

# Chapter 24

## Affect as Analogic Amplification: Modifications and Clarifications in Theory

---

The Theory presented in *Affect, Imagery, Consciousness* in 1962 has since been developed and modified in five essential ways. First, the theory of affect as amplification I now specify as analogic amplification. Second, I believe now that it is the skin of the face, rather than the musculature, which is the major mechanism of analogic amplification. Third, a substantial quantity of the affect we experience as adults is pseudo-, backed-up affect. Fourth, affect amplifies not only its own activator but also the response to both that activator and to itself. Fifth, I now distinguish nine rather than eight innate affects. Originally contempt and disgust were treated as variants of a unitary response. I now distinguish disgust from dissmell, both as innate and contempt as a learned analog of dissmell.

### SUMMARY OF THE THEORY OF AFFECT AS AMPLIFICATION

I continue to view affect as the primary innate biological motivating mechanism, more urgent than drive deprivation and pleasure and more urgent even than physical pain. That this is so is not obvious, but it is readily demonstrated. Consider that almost any interference with breathing will immediately arouse the most desperate gasping for breath. Consider the drivenness of the tumescent, erect male. Consider the urgency of desperate hunger. These are the intractable driven states that prompted the answer to the question “What do human beings really want?” to be: “The human animal is driven to breathe, to sex, to drink, and to eat.” And yet this apparent

urgency proves to be an illusion. It is *not* an illusion that one must have air, water, food to maintain oneself and sex to reproduce oneself. What is illusory is the biological and psychological source of the apparent urgency of the desperate quality of the hunger, air, and sex drives. Consider these drive states more closely. When someone puts his hand over my mouth and nose, I become terrified. But this panic, this terror, is in no way a part of the drive mechanism. I can be terrified at the possibility of losing my job, or of developing cancer, or at the possibility of the loss of my beloved. Fear or terror is an innate affect which can be triggered by a wide variety of circumstances. But if the rate of anoxic deprivation becomes slower, as, for example, in the case of wartime pilots who refused to wear oxygen masks at 30,000 feet, then there develops not a panic but a euphoric state; and some of these men met their deaths with smiles on their lips. The smile is the affect of enjoyment, in no way specific to slow anoxic deprivation.

Consider more closely the tumescent male with an erection. He is sexually excited, we say. He is indeed excited, but no one has ever observed an excited penis. It is a man who is excited and who breathes hard, not in the penis but in the chest, the face, in the nose and nostrils. But such excitement is in no way peculiarly sexual. The same excitement can be experienced, without the benefit of an erection, at mathematics — beauty bare — at poetry, at a rise in the stock market. Instead of these representing sublimations of sexuality, it is rather that sexuality, in order to become possible, must borrow its potency from the affect of excitement. The drive must be

assisted by an *amplifier* if it is to work at all. Freud, better than anyone else, knew that the blind, pushy, imperious Id was the most fragile of impulses, readily disrupted by fear, by shame, by rage, by boredom. At the first sign of affect *other* than excitement, there is impotence and frigidity. The penis proves to be a paper tiger in the absence of appropriate affective amplification.

The affect system is therefore the primary motivational system because without its amplification, nothing else matters—and with its amplification, anything else *can* matter. It thus combines *urgency* and *generality*. It lends its power to memory, to perception, to thought, and to action no less than to the drives.

## MODIFICATION 1: ANALOGIC AMPLIFICATION

My original theory of affect as amplification was flawed by a serious ambiguity. I had unwittingly assumed a similarity between electronic amplification and affective amplification, such that in both there was an increase in gain of the signal. If such were the case, what was amplified would remain essentially the same except that it would become louder. But affects are separate mechanisms, involving bodily responses quite distinct from the other bodily responses they are presumed to amplify.

How can one response of our body amplify another response? It can do this by being similar to that response—but also different. It is an analog amplifier. The affect mechanism is like the pain mechanism in this respect. If we cut our hand, saw it bleeding, but had no innate pain receptors, we would know we had done something which needed repair, but there would be no urgency to it. Like our automobile which needs a tune-up, we might well let it go until next week when we had more time. But the pain mechanism, like the affect mechanism, so amplifies our awareness of the injury which activates it that we are forced to be concerned, and concerned immediately. The biological utility of such analogic amplification is self-evident. The injury, as such, in

the absence of pain, simply does not hurt. The pain receptors have evolved to make us hurt and care about injury and disease. Pain is an analog of injury in its inherent similarity. Contrast pain with an orgasm, as a possible analog. If instead of pain, we always had an orgasm to injury, we would be biologically destined to bleed to death. Affect receptors are no less compelling. Our hair stands on end, and we sweat in terror. Our face reddens as our blood pressure rises in anger. Our blood vessels dilate and our face becomes pleasantly warm as we smile in enjoyment. These are compelling analogs of what arouses terror, rage, and enjoyment.

