The Journal of Mind and Behavior
Summer 1989, Volume 10, Number 3
Pages 211-230
ISSN 0271-0137

A Social Constructionist Critique of The Naturalistic Theory of Emotion

Carl Ratner

University of California, San Diego

The doctrine that emotions are products of natural mechanisms is critiqued from a social constructionist perspective. Evidence marshalled in support of the naturalistic theory is also subjected to critical analysis and found wanting. The social constructionist theory of emotion is proposed as more adequate than the naturalistic theory. Since emotion exemplifies psychological phenomena in general, the social constructionist theory that explains it is considered worthy of explaining the entire range of psychological phenomena.

Psychological discourse on emotions recapitulates questions that are central to understanding all psychological phenomena. Establishing the origins, constituent processes, and functioning of emotions will therefore illuminate the nature of psychological phenomena in general. The subject matter of emotions is especially revealing of general psychological principles because researchers have explicitly studied emotions from the standpoint of general issues. Although no agreement on the nature of emotions has been forthcoming, the vital issues that must be resolved have at least been clearly identified. This article seeks to address these well articulated issues to the benefit of the discipline as a whole.

Theoretical and empirical academic research into emotions has, for the most part, fallen into two positions, social constructionism and naturalism. These standpoints have articulated the most important issues and they have spawned research into the most important factors regarding emotions. Resolving the conflict between them will therefore go a long way toward establishing the true nature of emotions and other psychological phenomena as well.

Of the several possible strategies for resolving this debate, I have chosen to use the naturalistic theory as a foil to be refuted. I shall briefly explain

I would like to express my gratitude to Roy D'Andrade for his extremely helpful comments on this paper. Requests for reprints should be addressed to Carl Ratner, Ph.D., Psychology Department, Humboldt State University, Arcata, California 95521.

the social construction theory and then draw upon it to challenge each of the premises of naturalism. I shall also critically examine the research marshalled in support of the naturalistic theory. This research has appeared convincing; however, a rigorous analysis of the methodology and data reveals flaws which leave the naturalistic theory quite bereft of support. Ironically, much of the naturalists' data suggest the plausibility of the social constructionist theory.

The Social Constructionist Theory

The social constructionist theory maintains that adult human emotions depend upon social concepts (Averill, 1980a,b; Hallowell, 1955, chapter 13; Harré, 1986; Hochschild, 1979; Lazarus, Kanner, and Folkman, 1980; Lutz, 1988; Ratner, in press, chapter 2, Shweder and LeVine, 1984; Solomon, 1980; Super and Harkness, 1982; Vygotsky, 1987a). In contrast to animals and human neonates where emotional reactions are immediate, biologically determined responses to stimuli, among adult humans socially derived cognitive schemas mediate between stimuli and emotional reactions. The judging and interpreting of internal and external stimuli constitute the quality of emotions. As Averill explained the relationship between culture, consciousness, and emotions, "the emotions are viewed here as transitory social roles, or socially constituted syndromes. The social norms that help to constitute these syndromes are represented psychologically as cognitive structures or schemata. Thes structures—like the grammar of a language—provide the basis for the appraisal of stimuli, the organization of responses, and the monitoring of behavior" (Averill, 1980b, p. 305–306). Social constructionists maintain that emotions depend on a social consciousness concerning when, where, and what to feel[1] as well as when, where, and how to act. The culture provides a "niche" or "ethos" which is a set of guidelines for feeling. These feeling rules delineate emotional "rights and duties" and derive from and support legal, moral, and social codes. Emotions are so socially functional that violating feeling rules is tantamount to developing a new social ideology and a new social system. For instance, the feminist demand for women to feel and act more assertively is nothing less than a demand for women to take on new social roles. As social ideologies and social systems change, they bring about new emotion norms (cf. Cancian and Gordon, 1988, for evidence of a change in American women's emotional expression after World War 2).

[1]While feelings depend upon attitudes, they are not identical to them. I can have a generalized attitude of loving my mother which I do not *feel* most of the time because I am not thinking about her. When I talk to her, however, I feel the love. Similarly, if someone asks me, I can certainly say I fear snakes even though I do not normally, or at that moment, *feel* the dread. I do not walk around vividly feeling fear. I only *feel* afraid when I am in the presence of snakes.

According to social constructionism, there are two general classes of human emotions. One class has natural analogues in animals and human infants. Joy, sadness, fear, and jealousy are examples. Even these emotions, however, lose their natural, spontaneous basis in human adults and become mediated by social consciousness as described above. Although the natural analogues to these emotions are interesting, and indicate an original natural basis, "natural" emotions in human adults are qualitatively different from their counterpart in organisms devoid of social consciousness. The analogy between them is consequently extremely inexact. For instance, "jealousy" among animals or human infants is a spontaneous desire to obtain a desirable object for oneself. It is rooted in a primitive, instinctual survival tendency. Adult, human jealousy, in contrast, presupposes a concept of exclusive ownership, a future-oriented premonition of losing something important and even losing self-esteem. Certainly all of these coalesce into jealousy that one's lover loves another person. And they are certainly absent from infantile and animal "jealousy." The fact that adult human jealousy is constructed from social concepts means that cultures lacking these concepts should experience no jealousy. This situation characterizes the Eskimo who accept extra-marital sexual relations without jealousy.

In addition to emotions that have natural analogues, another class of emotions exists which have no natural analogue at all. For instance, anger presupposes a notion of intentional responsibility for a misdeed. If I believe that the act was not the person's (or the group's) fault, I would not be angry at him. I might be disturbed that the misdeed occurred, but I would not feel anger. Entire cultures, such as the Eskimo, lack anger, according to Solomon (1984), because they do not blame individuals for their actions. They feel annoyed and even act violently, yet this is not equivalent to *anger*. Solomon takes pains to point out that the Eskimo do not merely surpress anger, they evidently do not *feel* it. Animals and human infants also do not feel anger, per se, because they lack a concept of personal responsibility. They can feel upset, disturbed, threatened, and aggressive, but not angry at someone for what they have done.

Shame is another socially constituted emotion that has no natural analogue because it presupposes an ethical notion of right and wrong. As Coulter explains,

> No matter how much a dog may cringe with its tail between its legs when caught in the act of dragging its bone across the rug, it does not feel guilt or shame. Whatever it is that the dog feels (fear?) the ascription of categories such as guilt, shame, or remorse, apply only by analogical extension; warranted ascriptions of such categories properly depend upon the recognition of the offender of some standards of conduct, some rules applicable to him in the situation, and the understanding that violations are not merely unpleasant if uncovered but wrong. It becomes clear that the capacity to experience genuinely either shame, or guilt, or remorse, hinges upon a mastery of a natural language involving cultural knowledge and reasoning conventions. (Coulter, 1979, pp. 132–133)

Romantic love, patriotism, and contempt are additional examples of socially constituted emotions unparalleled among animals.

