of classical anatomy excluded any discourse on the structure and use of muscles. In order to see the muscles, one had to make incisions in the face of a cadaver: not only did the dissection sacrifice its object of study, it also prevented any analysis of muscular action. The scalpel forcibly destroyed the moving attachments of the muscles to the inside of the skin. Observing these inert, sagging, and mutilated parts did not permit apprehension of either their structure or their function. The goal of anatomists, said François-Xavier Bichat, “is attained for them when the opaque envelopes that cover our parts are functioning only as a transparent veil that allows the whole and the relations between parts to be discovered.”² To attain this objective, myology had to depend not on dissection of the cadaver but on a technique that would respect the corporeal envelope—vivisection without mutilation. Just when Cruveilhier was deploring the ignorance among anatomists, Duchenne was reaching this goal. By the expression

“living myology,” he designated the application of localized electrization (*l'électrisation localisée*) to the study of muscles. With his mastery of electrical current, he was inventing an anatomy on the living. His electric scalpel was a sort of Möbius strip that allowed him to move under the skin. Following the interior pathway, just on the reverse side, he was reconfiguring the myology of the face. He offered a new perceptive structure for anatomy: there were no muscular layers, as most anatomists thought, but an ensemble (*ensemble*) of independent muscles. The rest followed: if the movement specific to a facial muscle is its function, that function is *expression*. Turned inside out like the finger of a glove, muscular action shows its effect on the surface in a physiognomic movement: “There is no need of further developments to demonstrate that my research on expressions falls within physiology, since physiology signifies the study of life and the analysis of functions, and since the muscles of the face are almost all specifically designed for expression.”³ To follow Stendhal’s recommendation, it was necessary to invent a new style of anatomy and many other things besides. In this book, we are looking at the constitution of the very first knowledge about expression.

The emergence of a new style of anatomy relied on a modification of electrical techniques. Before any research, it presupposed the formation of a vast theoretical and practical field. In the first half of the nineteenth century, transformations in medicine, physiology, and physics had contributed to reinvigorating techniques of electrotherapy. In medicine, the invention of electropuncture was linked to the theme of localizing electricity in injured tissues. In physiology, the first electro-physiological laws were procuring a rational basis for the treatment of paralysis. In physics, the discovery of electromagnetism was being translated into the construction of Volta electric and Faraday magnetic apparatuses that were soon being used in hospitals. At first glance, something akin to *localized electrical stimulation* was becoming possible. One might be tempted to say that Duchenne had found, respectively: in medicine, the theme of mastery of electricity; in physiology, a style of research that tied its object of study to the method that would reveal it; and in physics, the instruments of choice. But this temptation should be resisted: a theme, a style, and an instrument can never define a problem. In reality, Duchenne set aside the practical interest attached to new techniques of medical electricity. In effecting

a break with the first therapeutic convictions, he was able to create from scratch a method for exploring the electro-physiological properties of muscles. Through the rectification of a technicality that was too close to the immediate interests of medical electricity, Duchenne fabricated a special tool. Specialization, which is the goal of a scientific orientation, carries interests that are more speculative and more complex. With the invention of a theoretical use of electricity, Duchenne had at his disposal a new tool of knowledge that permitted registering, on human beings, electro-muscular contractility and sensitivity.

The subject of this history does not arise from any previously constituted discipline. By its application to the domain of anatomy, localized electrical stimulation was becoming an instrument of exploration. From it flowed a complete reorganization of the facial muscles. This living anatomy included a physiology allowing researchers to apprehend the signification of physiognomy in movement, because physiological mechanisms were on an equal footing with expressions. By elucidating the correlations between expressive muscles and the play of physiognomy, Duchenne renewed the study of indices. This first theory of expression, because it was linked to the philosophy of the natural sign, also defined a theory of the natural language of passions. Between the soul and the movements of physiognomy, Duchenne slipped a linguistic structure of muscular actions. From the moment when the doctor from Boulogne enunciated the rules of the natural grammar of passions, he posed the precepts of the art of painting them correctly. Since Le Brun, encounters between knowledge and art had been celebrated in so many ways that one must discover what that meeting meant precisely for Duchenne. Around the 1870s, with the collaboration of Mathias Duval, his pedagogic project entered into the teaching at the *École des Beaux-Arts*. For the benefit of students, several dozen photographic enlargements were glued to canvas and mounted on an oval stretcher.

The description of the stages marking the discovery of how expression functions calls for some precise explanations. The first concerns the manner in which it was necessary to order these stages. Each presupposes a preceding one, but this subordination is not reducible to an order of derivation. Each stage constitutes an event that also designates an opening. The study of the muscles of the face and of their actions depended on localized electrization. However, this anatomical and physiological

recasting necessitated the integration of an ensemble of bodies of knowledge that were both neuro-physiological and neuro-pathological. Analysis of the mechanism of physiognomy in movement could not appear until there was a remaking of muscular anatomy and physiology. Nevertheless, this examination that correlates muscular actions and expressions is conditioned by the photographs of electro-physiological experiments. The study of the language of the passions rests on the knowledge of the mechanisms of expression. But the perception of the signs of this language in action carries a symptomatology of the passions and a new profile of what can be perceived and enunciated. Finally, the rules of tracing the expressive lines are founded on the grammar of the natural language of the passions. But it is once this grammar is constituted that gaps or faults in the pictorial language may be identified.