These experiences constitute one form of affect amplification. A second form of affect amplification occurs also by virtue of the similarity of their profile, in time, to their activating trigger. Just as a pistol shot is a stimulus which is very sudden in onset, very brief in duration, and equally sudden in decay—so its amplifying affective analog, the startle response, mimics the pistol shot by being equally sudden in onset, brief in duration, and equally sudden in decay. Therefore, affect, by being analogous in the quality of the feelings from its specific receptors, as well as in its profile of activation, maintenance, and decay, amplifies and extends the duration and impact of whatever triggers the affect. Epileptics do not startle, according to Landis and Hunt (1939). Their experienced world is different in this one fundamental way. If epileptics had in addition lacked fear and rage, their world would have become even more different than the usual humanly experienced world. They experience a pistol shot as sudden but *not* startling. A world experienced without any affect at all, due to a complete genetic defect in the whole spectrum of innate affects would be a pallid, meaningless world. We would know *that* things happened, but we could not care whether they did or not.

By being immediately activated and thereby coassembled with its activator, affect either makes good things better or bad things worse, by conjointly simulating its activator in its profile of neural firing and by adding a special analogic quality which is intensely rewarding or punishing. In illustrating the simulation of an activating stimulus (e.g., a pistol

shot) by the startle response, which was equally sudden in onset, equally brief in duration, and equally sudden in decay, I somewhat exaggerated the goodness of fit between activator and affect to better illustrate the general principle. Having done so, let me now be more precise in the characterization of the degree of similarity in profile of neural firing between activator and affect activated. I have presented a model of the innate activators of the primary affects, in which every possible major general neural contingency will innately activate different specific affects. As I explained earlier, increased gradients of rising neural firing will activate interest, fear, or surprise, as the slope of increasing density of neural firing becomes steeper. Enjoyment is activated by a decreasing gradient of neural firing. Distress is activated by a sustained level of neural firing which exceeds an optimal level by an as yet undetermined magnitude, and anger is also activated by a nonoptimal level of neural firing but one which is substantially higher than that which activates distress. Increase, decrease, or level of neural firing are in this model the sufficient conditions for activating specific affects. Analogic amplification, therefore, is based upon *one* of these three distinctive features rather than all of them. It so happens that the startle simulates the steepness of the gradient of onset, the brief plateau of maintenance and the equally steep gradient of decline of profile of the pistol shot and its internal neural correlate—but that is not the general case. Analogic simulation is based on the similarity to the sufficient characteristic of the adequate activator—not on *all* of its characteristics. Thus, it is the decay alone of a stimulus which is analogically simulated in enjoyment. If one places electrodes on the wrist of a subject, permits fear to build, then removes the electrodes suddenly, we can invariably activate a smile of relief at just that moment. This amplifies (or makes more so) the declining neural stimulation from the reduction of fear. Therefore, enjoyment amplifies by stimulating decreasing gradients of neural stimulation. Interest, fear, and surprise amplify by simulating increasing gradients of neural stimulation. Distress and anger amplify by simulating maintained levels of stimulation.

## **MODIFICATION 2: THE SKIN RECEPTORS OF THE FACE ARE THE MAJOR LOCUS OF ANALOGIC AMPLIFICATION**

The second modification in my theory concerns the exact loci of the rewarding and punishing amplifying analogs. From the start, I have emphasized the face and voice as the major loci of the critical feedback which was experienced as affect. The voice I still regard as a major locus and will discuss its role in the next section.

The significance of the face in interpersonal relations cannot be exaggerated. It is not only a communication center for the sending and receiving of information of all kinds, but because it is the organ of affect expression and communication, it is necessarily brought under strict social control. There are universal taboos on looking too directly into the eyes of the other because of the likelihood of affect contagion, as well as escalation, because of the unwillingness to express affect promiscuously and because of concern lest others achieve control through knowledge of one's otherwise private feelings. Man is primarily a voyeuristic animal not only because vision is his most informative sense but because the shared eye-to-eye interaction is the most intimate relationship possible between human beings. There is in this way complete mutuality between two selves, each of which simultaneously is aware of the self and the other. Indeed, the intimacy of sexual intercourse is ordinarily attenuated, lest it become too intimate, by being performed in the dark. In the psychoanalytic myth, the crime of the son is voyeuristic by witnessing the "primal scene," and Oedipus is punished, in kind, by blindness.

