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OWN EMOTION AWARENESS

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ABSTRACT. A special topic under introspective knowledge is discussed, namely awarenesses of one's own emotional states. Exposition and interpretation of William James' theory of emotional consciousness provides one unifying theme. Repeatedly the three major sections return to this theory as they respectively examine bases for subjective emotion in feeling, cognition, and behavior. The first section deals with whether emotions, as the subject himself knows and differentiates them, can be adequately characterized as bodily feelings. In the second edition, cognitive aspects of emotion are considered; the cognitive causation of emotion and how the intentionality of subjective emotions might best be understood are explored. In the final section, contributions of behavior to own emotion awareness are discussed, primarily in terms of two theories, in which either (a) feedback from motor attitudes (Bull) or (b) central efferent readinesses (Arnold) figure importantly in how a subject knowingly experiences his emotions.

RESUMEN. Un tópico especial bajo el conocimiento introspectivo es discutido, a saber, la mer conciencia de nuestros propios estados emocionales. La exposición e interpretación de la teoría de conciencia emocional de William James suple un tema unificador. Regresan repetidas veces a esta teoría las tres secciones principales al examinar las bases para la emoción subjetiva en el sentimiento, cognición y comportamiento. La primera sección trata si las emociones, como el sujeto mismo las reconoce y diferencia, pueden ser adecuadamente caracterizadas como sensaciones córporeas. El la segunda sección se consideran aspectos cognoscitivos de la emoción; se examina la causación cognoscitiva de la emoción y cómo mejor comprender la intencionalidad de las emociones subjetivas. En la sección final se averigua la contribución del comportamiento para la mera conciencia emocional, principalmente en términos de dos teorías, en las cuales (a) "feedback" de posturas motrices (Bull) o (b) prontitudes centrales eferentes (Arnold) figuran engreidamente en cómo un sujeto siente sus emociones con conocimiento.

A comprehensive discussion of introspective awareness ought to give attention to the ability of humans each to be aware of his own emotional states. Therefore, it is the present purpose to extend a previous, general treatment of introspective "knowledge" (Natsoulas, 1970) into the substantive area of "own emotion awareness." The discussion is organized with William James' "theory of emotional consciousness" as its main thread. The intent is not to adopt and defend the theory. Rather, the following pragmatic reasons motivate the uses to which the theory is put: (a) The theory provides a framework of moderate complexity in whose terms an

initial statement of the pertinent problems and questions can be formed. (b) James (1884, 1890. 1894) touched to a degree on all the issues raised here. (c) The theory furnishes a contrastive basis for describing less familiar analyses and for bringing out their distinctive characteristics. (d) The relevant experimental reports on subjective emotion typically have been related to this theory, in support, elaboration, or contradiction of it. (e) The present organization is advised by the absence from contemporary experimental psychology of a widely accepted orientation to introspective questions.

EMOTIONS AS BODILY FEELINGS

Introspective awarenesses were heavily implicated, as both source and justification, in the claims James made about the emotions; even the kind of "brain-seat" emotions have was argued on introspective grounds (James, 1884, pp. 188-189). He sought to explain a kind of state "strongly characterized both from within and without" by a distinct bodily disturbance. Examples of the state were "surprise, curiosity, rapture, anger, lust, greed, and the like [1884, p. 189]," also "grief, fear, rage, love [1890, p. 449]." These "standard" or "coarser" emotions can be recognized from James' discussions as being states of the *occurrent* type. That is, they are states through which a subject passes and are distinct from "more or less long-term dispositions to various states, including emotional states, and activities [Alston, 1967, p. 479]." Pitcher (1965) illustrated the difference between emotions as occurrent states and as dispositions in the following way: "A person who is frightened by a face at the window, or gets angry at two boys because they are mistreating a dog has an emotion . . . in the occurrent sense — he is actually *in the grip of* the emotion. But a person who hates his father, or is jealous of his landlord has an emotion in the . . . dispositional sense — he may not actually be feeling the emotion now [p. 332]." Greed and curiosity, from James' "standard" list, refer often to relatively long-term dispositions. But anger, too, has this use. One speaks of having been angry for days with someone. Still one can experience, be in the grip of, anger (or greed or curiosity) as well as being disposed to it under circumstances (cf. Freud, 1953, pp. 110-111; Mullane, 1965).

The distinct bodily disturbances that characterize the standard emotions are produced, according to James (1884), by *cognitive* causes. "A perception of an exciting fact" will cause such a bodily disturbance in a "direct" manner — not by activation of a central emotional state but by means of "reflex currents." Emotions are the result of feedback from various bodily

changes. They are central, mental states of which the subject can be aware. More specifically, they are the feelings of the bodily changes that produce them; in James' famous phrase, "... our feeling of the same changes as they occur *is* the emotion [1884, pp. 189-190]." Without these bodily feelings our emotional states (if they could still qualify as such) would lack all "emotional warmth." One would not "actually *feel* angry or afraid." The emotions would be purely cognitive, a succession of judgments (cf. Hohmann, 1966).

To identify emotions with bodily feelings, Dewey (1895) argued, offends common sense and "psychological sense"; ordinary speech emphasizes the behavioral side of emotion and the connotations of emotion terms are "primarily ethical, only secondarily psychical [p. 17]." The "*Affect quale*" in emotion can disappear completely, as happened in a fight Dewey had in his youth: "... but as to the intervening period of the fight nothing but a strangely vivid perception of the boy's face as the hypnotizing focus of all my muscular activities [p. 29]" was left as content of Dewey's introspective awarenesses (cf. Pitcher, 1965, p. 338). Although she identified emotions with certain felt action tendencies, Arnold (1960, Vol. 1) pointed out that indeed there can occur at an emotion's height only the awareness of an object "and nothing else, not even ourselves [p. 121]." But the emotion, even then, continues to *qualify* the awareness of its object: The face was something to hit hard (Arnold) and the hypnotizing focus of young Dewey's muscular activities.

To propose that emotions are bodily feelings, as James did, is not to imply necessarily that each time a subject undergoes an occurrent emotion he is aware of it. To be aware requires capacities beyond those disposing one to feel. An occurrent emotion and the subject's own awareness of it are two occurrences and not just one. The awareness of the emotion might have as its content an identified emotional state or merely that something different from before is going on in me. Even the latter, indefinite awareness involves distinctions and the exercise of concepts. And depending on the concepts that inform such awarenesses, there will be variation in own emotion awareness between individuals and occasions (cf. the interpretation below of Cantril & Hunt's, 1932, results). In addition, an occurrent emotion can occur without there being activated an awareness of it. At times a redirection of attention is effected: We come to notice our emotion as a result, for example, of someone mentioning how sad we look. Our thoughts had been caught up in the events that produced our state, and we had not noticed before how these events affected us. This is not special

to emotions; only a fraction of the time are we aware, for example, of being perceptually aware. Self-consciousness is variable. Absorbed in thought, in fantasy, in perception we do not become aware that we are so engaged. Failure to note our emotions will find explanation in those factors that distract us from other mental happenings as well. And when attention is called to them and still we fail to note them, forms of avoidance need to be considered, including the interpretation of the state undergone in more acceptable ways (cf. Lazarus, Averill, & Opton, 1970, pp. 221-223).

Some Evidence for James' View

James (1884) proposed that an empirical test of his theory could be accomplished, in the unlikely instance, however, of complete bodily anesthesia. He discussed some patients approaching this description, but the crucial introspective evidence was not available. They had not been adequately questioned. Later James (1894) admitted that his previous insistence in adequate introspective evidence had served to save the theory in the face of contradictory appearances. Again medical cases, new ones, were appended. They tend to support the theory but are still equivocal. Closer to the kind of evidence required is provided by a recent, interview study of men with clinically complete lesions of the spinal cord at various levels. Compared with James' cases, Hohmann's (1966) subjects were in good condition. Outpatients, leading as normal lives as their infirmities allowed, they had no special psychiatric problems. The five groups of five subjects differed in the level of their spinal lesions: cervical, upper or lower thoracic, lumbar, and sacral. (The three men with the highest lesions could not have had complete ones since they were able to breathe.) The subjects were selected also for "sufficient intelligence to compare feelings since injury with remembered feelings prior to injury, and sufficient verbal facility to communicate and describe their feeling states [p. 145]." They were asked to compare from memory their feelings ("rather than . . . the concomitant ideation") of fear, anger, sexual excitement, and grief before and after injury to the spinal cord. Depending on how much the inputs from the viscera and musculature were reduced by the lesion, James would expect to that degree a diminution in the several emotions from what they were before the injury.