Naturalistic Theories

In contrast to the social constructionist theory, naturalistic theories maintain that emotions are products of natural processes which are independent of social norms and conscious interpretation. In this view, emotions result from hormones, neuro-muscular feedback from facial expressions, and genetic mechanisms. The natural, biological basis of emotions is regarded as proven by the universal existence of many emotions, not only among adult humans but also among animals and human infants which are devoid of social consciousness. As with almost all psychological theories, naturalistic explanations of emotion manifest variations around a basic theme. There are extreme and moderate positions. The extreme position strongly emphasizes natural aspects of emotion and gives short shrift to social aspects. The moderate position, in contrast, is less one-sided and postulates some interaction between social and natural facets. Although interactionist theories are generally regarded as the best resolution of psychological controversies, I will use the example of emotions to show that the interactionist solution is more apparent than real.

The postulates of the extreme naturalistic position can be summarized as follows (Zajonc, 1980, 1984).

1. Emotions are independent of cognition. The transmission of sensory energy to emotional reactions is held to be independent of consciousness and involves no mediation or transformation of information (Izard and Buechler, 1980, p. 180; Zajonc, 1980, pp. 84, 154). Izard (1984, p. 24) explicitly states that "emotion has no cognitive component. I maintain that the emotion process is bounded by the feeling that derives *directly* from the activity of the neurochemical substrates." Izard and Buechler (1980, p. 173) propose that emotions are a function of naturally elicited facial expressions (determined by intrinsic processes in the somatic nervous system): sensory feedback from the face produces autonomic arousal and emotional experience.

2. Phylogenetically and ontogenetically, emotions precede and determine cognition (Izard and Buechler, 1980, p. 181; Zajonc, 1980). Cognition serves emotions (Plutchik, 1980a, p. 12).

3. Adult human emotions are continuous with emotions in animals and human infants. The fact that these organisms have rudimentary consciousness proves that emotions do not require cognition. The phylogenetic and ontogenetic universality of emotions demonstrates their primacy over cognition (Izard and Buechler, 1980, pp. 173, 176; Zajonc, 1980, p. 157).

4. Emotions are more spontaneous, communicable, and recognizable than cognitions which are ambiguous and controlled.

5. A few basic emotions underlie and comprise all "emotions." All emotions are therefore essentially reducible to the basic ones: fear, anger, joy, sadness, expectation-interest, surprise, disgust (Plutchik, 1980a, pp. 8-9). Smugness, for example, is a composite of happiness and anger (Ekman, 1972, p. 222) and jealousy is a mixture of anger and fear.

6. Each basic emotion has its own physiological determining mechanism. This is primarily genetically determined and secondarily a function of learning and experience. As Izard put it, "At the neurophysiological level, a fundamental emotion is defined as a particular, innately programmed pattern of electrical activity in the nervous system" (Izard and Buechler, 1980, pp. 167, 172-173). Each fundamental emotion also has a genetically determined behavior pattern and quality (Izard and Buechler, 1980, pp. 167, 173; Izard, 1977, p. 326). Inheritance determines the emotion's age of onset.

7. Emotions and cognitions are processed by different parts of the brain. Emotional reactions are likely to be under the control of the right hemisphere, cognitions under control of the left. Emotions are handled by the lower brain centers while cognitions are processed in higher areas of the neocortex.

8. Certain facial expressions of emotions are common to many diverse cultures.

9. Emotional reactions can be established, e.g., conditioned, without awareness.

10. Emotionally-colored impressions of people occur without cognitive appraisal.

11. Emotional impressions and cognitive processes have fundamentally different natures. Emotions are global in nature—in contrast to cognitions which are piecemeal associations (Zajonc, 1980, p. 167).

A Critique of The Naturalistic Principles

One of the earliest challenges to this theory was Dewey's essay, "The Theory of Emotions" in the 1894 *Psychological Review*. Dewey clearly stated the *unnatural* character of emotions by contrasting them with mere physiological discharges. The latter have no emotional quality because psychological significance is the sine qua non of emotions. For example, physical trembling from cold or fatigue is non-psychological and therefore unemotional, in contrast to the trembling of rage or fear which is psychologically meaningful and therefore pregnant with emotion. Similarly, the difference between mere grinning and mirthful emotion is a distinct change in psychical quality. Likewise, a blink is different from a wink.

Vygotsky (1987a) was one of the first psychologists to emphasize the cognitive, meaningful nature of emotions. Lazarus and others (Birnbaum, 1981), have contemporaneously made the same point, that emotions are

quintessentially psychological because they always involve cognitive appraisal of events. This appraisal determines the physiological and experiential response. Emotional conditioning, like all conditioning, was originally thought to exclude consciousness, but only because behaviorists *presumed* this to be the case and never investigated whether or not it was, in fact, true. Later research of Dawson (1973) and others amply proves that consciousness is necessary for learning. Subjects who are unaware of the conditioning process do not condition. This holds for the conditioning of emotions, verbal learning, and all other associations. Emotions therefore are not more spontaneous than cognition (Mandler, 1983).

While it is certainly true that the conscious mediation of emotions and other psychological phenomena is not necessarily a rational reflection upon events, reflection is only one form of conscious mediation. Phenomenologists, for example, emphasize a more intuitive, impressionistic conscious mediation which they variously call pre-reflective or un-thematized. This is the kind of knowledge involved in optical illusions and perceptual constancy, and it takes the form of tacit expectations rather than deliberate reflection. The naturalist argument that emotions do not involve rational reflection is therefore not a serious invalidation of conscious mediation.

The naturalist distinction between emotions as global versus cognition as atomistic is equally untenable. The fact that emotional impressions are global does not prove the absence of cognition because cognition is also configured (Lazarus, 1982, p. 1020ff). Polanyi (1966, 1969) points out that perceptual recognition of faces and other stimuli involves tacit, global impressions. And Kolers (1972) has demonstrated that the cognitive act of reading proceeds not word by word, but by acquiring a global sense of the sentence from one's grammatical knowledge-schema. Far from global emotional impressions discrediting the influence of consciousness, they actually attest to its presence.