The taboo on the shared interocular experience is easily exposed. If I were to ask you to turn to another person and stare directly into his eyes while permitting the other to stare directly into your eyes, you would become aware of the taboo. Ordinarily, we confront each other by my looking at the bridge of your nose and your looking at my cheekbone. If our eyes should happen to meet directly,

the confrontation is minimized by glancing down or away, by letting the eyes go slightly out of focus, or by attenuating the visual datum by making it ground to the sound of the other's voice, which is made more figural. The taboo is not only a taboo on looking too intimately but also on exposing the taboo by too obviously avoiding direct confrontation. These two strategies are taught by shaming the child for staring into the eyes of visitors and then shaming the child a second time for hanging his head in shame before the guest.

Only the young or the young in heart are entirely free of the taboo. Those adults whose eyes are caught by the eyes of the other in the shared interocular intimacy may fall in love on such an occasion or, having fallen in love, thereby express the special intimacy they have recaptured from childhood.

The face now appears to me still the central site of the affect responses and their feedback, but I have now come to regard the skin, in general, and the skin of the face, in particular, as of the greatest importance in producing the feel of affect.

In *Affect, Imagery, Consciousness*, (1962, Vol. 1, p. 244) I have described the affect system as consisting of thirteen components, beginning with the innate affect programs and including affect motor messages. My statement that I regard the face and voice as the central site of affect responses and their feedback must not be interpreted to mean that the whole affect system and its supporting mechanisms are found in the face. Analogically, one might argue for the importance of the thumb and fingers in man's evolution without specifying that there is a forearm, biceps, body, and brain which support the thumb.

Further, it is now clear, as it was not then, that the brain is sensitive to its own synthesized chemical endorphins which serve as analgesics and thus radically attenuate pain and all the negative affects which are recruited by pain on both innate and learning bases.

My original observations of the intensity of infantile affect, of how an infant was, for example, seized by his own crying, left no doubt in my mind that what the face was doing with its muscles and blood vessels, as well as with its accompanying

vocalization, was at the heart of the matter. This seemed to me not an "expression" of anything else but rather the major phenomenon. I then spent a few years in posing professional actors and others to simulate facial affect. McCarter and I (1964) were rewarded by a correlation of  $+ .86$  between the judgments of trained judges as to what affects they saw on the faces of these subjects as presented in still photographs and what I had intended these sets of muscular responses to represent. This success was gratifying, after so many years of indifferent and variable findings in this field, but it was also somewhat misleading in overemphasizing the role of innately patterned facial muscular responses in the production of affect. I was further confirmed in these somewhat misleading results by the successes of Paul Ekman and Carroll Izard. Paul Ekman (1969), using some of my photographs, was able to demonstrate a wide cultural consensus, even in very primitive remote preliterate societies. Carroll Izard (1969), using different photographs but the same conceptual scheme, further extended these impressive results to many other literate societies.<sup>1</sup> The combined weight of all these investigations was most impressive, but I continued to be troubled by one small fact. The contraction of no other set of muscles in the body had *any* apparent motivation properties. Thus, if I were angry, I might clench my fist and hit someone, but if I simply clenched my fist, this would in no way guarantee I would become angry. Muscles appeared to be specialized for action and not for affect. Why then was the smile so easily and so universally responded to as an affect? Why did someone who was crying seem so distressed and so unhappy? Further, from an evolutionary point of view, we know that different functions are piled indiscriminately on top of structures which may originally have evolved to support quite different functions. The tongue was an organ of eating

<sup>1</sup> Izard's results were not quite so good as those of Ekman for, I think, two reasons: first, his photograph selection was guided primarily by empirical criteria rather than theoretically chosen; i.e., if subjects agreed that a face showed interest it was retained, despite the fact that the clue to such consensus might be that the subject was depicted staring at some object. Second, the critical distinction between innate and backed-up affect was not observed in Izard's picture selection.

before it was an organ of speech. The muscles of the face were also probably involved in eating before they were used as vehicles of affect—though we do not know this for a fact. It is, of course, possible that the complex affect displays on the human face evolved primarily as communication mechanisms rather than as sources of motivating feedback. My intuition was, and still is, that the communication of affect is a secondary spin-off function rather than the primary function. This is not however to minimize its importance *as* communication.

The primary importance of motivating feedback over communication, however, would appear to have been the case with a closely related mechanism—that of pain. The cry of pain does communicate, but the feeling of pain does not. It powerfully motivates the person who feels it, in much the same way that affect does. That someone else is informed of this is not, however, mediated by the pain receptors in themselves but by the cry of distress which usually accompanies it. I therefore began to look at affect analogs such as pain and sexual sensitivity and fatigue for clues about the nature of the motivating properties of the affect mechanisms.