The results, briefly summarized next with some comment, generally favor James' hypothesis. (a) All ten subjects with cervical or upper thoracic lesions reported a decrease in their feelings of fear and anger, while sacral lesions had the least effect. Those with the highest lesions described their fears since injury as "predominantly ideational in nature. Only when affer-

ent return from the innervated viscera was possible did the reported feelings of fear begin to approach those recalled before injury [Hohmann, 1966, p. 155]." (b) Anger was similarly described by those with the highest lesions, a "mental kind of anger" whose behavioral expressions were manifested for instrumental reasons. A cervical subject stated, "Sometimes I *act* angry when I see some injustice. I yell and curse and raise hell, because if you don't do it sometimes I've *learned* people will take advantage of you, but it just doesn't have the heat to it that it used to [Hohmann, 1966, p. 154]." Hohmann agreed with James: From appearances one cannot be confident about feelings (cf. Fehr & Stern, 1970). (c) Reports of sexual feelings were consistent with those for fear and anger, but the subjects had difficulty recalling early experiences of grief with which to make comparisons. Four of the five reporting a decline in grief were members of the cervical or upper thoracic groups, and the four who reported an increase in grief fell into the two groups with the lowest spinal lesions. Eleven could not make any comparisons.

The subjects were asked also whether any "other feelings or experienced emotions" had undergone change from before to after the spinal injury. All but two reported an *increase* in an emotion Hohmann (1966) called "sentiment" or "sentimentality." This he characterized as "an increased weeping, feeling a lump in the throat, or getting 'choked up' in 'sentimental' situations such as saying goodbye, attendance at church services, watching a touching movie or play, or during the expression of tender feelings [p. 147]." Hohmann's explanation was unJamesian in its reference to psychological factors independent of bodily feelings. The injury was said to have produced a "chronic, mild, pervasive feeling of depression" together with a greater sensitivity to the feelings of others.

But something more than this needs to be said about the lack of correlation of "sentiment" with the variable autonomic input across groups. Perhaps the absence of variation in "sentiment" between groups is due to the head and throat as sources of the necessary bodily feelings. Angell (1916) had defended James in a way applicable years later to Hohmann's "sentiment." He argued about some dogs Sherrington had submitted to cervical spinal transection, "Moreover, so far as the animals may be supposed to have been conscious of the reaction of the facial and forelimb musculature, they had a good bit of the basis of the psychic stuff which James is always presenting in season and out, as among the most essential features in our awareness of the self. In other words, no evidence which left facial and cranial muscles unimpaired would ever have seemed to him very convinc-

ing as grounds for conclusions unfavorable to his theory [p. 201]." A recent critique of the uses of Sherrington's and similar results against James (Fehr & Stern, 1970) pointed out that several pathways from the periphery, unknown to Angell, were "not necessarily accounted for" in these studies.

The Nature of Bodily Feelings

Bodily changes that are complex ("almost infinitely numerous and subtle") produce the standard emotions. According to James (1884), their indefinite number, their subtlety, and their permutability make it "abstractly possible" that every introspectible shade of emotion depends on a unique bodily disturbance. Fehr and Stern (1970) used the evidence on variations in bodily disturbance between emotions to defend James against Cannon's (1927) criticism that the same visceral changes occur in very different emotions. Another recent review also concluded, "There is therefore good reason to assume that varying behavioral situations whether defined in terms of subjective evaluations of 'emotion,' experimental inductions of attitude or set, or as descriptions of the salient stimuli impinging on the organism, will be accompanied by discrete patternings of physiological activity rather than by a diffuse and unitary arousal that can only vary in degree [Shapiro & Crider, 1969, p. 28]." But James (1884) propounded his doctrine in more extreme form: *All* bodily changes are felt "acutely or obscurely" the moment they occur. To demonstrate his claim he asked the reader to observe himself while undergoing one of the milder emotional states; you will find that "each morsel" of your "cubic capacity . . . contributes its pulsations of feeling [James, 1884, p. 192]." Such "findings" might bear on the claim that some feeling derives from every part of the body, but not that every bodily change is felt.

Sensational processes. The brain seat of the emotions resembles the sensorial brain processes, according to James (1884, p. 118), and is nothing other than such processes "variously combined." Irons (1894) questioned how it was that these processes have emotional quality and warmth whereas others are coldly intellectual. James (1894) responded that (a) all the higher senses are capable of warmth provided esthetic objects stimulate them, and (b) no theoretical problem arises if only "secondarily aroused visceral thrills" have that property. Thus, he seemed to miss the critical point: how certain sensorial brain processes are to be distinguished in that they are thrills. Sensations (held by James to produce perceptual awarenesses of the environment) were said to have at times a "tone of feeling," a pleasantness or unpleasantness that seems "to inhere in the

sensible quality itself." The latter, phenomenological fact moved James to associate feeling with the "form of sensational processes," rather than with "specific nerves." How such forms differ from ones that lack warmth and feeling was left unspecified. In 1884 James asked whether the central emotional process resembles the ordinary "perceptive" processes or whether it is "an altogether peculiar one." If, as he suggested, the process resembles the former, it would still need to be, for consistency with the theory, in some way peculiar. The reason lies in James' (1894) own phenomenology: The agreeableness or disagreeableness of perceptual content is distinct from *the felt seizure of excitement* that is a standard emotion.

Diffusive waves. Irons (1894) brought up another objection that helps to clarify the nature for James of bodily feelings. He asked how it was that certain awarenesses of bodily change were simply perceptions while others were supposed to be emotions. He noted that awarenesses of bodily disturbance can serve to evoke an emotion. For example, perceiving that one's heart is beating wildly may make one afraid that he is about to have a heart attack. In that case, could such a perception be an emotion as well? James' (1894) response was that "where an organic change gives rise to mere local bodily perception" there is an absence of a complete emotional "diffusive wave"; *hard to localize visceral events* have not occurred and have not contributed causally to an emotional feeling. In modifying his original formula (e.g., we are frightened because we run), James (1894) distinguished between running afraid and running unafraid by reference to "invisible visceral events." In the one there is a complete enough bodily disturbance so that the consequent bodily feelings constitute an emotion.

Thirty years later, Marañon (1966 translation) "definitely demolished" James' position by means of studies using injected adrenalin. Cannon (1927), too, considered it crucially against the theory that injections of adrenalin do not always produce subjective emotional states. Some of Marañon's patients when injected became aware of "the complete framework of the autonomic symptomatology of emotion. . . . tremor, both internally and of the limbs, a precordial oppression, shivering of the spine, coldness of the hands, dryness of the mouth, heart palpitations and tears [p. 245]." In this group of patients these awarenesses were accompanied by a feeling of being moved. However, Marañon described them as having undergone a calm or cold emotion, because they said they felt *as if* they were undergoing an emotion. A second group of adrenalin-injected patients each gradually felt "his mind invaded by an emotional flux [p. 245]." Often a "psychological motif" was reported as well; for some it was not

("... the subject states that he is crying and sad and depressed, but that he does not know why [p. 245]"). Given that emotional flux – a phrase recalling James' diffusive wave and suggesting more than a number of bodily perceptions, it seems that a "psychological motif" may not be necessary for subjective emotion.

The first and second category of patients constituted only 29 per cent of the total 210 receiving adrenalin. The rest did not recognize their state as emotional or quasiemotional, nor did they appear to be undergoing an occurrent emotion. In the main the 29 per cent suffered from glandular or autonomic disorders; some were women at menopause and the others were diagnosed as neurotic of affective type. No normal subjects could be included in the first two categories. Subsequently Cantril and Hunt (1932) did find an emotional effect (cold or otherwise) in 14 of 22 normal subjects injected with adrenalin.

The differences in own emotion awareness between the three categories of patients and subjects may be the result of differences in the patterning and completeness of their bodily reactions to adrenalin. Reviewing the known effects of infusions of adrenalin, Marañon (1966) repeatedly remarked on individual differences, but he did not appeal to these differences to explain his three categories. Instead he proposed that patients who do experience an emotion under these conditions have an extreme "emotional disposition"; for them a "liaison with the psychological element" (meaning a cognition – "sensation, idea, memory" – ordinarily productive of bodily changes) is readily established, in the study "centripetally" by the autonomic effects of the adrenalin. However, this cannot explain the difference between genuine and as-if emotion, as Cantril and Hunt (1932) pointed out, since associated content also was present often in cold emotion. Nor can it explain those cases of genuine emotion missing a psychological motif.

Cantril and Hunt (1932) suggested another kind of cognitive difference to explain the different reactions to adrenalin: Some subjects more readily accept the felt bodily disturbance as an emotion. Others need additional, situational criteria ("certain logical relationships"). The difference is in the awareness one has of his own condition. What is supposed to explain different subjective reports under similar circumstances amounts to a subject's concept of an emotion. But Cantril and Hunt found that the same subject can differ from one injection to another. It seems they would have to claim that on some occasions, which are externally much the same as others, a subject discovers the necessary logical relationship. Or, they

would be thrown back to a more Jamesian interpretation: James (1894) believed there were bodily variations that produced different feelings called the same emotion by different subjects. These variations had to be within limits that "preserved enough functional resemblance." Given variation of this kind both between and within people, together with the variable effects of adrenalin injections, one would expect that for some the limits would be overpassed and for some only on some trials.