The physiological underpinnings of emotion that are postulated by the naturalistic theory to account for emotions' autonomy are as erroneous as the forgoing psychological distinctions. Evidence repudiates Izard's (1984, p. 25) assumption that "the neurochemical process of a given emotion has some underlying structural features that distinguish it from any other emotion." In the first place, there are no specific hormonal correlates of individual emotions (Averill, 1969; Candland, 1977, pp. 124–125; Mandler, 1979, pp. 296–297; 1980, p. 227).[2] In addition, emotions and cognitions are not segregated in

[2]Ekman, Levenson, and Friesen (1983) claim to have detected ANS activities that distinguish particular emotions, however their data are inconclusive. In the first place, they only present ANS data for subjects who were instructed to move particular facial muscles, not for subjects actually experiencing particular emotions—subjects were not instructed to model anger, but to move certain individual muscles that the authors had predetermined to be associated with anger. Consequently, the data at most indicate ANS activity corresponding to facial musculature movement, not to emotional experience.

separate brain centers but are intimately intertwined. Lazarus (1984) cites Roger Sperry's conclusion that emotions are not confined to the right hemisphere but spread to the left side where they are integrated into cognitive processes. Furthermore, the supposedly primitive brain structures such as the hypothalamus, limbic system, and reticular formation, which are presumed to be the seat of emotions, are not segregated from the cognitive centers in the neocortex. The involvement of the neocortex in emotions is vividly proven by the fact that decorticated cats receiving electrical stimulation of the hypothalamus display aggressive behavior that is devoid of emotion (Delgado, 1973, p. 34). In addition, the lower brain centers have undergone evolutionary

---

Even these data are inconclusive. There is no single autonomic measure that reliably differentiates specific facial expressions. One ANS measure, heart rate change, increased uniformly for *three* facial expressions: corresponding to anger, fear, and sadness. Heart rate thus did not differentiate among these three "emotional expressions" but was common to all of them. Heart rate changes were somewhat smaller for happy, sad, and disgusted facial expressions. It may therefore be concluded that heart rate distinguishes these three from the first three, but that is hardly tantamount to discovering ANS activity particular to individual emotions. It is not even possible to conclude, as Ekman and colleagues do, that ANS activity distinguishes "positive" from "negative" emotions, because the negative expression "disgust" evidenced a change in heart rate quite unlike that for the other negative expressions (anger, fear, and sadness). All we can say is that heart rate distinguishes one set of three expressions from three other emotions.

But the relation between ANS activity and emotional facial expression is far more complex—and indefinite—because other ANS measures bear entirely different relationships to emotional facial expressions. Whereas heart rate was uniform for "anger," "fear," and "sadness," temperature change was not. Temperature rose 0.15 degrees centigrade for "anger," but was unchanged for "fear" and "sadness." Temperature, then distinguishes "anger" from "fear" and "sadness" in a way that heart rate does not.

The conflicting data fall far short of Ekman's claim that individual emotions are differentiated according to specific ANS activity. There is no physiological measure that distinguishes each emotional expression from every other. On *any measure, most emotional expressions evidence indistinguishable patterns of ANS activity.* "Fear" and "sadness' are indistinguishable on both of Ekman's measures. Moreover, different ANS measures of emotional expression do not correlate, but, on the contrary, contradict each other, thus making it even more difficult to distinguish emotional expressions according to physiological indicators. "Anger" might be distinguishable from "fear" on the basis of temperature, but it is indistinguishable on the basis of heart rate. "Sadness" and "happiness" are distinguishable on the basis of heart rate, not on the basis of temperature. For every measure that distinguishes among emotional expressions, other measures can be found which do not. Contrary to Ekman's claim, indistinguishability of emotional expressions is more common than distinguishability. Reliable physiological differences in emotional expressions to say nothing about emotional experience, have simply not been discovered.

Finally, even when one physiological index is correlated with a pattern of facial muscles, as was the case for temperature and "anger," the reason is unclear. This obscurity is the result of Ekman's positivistic response measures which ignore psychological activity. No indication is forthcoming of the subjects' understanding of the experimental situation, or what they were thinking, feeling, and trying to do during the experiment. The bare correlation between temperature change and facial expression is thus utterly uninformative concerning the psychological reasons for the relationship. This makes it impossible to accept Ekman's conclusion concerning a natural correlation between facial expression and physiological indices. Perhaps the correlation was due to particular experiences the subjects had during the experiment and had nothing to do with their facial grimaces. Unless psychological explanations can be ruled out, claims concerning natural relationships are gratuitous. Ignoring psychology is no way to establish naturalistic theories.

development and have taken on cognitive functions. Consequently, Pribram rejects the idea that the limbic systems serve instinctual, innate patterns of behavior, phylogenetically and ontogenetically old. Damage to the amygdaloid and hippocampal formations of the limbic system does not disturb emotionality, per se, but only sustained emotional activity. Pribram (1960, pp. 12–13) concludes that the limbic systems do not simply govern emotional activity but planning as well, and that lesions to that area affect *the cognitive control of emotions.* Vygotsky expressed the interpenetrating of lower and higher brain functions which allows emotions to be cognitively mediated when he said, "the brain systems directly linked to affective functions have an extremely unique organization. They are the lowest, most ancient, most primary systems of the brain, and the highest, most recent, and most specific human structure" (Vygotsky, 1987b, p. 85).

The postulated phylogenetic dichotomy between lower organisms' emotionality and higher animals' cognition is as untenable as the neurophysiological dichotomy between brain centers. Emotions did not precede cognition, they only developed in conjunction with cognition. As D'Andrade (1981, p. 190) said, "there is a strong positive correlation phylogenetically between intelligence and emotionality." Non-conscious low organisms are unemotional, and only conscious animals are emotional. Thus, rats which possess cognitive schemas of situations become confused and upset when confronted with abrupt changes in a maze layout. In contrast, ants' lack of conscious perception and memory renders them insensitive to abrupt changes, precludes conflict and distress, and enables them to blithely blunder ahead (Schneirla and Piel, 1948). Animals which directly respond to stimuli without cognitive mediations lack an "information processing center" that could experience feelings. Some center or self that mediates between stimuli and responses (and is thus differentiated from both) is necessary for registering (experiencing) emotion (Dewey, 1894; Scheler, 1961. Cf also DeVries, 1988, for an excellent discussion of Hegel's psychological concepts, particularly those pertaining to feeling). Even apes have only rudimentary emotions because their cognitive abilities are rudimentary. Köhler and other psychologists have observed the equanimity with which mother chimpanzees forget their dead young. Asch (1952, pp. 122–123) explains that this lack of sorrow is due to a cognitive deficit—the inability to recall and reflect on what is absent. Chimps and humans share a strong maternal attachment for offspring, however the levels of emotional intensity and richness in the two species vary dramatically by virtue of the different consciousnesses that mediate this attachment.

