

## COMMENT

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Salzen's paper is a masterful analysis of both the author's and others contributions to how bodily and facial expression might serve as social signals. As Salzen points out, Darwin, in the 1872 work, did not appear to appreciate the significance of expression to communication. The early ethological literature while, to my thinking, building on Darwin's analysis in a general way, seems not to have grasped the importance of emotional expression as a means of signalling states intentions that we think of as emotional in nature. Salzen melds emotion and ethology by arguing that emotion is a motivational state, or, at least, the squeak of its machinery. Salzen, thereby, presents the first truly evolutionary theory of emotion to appear in many years.

What is strongest about this paper is that it presents a theory; not a notion, not an idea, nor even a collection of them, but a complete and testable theory that is based on our acquired knowledge and uses that information to formulate postulates and logical deductions. The theory can be tested and, like all real theories, it reinterprets and coordinates previously unrelated findings into a coherent statement.

The theory is well-grounded in the ideas of this and the last century and shows the author to have a firm and comprehensive sense of what has been said in a variety of fields. I noted valuable and important references that I worried had been lost to recent writers (Hillman, for example). Salzen's work does a splendid job of interpreting his own achievements fairly into the new model. We should hope that everyone of Salzen's stature would take the time now and then to tell us why they are doing whatever it is that they are doing and thinking, and Salzen has here provided us and the future with a detailed and engaging statement of how his work, along with that of others, of course, forms a comprehensive theory. The theory is presented, at once, as a call-to-arms, and as a clear statement of why we do what we do.

The notion of "thwarting" seems to me to come neatly and understandably from ethological models, and the notion is here so thoroughly

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worked out that one can determine how to evaluate it. I think Salzen gives credit wrongly to Plutchik by suggesting that Plutchik has an evolutionary model. It is touted as so being, but I never can find anything but lip-service being paid to how evolution is worked out. The hard analysis of how evolution works is just not there. The notion of alarm reaction I took to be Selye's, but I think this is not said. And I thought that the work of Ekman might serve more analysis than it got, chiefly because the issue he explores is so central to the signalling aspects of evolved displays, although, to be sure, I'm not sure that exploring this is why Ekman does his work. And, I think that Tinbergen's reliance on function, here repeated, is the most suspect and dangerous of explanatory principles.

The paper is far more than one more theory. It is a thoughtful and sensible contribution of major significance because it is authentic theory that is both testable and yet takes seriously what we know and have learned.