Not perceptions. In a letter dated in 1884, James wrote about his theory of emotional consciousness, "I don't mean that the emotion is the *perception* of the bodily changes *as such,* but only that the bodily changes give us a feeling, which is the emotion. We can, it is true, partly analyze the feeling; if we could totally analyze it into local bodily feelings its emotional character would probably change. After all what my theory has in view is only the determination of the particular nerve processes which emotion accompanies [Myers, 1969, p. 70]." Note that one becomes aware of bodily changes by means of the feelings they produce, but feelings are not themselves awarenesses or perceptions of bodily change. We become aware *of* feelings either as localized or as not referrable to any specific bodily part. Somewhat inconsistently James (1894) claimed to be able to "more or less well localize" in his body *all* the "various elements of organic excitement under one emotion [p. 524]," though he thought others might not. For them "a large mass of unlocalized emotion" would remain, something that happened to James only in very mild emotional states or when certain perceptions were tinged with pleasantness or unpleasantness. But we can know our bodily feelings and, therefore, our occurrent emotions without localizing them. (Cf. Mandler, 1962, p. 326: ". . . changes occurring in different parts of the body may summate to produce emotional effects.")

Treatment of emotions as complexes of bodily feelings, moreover, *requires* the complex *not* be equated with one or more bodily perceptions. Otherwise the subject would be emotional only when he perceives his bodily state. Even when he is riveted to the exciting fact causing the bodily disturbance, he would be said *not* to be in the throes of emotion so long as his attention is turned away from his bodily state. Surely James could not have meant this. The present interpretation of James has certain similarities to that of Myers (1969): ". . . it is not the mere awareness of somatic disturbances but *how they feel* which constitutes the emotion [p. 73]." The crux of James' theory was said to be "that my emotion or feeling of anger 'acquaints' me with certain (otherwise unknown) events which produce

the emotion [p. 75]." These events are "certain biochemical events in one's own body," "certain obscure organic changes." In the present interpretation, too, "acquaintance" could be applied to the kind of contact with one's bodily processes that feelings provide, but with one proviso, only if the concept is understood to imply merely the *potential* to know, by becoming aware of the feelings or that one is undergoing a certain emotional state. This sense of "acquaintance" would be noncognitive. "Acquaintance" would not itself involve beliefs and it would be independent of self-awareness, except as feelings cause and enter as contents into such awarenesses.

Cannon's Introspective Objection

Cannon's (1927) five objections to the theory are frequently discussed and evaluated (e.g., Arnold, Vol. 2; Schachter, 1964; Fehr & Stern, 1970). Each is brought in at some point in this article. One needs special attention: Are the latencies of visceral change short enough for what James' theory requires? Fehr and Stern (1970) took this objection to say that the "latency of visceral changes is too long to account for the immediacy of emotional behavior [p. 411]." They argued that the criticism is misplaced, since James had bodily changes anticipating and contributing causally to emotional feelings, and certainly emotional behavior constitutes a bodily change. In other words, bodily feelings are not without behavioral effects, but there are behaviors we deem emotional that occur prior to emotion qua bodily feeling (cf. Schachter, 1964).

But Cannon's criticism seems more introspective than behavioral: "Visceral changes are too slow to be a source of emotional feeling [1927, p. 112]." Arnold (1960, Vol. 2, pp. 5-7) found the criticism valid in view of studies that show emotions are *reported* before the occurrence of the theoretically requisite autonomic changes. She called special attention to the work of Newman, Perkins, and Wheeler (1930). Their subjects reported an immediate pang or shock followed by a more vivid emotional experience three to fifteen seconds later (cf. Mandler, 1962, p. 327). The emotional character of this immediate response (to pictorial stimuli) was stressed by Arnold, though she was conciliatory: "We may refuse to call it a *complete* emotional experience and we may agree with Newman that normally a whole sequence of bodily changes will follow which are gradually sensed, so that the peak of the experience may not come for some time [p. 6]." It seems that people learn to report their emotions in anticipatory fashion. They judge from a combination of circumstances and their own immediate, intense attentive reactions that they are undergoing the

start of a sequence of internal events ordinarily constitutive of a certain emotion (cf. Mandler, 1962, pp. 327-328).

Bedford's Analytic Critique

Bedford (1957) tried to show that emotions are not "any sort of experience or process [p. 281]." Accordingly someone may be characterized as jealous, for example, without his "having a particular experience at any given time." The concept of anger is not the concept of a feeling; it is logically prior to "feeling angry." And, according to Bedford, it can be applied to another person without any knowledge of his feelings. How can we explain to someone what it is to feel angry? "The only possible method for us would seem to be this: to make him angry, e.g., by insulting him, and then say to him, 'Well, feeling angry is feeling as you feel now' [p. 284]." However, Bedford pointed out, this procedure does not guarantee the proper feelings, and having no access to the subject's feelings in order to check, we might be supposed (by a theory that equates anger with certain feelings) to not know whether the recipient of the explanation is angry. Of course we do know, Bedford concluded, and our knowing is independent of knowing about his feelings.

But Bedford's procedure does not embrace important elements of how an understanding of the concept of anger would be taught. The teacher has a certain concept of anger and that is where we must begin, with the concept of being taught. Conditioning own emotion awareness depends on noting good expressive or behavioral evidence of the emotion in question. Such evidence is evidence for anger *in* the subject. In fact the subject would be informed that how he feels explains these manifestations. The teacher points out that the expression is not the anger and may proceed to instruct on how to disguise anger's overt effects. In other words, the verbal community draws distinctions between behaviors and the private events that antecede them (cf. Skinner, 1953, 1957). Some behaviors are acceptable, others carefully regulated. Having learned not to show his anger, the subject is asked on occasion whether he is angry or not. A theory such as James' would say that in order for him to answer positively, veridically, and without inference, the subject must be aware of his own bodily feelings. In teaching the concept of emotion, this kind of theory (according to which emotions are internal states or processes) is part of what is learned.

It must be admitted that the procedure for explaining emotion words can misfire. "Anger" will be applied more broadly than the teacher ideally would allow. To reduce the chances of this happening, he notes subtle differences in the manifestations and correlates them with subsequent be-

havior. Also the subject's own distinctions between those of his states that fall in the same category can prove useful. They are a potential source of information that some would neglect on the assumption that a subject is limited in his distinctions to those he has been taught. But, having learned from the verbal community to be aware of his emotions, is there good reason to think he will be unable to tell us new things about them? He does tell us new things about his environment.

According to Bedford, the only advantage any subject has in applying emotion concepts to himself is better access to the context of his behavior; he has no information useful for this purpose of a radically different kind. Yet note: (a) People with reduced bodily feelings seem to undergo less subjective anger and fear under contextual and behavioral conditions where the respective emotion words are applicable (Hohmann, 1966). (b) Detailing for an ordinary adult subject the context of his behavior will not easily settle disagreements with him concerning his emotional state. In the absence of introspectible feelings, he is likely to question and reinterpret that suggested context.

According to traditional theory, someone who pretends an emotion, say anger, differs *in his internal state* from someone who is in fact angry. Bedford (1957), in contrast, introduced the concept of a behavioral limit to capture the difference between them: Once a person oversteps the limit (e.g., bites the carpet), he would have to be judged angry. His feelings have nothing to do with it. Bedford did say that the one person might feel angry while the other (the pretender) did not, bnt that does not "constitute the difference." Austin (1958) responded that someone who is angry need pass over no limit, need be no more violent or conspicuous than someone who is merely pretending, "and if someone is pretending to be angry in some emergency where the success of the pretence matters seriously . . . then surely he may hit upon biting the carpet as the very thing to clinch the deception [p. 263]." Actually recourse to the notion of a behavioral limit is not necessary to Bedford's position. He could instead have appealed to the merely apparent sameness of context. For one thing the thoughts one has in the two instances would be different, and thoughts are part of Bedford's context. This way of handling the problem of pretence, however, would not rule out the possibly determinative difference of different feelings.

A subject who ascribes an emotion to himself or to another person "interprets" behavior, according to Bedford's (1957) positive view. The same behavior can be variously "interpreted" depending on its social context.

But emotions were not said to be interpreted behaviors, in the sense of Schachter's (1964, 1967) hypothesis with behavior replacing the bodily state. Neither shame nor embarrassment, for example, were considered to be behaviors. The "interpretation" of behavior via the ascription of emotion terms was held to be a way of characterizing the behavior's context. Thus, emotion terms are modes of evaluation that relate people to their social backgrounds, and emotion concepts generally "presuppose concepts of social relationships and institutions, and concepts belonging to systems of judgment, moral, esthetic and legal [Bedford, 1957, pp. 303-304]." This means (a) that the behavioral basis for ascribing shame can be the same as that for embarrassment, (b) that any difference between them in feelings does not "constitute the difference" between the two emotions, and (c) that the difference between them is evaluative. What a subject is ashamed of is something for which he is subject to criticism; what he is embarrassed about need not be his fault. To be ashamed a subject must accept fault as his own or as belonging to someone with whom he identifies.

Are the subject's feelings irrelevant, as Bedford claimed? Let us admit the fact that someone aware of being ashamed must believe he acted wrongly or failed to act rightly. To be considered ashamed or to consider himself ashamed, does not the subject have to be in a certain internal state? The traditional theory finds cause to withhold the attribution in the absence of the subject's feeling ashamed (cf. Melden, 1969, p. 209). Consider a second subject. Upon being found out, he admits fault coldbloodedly, as we say. He even seeks to make amends. In Bedford's view the subject is not pretending, since he has made the relevant evaluation and the amends he volunteers are costly to him. The present point is that he can do these things without shame. His statements and actions are the result of having learned to ascribe responsibility and to behave adaptively. Not to make amends would be in time even more costly. What is lacking seems to be the central affective state we call shame and which James identified with bodily feelings.