Far from animal emotionality constituting the prototype of human feelings, animals' rudimentary pleasure, displeasure, frustration, expectation, surprise, and fear are greatly intensified and enriched in humans. The animalistic character of feelings is not retained in humans, it is surpassed. The vestigial

elements of animal emotionality that we have inherited are empty shells which become subsumed under social-psychological processes. The natural character of emotions is abolished as human emotional experience is uncoupled from eliciting events and from behavioral expressions. Emotion becomes a controllable social construction rather than an automatic response. If naturalistic psychologists followed Lazarus's urging to investigate the concrete nature of human and animal emotionality before drawing conclusions about their similarity, they would avoid dogmatic, a priori assertions. Psychologists would be more sensitive to the differences between human and animal fear, joy, and frustration. Researchers would also witness a range of emotions, including anger, shame, guilt, disdain, romantic love, contempt, and admiration that have no animal analogue at all.

The naturalists' attempt to derive emotions from pre-cognitive infants is as fallacious as their equating human emotions with animal emotions. One clear instance of false analogizing of infant and adult emotions is Izard's (1984, p. 20) contention that the social smile of one and one-half month old infants "illustrates one type of affective information processing." However, the neonatal smile is an automatic reflex and does not involve affective information processing at all. There is no affect or information processing in a reflex because it is a direct S-R connection without any mediating body that could feel or think (Scheler, 1961). Kagan's (1984, p. 56) caution, that neonatal, nonconscious reflexes are qualitatively different from emotions means that smiling (and other responses) express dissimilar, non-analogous processes. Whereas infants smile in response to incongruous stimuli such as noises, being tickled, and being bounced on the knee, two-year olds smile in response to complex social incongruities such as a mother crawling like a baby or sucking a bottle. Smiling to these latter situations requires a cognitive understanding of their discrepancy from a norm which is absent from responding to physical stimulation such as bouncing or tickling. Smiling changes from a response to stimulation to a cognitively mediated response. It therefore represents quite different, rather than similar, processes (Cicchetti and Schneider-Rosen, 1984, p. 391). The affective reaction to social situations is so dependent upon cognitive understanding that it predicts later cognitive development (Cicchetti and Schneider-Rosen, 1984, p. 391). [On the other hand, emotional sensitivity can also stimulate cognitive development by producing vivid experiences that demand interpretation. Thus, infants who show early negative responses to the visual cliff score higher on cognitive development (p. 392).] Cicchetti and Schneider-Rosen (p. 392) further found that cognitive development produces affective changes. Young children appear puzzled when they watch in a mirror as rouge is applied to their noses. Older children find it amusing because they understand its social playfulness.

Vygotsky (1987a, p. 300) agrees that emotions are not primordial phenomena

predating consciousness in ontogenetic development. He says that infants are characterized by undifferentiated emotional, perceptual, and motor responses. It is only later in childhood that these become differentiated processes. Adult emotions are more profound, varied, and long-lasting than children's because of their interpenetration with conscious understanding.

If Izard's analogizing between infantile smiling and adult emotion is overdrawn, his attempt at naturalizing shame by equating it with infantile and even animal emotions is even more implausible. Izard defines shame as the "heightened awareness of self occasioned by the awkwardness of attempting interaction with strangers who do not respond in the familiar way to the infant's patterns of interactions" (Izard and Buechler, 1980, p. 178). This definition has nothing in common with adult shame. Shame is not simply a quantitative change in self awareness occasioned by an unfamiliar situation. No one becomes ashamed simply by being treated differently from before. Shame is quintessentially the commission of a *wrong*. Shame is a thoroughly moral concept involving violation of a social code. Because this social concept cannot be understood by infants and animals, Izard simply jettisons it and redefines shame in a way that can be experienced by infants and animals. In fact, with shame occasioned by unfamiliar situations, it could be generated as readily by novel physical objects as by novel social situations. Rather than construct a theory that reflects real life, Izard has misconstrued reality to fit his preconceived theory.

Naturalists attempt to reverse the progress of evolution and reduce all emotions to a few basic ones that have animal and infantile analogues. If all emotions are essentially forms of these few primitive ones, they can be explained in terms of relatively simple physical mechanisms. However, basic emotions have eluded the conceptual efforts of psychologists.[3] Moreover, the irreducibility of human emotions to a few basic ones makes psychophysiologists' efforts in this area useless for explaining the totality of emotionality. Love is not simply a form of joy but has a distinctive, culturally variable quality, releasers,

[3]Ortony, Clore, and Collins (1988) have identified enormous conceptual confusion regarding the notion of basic emotions. Basic emotions have often been defined as universal. However, they have also been used to mean primary in the sense of being building blocks for other emotions. (Sometimes the basic emotions are posited as adding together to form the derivative emotion, sometimes they are posited as compounding into a new whole qualitatively different from the ingredients. This ambiguity is a serious shortcoming to this second connotation of "basic.") And "basic" has also been used to refer to emotions that appear chronologically early in ontogenetic development. Furthermore, no logical justification is provided for calling *any* of these meanings basic. Just as universal is not necessarily basic, neither is the early appearance of an emotion. Initial emotions may be temporary, or insignificant for later life, thus not basic at all. Compounding the ambiguity of the term "basic emotion" is the lack of agreement as to which emotions are, in fact, basic. Some psychologists posit only two basic emotions (Mowrer: pleasure and pain), others posit three (Watson: fear, love, rage), while others posit a large number (Arnold: anger, aversion, courage, defection, desire, despair, fear, hate, hope, love, sadness).

and associated behaviors. The absence of natural determinants in humans allows for the proliferation of emotions just as it does thoughts and actions. Mandler (1980, p. 229) put it well in his statement that "the range of possible different emotional experiences cannot be categorized into narrow classes in terms of its antecedents."

The naturalistic association of emotions with biology and dissociating emotions from consciousness is opposite the true situation. Adult human emotions are profoundly integrated with consciousness and dissociated from biological constraints. This does not preclude biological correlates of emotions, however it challenges biological determinism or reductionism. For instance, tiredness or menstruation may facilitate irritability, however they do not cause this emotional reaction. Even biological facilitation requires a precipitating event and also the acquiesence of the individual. People do not necessarily become irritable during physiological changes, which means that such changes are simply a stimulus that is responded to through the medium of conscious interpretation and volition. Likewise, there may be a biological connection between facial expressions and emotions. However, as Ekman (1972) says, the relation is surely one in which the emotion engenders the expression, rather than the expression determining emotion. Facial musculature expresses the individual's cognitively-mediated emotional state and striving (Mandler, 1980, p. 231). For instance, when an individual is dejected and dispirited his facial and body muscles may *consequently* droop, giving him a crestfallen or downtrodden appearance. Conversely, his physical uplifing may express his interest in or enjoyment of a thing. These physical responses certainly do not constitute somatic determination of emotion.