I soon became aware of a paradox—that three of the most compelling states to which the human being is vulnerable arise on the surface of the skin. Torture via skin stimulation has been used for centuries to shape and compel human beings to act against their own deepest wishes and values. Sexual seduction, again via skin stimulation, particularly of the genitals, has also prompted human beings on occasion to violate their own wishes and values. Finally, fatigue to the point of extreme sleepiness appears to be localized in the skin surrounding the eyes. This area will sometimes be rubbed in an effort to change the ongoing stimulation and ward off sleepiness. But in the end, it appears to be nothing but an altered responsiveness of skin receptors, especially in the eyelids, which make it impossible for the sleepy person to maintain the state of wakefulness. He cannot keep his eyes open, though he may be powerfully motivated to do so. I then found further evidence that the skin, rather

than “expressing” internal events, in diving animals led and commanded widespread autonomic changes throughout the body in order to conserve oxygen for the vulnerable brain. When the beak of a diving bird is stimulated by the water as it dives for fish, this change produces profound general changes such as vasoconstriction within the body as a whole. Investigators somewhat accidentally discovered that similar changes can occur in a human being putting his face in water (without total immersion of his body) (Eisner, Franklin, Van Citters, & Kenney, 1966). Then I examined (at the suggestion of my friend, Julian Jaynes) the work of Beach (1948) on the sexual mechanism in rats. Beach, examining the structure of the penis under a microscope, found that sensitive hair receptors of the skin of the penis were encased between what resembled the interstices of a cog wheel when the penis was flaccid. When there was a blood flow which engorged the penis, the skin was stretched smooth, and then the hairs of the receptors were no longer encased but exposed, and their exquisite sensitivity changed the animal from a state of sexual quiescence to one totally sexually aroused. The relevance of such a mechanism for an understanding of the affect mechanism now seemed very clear. It had been known for centuries that the face became red and engorged with blood in anger. It had been known that in terror the hair stood on end, the skin became white and cold with sweat. It had long been known that the blood vessels dilated, the skin felt warm and relaxed in enjoyment. The face, like the penis, would be relatively insensitive in its flaccid condition, its specific receptors hidden within surrounding skin. When, however, there were massive shifts in blood flow and in temperature, one should expect changes in the positioning of the receptors; and, pursuing the analogy to its bitter end, the patterned changes in facial muscle responses would serve as self-masturbatory stimulation to the skin and its own sensitized receptors. The feedback of this set of changes would provide the feel of specific affects. Although autonomic changes would be involved, the primary locus would now be seen to be in specific receptors, some as yet to be discovered. Changes in hotness, coldness, and warmth would undoubtedly be involved, but there may well

be other, as yet unknown, specific receptors which yield varieties of experience peculiar to the affect mechanism.<sup>2</sup>

### **MODIFICATION 3: ADULT AFFECT IS BACKED-UP SUPPRESSION OF BREATHING AND VOCALIZATION OF AFFECT**

The third modification of the theory concerns the role of breathing and vocalization of affect. I have not changed my opinion that each affect has as part of its innate program a specific cry of vocalization, subserved by specific patterns of breathing. It is rather one of the implications of this theory which took me some years to understand. The major implication, which I now understand, concerns the universal confusion of the experience of backed-up affect with that of biologically and psychologically authentic innate affect. An analog may help in illustrating what is at issue. Let us suppose that all over the world human beings were forbidden to exhale air but were permitted and even encouraged to inhale air, so that everyone held their breaths to the point of cyanosis and death. Biologists who studied such a phenomenon (who had also been socialized to hold their breath) would have had to conclude that the breathing mechanism represented an evolutionary monstrosity devoid of any utility. Something similar to this has, in fact, happened to the affect mechanism. Because the free expression of innate affect is extremely contagious and because these are very high-powered phenomena, all societies, in varying degrees, exercise substantial control over the unfettered expression of affect, and particularly over the free expression of the cry of affect. No societies encourage or permit each individual to cry out in rage