Yet Bedford's case against James' kind of theory succeeds in raising some doubt. Is own emotion awareness based simply on bodily feelings? The concept of a certain emotion may require criteria *in addition to* bodily feelings for its application, specifically a characterization of the relevant state of affairs. Which leads directly to Schachter's (1964, 1967) cognitive variation on James.

Schachter and Singer's Experimental Critique

According to James (1884), "perception of an exciting fact" contributes to subjective emotion indirectly, by evoking bodily changes. A second role that such cognitions may play was emphasized by Schachter and Singer (1962): ". . . one labels, interprets, identifies the stirred-up [bodily] state in terms of characteristics of the precipitating situation and one's apperceptive mass [p. 380]." Since both James and Schachter admit cognitive factors as determinants of emotion, a simple demonstration of the joint effects of situation and bodily changes (e.g., Schachter & Wheeler, 1962) will not suffice to choose between their views. The Schachter and Singer (1962) experiment attempted more: to show that bodily feelings (variable or not) will be interpreted as one emotion or another or as not emotional at all *depending on what cognitions are available to the subject.* Therefore, an attempt was made to produce the theoretically requisite bodily feelings independently of the usual cognitive events that bring them about, in order that these cognitive events might be systematically varied. The effects of an injection of epinephrine, the artificial means to that end, were seen by Schachter (1964) in terms of four steps, presented next with comment.

1. The injected epinephrine produces "physiological arousal" which includes changes in heart rate, in systolic blood pressure, in the distribution of blood, in the blood's contents, and in respiration rate. Plutchik and Ax (1967) called attention to the large individual differences that occur in reaction to drugs. They cautioned that the various epinephrine-injected experimental groups in an experiment such as Schachter and Singer's must be shown to be equivalently affected. They questioned their use of pulse rate alone as an ambiguous measure that correlates poorly with other measures.

2. The subject becomes aware of at least some of the bodily changes produced by epinephrine. He becomes aware of them as palpitation, tremor, flushing, breathing hard, etc. In all cases of *subjective* emotion, there must be, according to the theory, this noticing of bodily happenings. But it does not imply that such noticing is necessary in order for emotions to occur. The theory concerns self-labeling rather than emotion in some objective sense.

3. Awareness of bodily state leads to "arousal of evaluative needs" or "pressures . . . to understand and evalute" that state (cf. Valins, 1970, p. 231). You have to search for something to explain it. Presumably no search need go on if you are already engaged in a line of thought that provides

an adequate explanation. For example, in a dark alley with someone who shows you a gun, your interpretation of your bodily state is at hand and immediate. On the other hand, safe and comfortable after an injection of epinephrine you need to find cause for how you feel, assuming you do not know the effects are due to the injection.

4. Depending on how he explains his bodily state, the subject will experience himself as undergoing one emotion, or another, or no emotion at all. For a discussion of this last step, see below under *Cognitive Objects.*

Schachter and Singer (1962) used two basic experimental groups, epinephrine-injected and placebo-injected. In the first group some subjects were correctly informed as to what symptoms to expect, others misinformed, the rest uninformed. All placebo subjects were uninformed. Following a wait (for the experiment proper to begin) with a confederate who encouraged either irritation or euphoria, the subjects rated themselves on "irritation, anger, or annoyance" and on "how good and happy they felt." According to the theory, both physiological arousal and an appropriate explanation are necessary for a subject to be aware of himself as undergoing an emotion. Therefore, the authors expected the placebo sub-groups, lacking the necessary physiological arousal, not to differ in reported emotion from the corresponding *informed* subgroups, who had a nonemotional explanation for their bodily states. Also it was expected that the placebo subgroups would report *less* emotion than the corresponding uninformed or misinformed, epinephrine subgroups, who would explain their bodily feelings by reference to the social context created by the confederate.

It was found that following the wait with the *euphoric* confederate, (a) informed epinephrine subjects reported themselves as less happy (more irritated: a composite score) than did uninformed or misinformed epinephrine subjects, and (b) placebo subjects did not differ statistically from the epinephrine subjects in their self-ratings, falling numerically between the informed and un- or misinformed subgroups. (Behavioral ratings made during the wait through a one-way mirror showed the same pattern.) Similarly it was found that following the wait with the *angry* confederate, (a) the informed epinephrine subgroup tended to be less irritated (more happy) than the uninformed epinephrine subjects, and (b) again the placebo subjects fell numerically between them. (In rated behavior the informed subjects and the placebo subjects showed on the average less angry behavior than the uninformed epinephrine subgroup.)

Two additional, internal analyses of the data were performed. In neither of these was attention given to self-ratings, a serious deficiency in view of

the subjective reference of the theories in question. Schachter and Singer conjectured both that the wait might have aroused some of the placebo subjects and that some of the un- or misinformed epinephrine subjects might have inferred the pharmaceutical source of their bodily states. It was found that those placebo subjects whose pulse rates declined during the wait were rated *as angry as* or *as euphoric as* the respective informed subjects, while the placebo subjects whose pulse rates increased or remained the same displayed *more* euphoric or *more* angry behavior than the respective informed epinephrine subgroups. The second internal analysis eliminated some of the uninformed epinephrine subjects on the grounds that they were self-informed (according to a post-experimental questionnaire). With them removed, expectations of differences from the placebo subgroups were satisfied.

Do these results select between the theories of emotional consciousness of James and Schachter? Recently Schachter (1970, p. 119) stated that the results of Schachter and Wheeler (1962) and Schachter and Singer (1962) are "virtually incomprehensible" in terms of a formulation such as that of James. In response to this, three categories of comment are pertinent.

1. As pointed out above, merely finding differences due to a combination of social situation and injected solution, as Schachter and Wheeler (1962) did, shows only that one's bodily state or behaviors are influenced by both these variables, something that James would be surprised *not* to find.

2. In the Schachter and Singer experiment, the social situation and the drug interacted to produce relatively specific behavioral effects during the wait and self-ratings subsequently that were consistent with these effects. If we ignore the (crucial) informed epinephrine subgroups, the self-ratings can be explained as based on differences between groups in behaviors (Walters & Parke, 1964), in bodily feelings (James), or in situationally explained bodily states (Schachter). This portion of the experiment (excluding the informed subgroups) does not select between these alternatives.

3. The basic fact on which Schachter's case rests is that informed epinephrine subjects were less emotional (by subjective report) than the un- or misinformed epinephrine subjects following the wait with the confederate. To rule out James' kind of explanation one must have reason to believe that there were no differences in their bodily felings. Instead a reason to think there might well have been such a difference is suggested by Schachter and Singer's own expressed concern over their experimental strategy of providing information on what feelings to expect to some sub-

jects only: "It seemed possible that the description of side effects . . . might turn the subjects introspective, self-examining, possibly slightly troubled [p. 383]." The misinformed condition was added, therefore, to control for attitude while not providing an adequate explanation for the later bodily feelings. *What the authors did not consider is whether empirical support for his expectations renders the informed epinephrine subject different in attitude toward the confederate.* The competing Jamesian interpretation is, in brief, that informed epinephrine subjects were less influenced *in their feelings* by the social situation, because they had been made "more introspective" by the empirical confirmation their feelings provided for what the experimenter had led them to expect. For these subjects the expriment had more clearly begun, sooner, during the wait (rather than after it when the visual tests were scheduled so far as all the subjects knew), their cognitions were different, and, as James would expect, their consequent bodily feelings would be different, less emotion-like. A similar interpretation of the self-ratings was provided by Walters and Parke (1964): "The informed subjects may have been positively reinforced through confirmation of expectancies induced by the experimenter, for attending to the bodily symptoms. Their reinforced responses may have interfered with attending responses directed toward the confederate [pp. 267-268]." The subsequent self-ratings, they contended, reflected different behaviors during the wait with the confederate. They may have reflected, James would say, different bodily feelings as well.

COGNITIVE ASPECTS OF EMOTION

Emotions can be viewed under several cognitive aspects. One of these is the general topic of the present article, emotions as contents of the subject's own awarenesses. In this section emotions are discussed under three additional cognitive aspects: (a) as brought about by cognitive causes; (b) as having intentional objects, that is as being about or referring to certain objects or states of affairs; and (c) as participating in theories that treat emotions as cognitive episodes. The perspective remains that of the subject, though it is useful to give some attention to the observer's point of view.

Cognitive Causes

On grounds of confessedly "fragmentary introspective observations," James (1884) held that normally emotions require to occur a certain kind of cognitive happening – that "cold and neutral state of intellectual per-

ception" which remained after James hypothetically subtracted all bodily feelings. Though intellectual, this episode was immediate and intuitive, having its effects on the body despite the "verdict of our deliberate reason." For example, it is the awarenesses we have of others' attitudes towards us that evoke most of our shames, indignations, and fears. In many cases the "intent or animus" perceived in another's behaviors arouses an emotion in us. However, James continued, no "emotional idea" mediates between this "cold and neutral" perception and the bodily changes. The "intent or animus" must be (by hypothesis) the content of a cold perception, which is to say not emotional in itself except as it evokes bodily changes. Consistently James (1894) later denied that an objection to being eaten by a bear (a cause of fear) was in itself an emotion or was in some sense emotional independently of its bodily effects.