Actually, the evidence for specific facial correlates of emotions is meager despite claims to the contrary. It is true that blind children spontaneously smile when happy, frown when frustrated, and cry when hurt, without any opportunity to learn these expressions from observing others (Plutchik, 1980b, pp. 257–259). However, smiling becomes muted within four months because it is not reinforced by visual feedback from social models. Thereupon, alternative expressions are developed, such as hand signals, to convey emotional states. Thus, innate responses do not, by themselves, constitute emotional expressions in any significant, lasting way. Meaningful emotional expressions must be socially organized (Cicchetti and Schneider-Rosen, 1984, pp. 379–380). This social, rather than natural, constitution of emotional expressions accounts for the absence of natural indicators of emotion. For example Ekman, Friesen, and Ancoli (1980) found only low correlations ranging from .04 to .60 between subjective reports of happiness and various measures of a facial smiling response (p. 1128). Feelings of disgust correlated .37 to .55 with various corresponding facial expressions (p. 1131). And a composite of negative feelings correlated from −.10 to +.35 with corresponding facial expressions (p. 1131).

Another thorn in the side of a naturalistic theory of facial expressions is the fact that facial expressions are not automatically understood by children. If facial expressions were natural, universal indicators of given emotions, they should be universally understood at an early age. However, it is not until age five or six that anger, sadness, fear, surprise, and happiness can all be identified with significant accuracy. Evidently, recognizing the emotional meaning of facial gestures is learned rather than naturally obvious. This suspicion is strengthened by the fact that not all children reach high levels of accuracy. Camras (1985) reports that recognition of emotional expressions depends most importantly on children's social experience. A high correlation exists between the emotional recognition abilities of a child and his parents. Moreover, abused children are inferior to non-abused children in their ability to interpret facial expressions.

Contrary to the naturalistic contention of cross-cultural agreement on the emotional significance of facial expressions, the evidence shows significant pockets of disagreement. This challenges the assertion of a natural sensitivity to natural signs of emotion. Ekman (1972) found cross-cultural agreement in judging photographs which depicted emotions, but agreement was only forthcoming when the stimulus was a highly stereotyped, uniform, posed expression of a single emotion that was explicitly chosen for its lack of cultural display rules. In addition, the emotional adjectives that subjects could use were confined to a handful of terms which greatly increased the likelihood of agreement (Ekman, 1972, p. 240; Plutchik, 1980b, p. 255). Even under these artificial, circumscribed, forced conditions, cross-cultural judgments of emotional expression were far from unanimous. For instance, when asked to make a simple determination of whether or not a photo reflected stress, Japanese and American judges were correct only 60% of the time, a mere 10% above chance (Ekman, 1972, p. 242). Similarly, a photo designed to express fear was judged so by 85% of Americans but only by 54% of Argentineans. And while 90% of Brazilians judged a facial expression as angry, only 45% of Japanese did so (Ekman, 1972, pp. 264–265). Izard (1980, p. 199) encountered the same cultural variation in judgments with only 54% of Mexicans correctly identifying a photographic expression as surprise-startle in contrast to 90% of Americans. Finally, when Americans viewed photos of Fore people from New Guinea posing various emotions, only 18% correctly identified the Fore expression of fear, 27% correctly identified surprise, 68% correctly identified sadness, 46% correctly identified Fore expressions of disgust, and 51% correctly identified anger (Ekman, 1972, p. 275). When judges were allowed to freely describe the photos instead of being forced to use a small number of pre-determined adjectives, agreement dropped significantly. An international sample of subjects, viewing photographic expressions of emotion, only achieved 50% correct identifications (Izard, 1980, p. 206). One photo was

variously described as amusement, gratitude, optimism, serenity, and satisfaction (Izard, 1980, p. 204). Yet the authors inexplicably state that the subjects expressed a common judgment that the photograph manifested joy!

The reliability of facial expressions as indicators of emotion is significantly undermined when the physical responses are perceived in relation to contextual events instead of in isolation. Munn (1940) found that the same expression perceived in varying contexts was judged to indicate different emotions. When viewed in isolation, one photograph was judged to reflect surprise by 39% of the subjects, however when viewed in a context of events, the same photo was judged as expressing surpirse by 73% of subjects (p. 330). An isolated photo judged by 71% of subjects as expressing sorrow, was reinterpreted when viewed in context, the result being that only 2% of subjects continued to regard it as sad. And a photograph that was regarded by 23% of subjects as expressing anger, was seen to express anger by 85% of subjects when it was viewed in a context (cf. Wallbott, 1988, for a similar conclusion). Munn's results replicated a similar conclusion by Sherman (1927). Sherman found that when infants' bodily and facial expressions were observed (by psychology graduate students, medical students, and nurses) apart from any precipitating stimulus, judgments of the infants' emotions were invalid and quite variable. For instance, 20% of psychology students who observed infants immediately after they had been dropped two or three feet (without observing the actual dropping) reported the infants as expressing hunger. Validity and interrater agreement improved dramatically when the precipitating events were observed. None of the psychology students named hunger after seeing babies being dropped, and all of the students named emotions such as fear, pain, or anger. The students explicitly stated that they had relied on their knowledge of the situation to judge the infants' feelings. The fact that knowledge of precipitating events, rather than facial expressions per se, colors judgments of emotions was convincingly demonstrated by pairing the infants' expressions with false precipitating events. Thus, infants who were actually hungry, were shown in pictures as being forcibly held down on a table. When this occurred, none of the observers judged the emotional expression to be hunger, and all judged it to be fear, pain, rage, or some emotion appropriate to being forcibly restrained. In other words, rather than facial expressions directly indicating emotion, they are interpreted in light of surrounding conditions which can lead to judgments totally at odds with what the expressions "should" denote (Leff, 1977). Perception of emotion thus follows a general perceptual principle, namely that particulars are always perceived in light of (in relation to) other elements. The naturalistic theory of emotion contradicts this principle because it assumes that particular facial movements are universally perceived as expressing a given emotion regardless of any context. Moreover, the constancy with which facial movements are presumed to produce given perceptions of

emotion minimizes the role of interpretation in this perception. The naturalistic theory of emotion thus presupposes a discredited mechanistic, atomistic perceptual theory.

