PSYCHOLOGICAL LITERATURE.

EMOTION.

Pathologie du sourire. GEORGES DUMAS. *Revue Philosophique*, 1905, LIX., 580-595.

Dumas' hypothesis in regard to the origin of the smile developed in previous papers may be stated as follows: The smile is produced by any slight excitation of the facial nerve and can receive a purely mechanical explanation. The object of the present paper is to find support for this mechanical theory in pathology.

If the theory be true we ought to find, that (I.) all pathological causes which lessen the tonicity of the muscles of the face cause the expression opposite to the smile, *i. e.*, sadness, and that (II.) all pathological causes which increase the tonicity of the muscles tend to produce the smile.

I. In passive melancholia, the motor impulses are weaker than normally, the muscles are flabby, inelastic, and relaxed. As a result of this relaxed state of the muscles of the face, the expression is that characterized as sad; the nose is thinner and longer, the eyes half-closed, or open and dull, the eye-brows flattened, the corners of the mouth drawn down. Again in facial paralysis, in cases of hemiplegia, when the muscles of one side of the face are in a state of continued relaxation, the expression of this affected side presents the characteristics of sadness enumerated above. From these examples Dumas formulates the principle that all lesions of the facial nerve at any point, in the measure in which they cause a decrease of motor stimuli, and diminish the tonic action of the facial muscles, necessarily cause the expression of sadness.

II. In mania where the muscular tone is higher, the expression of the face is a constant smile.

Again in contractures of one side of the face, the expression of the side affected is as markedly a smile as in the cases of facial paralysis it was the opposite. The corner of the lip is lifted, the cheek rounded, the nostril extended. If the contracture is very intense, the stimulus affects other less mobile and antagonistic muscles to those involved in the smile and the resulting expression is nearer a grimace.

These examples support his conclusion that the smile is the easiest motor reaction to every slight stimulus of the facial nerve, whether the

stimulus be due to nervous or electrical energy, or to changes in circulation, or to inflammation.

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Le préjugé intellectualistic et le préjugé finaliste dans les théories d'expression. GEORGES DUMAS. *Revue Philosophique*, 1905, LX., 561-582.

In his former papers (*Rev. Philos.*, LVIII., 1-23; 136-151) the author reached the conclusion that the smile is the result of a slight stimulus just sufficient to produce the easiest reaction of the facial muscles by the coöperation of 15 of those that work together or, at least, do not oppose each other. He holds that similar explanations may be given for the motor expressions of the other emotions. In this paper he considers especially the expressions of the four fundamental emotions of joy, anger, grief, and fear, the first two being manifestations of hypertonicity, the last two of hypotonicity. An increase of the muscular tonicity [greater than that of joy, explains the motor expressions of anger; while a diminution, almost a suppression, of the muscular tonicity, a lesser diminution of which explains the motor expressions of grief, accounts for those of fear. The author gives a biological description of the factors, peripheral and central, controlling muscular tonicity.

Dumas offers his explanation as against those given by Darwin, Spencer, and Wundt, who, he says, were prejudiced in their theories of expressions by what he calls the intellectualistic and finalistic tendencies. They were each, especially Spencer, in some measure aware of the mechanical laws of excitation and depression, but were unwilling to accept these as in themselves an adequate account of emotion expression. Dumas quotes some of the examples as explained under their principles by Darwin, Spencer, Wundt, and Mantegazza, points out the manifest puerility and faulty analysis, and shows how his own principles of hypertonus and hypotonus could be applied to the same instances.

Finally he thinks that further generalization should be possible that would explain, in like manner, the variations, during the emotional experience, in nutrition, in circulation and respiration, and finally in the intellectual states. Emotions then when looked upon as complex biological facts reveal the importance of the great laws of excitation and depression, which ought to be at the base of all study of their psychology. But though Dumas gives considerable confirmation of the importance, in the explanation of emotional expressions,