If an emotion is to be traced back casually, with James, to elements of the situation "that strike us as vitally important [1894, p. 518]," then the situation must already have been found, prior to the requisite bodily changes, frightful or delightful. That seems to have been Dewey's (1895) main objection to the theory: "If my bodily changes . . . follow from and grow out of the conscious recognition *qua conscious recognition*, of a bear, I see no way for it but that the bear is already a bear of which one is afraid – our idea must be of a bear as a fearful object [p. 19]." In place of James' cognitive cause of emotion, Dewey substituted a neutral, unconscious, noncognitive "act of seeing"; by reflex or habit this stimulus-like event directly effects bodily changes. The subject may take a conscious recognition to be the cause of his emotion, but this is illusory, the result of finding himself cognizing about the emotion's object once the emotion is already underway. By that time, what is seen, heard, or thought has been transformed into, say, a frightful object as a consequence of the bodily changes.

Evidently James' (1894) more developed position continued to diverge from that of Dewey: "The same bear may truly enough excite us to either flight or fight, according as he suggests an overpowering 'idea' of his killing us, or of our killing him [p. 518]." We are left with no clear idea of the nature of overpowering ideas. Arnold (1960, Vol. 1) interpreted them as "practical judgments"; because the bear means danger *to us now*, it evokes fear. For James, however, an overpowering idea might be that simply because it effects massive bodily changes. There is the implication that even the conscious recognition of a bear as imminently dangerous to oneself can be a cold, intellectual perception. James might be right: One of Hohmann's (1966) cervical subjects reported, "I was at home in bed

one day and dropped a cigarette where I couldn't reach it. I finally managed to scrounge around and put it out. I could have burned up right there, but the funny thing is, I didn't get shook up about it. I just didn't feel afraid at all, like you would suppose [p. 150]."

Appraisals. Peters (1969) explained the failure of psychologists' theories to deal in any detail with the cognitive causes of emotion as due to a methodological bias, one that emphasizes physiological and behavioral aspects of emotion. Deriving from common sense rather than positivist philosophies, Peters' (1961, 1969, 1970) own analyses, apparently following Arnold (1960), have come to center on the concept of appraisal. An appraisal consists "in seeing situations under aspects that are agreeable or disagreeable, beneficial or harmful in a variety of dimensions. Fear, for instance, is *conceptually* connected with seeing a situation as dangerous, anger with seeing it as thwarting, pride with seeing something as ours or as something we had a hand in bringing about, envy with seeing someone else as possessing what we want [Peters, 1969, p. 153]." Note that the connection between an emotion and the appraisal that brought it about is not supposed to be merely causal. It is said to be conceptual, in the sense that we differentiate emotions by the kind of appraisal that evokes them.

The occurrence of an appraisal does not necessarily result in an emotion. According to Peters (1969) we can "simply view a situation under the aspect connected with the appraisal" and do this "without being particularly affected." The same appraisal can occur with and without emotion, according to Arnold (1960, Vol. 1), without if there is missing a "definite pull toward or away from it [a person, situation, or thing] . . . that unreasoning involuntary attraction or repulsion [p. 172]." In Arnold's view when certain appraisals do not have this effect it is due to their nature; for one thing, they must be *intuitive* to produce an emotion. The appraisals that move us, suggested Peters (1969), tend to be "immediate and 'intuitive' " and not very discriminating. His example of a typical appraisal of this kind was the one that mediates a jump upon seeing a face at the window. A schizophrenic's inability to feel the sorrow he reports, Arnold (1960, Vol. 1) explained as the result of undergoing an abstract, theoretical appraisal of what should be felt under the circumstances, rather than an appraisal of the intuitive kind. A second reason that some appraisals do not evoke emotional states must have to do with their *contents:* A bear in a cage is appraised as not dangerous here and now to me, and no fear is aroused.

How are intuitive appraisals to be understood? (a) The intuitive appraisal of value or harm, goodness or badness, "is not consciously experi-

enced. It is experienced as no more than a feeling, a favorable or unfavorable attitude to this thing, a liking or disliking [Arnold, 1969b, p. 170]." Intuitive appraisals are clearly theoretical postulations. They are functions or processes "inherent in the feeling experience," and they have feeling as their "result." Moreover, an intuitive appraisal is not introspectively available. A subject must infer it from his feeling of attraction or repulsion. Given this kind of feeling he judges that he must have undergone an evaluative kind of mental episode or practical judgment. He acquires beliefs and convictions about his intuitive appraisals from other mental episodes presumably given directly. Thus for him, too, a kind of (commonsensical) theory must intervene in his knowledge of his own intuitive appraisals. (b) Intuitive appraisals are analogous to unconscious "sense judgments." The latter are a kind of judgment presumed by accounts of the fine, behavioral adjustments necessary in the exercise of skills. To explain the accuracy of behavior a capacity is brought in for unconscious judgments of distance and the like. (c) Intuitive appraisals are "integrative sensory functions" that "complete" perceptions, in respect to how the object or situation affects or relates to the subject personally. Their contents are determined by "affective memory . . . a revival of the impact of the past situation on us [Arnold, 1969a, p. 1043]." Remembering, too, can be intuitive; one is unaware of the connection of the present appraisal to the past.

One obstacle to accepting the foregoing account of the cognitive causation of emotion is the familiar experience of arousing oneself emotionally by means of a conscious, deliberate train of thought. For example, one may piece together shreds of evidence to conclude that a certain harmful or beneficial event has occurred or will occur, whereupon this "reflective" appraisal *seems* to produce an emotion. Arnold (1969b) attributed the emotional effects of deliberate judgments to mediation by "accompanying" intuitive appraisals. The oft noted contradiction of reason by emotion served as grounds. Thus, one may feel afraid just as if one had not explicitly judged the situation to be perfectly safe. Though Arnold (1969b) explained irrational fear as due to intuitive appraisals under independent control, she recognized, too, that explicit judgments sometimes determine which intuitive appraisals occur. There is, on the one hand, a resemblance to the strength of some visual illusions in the face of knowledge and reason, and on the other hand, an openness to reason such that conscious judgments can modify an intuitive appraisal already made (Arnold, 1960, Vol. 1, p. 175).

Whenever an explicit appraisal fails to elicit an emotion, either it is not accompanied by the requisite intuitive appraisal or it is accompanied by one that lacks the necessary kind of personal and practical reference. And whenever an emotion does occur, the right kind of intuitive appraisal is postulated. Arnold (1960, Vol. 2, pp. 309-310) pointed out that there are emotions special to man, those for example connected with the appreciation of sports, requiring to be elicited certain sophisticated, reflective appraisals with a degree of conceptual complexity that rules out their being intuitive. Nonetheless, the consistent theoretical requirement was imposed: The reflective judgment must "carry" along with it an intuitive appraisal to be productive of an emotion. The generality of this assumption suggests a more intimate relationship between intuitive appraisal and emotion than the causal (cf. Pitcher, 1965, pp. 334-335). The kind of happening an emotion is may explain the apparent reasonableness, even obviousness, of the assumption. Any subjective emotion is directed positively or negatively toward some thing or situation. The subject is aware of his emotion as implying an evaluation or appraisal of that something. The reason he infers an appraisal is because the emotion *in being thus directed itself constitutes an appraisal of the object*. The assumption of a prior causally effective, intuitive appraisal requires additional grounds. These are likely to come down to the following facts: that for an emotion to be evoked, some processing of information is necessary, and that an adaptively important part of that information is how it bears on the subject's welfare and the welfare of those people, institutions, and entities with which he identifies. But these facts would not rule out control of emotion by cognitive acts other than intuitive appraisals.

Cognitive Objects

To say the least it is not unusual for a subject to characterize his emotion by reference to an "object." The emotion is said to be about some state of affairs or individual, whether actual, potential, or imagined. The fact of having to die, about which one may be afraid or depressed, is one such "object." Other examples are occurrences over which one is indignant, situations at which one is overjoyed, and people with whom one is angry. This relationship to an object differs from the causal. Donnellen (1970) nicely illustrated the diference: Jones hears Smith say to him, "Sometimes I wonder about you." Jones becomes afraid of what next Smith will say. What is already said (more precisely, hearing it said) is the cause of Jones' fear. The object is what yet remains to happen, though what

Smith has up his sleeve may be quite obscure. The object is the object whether or not it materializes later.