Interactionistic Theories of Emotion

While the extreme position among naturalistic theories of emotion minimizes the role of culture in constituting emotions, a moderate view acknowledges culture's importance. According to this view, biological mechanisms provide for some core emotional features which are combined with social features. The natural core elements are termed basic, enduring, and universal, while the social aspects ae regarded as derivative, contingent, and variable. Ekman (1972), for example, acknowledges that most of the elicitors and expressions ("display rules") of emotions are socially learned and variable, however his research is focused on discovering a few postulated "basic," universal, biologically generated, facial expressions of emotions. Writing from a psychoanalytic standpoint, Gerber (1985) advocates "basic affects" which are panhuman, inborn psychophysiological programs activated by cultural evaluations of external situations and expressed in culturally appropriate behaviors (pp. 122–123). According to Gerber, we are innately programmed to respond to a loss with sadness, although culture defines the situations that trigger the loss program as well as the manner in which the attendant sadness will be expressed. This kind of interaction between biology and culture is widely regarded as a successful integration which avoids the onesidedness of extreme biologism and social determinism. However, in my view, while "interactionism" makes important concessions to culture in constituting emotions, it does not go far enough and retains many naturalistic errors. In fact, the naturalistic element within interactionist theory—i.e., grounding basic affects in endogenous psychophysiological programs—contradicts and mitigates the importance of social influences on emotion and therefore does not produce a successful integration of biology and culture at all. Critiquing interactionism will point the way to a more satisfactory, consistent integration of biology and culture within social constructionist theory.

The notion of a psychophysical program which responds to loss with sadness is, on the one hand, far too deterministic to accommodate social constituting of emotion. It predetermines sadness as a response to loss when no such cause and effect relationship is necessary. If any loss should instigate sadness it is a child's being separated from its parents. Yet Super and Harkness (1982) have clearly demonstrated that separation anxiety evidences enormous cultural variation. Whereas virtually all 18-month old middle class American children cry upon separation from their parents, very few Mayan children in Guatemala express any sadness. Super and Harkness note that any early natural tendency

to feel sadness at parental separation-loss is differentially organized into the structure of daily life and ceases to be a general, unconditioned, reaction among older children and adults. It therefore ceases to be a basic affect in Gerber's sense. Evidently, culture not only specifies when loss instigates sadness but *whether* it will produce sadness at all. Postulating a psychophysiological program that inevitably links sadness to loss is overly deterministic and overlooks culture's ability to constitute or deny this association.

On the other hand, basic affective programs are depicted too generally to be viable. Gerber postulates an innate sense of loss apart from any specific cause or expression, since these are filled in by the culture. However, such an empty generality is an impossibility. How can we be innately sensitized to an indeterminate thing, and how can we be innately programmed to react sadly in the absence of any specification of what such a response would be? Animals are governed by genetic programs, however these specify appropriate stimuli and responses. Male dogs, stimulated by a specific female scent, copulate in very stereotyped response patterns. Without such specificity, the notion of a programmed basic affect loses any semblance of meaning. It is as empty as the sociobiological notion of a basic aggressive tendency which fails to articulate who does what, where, when, how, and why (Sahlins, 1977, p. 15). Stripping a phenomenon of its determinateness dissolves the thing itself. Gerber tries to retain a generality ("loss") devoid of particular characteristics, however this is logically impossible. The general cannot be separated from the specific, it always exists in and through its details. Thus, Gerber's "loss" is too indefinite to be genetically stipulated. Only specific programs can be biologically determined because genetic material specified particular sensitivities and responses (Bernard, 1924). Genes cannot transmit intangible abstractions such as loss, aggression, anger, motherhood, or patriotism whose form and content are indefinite.

Since, in Gerber's formulation, no particular loss necessarily elicits sadness, it makes no sense to postulate a psychobiological loss-sadness program. For if neither loss of parent, nor loss of sibling, nor loss of possessions, nor loss of food necessarily engenders sadness, then why must loss engender sadness at all? If there is no necessity for any particular loss to produce sadness, then why must some loss produce sadness? If every and all particular loss can be decoupled from sadness then how can there be some loss-sadness program? If culture can specify what kind of loss produces sadness, it seems obvious that culture can specify whether loss produces sadness at all.

Gerber's attempt to supplement cultural influences on emotion with biological constraints is unsuccessful. Her notion of an innate affective program is too amorphous to be serviceable. It has given away so much determinateness to culture that it cannot provide the underlying, shared exprience for which Gerber has designed it. Without determinate stimuli and responses, "loss"

is a nonentity incapable of engendering sadness or any other emotion. Even the minimal biological determination that Gerber clings to is too much given the power that culture has to constitute emotions. Gerber's affective program is thus neither conceptually plausible nor empirically true. Worse, it impedes the investigation of a more satisfactory social explanation of emotions. Rather than cling to the gutted ship of biological reductionism, it is necessary to abandon it altogether and find other moorings for psychological theory. The notion of an innate affective program, preceding yet interacting with culture, must be jettisoned and supplanted by a different conception of biology's relation to culture.

The Relation between Natural and Social Aspects of Emotions

Social constructionism accommodates biology as a potentiating but nondetermining substratum. Human biology is a capacity for a great range of emotions, however none of these is predisposed or basic. We can feel sad, happy, jealous, proud, shameful, and angry but nothing in our nature tells us that we will, when we will, or how we will experience these emotions. Culture specifies all of these details, thereby concretely realizing a very abstract potential.

None of this negates the existence of certain naturally elicited emotions in infants. Joy, sadness, frustration, and fear are obvious examples (surprise is often cited as falling within this category, however its status as an emotion is questionable.). However, as Vygotsky (1978) and Luria (1932) insisted, infantile emotions become transformed into socially and consciously mediated "higher" processes and lose their spontaneous, natural quality. In becoming uncoupled from natural stimuli and responses and becoming associated with socially specified stimuli and responses (Shweder, 1985), the natural basis of infantile "emotions" is jettisoned and an entirely new basis is constituted. Consequently, infantile emotions are not prototypical of adult emotions. They do not serve as a constant core constituent of adult emotions. This is why emotions are not completely conveyed in given, discrete facial responses. As Plutchik (1980b, p. 257) stated, "At best there is a prototype facial pattern that may appear briefly under extreme stresses or conditions but it is quickly changed, modified, or inhibited on the basis of rules and experiences that are unique both to the culture and to the individual." This social psychological modification of spontaneous physical expressions is what makes cross-cultural identification of facial expressions difficult.[4] Socially constituted, variable,

[4]Since mature emotions (and their expressions) embody social meaning rather than being reified, given entities, their meaning must be detected through a familiarity with the culture; it is not transparently obvious (Lutz, 1988, pp. 8–9). Understanding another culture's emotions is no more a matter of recording signs than understanding language is. Translating emotions, like language, requires fathoming the cultural meaning embodied in the phenomenon.

adult emotions (and their physical expressions) bear as little qualitative similarity to infantile reactions as speech does to babbling. While babbling precedes and, in some sense, prepares for speech, it does not directly produce speech nor continue to underlie speech. Babbling is absorbed into speech and disappears forever. The same holds for infantile "emotional" reactions, just as it does for infantile reflexes such as the rooting reflex. None of these early responses is a prototype or underpinning of mature activity.