or excitement, or distress, or terror, whenever and wherever he wishes. Very early on, strict control over affect expression is instituted, and such control is exerted particularly over the voice in general, whether used in speech or in direct affect expression. Although there are large variations between societies, and between different classes within societies, complete unconditional freedom of affect vocalization is quite exceptional. One of the most powerful effects of alcohol is the lifting of such control so that wherever alcohol is taken by large numbers of individuals in public places, there is a typical raising of the noise level of the intoxicated, accompanying a general loosening of affect control. There are significant differences in how much control is exerted over voice and affect from society to society, and Lomax (1968) has shown a significant correlation between the degree of tightness and closure of the vocal box as revealed in song and the degree of hierarchical social control in the society. It appears that more permissive societies also produce voice and song in which the throat is characteristically more relaxed and open. If all societies, in varying degrees, suppress the free vocalization of affect, what is it which is being experienced as affect? It is what I have called pseudo-, or backed-up, affect. It can be seen in children who are trying to suppress laughter by swallowing a snicker, or by a stiff upper lip when trying not to cry, or by tightening their jaw trying not to cry out in anger. In all of these cases, one is truly holding one's breath as part of the technique of suppressing the vocalization of affect. Although this is not severe enough to produce cyanosis, we do not, in fact, know what are the biological and psychological prices of such suppression of the innate affect response. I would suggest that much of what is called "stress" is indeed backed-up affect and that many of the endocrine changes which Frankenhauser (1979) has reported are the consequence as much of backed-up affect as of affect per se. It seems at the very least that substantial psychosomatic disease might be one of the prices of such systematic suppression and transformation of the innate affective responses. Further, there could be a permanent elevation of blood pressure as a consequence of suppressed rage,

<sup>2</sup> I would suggest that thermography would be one major avenue of investigation. I pursued this possibility about twenty years ago and was disappointed at the relative inertia of the temperature of the skin. It may, however, be that advances in the state of the art in recent years may permit a more subtle mapping of the relationships between changes in skin temperature and affect.

which would have a much longer duration than an innate momentary flash of expressed anger. French (1941) and the Chicago psychoanalytic group found some evidence for the suppressed cry of distress in psychosomatic asthma. The psychological consequences of such suppression would depend upon the severity of the suppression. I have spelled out some of these consequences elsewhere (1971,1975). Even the least severe suppression of the vocalization of affect must result in some bleaching of the experience of affect and, therefore, some impoverishment of the quality of life. It must also produce some ambiguity about what affect feels like, since so much of the adult's affect life represents at the very least a transformation of the affect response rather than the simpler, more direct, and briefer innate affect. Such confusion, moreover, occurs even among theorists and investigators of affects, myself included.<sup>3</sup>

Thus, a face with lips tightly pressed together and with clenched jaws will be assumed to be an angry face. But this is *not* an angry face but one in which anger has been backed up. An angry face would be one with mouth open crying out its anger loudly. The appearance of the backed-up, the simulated, and the innate is by no means the same. While this may be generally recognized—so that typically we know when someone is controlling an affect or showing a pretended affect—with anger, the matter is quite confused. Because of the danger presented by the affect and the consequent enormous societal concern about the socialization of anger, what is typically seen and thought to be the innate is in actuality the backed-up. Finally, it is upon the discontinuity of vocalization of affect that the therapeutic power of primal screaming rests. One can uncover repressed affect by encouraging vocalization of af-

fect, the more severe the suppression of vocalization has been.

#### **MODIFICATION 4: AFFECT AMPLIFIES BOTH ITS ACTIVATOR AND THE RESPONSE TO AFFECT AND TO ITS ACTIVATOR**

Fourth, I have maintained for several years that although affect has the function of amplifying its activator, I have been equally insistent that affect did not influence the response to the activator or to itself. I portrayed the infant who was hungry as also distressed but in no way thereby pushed in one direction or another in behavioral response to its hunger and distress. I was concerned to preserve the independence of the response from its affective precursor. It seemed to me that to postulate a tight causal nexus between the affect and the response which followed would have been to severely limit the apparent degrees of freedom which the human being appears to enjoy and to have come dangerously close to reducing both affect and the human being to the level of tropism or instinct. It seems to me now that my concern was somewhat phobic and thereby resulted in my overlooking a powerful connection between stimulus, affect, and response. I now believe that the affect connects both its own activator and the response which follows by imprinting the latter with the same amplification it exerts on its own activator. Thus, a response prompted by enjoyment will be a slow, relaxed response in contrast to a response prompted by anger, which will reflect the increased neural firing characteristic of both the activator of anger and the anger response itself. What we therefore inherit in the affect mechanism is not only an amplifier of its activator but also an amplifier of the response which it evokes. Such a connection is in no way learned, arising as it does simply from the overlap in time of the affect with what precedes and follows it. It should be noted that by the response to affect I do not intend any restriction to observable motor responses. The

<sup>3</sup> By this reasoning the finding that observers across cultures will agree in identifying affect from facial expression does not tell us whether the faces utilized depicted innate or backed-up affect, nor whether observers recognized the difference between the two. In these studies both controlled and innate responses were used as stimuli, but observers were not questioned about the difference between the two. It is my prediction that such an investigation would show a universal confusion just about anger, in which backed-up anger would be perceived as innate, and innate anger would not be recognized as such.