Emotions without objects? James (1890, pp. 458-459) gave introspective evidence of "objectless" emotional states. He described the subjective emotion of dread with purpose to show that neither cognitive cause nor object needs to be included in such a description. Although emotions were said to be often knowingly experienced as directed toward some state of affairs, an emotion for James was no less an emotion for not being directed. Others (e.g., Dewey, 1895, p. 17; Ruckmick, 1936, p. 66) have claimed subjective emotions always are directed. People who find themselves in an "objectless" emotional state, according to Dewey (1895), are aware *not* of a state without an object, but of one whose object they are uncertain about. They may seek to determine the referent or reason that is sensed to be missing (cf. Schachter, 1967). It was held that every emotion carries with it "a changed intellectual coloring, a different direction of attention [Dewey, 1895, p. 18]." The indefiniteness and not the absence of an "objectless" emotion's object was argued by Irons (1894) as well, and Armstrong (1968) interpreted some cases of "objectless" emotion as having "completely unspecific" objects, as when one is afraid that *something* unpleasant will happen.

All these authors (except James) suggest that certain instances of own emotion awareness are such that the emotion is accompanied by a kind of cognitive gap. Aware that the emotion is about something, the subject knows little about the latter. He may know merely that it is about to happen, that it has personal significance, that it emanates from another personality, or the like. The difference lies in how well aware one is of what the object of the emotion is and what it is like. At one extreme one perceives the object in its myriad details and as the object of the emotion; at the other some vague aspect differentiates the kind of object it is.

How can feelings have objects? Identify, following James or Schachter, emotions with bodily feelings and at once how emotions can have objects (be directed) becomes an urgent problem to solve. One might suppose that this kind of theory would force the counter-factual conclusion that only bodily changes can qualify as objects of emotion. Both theorists would reject any such conclusion. Though bodily changes can be the objects of emotions, most emotions have objects other than the subject's own body. At two points James provided just hints unfortunately for how emotions qua bodily feelings can have objects. These two, treated as two different

accounts of the phenomenon, and the account found (not entirely explicitly) in Schachter (1964, 1967) are discussed next in turn.

1. The cause of emotion was at one point described as an "object-simply-apprehended." This object and the bodily feelings that result from its apprehension "combine in consciousness" to produce an "object-emotionally-felt." In the course of arguing that only "ordinary perceptive processes" are involved in emotion, James (1890) even used "object-emotionally-felt" to characterize the emotional state itself. Dewey (1895) found the latter quite natural, saying, "The frightful object and the emotion of fear are two names for the same thing [p. 20]." But Irons (1894) objected: the objective reference of emotion would then amount simply to a simultaneous or successive presence in consciousness of feeling and object. Having erroneously interpreted James' bodily feelings as perceptions of bodily change, Irons was led to take "combination in consciousness" as no more than a contiguity of two awarenesses, one of the object, the other of bodily change. This would amount to no real account for how emotions are directed. James (1890) can be otherwise understood: *the object and the bodily feelings combine in consciousness through the entrance of feelings into the content of an awareness of the object* – thus, "object-emotionally-felt." Perhaps this is exactly what James (1894) meant when he wrote, "Such organic sensations being also presumably due to incoming currents, the result is that the whole of my consciousness (whatever its inner contrasts might be) seems to be outwardly mediated by these [pp. 523-524]."

Emotions are directed as they become aspects of the content of a cognitive act. This construal of James has him holding an *adverbial* conception of the intentionality of emotion. Accordingly an emotion is knowingly experienced as directed toward an object because one is, say, angrily aware of that object. The emotion gives to the content of an awareness of the object a certain qualitative character. The awareness that determines the emotion's object is not an awareness specifically of the emotion. Moreover, to be such an adverbial aspect of the content of a cognitive act is not necessarily to be known. On the other hand, "acts of attention appear to be able sometimes to bring to the center of the stage what has been peripheral, whether the latter is substantival or adjectival. or whether it qualifies the process [Browning, 1959, p. 617]."

2. James (1894) seemed to favor another, less adequate, account for the intentionality of emotion. Some things he wrote are not consistent with the previous interpretation. He followed Irons (1894) in describing emotions as "feelings toward objects" and "feeling attitudes," where "attitude" im-

plies an object and reveals the "purely psychical element [Irons, 1894]." Those incoming nerve currents remained for James the source of the "psychical" in emotion. By their nature they provide an emotion's direction: "But on what ground have we the right to affirm that visceral and muscular sensibility cannot give the direction from the self outwards [James, 1894, p. 521]?" One is left to wonder how feelings caused by visceral and muscular changes do the trick. Bull (1951; see below) found it necessary to introduce into her similar theory a "mental attitude" for the purpose of orienting the bodily feelings.

3. Certain cognitions produce bodily reactions. The latter in turn produce bodily feelings which the subject, according to Schachter (1964), labels as a specific emotion. Depending on the contents of the cognitions that produce the bodily reactions, the subject takes himself to be joyful, sorrowful, etc. Taking himself to be joyful or sorrowful is an additional cognitive act, additional to the causative cognition. It interprets or explains the bodily feelings resulting from the latter. If the subject takes his feelings to be due to an injection, he will not label himself as emotional. If he takes them as due to an insulting questionnaire, then he has interpreted his feelings as anger, annoyance, or indignation. Thus, *an ostensible casual relationship gives the bodily state its point and direction.* Mistakes are entirely possible. The intentional object of an emotion is independent of what the true cause is. The subject can take his bodily state to be due to an insulting questionnaire when it is the result of a shot of epinephrine.

How is an interpretation selected? In any situation where a diffusive wave of bodily feeling is aroused, there are likely to be a variety of cognitions passing through one's mind. The subject continually thinks or has perceptions. Which of the objects or situations thought about will the subject choose as responsible for his feelings? (a) Perhaps the answer lies in the patterns into which the cognitions fall. They return to certain themes. Upon certain of these returns the feelings wax strong again. And the subject concludes what emotion he is undergoing. But often there is no doubt at all, no hesitation, no need for concluding; with conviction and apparent immediacy one is aware of an emotion directed toward a certain person or situation (cf. Köhler, 1929, pp. 270f.; Kenny, 1963, p. 73). (b) Perhaps the answer lies in an immediate, noncognitive effect of those cognitions that also produce emotions. This effect tags the cognition as emotion-relevant. The tag might be a kind of attentive intensity of certain thoughts and perceptions (cf. earlier subsection on Cannon's introspective objection). (c) Perhaps the answer lies in the cognitive contents themselves. Certain

contents are emotion-relevant. They picture or speak of dangers, satisfactions, longings, losses, etc. They are selected to explain one's bodily feelings because they refer to significant life-events. They represent adequate and also acceptable causes, even justifications, for the bodily upset. There are in Schachter repeated references to "appropriate" and "adequate" explanations. The explanation is adequate in that it provides *cause enough* for relief, pride, envy, etc. There remains need to account for those misjudgments of cause that occur even when the true cognitive cause is adequate and reasonable.

The theory permits certain errors in own emotion awareness. Here are two: (a) Proper labeling of feelings while mistaking the cause. Pears (1962) provided an example: Someone thinks about his lack of money and about his plans to visit some people. And he becomes aware that he is depressed. The cause is his relationship to the people (thoughts thereof), but he takes how he feels to be due to his lack of cash. If a salience tag is used to explain correct choices, then mistakes of this kind require another explanation. Similarly the criterion of adequacy or reasonableness of an explanation does not suffice where both states of affairs (pertaining to money and relationship) are equally adequate. (b) One takes himself to be undergoing an emotion and, from the observer's perspective, misidentifies it. An example would involve precipitous danger, awareness of it, and the consequent feelings. Because he perceives rude behavior nearby, the subject interprets his feelings an anger. (Again the salience tag has not worked, nor has the criterion of adequacy.) A dangerous situation being truly responsible, the observer must be judged as correct in attributing fear to the subject. To handle this case a concept of objective emotional state must be introduced, the observer's identification resting on a criterion like the subject's own. Not the kind of feelings but the cognitive cause is determinative of which objective is ascribed.

But the theory does not leave room for certain mixed cases. What the object of an emotion is depends on how one's bodily state is explained. The object must enter into the explanation, or it is not the subjective emotion's object. Pears (1962), however, pointed out cases where object and explanation have nothing to do with each other. Depressed due to taking too much of a certain drug, one is not depressed *about* the excessive ingestion but about something else that comes to mind. James would agree that such cases can occur, but Schachter (1967) strongly emphasized, ". . . given a state of physiological arousal for which an individual has a completely

appropriate explanation . . . the individual is unlikely to label his feelings in terms of the alternative cognitions available [p. 53]." If "unlikely" means it happens a certain proportion of times, then how is another cognition selected when one has a "completely appropriate explanation" already at hand? Would the feelings themselves have a selective influence? If "unlikely" is ignored, the theory needs to be reconciled with Pears' drug-induced depression. If that example is given little weight, because anecdotal, parallel instances are available in Marañon's (1966) study, and most convincingly in Cantril and Hunt's (1932). Some subjects experienced emotions despite knowing the artificial source of their bodily feelings.