Social constructionism's formulation of the biology-culture-psychology interrelationship makes the elements compatible by endowing them with different functions which operate at different levels of abstraction (Ratner, 1988). Biology has the abstract function of being a potentiating substratum for emotions while culture's function is to realize this potential into concrete emotions. This formulation eliminates the dualism inherent in interactionism which incongruously juxtaposes biological and cultural determinism on the same level of abstraction. Despite the concessions that interactionism makes to culture, it remains plagued by an overly deterministic biology (according to which loss inevitably produces sadness regardless of culture). Removing that naturalism and attributing to culture the full power to constitute emotions will yield a logically consistent theory that also conforms to empirical facts.

The Motivation Behind Naturalistic Theories of Emotion

Although it is beyond the focus of this critique to explore the origins of naturalistic thinking about emotion, it is worth suggesting two generating factors. Scientifically, the naturalistic theory is appealing in the absence of experiential accounts of how feelings are generated inside individuals. Simple, gross, explicit learning processes such as conditioning obviously cannot explain how subtle, complex, implicit emotions are acquired, and this provides the temptation to believe that emotions are naturally implanted inside people. This was clearly Chomsky's scientific motive for positing universal grammar and an innate language acquisition device. But however easy this solution may appear, it is specious. The failure of crude behaviorism to explain psychological phenomena should motivate the investigation of more refined learning processes, not to abandoning learning altogether and postulating instead mysterious, given, internal entities. Bruner, Kay, Nelson, Ochs and others have made important progress toward ascertaining subtle, complex, implicit socialization techniques for inculcating language. There is reason to believe that emotions are also ultimately explainable in this way. Constituting emotions out of social concepts, values, and ideals is no more mysterious than is the conjuring up of thoughts, words, artifacts, and social customs.

Another source of naturalistic thinking about emotions is ideological. Con-

struing emotions as asocial, natural phenomena is apparently rooted in an antipathy toward and a desire to escape from social life. Zajonc's writings in particular are laced with pejorative remarks about socially-mediated functions such as language, reason, analysis, and cognition. These are condemned as cold, unfeeling, objective, worldly, controlled, and difficult to fathom. Emotions, on the other hand, are lauded as spontaneous, subjective, passionate, and directly, efficiently, and accurately communicable. Their primitiveness is clearly favored over civilized phenomena. Gerber (1985), and Izard and Buechler (1980, p. 182) go so far as to advance Freud's contention that cognitively controlling emotions may lead to psychological problems since it involves blockage of the "normal" impulsive emotion process. Gerber further advocates natural constraints on emotions as a way of unifying humankind together within a common range of shared feelings. These constraints are necessary for overcoming the social fragmentation that divides people. Naturalistic scientific concepts thus express a dubious socio-political (ideological) element which seeks to romantically escape from social life into an unsocial, natural realm. As is the case with all escapist tendencies, the ironic result is a decided lack of freedom. Naturalistic theories of emotion epitomize this paradox as they make us passive recipients of natural emotional experiences. Actually, the social constructionist theory leads to far greater emotional freedom by recognizing the social psychological basis of emotions and emphasizing the possibility of changing it. Social constructionism holds out the possibility of altering our emotions, conquering jealousy, contempt, and aggressiveness, and not simply expressing what "basically" exists. Perhaps naturalism's scientific errors in the psychology of emotion are traceable to its unrealistic social philosophy.

References

Asch, S. (1952). *Social psychology*. Engelwood Cliffs: Prentice Hall.

Averill, J. (1969). Autonomic response patterns during sadness and mirth. *Psychophysiology, 5*, 399–414.

Averill, J. (1980a). Emotion and anxiety: Sociocultural, biological, and psychological determinants. In A. Rorty (Ed.), *Explaining emotions* (Chapter 2). Berkeley: University of California Press.

Averill, J. (1980b). A constructionist view of emotion. In R. Plutchik and H. Kellerman (Eds.), *Emotion: Theory, research, and experience* (Volume 1, chapter 12). New York: Academic Press.

Bernard, L.L. (1981). *Instinct, a study in social psychology*. New York: Holt.

Birnbaum, M. (1981). Thinking and feeling: A skeptical review. *American Psychologist, 36*, 99–101.

Camras, L. (1985). Socialization of affect communication. In M. Lewis and C. Saarni (Eds.), *The socialization of emotions* (Chapter 7). New York: Plenum.

Cancian, F., and Gordon, S. (1988). Changing emotional norms in marriage: Love and anger in U.S. women's magazines since 1900. *Gender and Society, 2*, 308–342.

Candland, D. (1977). *Emotion*. Berkeley: Brooks/Cole.

Cicchetti, D., and Schneider-Rosen, K. (1984). Theoretical and empirical considerations in the investigation of the relationship between affect and cognition in atypical populations of infants. In C. Izard, J. Kagan, and R. Zajonc (Eds.), *Emotions, cognition, and behavior* (Chapter 12). New York: Cambridge University Press.