response may be in terms of retrieved memories or in constructed thoughts, which might vary in acceleration if amplified by fear or interest, or in quantity if amplified by distress or anger, or in deceleration of rate of information processing if amplified by enjoyment. Thus, in some acute schizophrenic panics, the individual is bombarded by a rapidly accelerating rush of ideas which resist ordering and organization. Such individuals will try to write down these ideas as an attempt to order them, saying upon being questioned that if they could separate and clarify all of these too-fast, overwhelming ideas they could cure themselves. Responses to the blank card in the TAT by such schizophrenics imagine a hero who is trying to put half of his ideas on one half of the card and the other half on the other side of an imaginary line dividing the card into two.

Via temporal overlap there may be produced S-S equivalences, S-R equivalences, and R-R equivalences, mediated by affect analogs which overlap with both S and R. So an obnoxious person can become an irritating and angering person and at the same time a hurtable person. The anger which follows, accompanies, and imprints the perception of the person also imprints the impulse to hurt as well as the aggressive act. Because of the equal imprinting by affect of stimulus and response, it becomes difficult to learn control over affect-prompted overt responses. No less significant, it radically complicates the learning of the critical differences between the nature of the world we perceive (apart from its affective coloring), the remembered experiences and the newly constructed thoughts about this world (including affect-prompted expectations), and the overt responses to such a mixture.

What Piaget described as the child's sensorimotor schema is rather a sensori-affect-motor *fusion* in which an object is an exciting-to-be-scanned with eyes object, touched with open reaching hand object-to-be-scanned more by putting into the open mouth object. It is all of these experiences at once in rapid succession fused by excitement which is experienced *throughout* this sequence and thus connects and makes similar the sight of the object, the reaching for it, the touch of it and the taste and tex-

ture of it in the mouth. Excitement is the continuous *contour through time* which binds the seeable, reachable, touchable, tasteable object into a fusion with the affect. Later one can conceive the unified core behind all these variants, but at the beginning it must be the continuing affect which provides the psychic glue for the rapidly changing sensorimotor encounters.

What Freud described as primary process thought is ubiquitous. One cannot readily differentiate thinking from the affect which prompts it, nor differentiate affect from the thought which activates affect. If you make me angry, it is you who really seems angering and obnoxious; but if someone else has already angered me, you may seem no less obnoxious as I tell you so. What has been described by Freud, as the omnipotence of thought, when one fears one has killed a person one hates or feels guilty for a wish one never acted upon, is more accurately described as a derivative of the overlap in time of affect, perceptual, cognitive, and motor responses. This is a universal rather than a neurotic phenomenon. The differentiation of affect from what activates it, what accompanies it, and what follows from it as a consequence is at best a slowly learned skill. It is vulnerable always, under the pressure of intense and enduring affect, to confusion and dedifferentiation. If you make me fearful enough, the world and everything I do in it, alike, can become dangerous. If you make me sad and depressed enough, the world as well as my efforts in it can become worthless and meaningless. If you make me excited and happy enough, I will love you, the world, myself, and whatever I do. Indeed, the intoxication of sex and love, either or both, derives from just such experienced fusion. Who can tell who is who at the moment of orgasm? If the other is also beloved, the orgasm confirms and magnifies the fusion of the lovers. In the extreme case of the love-death, such fusion is frozen in time. Death is sought as a small price for union eternal, out of time. In religious mysticism such union is experienced with God. There is a medieval myth which tells that a man looking up at the heavens became so intoxicated that when his gaze returned to earth hundreds

of years had elapsed. The theological quest, no less than romantic love, is powered by the passion for passion and its intoxicating obliteration of time and space and its boundaries. “Verweile doch, du bist so schön,” Goethe implored the transient moment of beauty. This is just what intense affect does. His plaint was a testament to its transience.

The power of affect to fuse people, their ideas, and their acts has been exploited by charismatic leaders of all kinds to bind their followers together to a common leader in a common cause. This is the essence of charismatic leadership. In modern times Hitler best understood the psychological power of assembling thousands of people together, fused as one by the shared intense affect evoked by and imprinting his person, his intense speech, and their shared resonance in a thundering “Sieg Heil.” It resembled a mass affective orgasm. Because intense affect is early on inhibited via control of the voice, his sanctioning of shared loud speech legitimated, expressed, and intensified long overcontrolled and inhibited affect.

Finally, we may understand ritual as resting upon the power of shared affect to fuse and bind together all those who act together in shared belief and feeling. When ritual becomes automatized and habitual, consciousness and affect alike become attenuated, and the power of ritual to hold any group together is at risk. It becomes the end of a honeymoon in which the ritual has lost its power.