Emotions as Cognitions

Accounts for the objective reference of subjective emotions in terms of their involvement with other mental episodes, namely awarenesses (cognitions), may be imperfect recognitions that emotions are ways of knowing about the world, themselves forms of cognition. As such they have both epistemic and qualitative aspects. James (1890, pp. 473-474) came close to this view as a result of his attempt at a neurophysiology of emotion strictly in terms of "sensational" processes. On introspective and theoretical grounds, Dewey (1895) came closer still: (a) Emotions always have intellectual content. In experience the object of an emotion is not distinct from the emotion per se. Any (abstractly drawn) distinction of this kind is motivated by "practical values": "We take a certain phase which serves a certain end, namely, giving us information, and call that intellectual; we take another phase, having another end or value, that of excitement, and call that emotional [p. 21]." With equal introspective warrant a certain emotional experience can be called either "the frightful object" or "the emotion of fear." (b) His theoretical basis was his motor theory of perception. The discrimination of objective properties and the perceptual recognition of objects depend on the "predominating motor response" to the object as stimulus. Since the excitement or "feel" also depends on motor, glandular, and visceral peripheral events, a "coordination" of the various afferent currents is more to be expected than their differentiation.

Broad's (1954) equally explicit treatment of emotions as cognitions divided experiences into those that have and those that do not have an "epistemological object." What makes emotions cognitions is that they have such an object, whereas pure feelings have only "psychical qualities." The contents of cognitions are propositional: "In its cognitive aspect" an emotion "is directed toward a certain object, real or imaginary, which is cognised, correctly or incorrectly, as having certain qualities and standing

in certain relationships [Broad, 1954, p. 209]." As O'Neil (1958) might put it, the intellectual content of an emotion requires sentences rather than terms for its expression (cf. Natsoulas. 1970, on the nature of awarenesses).

The second aspect of an emotion is "emotional tone," that is to say "one or more of a certain kind of generic kind of psychical quality [Broad, 1954, p. 205]." One is innately disposed to experience "a fairly small number" of primary qualities. These were identified by reference to fear, anger, and the like. The intellectual content of an emotion was said to selectively blend primary qualities of different intensities to comprise the specific emotional tone. In Broad's discussion causal relations between the cognitive and the qualitative aspects abound, to the point where without strain one is able to read "emotional tone" for "emotion" and interpret the cognitive aspect as its cause. The emotional tone, however, does "qualify" the cognition: "to be fearing *X* is to be cognising *X* fearingly." Aside from this mode of expression of the internal relation of these aspects, one is hard put to extract from the theory any further understanding of how they are related, other than causally.

In Broad's scheme emotional *moods* correspond to objectless emotions. These are either pure feelings or they have "an extremely vague indeterminate object." They fall short of being emotions in not clearly having an intellectual content. Another category of experience that does not fit squarely into the category of emotion as defined is that of the "unmotived" emotion (cf. Pitcher, 1965, p. 337). These experiences are not objectless. Though they have an object, they are not directed to it "in respect to a certain attribute." The subject is not aware of the emotion as "evoked by his knowledge or belief that *O* has a certain attribute *P* [p. 206]." Unmotived emotions do not have a propositional content. There is no belief about the object of the emotion that the subject can single out as reason for his emotion. If he must choose, he still is unconvinced that it is in fact the reason even though it is a belief about the object's attributes of a kind that ordinarily motivates such an emotion.

Finally, mention at least should be made of another view of the cognitive character of emotion, namely Leeper's (1965, 1970) attempt at a radical reinterpretation of the concept of emotion in the light of recent knowledge. An important orienting assumption is the tendency for our concepts to trail the growth of knowledge and the need periodically to restructure the elements of our thought in order for them to conform to empirical complexity. Thus, currently an assimilation of perception to emotion and emotion to perception would better reflect recent work on the brain, percep-

tion, etc. The reader is referred to Leeper's own analyses, for they are too long and complex to be done full justice here.

THE ROLE OF BEHAVIOR IN OWN EMOTION AWARENESS

Behavior could very well affect own emotion awareness by means of "afferent nerve currents" resulting from the behavior's occurrence or from peripheral readinesses to behave. James (1884) placed behavior, together with other bodily changes, causally between the perception of an exciting fact and the emotional feelings. Though it can contribute to bodily feelings, behavior was not deemed necessary for subjective emotion. Even without changes in "outward attitude," there were said to occur "inward tensions" that varied with each mood and were "felt as a difference in tone or strain [p. 192]." James' (1894) later modification of his original formula made "run" stand for "many other movements in us" including "invisible visceral ones." The running per se was believed to produce exhilaration rather than fear.

A possible causal role of behavior in own emotion awareness at once suggests the control of emotion by voluntary means. In the absence of a perception of an exciting fact, could the deliberate adoption of a bodily attitude influence what emotion was experienced? James (1884, p. 192) mentioned that any emotion resulting from "catching the trick" with the voluntary musculature is "apt to be rather 'hollow.'" The full range of organic changes might fail to occur. He did propose, on the other hand, a corollary to his theory to the effect that an emotion can be enhanced or inhibited by performance of its "outward motions" or those of a contrary emotion. In the latter instance one emotion might turn into the other, the involuntary visceral components brought along by taking the posture. He referred to a friend who was able to control his "morbid dread" by holding himself erect and breathing deeply. Later James (1890) discussed how actors differ, some managing to simulate without undergoing the emotion. The latter was treated as an ability. Some actors are able to suppress organic changes that other actors evoke in themselves at times by means of their behavior. James held then that visceral changes can follow upon adoption of a muscular attitude; however, it will not necessarily induce the essential visceral changes and the consequent emotion (cf. Fehr & Stern, 1970).

Bull's Attitude Theory of Emotion

In Bull's (1951) related theory, there is a very close connection between

emotion and behavior. Muscular preparations to respond ramify into visceral changes. The emotional feeling is a consequence of these changes and those in the musculature. For example, the subject is sorry because he is in "an attitude of preparation for a crying fit," a motor attitude, a "movement in suspense." An actual crying fit eliminates the sorrow felt. Complete behaviors must be prevented from developing, either by another motor attitude (negative emotions) or by the moment's not being quite propitious (pleasant emotions). Otherwise an emotion will not occur. Peters (1969), too, stressed the absence in emotion of actions fully executed; consequently, an emotion "wells up" to discharge in visceral, glandular, and motor activities (that are less than actions). A similarity to Bull lies in Peters' emphasis on blocked *wishes*. Certain prepotent actions are prevented from occurring. One can still do a variety of things while aware that one is fearful, joyful, or indignant. But what one wants to do is blocked or delayed.

A "feeling of suspense and all this entails of waiting and anticipation," Bull (1951, p. 8) implied, is common to all the emotions. Typically they include as well "feelings of direction and intention." In some cases the subject will find his feelings "unoriented." They will consist only of "vague suspense, excitement, tension, restlessness, nervousness, etc." He will be unaware of their direction. No wishes or wants will be knowingly experienced, no "sorry feeling of wanting to cry," no "angry feeling of wanting, or wish, to strike," no "fearful feeling or wanting, or wish, to run away." No clear-cut *mental attitude* will be evident. If there is a complete lack of "orientation or intention," then he will have awarenesses of visceral sensations alone, without even the vague, motor feelings of suspense. Then a subject should characterize himself, for example, as sick rather than disgusted. One of Bull and Gidro-Frank's (1950; Gidro-Frank & Bull, 1950) hypnotic subjects reported that "just feeling sick" replaced the suggested emotion of disgust. The authors attributed this change to the unexplained giving way of the initial motor attitude. With only the visceral reaction left, there was no longer "an objective point of reference" and no emotion (Bull, 1951, pp. 34 & 56).

Recall the problem posed earlier for James' theory: how feelings can provide a subjective emotion's aboutness. For Bull (1951) the source of an emotion's introspective "meaning" was a mental attitude, the "feeling of direction or intention." Mental attitudes were not just feelings. Bull gave them a cognitive dimension as wishes to engage in certain behaviors. The motor or visceral feelings do not themselves provide a direction except as

they mediate this kind of awareness of motor attitude. As Browning (1959) wrote, "I think explicit intentionality arises within certain feelings in such a way as to be felt to have been implicit there [p. 363]." A motor attitude, via feedback to the brain, brings about a mental attitude. Unoriented feelings arise either when the motor attitude gives way (leaving only visceral feelings) or from the absence of a mental attitude.

Experimental tests. 1. While in a "deep" or "medium" trance ten undergraduates, selected by "mass hypnosis, screened in psychiatric interviews, and trained individually for rapid achievement of the trance state," were instructed to experience various emotions named and to show them in "outward behavior in a natural manner." Once an emotion appeared to have worn off, the subject was interviewed about it (Gidro-Frank & Bull, 1950). On the face of it a better test of the theory would have required subjects to imagine or hallucinate situations conducive to emotion. This had been tried: The more "direct" procedure produces "equally strong emotions" and allows "much greater standardization." The emotions "looked and felt like emotions in the waking state" and were indistinguishable from those produced in response to imagined situations.

In an effort to be permissive, the experimenters suggested ways to behave to the subjects at the start of the experiment. Given the thory at issue and its behavioral emphasis, not mentioning behavior at all would have been advisable. The instructions asked the subject to show his behavior in a natural manner. As a consequence, stereotypic emotional expressions as a means of communication might well have been induced. "In a natural manner" could mean statistically normal to the subject. Nearly all the behaviors "shown" were attitudinal or preparatory (Bull, 1951, p. 47). Either, therefore, Bull's theory is on the right track in linking emotion to motor attitude (rather than to full-blown behaviors) or the theory happens to be consistent with the subject's own idea of what it is to show a particular emotion in a natural manner.