Coulter, J. (1979). *The social construction of mind.* Totowa: Rowman and Littlefield.
D'Andrade, R.G. (1981). The cultural part of cognition. *Cognitive Science, 5,* 179–195.
Dawson, M.E. (1973). Can classical conditioning occur without contingency learning? A review and evaluation of the evidence. *Psychophysiology, 10,* 82–86.
Delgado, J. (1973). *Emotions.* Iowa City: Brown. (second edition)
DeVries, W. (1988). *Hegel's theory of mental activity.* Ithaca: Cornell University Press.
Dewey, J. (1894). The theory of emotion. *Psychological Review, 1,* 553–569.
Ekman, P. (1972). Universals and cultural differences in facial expressions of emotion. In J. Cole (Ed.), *Nebraska symposium on motivation, 1971* (pp. 207–283). Lincoln: University of Nebraska Press.
Ekman, P., Friesen, W., and Ancoli, S. (1980). Facial signs of emotional experience. *Journal of Personality and Social Psychology, 39,* 1125–1134.
Ekman, P., Levenson, R., and Friesen, W. (1983). Autonomic nervous system activity distinguishes among emotions. *Science, 221,* 1208–1210.
Ekman, P., and Oster, H. (1979) Facial expressions of emotion. *Annual Review of Psychology, 30,* 527–554.
Gerber, E. (1985). Rage and obligation: Samoan emotion in conflict. In G. White and J. Kirkpatrick (Eds.), *Person, self, and experience* (Chapter 4). Berkeley: University of California Press.
Hallowell, A.I. (1955). *Culture and experience.* Philadelphia: University of Pennsylvania Press.
Harré, R. (1986). *The social construction of emotions.* New York: Blackwell.
Hochschild, A. (1979). Emotion work, feeling rules, and social structures. *American Journal of Sociology, 85,* 551–575.
Izard, C. (1977). *Human emotions.* New York: Plenum.
Izard, C. (1980). Cross-cultural perspectives on emotion and emotion communication. In H. Triandis and W. Lonner (Eds.), *Handbook of cross-cultural psychology* (Volume 3, chapter 5). Boston: Allyn and Bacon.
Izard, C. (1983). Emotions in personality and culture. *Ethos, 11,* 305–312.
Izard, C. (1984). Emotion-cognition relationships and human development. In C. Izard, J. Kagan, and R. Zajonc (Eds.), *Emotions, cognition, and behavior* (Chapter 1). New York: Cambridge University Press.
Izard, C., and Buechler, S. (1980). Aspects of consciousness and personality in terms of differential emotions theory. In R. Plutchik and H. Kellerman (Eds.), *Emotion: Theory, research, and experience* (Volume 1, chapter 7). New York: Academic Press.
Kagan, J. (1984). The idea of emotion in human development. In C. Izard, J. Kagan, and R. Zajonc (Eds.), *Emotions, cognition, and behavior* (Chapter 2). New York: Cambridge University Press.
Kleinman, A., and Good, B. (1985). *Culture and depression.* Berkeley: University of California Press.
Kolers, P. (1972). Experiments in reading. *Scientific American,* July, 84–91.
Lazarus, R. (1982). Thoughts on the relations between emotion and cognition. *American Psychologist, 37,* 1019–1024.
Lazarus, R. (1984). On the primacy of cognition. *American Psychologist, 39,* 124–129.
Lazarus, R., Averill, J., and Opton, E. (1970). Towards a cognitive theory of emotion. In M. Arnold (Ed.), *Feelings and emotions* (Chapter 14). New York: Academic Press.
Lazarus, R., Kanner, A., and Folkman, S. (1980). A cognitive-phenomenological analysis. In R. Plutchik and H. Kellerman (Eds.), *Emotion: Theory, research, and experience* (Volume 1, chapter 8). New York: Academic Press.
Leff, J. (1977). The cross-cultural study of emotions. *Culture, Medicine, and Psychiatry, 1,* 317–350.
Luria, A.R. (1932). *The nature of human conflicts.* New York: Liveright.
Lutz, C. (1988). *Unnatural emotions.* Chicago: University of Chicago Press.
Mandler, G. (1979). Emotion. In E. Hearst (Ed.), *The first century of experimental psychology* (Chapter 7). Hillsdale: Lawrence Erlbaum Associates.
Mandler, G. (1980). The generation of emotions: A psychological theory. In R. Plutchik and H. Kellerman (Eds.), *Emotion: Theory, research, and experience* (Volume 1, chapter 9). New York: Academic Press.
Mandler, G. (1983). Knowing and liking. *Motivation and Emotion, 7,* 125–144.
Mandler, G., and Kremen, I. (1958). Autonomic feedback: A correlational study. *Journal of Personality, 26,* 388–399.

Munn, N. (1940). The effect of knowledge of the situation upon judgment of emotion from facial expressions. *Journal of Abnormal and Social Psychology, 35,* 324–338.

Ortony, A., Clore, G., and Collins, A. (1988). *The cognitive structure of emotions.* New York: Cambridge University Press.

Plutchik, R. (1980a). A general psychoevolutionary theory of emotion. In R. Plutchik and H. Kellerman (Eds.), *Emotion: Theory, research, and experience* (Volume 1, chapter 1). New York: Academic Press.

Plutchik, R. (1980b). *Emotion, a psychoevolutionary synthesis.* New York: Harper and Row.

Polanyi, M. (1966). *The tacit dimension.* New York: Anchor.

Polanyi, M. (1969). *Knowing and being.* Chicago: University of Chicago Press.

Pribram, K. (1960). A review of theory in physiological psychology. In P. Farnsworth and Q. McNemar (Eds.), *Annual review of psychology* (Volume 11, chapter 1). Berkeley: Annual Reviews.

Ratner, C. (1988). Psychology's relation to biology: Qualitatively distinct levels. In W. Baker (Ed.), *Recent trends in theoretical psychology* (pp. 95–105). New York: Springer-Verlag.

Ratner, C. (in press). *Vygotsky's sociohistorical psychology: A paradigm for today.* New York: Plenum.

Sahlins, M. (1977). *The use and abuse of biology: Anthropological critique of sociobiology.* Ann Arbor: University of Michigan Press.

Scheler, M. (1961). *Man's place in nature.* New York: Schocken.

Schneirla, T.C., and Piel, G. (1948). The army ant. *Scientific American,* June, 16–23.

Sherman, M. (1927). The differentiation of emotional responses in infants. *Journal of Comparative Physiology, 7,* 265–284.

Shweder, R. (1985). Menstrual pollution, soul loss, and the comparative study of emotions. In A. Kleinman and B. Good (Eds.), *Culture and depression, studies in the anthropology and cross-cultural psychiatry of affect and disorder* (Chapter 6). Berkeley: University of California Press.

Shweder, R., and LeVine, R. (1984) *Culture theory: Essays on mind, self, and emotion.* New York: Cambridge University Press.

Solomon, R.C. (1980). Emotions and choice. In A. Rorty (Ed.), *Explaining emotions* (Chapter 10). Berkeley: University of California Press.

Solomon, R.C. (1984). Getting angry. In R. Shweder and R. LeVine (Eds.), *Culture theory* (Chapter 9). New York: Cambridge University Press.

Super, C., and Harkness, S. (1982). The development of affect in infancy and early childhood. In D. Wagner and H. Stevenson (Eds.), *Cultural perspectives on child development* (Chapter 1). San Francisco: Freeman.

Vygotsky, L.S. (1978). *Mind in society, the development of higher psychological processes.* Cambridge: Harvard University Press.

Vygotsky, L.S. (1987a). Emotions and their development in childhood. *Collected works* (Volume 1). New York: Plenum.

Vygotsky, L.S. (1987b). The problem of mental retardation. *Soviet Psychology, 26,* 1, 78–85. (Originally published 1935)

Wallbott, H. (1988). Faces in context: The relative importance of facial expression and context information in determining emotion attributions. In K. Scherer (Eds.), *Facets of emotion* (Chapter 7). Hillsdale: Erlbaum.

Zajonc, R.B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist, 35,* 151–175.

Zajonc, R.B. (1984). On the primacy of affect. *American Psychologist, 39,* 117–123.