The second proviso concerns the manner of inscribing the constitution of a body of knowledge of expression within the history of ruptures. "The amount of 'progress,'" said Nietzsche, "can actually be measured according to how much has had to be sacrificed to it."⁴ In this case, this means the whole tradition that Duchenne's predecessors—indeed, his contemporaries—had inherited, which included: an anatomy and a physiology of muscles of the face that were not different from the ones that Jacques Benigne Winslow had given; a perception of the expressions as intentional language that remained in the lineage of Descartes; Johann Caspar Lavater's pathognomy without any organic support; and finally, in academic teaching, the norms of pictorial language illustrated by the schemas of Le Brun. Here arises the third proviso, relating to periodization or, rather, to the various recurrent terms. The names of Winslow, Descartes, Lavater, and Le Brun are valuable clues here: it is as much a matter of relating the history as describing the actuality of the moment when the function of expression comes to light.

Until now, in studies relating to the history of research on the passions and on expression, two methods have been utilized. The first is the one most often followed by historians of the sciences. Due to current work in the domain of the neurosciences, retrospective interest focuses on the brain. A thematic inventory that takes as its boundary the works of Darwin would make apparent the prescience of cephalocentrism over cardiocentrism, and focus on Franz Joseph Gall's doctrine, and the clinical work on

lesions of the brain, with the unavoidable case of Phineas Gage and John Martyn Harlow's interpretations. The other method is the one followed by the historians of ideas. To the preceding themes must now be added pathognomy in the Renaissance, and its avatars in the classical age, the manuals about civility, the rationalization of behavior, and the classification and verification of expressions as linked to the rituals of the expressive order.

These two analyses present several points in common. First, they essentially refer to the same thematic contents. Then, they tackle the phenomena of temporal sequences according to an evolutionary schema: a succession of discourses concerning the localization of the passions and facial expressions. One recognizes continuation and its epistemological axiom, once identified by Gaston Bachelard: "Since the beginning is slow, progress is continual."⁵ Finally, they fall into the same traps in linking types of research that were in fact foreign to each other, by registering them as based on observation, and by committing a series of anachronisms. One wants to discover the history of passions and of expression before Duchenne or Darwin, but one does not realize that the passions and expression did not exist then. And if they did not exist, the reason was quite simple: the brain and the face themselves did not exist. Until the middle of the nineteenth century, there existed only centers and masks. There were centers because one assigned passions to the sites of the organic life (the heart, the liver, or the ganglion nervous system). And there were masks to the extent that the social or cultural forms of expression were governed by the will. To believe that the history of passions is that of their localization, and that the history of facial expressions is that of their mastery, is to be blind to the fact that people had to lose these beliefs in order to constitute these new objects of study. To show that the passions and expression are dependent upon the animal machine, people had to renounce assigning them a site and reject the language of facial expression, for the sake of an anatomy and a physiology of affects. Duchenne, who often cited Buffon, could have applied to the face what the naturalist said of nature: "It wears only a veil, we give it a mask, we cover it with prejudices, we suppose that it acts, that it operates like we act and think."⁶

There is nothing in historians' accounts that might permit us to grasp what happened when the passions were apprehended as actions of a function and as expressive forms. In order to describe this transformation, one

must abandon the idea that the history of the locating of passions is found encased in that of the brain. Also to be dropped is the idea that the history of expression is found enveloped in that of the mastery of facial expressions. Another method must be tried: the analysis of techniques, of practices, and of discourses at the moment when the passions find their point of anchoring in the play of muscles, and when their figures are sketched on the skin. Only a history of the surface enables understanding the meaning of “above” and “below” in the complexity and intricacy of this relation. Regarding which, the word “perversion” seems well suited to the system of provocation invented by Duchenne, if it is true, as Deleuze said, “that perversion implies a strange art of surfaces.” As long as the anatomists possessed only the scalpel, organic structures and muscular actions remained inaccessible to analysis. As long as they deferred to the artists (or did as they did) to represent the expressive face, the details of physiognomy in movement escaped their observation. The application of new procedures of localized electrization and photography played a considerable role in this scientific reorganization. With the isolation of superficial muscles appeared a new distribution of discrete elements under the skin. With a symptomatology of passions linked to a new grammar of signs, expressive acts appeared on the surface. The elucidation of the mechanism of physiognomy in movement should be identified with the relations among these elements and with the play of their regulated functioning. Beginning with Duchenne, the gaze could follow a path that had not been opened until then: the path going from the surface to the underlying muscles, which had to be crossed in both directions to proceed to the reciprocal adjustment of muscular actions and physiognomic movements. The very possibility of a discourse on the expression of passions had to be sought in an unprecedented face-to-face. The simultaneous emergence of two faces: that of the observer who defines a new way of seeing, and that of the subject being observed who designates appearance such as it is perceived, analyzed, and dissipated within the perceptual field of the former. This is a strange face-to-face, in which Duchenne is seen to fabricate the simulacra of natural expressions. From this new scientific attitude is born his *Mécanisme de la physionomie humaine* [The Mechanism of Human Facial Expression] (1862).⁷ For the first time in the history of expression, meaning no longer appears through the recognition of a silent speech, but instead is embodied in facial expression itself.