Observable and reported conflicts between postures should occur when unpleasant emotions are suggested. Suggestions of *disgust* did in fact produce reports of preparations to vomit and preparations for escape. In the case of suggested *fear* motor conflict had to be presumed; the consistently reported wanting to escape was not accompanied each time by a felt inability to move. Two motor tendencies characterized *anger;* one corresponded to a desire to aggress, the other was felt as restraint of this tendency (with jaws and hands tightly clenched). Two subjects who reported themselves as angry were unaware of any conflict at all. As expected no

conflict was reported for the two pleasant emotions. *Joy* was not evoked in strong, lasting, or unmixed degree enough to conclude anything more about it. *Triumph* consistently involved reference to what had gone on before (a significant cognitive component) and a readiness for action with energy or power. More activity than in *depression* was observed. One subject did stand up, another did too and moved about, but comparisons between emotions with respect to full behaviors were not provided. Occasionally reported impulses to clap hands, jump or dance were inhibited. This evidence of situational restraints contributes to the reservations already expressed, unless again Bull was right that emotions need inhibited motor responses for their occurrence.

Bull and Gidro-Frank de-emphasized the subject's reported "mental contents" in their description of the results. They claimed the presence or absence of reported cognitive material made "no difference in the quality of the emotion." This point is contradicted by their own results with *depression:* There was less awareness of motor or visceral events than in *anger, disgust,* or *fear.* The theoretically requisite conflict was found in the fact that "all the subjects with strong affect knew there was *something* that they wanted and could not get, even though some of them did not know what they wanted [p. 114]." *Attention to bodily feelings occurred the more unaware the subject was of being frustrated,* and, therefore, the more he had a mental attitude of relative detachment or indifference. When emotions are intense, James (1884) had implied, there are bodily feelings and a lot else going on. One can be thoroughly occupied with cognitive contents, in the present instance of *depression* with "the failure to achieve the goal as the subject's main concern [Bull & Gidro-Frank, 1951, p. 113]."

2. If methodological reservations could be set aside, the previous study would confirm a degree of correlation between reported (or observed) postural patterns and certain emotions. Pasquarelli and Bull (1951) sought to demonstrate the additional theoretical expectation that for a particular emotion to be undergone, a certain kind of motor attitude is necessary. Prevent the respective motor attitude and emotion will not occur. Having corroborated the above results and also satisfied themselves that emotions can be induced by repeating to subjects their own descriptions of their bodily feelings, Pasquarelli and Bull used a standard set of such phrases from the previous study to suggest bodily feelings without mentioning the corresponding emotion (e.g., "you can feel your back straightening out; your head up; your chest expanding" rather than just "triumph"). Once

this "synthesis technique" was well under control (presumably for each subject), a certain motor attitude was first suggested using a standardized phrase and the subject was told he was "locked in this physical position. There will be no changes in your body — no new bodily sensations until I specifically unlock you [p. 515]." A contrasting emotion was then suggested merely by name, that it would be felt naturally.

Out of 53 sessions with 5 undergraduates no change in emotion occurred upon the final suggestion in 14. In some sessions subjects reported difficulty in maintaining the "locked" posture while experiencing the named emotion. For this reason perhaps, in 7 sessions another negative emotion, rather than the suggested positive one, replaced the negative emotion induced by "synthesis." Definite reports of the named emotion were given in 19 sessions. The remaining 13 present a picture of mild shift, conflict, and oscillation. As compared to the results of the previous experiment, there is clearly a reduction in the effectiveness of suggesting an emotion by name.

Regrettably the procedure makes likely communication of the hypothesized close relationship between motor attitude and emotion to the subject. He undergoes the procedure of the previous experiment. Then his own descriptions are used to suggest postures to him. Following that, he is asked to report his emotions and feelings while in those postures (while the experimenter gains control with each subject of the synthetic technique). It would be difficult for the subject *not* to infer the relationship under study. Pasquarelli and Bull raised the criticism that locking could have meant to the subjects a prohibition against any shift of emotion even despite the contrary last suggestion. They discounted the criticism on the grounds that the locking instruction was ineffective in a number of instances. If the experimental conditions were such that locking could be interpreted as a "prohibition against affective shift," then the subjects could have been aware of the hypothesized relation of posture to emotion. When locking is effective, this could be due to the inferred prohibition; when not effective, this could be an indication that a bodily posture corresponding to one emotion is compatible with the occurence of a different emotion.

Emotion As Felt Action Tendency

An intuitive appraisal produces "an immediate urge to action" toward or away from the object or situation appraised (Arnold, 1969b, p. 171). This directional action tendency or impulse is otherwise unspecific. It enters the subject's own emotion awareness as a positive attitude toward (or liking of) the object or situation perceived, remembered, anticipated,

or imagined, or as a negative attitude toward (or disliking of) same. Arnold (1960, Vol. 1. p. 151) did not question the "fact that a motor attitude goes with the felt emotion"; she doubted rather that the motor attitude *produces* an emotion, as Bull held. Instead Arnold proposed that a central action tendency would be apprehended as an emotion if the tendency were strong enough. This central action tendency organizes the musculature into Bull's readiness for action. It is expressed in muscular tensions in various parts of the body or in actual behavior.

Appraisal merely as to personal harm or benefit would yield two emotions only, each varying in degree according to how good or bad the appraisal and the consequent strength of being attracted or repelled. "Next, we intuitively appraise the conditions and possibilities for action — which determines the type of emotional tendency (fear vs. courage, despair vs. hope) [Arnold, 1970a, p. 179]." The emotion is the felt action tendency that emerges as a consequence of this additional "appraisal for action." The latter seems not to be necessarily a specification of the appropriate behavior; it is an appraisal of the *kind* of action to be taken. The additional dimensions of appraisal (the "polarities of emotion") comprise a short list: Besides good-bad there are the object's "attainability or unattainability, whether it is at hand or at a distance; and . . . whether something bad can be overcome or is to be avoided, no matter what the cost [Arnold, 1969b, p. 183]." Joy, sorrow, desire, aversion, hope, despair, hopelessness, courage, fear, anger, and dejection were defined in terms of these dimensions of appraisal. Other emotions would be defined by combinations of these in succession or by more specific action tendencies (cf. Arnold, 1960, Vol. 2, p. 201).

However, in her major theoretical statement, Arnold (1960, Vol. 1, pp. 194-196) called unproblematic attention to joy and sorrow as emotions that *do not* impel to action: In joy the object is already attained and in sorrow unattainable. Given these conditions no action can be appraised as relevant. Later Arnold (1970a) again admitted the occurrence of emotional states unconnected with actions or action tendencies. She suggested that emotions themselves are something "done": "Being overwhelmed by grief does not mean the person is passive; he is actually grieving, even though he is not doing anything muscular about it . . . but even though he may 'undergo' emotion, he is the one who is grieving, loving, hating, fearing, despairing; he is never purely passive. He is the one doing the 'emoting' [p. 174]." With this statement new difficulties arise. The nature of these "acts of emoting" needs to be spelled out, together with their relation

to the emotions that are more clearly felt action tendencies. Perhaps an emphasis on the degree of definiteness in the impulse to action would help: In joy and sorrow the second appraisal comes up with nothing by way of action beyond the general repulsion or attraction. In place of more specific action tendencies, there is merely thought: wishing for permanence or for things to have been otherwise (cf. Armstrong, 1968, p. 180).

Direct stimulation of the place in the cortex corresponding to a felt action tendency would *not* "produce the experience of emotion . . . the emotion absolutely depends on the appraisal that produces it and gives it direction [Arnold, 1970b, p. 270]." Own awareness of joy or sorrow, for example, would not depend simply on the unspecific action tendency mentioned above. The content of own emotion awareness is richer, including cognitive components, perhaps including the wishes mentioned above. Generally this content is crucial in identifying and telling emotions apart. Consequently, one cannot make an exhaustive list of the emotions: "Since the particular value judgments that result in emotion can be so varied, there will be a great variety in the emotions experienced [Arnold, 1960, Vol. 2, p. 310]."

Bull and Arnold emphasized in different ways the behavioral aspect of emotion. Yet neither gave an account that differentiated emotions strictly on that basis. This outcome might have been expected. Emotions often concern specific, complex situations. Suppose that broad categories were distinguishable on the basis of different bodily feelings or action tendencies alone. There would still be many further differentiations to explain. The fear of rain in the next few hours, the delight with the luxuriant growth of a favorite plant, and the indignation over specific damage done by vandals, these examples cannot be distinguished from many more that could be given, except in relation, still obscurely understood, to their cognitive aspects.

CONCLUSION

It is common to conclude this kind of article with a wholesale evaluation of the theories discussed, interpreted and criticized in the body of the text, that is, to do some choosing between them, as it were, or to present a synthesis of what is permanently valuable in each approach. Such an evaluation here would be premature and dogmatic. What is of value in each will become evident in time, as additional empirical material is brought to bear on the central issues and as the viewpoints become more fully developed.

The intent has been to help this development along by exposition, interpretation, and some piece-meal appraisals.

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