The great German philosopher Immanuel Kant likened the human mind to a glass which imprinted its shape on whatever liquid was poured into the glass. Thus, space, time, causality, he thought, were constructions of the human mind, imposing the categories of pure reason upon the outside thing-in-itself, whose ultimate nature necessarily forever escaped us. I am suggesting that he neglected a major filtering mechanism, the innate affects, which necessarily color our every experience of the world, constituting not only special categorization of every experience but producing a unique set of categorical imperatives which amplify not only what precedes and activates each affect but which also amplify the further *responses* which are prompted by affects.

## **MODIFICATION 5: THE NUMBER OF PRIMARY AFFECTS IS DIFFERENTIATED INTO NINE RATHER THAN EIGHT**

In the original theory, each affect was presented as a hyphenated pair. Thus, there were eight such pairs, as follows: interest–excitement; enjoyment–joy; surprise–startle; distress–anguish; fear–terror; shame–humiliation; contempt–disgust; anger–rage.

Biologically, dissmell and disgust are drive auxiliary responses that have evolved to protect the human being from coming too close to noxious-smelling objects and to regurgitate these if they have been ingested. Through learning, these responses have come to be emitted to biologically neutral stimuli, including, for example, disgusting and dirty thoughts. Shame, in contrast, is an affect auxiliary to the affect of interest–excitement. Any perceived barrier to positive affect with the other will evoke lowering of the eyelids and loss of tonus in the face and neck muscles, producing the head hung in shame. The child who is burning with excitement to explore the face of the stranger is nonetheless vulnerable to shame just because the other is perceived as strange. Characteristically, however, intimacy with the good and exciting other is eventually consummated. In contrast, the disgusting or dissmelling other is to be kept at a safe distance permanently.

These eight pairs of affects are meant to indicate differences in intensity. Thus, terror was presumed to be more intense than fear, rage more intense than anger, humiliation more intense than shame, excitement more intense than interest, joy more intense than enjoyment, startle more intense than surprise. However, in the case of disgust–contempt there was an ambiguity. It seemed evident that vomiting was a more intense response than spitting out what gave a bad taste in the mouth and that both were more intense than drawing the nose away from a bad smell; and so disgust and contempt could be regarded as a unitary pair, hyphenated to indicate intensity differences.

Despite these apparent differences in intensity which seemed to justify linking these responses together as a unitary phenomenon, I later became aware of several problems with this formulation. First, there appeared to be some independent variability of intensity *within* each type of response. Thus, a bad smell might be slightly bad or very bad. Old meat might be aged somewhat to give an added piquancy to a steak, which might please some but offend others. However, badly putrescent meat emitting a very strong odor would please no one because of the intensity of the odor. Similarly, a bad taste in the mouth might be slight or very bad. So the intensity of bad tastes and smells appeared to vary independently of each other. However, the nausea response still seemed to be the most intense response. There was, however, a problem here too. First, not all infants and not all animals appeared to regurgitate with extreme responses. For some it appeared a mild and not too disturbing response. Second, if it did not smell bad, nor taste bad, why had it been swallowed? Clearly the “judgment” of the stomach had been independent of the failed early warning mechanisms and appeared to be an all-or-none response which varied only in duration. It was, of course, possible (as in seasickness) for the response to continue to be emitted despite the absence of food in the stomach. Such differences are differences in duration or extensity rather than differences in intensity.

Not only were there differences in intensity within each type of response (smell, taste, regurgitation) which varied independently of each other, but they were also capable of being combined with each other in a mixed response. Thus, a bad-tasting food might also be a bad-smelling food, and a bad-smelling food might also contribute to a bad taste. If one has a cold which clogs the nasal passages, nothing has “taste.” In the generalized smell and taste responses (when the bad object is a person and not a food) it is not uncommon for a person to lift both his upper lip (as though to a bad smell) and lower his lower lip (as though to a bad taste) and also to protrude his tongue, again as though to a bad taste. In the case of the other affects there could be no such mixtures because different intensities of the same affect do not lend themselves to such blends.

Thus, it is not possible to combine fear and terror, anger and rage, interest and excitement, distress and anguish because one is a weaker form of the other, stronger form of the same affect. This is not to say that there may not be alternation or oscillation from one intensity to another. Clearly, a face which responds at the same time with an upper lip raise, nostril wrinkle, and a lower lip and tongue protrusion is giving a mixed response which together indicates an increase in intensity over each component; but the major difference is not in intensity but in some other dimension. It is the opposite of looking and listening at the same time. These are two different ways of taking in information as nose and tongue are two different ways of rejecting information. Just as one can look with varying intensity and duration, and listen with varying intensity and duration, so one may combine looking and listening with varying mixtures of intensity and duration. So too the bad smell and bad taste responses can be combined with varying intensities and durations with respect to foods, odors, and symbolic objects.

Not only does there appear to be a nausea response, a bad taste response, and a bad smell response, each capable of independent as well as mixed responses, but there is still another response in the family which I had not adequately differentiated. This is what I had somewhat ambiguously labeled the contempt response. The contempt response in my original conception included both the bad smell response and the sneer. I had assumed that the sneering response, which is typically a unilateral lifting of one side of the upper lip, was similar in meaning to the bilateral bad smell response in which the entire upper lip is raised. This overlooked a critical difference. In response to a bad smell one never raises one side of the lip, since the impulse is to pull the entire face and especially the nose away from the apparent source of the bad odor. The sneer, as I began to observe it more carefully, was clearly a learned response in contrast to the bad smell response which was originally unlearned. This is not to deny that most of the bad smell responses we observe which are bilateral (especially when emitted to people and symbols) are also learned. But we must distinguish two kinds of learning here. One

kind of learning involves the response itself. Just as I may voluntarily simulate a smile I do not feel, I may voluntarily simulate smelling a bad odor I do not really smell. Such simulation can, but need not, closely resemble the innate response. If I have learned to simulate the real thing, I have the further option of learning to change it. Thus, I can learn to smile very fast to convey the message that I am not pleased. One may also use a voluntary bad smell response for exactly the same reason; for example, "Your idea smells bad."

Varying intensities of the bad smell responses range from a slight contraction of muscles which "ready" the muscles necessary to lift the upper lip, to actually lifting with varying speeds, duration of holding, and extent of upper lip raise. Varying intensities of the bad taste response vary from readying the neck (platysma) muscles to assist in lower lip lowering and/or protruding, to actually lowering the lower lip and or protruding it, to protruding the tongue. Further, the mouth may remain closed but the intensity of the internal bad taste response vary from small, as if bad taste in the front of the mouth, to large, as if bad taste including front and back of the tongue, to an internal retching response which can vary from readying the appropriate muscles in the mouth and throat to actually emitting regurgitation responses of varying degrees of completeness. These responses may be registered on the face and neck in trace amounts.

## DISGUST, DISSMELL, AND CONTEMPT

Instead of contempt–disgust as a unitary response varying only in intensity, I now differentiate disgust and dissmell as two independent innate drive auxiliary responses and distinguish both of these from contempt. First an apology for the neologism, dissmell. If disgust is an appropriate word signifying a bad taste, dissmell is its analog for a bad smell. Innately, one wishes to spit out the bad-tasting food and to draw the head and the body away from the bad-smelling object. Both are distancing responses which require no learning.

Although I have argued for the existence of nine innate affects, the theory of the innate activators of affect omitted shame, contempt, and disgust. I do not believe these three are innate affects in the same sense as the six already described. They have motivating, amplifying properties of affects but also have somewhat different characteristics and mechanisms.

Dissmell and disgust are innate defensive responses which are *auxiliary* to the hunger, thirst, and oxygen drives. Their function is clear. If the food about to be ingested activates dissmell, the upper lip and nose is raised and the head is drawn away from the apparent source of the offending odor. If the food has been taken into the mouth, it may, if disgusting, be spit out. If it has been swallowed and is toxic, it will produce nausea and be vomited out through either the mouth or nostrils. The early warning response via the nose is dissmell; the mouth or stomach response is disgust. If dissmell and disgust were limited to these functions, we should not define them as affects but rather as auxiliary drive mechanisms. However, their status is somewhat unique in that dissmell, disgust, and nausea also function as signals and motives to others, as well as to the self, of feelings of rejection. These readily accompany a wide spectrum of entities which need not be tasted, smelled, or ingested. Dissmell and disgust appear to be changing more in status from drive-reducing acts to acts which *also* have a more general motivating and signal function, both to the individual who emits it and to the one who sees it.

Just as dissmell and disgust are drive auxiliary acts, I posit shame as an innate *affect auxiliary* response and a specific inhibitor of continuing interest and enjoyment. Like disgust, it operates only after interest or enjoyment has been activated and inhibits one or the other or both.

The innate activator of shame is the incomplete reduction of interest or joy. Such a barrier or perceived impediment might be because one is suddenly looked at by one who is strange, or because one wishes to look at or commune with another person but suddenly cannot because he is strange, or one expected him to be familiar but he suddenly appears unfamiliar, or one started to smile but ...