SOME CONTEMPORARY CONTRIBUTIONS TO THE STUDY OF EMOTIONS

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EMOTION—I USE THE TERM SYNONYMOUSLY with affect[1]—is part of the fabric of psychoanalysis. Propositions about emotion saturate psychoanalytic writings, theoretical and technical. Yet psychoanalytic studies of the emotions remain fitful, largely unfocused. After 30 years, David Rapaport is still quoted: "We do not possess a systematic statement of the psychoanalytic theory of the affects"—this in spite of his powerful effort "to piece together the existing fragments of this theory" (1950).

Meanwhile, outside of psychoanalysis, a copious body of work has flourished, at times interpenetrating, at times running parallel, at times counter to psychoanalytic views. This literature encompasses a wide variety of definitions, approaches, and data. Initially the results may appear bewildering: one suspects that not just psychoanalytic

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Charles W. Socarides, Ed., THE WORLD OF EMOTIONS. New York: Int. Univ. Press, 1977.

Sylvan S. Tomkins, AFFECT, IMAGERY, CONSCIOUSNESS. VOL. 1: THE POSITIVE AFFECTS; VOL. 2: THE NEGATIVE AFFECTS. New York: Springer, 1962 & 1963.

[1]There have been efforts, such as those of Rapaport (1950), to reserve "affect" for the psychological components and "emotion" for the physiologic components of a combined subject matter. In my view, such an effort at distinction only perpetrates an ultimately misguided dualism that plagues study of emotion-affect.

psychology, but psychology as a whole speaks about emotion in many tongues.

Some simplification emerges if we see that the term emotion—as stated a number of years ago (1963)—refers to at least three broad areas: (1) expressive communicative behaviors; (2) biological processes; and (3) subjective phenomenological experiences. Each of these areas has been explored by different methods and has led to different formulations. Each has also traced its findings to earlier phylogenetic or ontogenetic sources. It is intriguing to examine some recent studies of emotion from this perspective, to look at their breadth and depth, and to compare the contributions of other approaches to those of psychoanalysts in this evolving field.

Overview: Plutchik and His Collaborators

A trip through the formidable terrain of the emotions is made easier by a comprehensive guidebook. This is Plutchik's review, formulation, and text, *Emotion, a Psychoevolutionary Synthesis.* The fruit of more than a quarter-century of study, it was preceded by an early statement, "Some Problems for a Theory of Emotion" (1955), and by a later volume, *The Emotions: Facts, Theory, and a New Model* (1962). The 1962 volume contained two major components, as does his current book: a scholarly review of the field and a theory of his own.

His review begins by noting four major traditions in the study of emotions: Darwin's evolutionary tradition, tracing human emotions to adaptive responses of animals; William James's view of emotions as emanating from the sensations of peripheral bodily reactions; Cannon's emphasis on the sympathetic and parasympathetic nervous changes in emotional states and his extension of their activity to the central nervous system, particularly thalamic and hypothalamic centers; and finally Freud's dynamic tradition.

From this condensed but clear start, Plutchik goes on to a further review of 24 other authors. These fit roughly—aided by an occasional conceptual shoehorn—into the major traditions he has outlined.

The pantheon, arranged here not quite in the order he presents, includes, from the *Darwinian evolutionary standpoint,* Tomkins, Izard and Ekman, of whom more later. It also includes much of Plutchik's own work, that of H. Schlossberg, an early explorer of the dimensions of facial expression, and that of M. Clynes, who believed that different emotions each had their unique motor expressive pattern, detectable by what he called a sentograph; this notion led Clynes to a special interest in the psychological and emotional processes in musical experience.

A preponderance of the theorists reviewed by Plutchik are those concerned with *biological* aspects of emotion. For example, early behaviorists, trying to focus on action in the world, assumed simple "drive" states, which were "reinforced" positively or negatively. Thus they raised but did not completely answer many questions about the reinforcers, pleasure and pain. The notion of drive is also closely related to arousal. This has occupied a central role in theories of emotion, being seen at times as disruptive (P. T. Young), at time as a precursor to organized action (R. Leeper); as patterned differently in different emotions (M. Wenger) or in different individuals (J. Lacey). These divergent emphases foreshadowed discussions of whether emotion represents conflict or discharge. The concept of arousal broadened with the discovery of nonspecific, diffuse activating systems in the central nervous system. At times the influence of such diffuse arousal seemed so dominant that it became virtually equated with emotion (as by D. Lindsley). Such a broad view of arousal led to a narrow concept of emotion; yet it emphasized the pervasiveness of emotional experience. As P. T. Young puts it (quoted by Plutchik, p. 34) "emotions involve the organism as a whole."

Biologists also pursued W. Cannon's emphasis on counterbalanced sympathetic-parasympathetic representation in the hypothalamus, which C. Sherington had many years earlier designated as the "head ganglion of the autonomic nervous system." The neurologist J. W. Papez and the neurophysiologist P. D. MacLean made a further advance in our understanding of brain contributions to emotions. Papez speculated that the "old brain," which had been thought to deal primarily with olfaction, had abundant connections with hypothalamus and thalamus and might well be involved in the mammalian "stream of feeling." MacLean built on this view using a combination of careful reasoning and experimental studies. He suggested that the "visceral brain," later called the limbic system, was a higher organizing area for emotional responses. He felt it was possible to classify these responses under two evolutionary principles, self-preservation and preservation of the species.

An additional, predominantly biologic investigator was J. Delgado, who carried out a number of provocative experiments using central nervous system stimulation. These contributed particularly to understanding of the crucial and neglected area of inhibition. Different types of stimulation elicited a variety of inhibitory patterns; sudden brief arrest; prolonged suspension of arousal, reversible when stimulation was stopped; and lapses into flaccidity or even sleep.

Delgado also called attention to the fact that environmental stim-

uli have meaning; thus he belonged partly to a third group of theorists who may be called *biocognitive* in their orientation. An early proponent of this approach was S. Schacter, who with J. E. Singer described an attempt at a crucial experiment. Subjects were injected with adrenaline and induced, by means of confederates, to react either with anger or with elation. Critics have faulted the experiment for weaknesses in control over both statistical and observer effects; it has not been replicated.

Considerably more searching is the work of M. Arnold, who in two volumes traced the neurological pathways involved in emotional responses; she argued that these were set in motion by an individual's appraisals of the environment and subsequent key adaptive mobilizations. We shall see (below) that R. Lazarus and G. Mandler also highlighted the role of appraisal in emotional responses.

Other theorists have focused on the more purely cognitive, the *psychological* and *phenomenological* side of emotions, largely as this area is captured by verbal report. Far-reaching efforts have been made to classify elemental and compound emotional states. Such states vary not only in composition, but in duration, from transient perturbations to lasting personality features. *The Foundations of Character* by Shand (1914) was an early exemplar of this approach; several successors are mentioned in Rapaport's (1953) review.

Naturally, the phenomenological surface invites questions about what may lie below. Processes describable within a psychological framework both fuel and contain emotions, as we shall see in later discussions of psychoanalytic views.

Plutchik's volume is not merely a historical catalog. More than three fourths of it is devoted to systematic discussion of some major themes that have dominated discussions of emotion.

The problem of *definition* of emotion has been a perpetually slippery one. Plutchik (pp. 81-83) lists 28 definitions, coming from most of the authors mentioned thus far and a few others. A preponderance of these definitions focus on physiologic, especially visceral, changes; scattered references occur to motor-expressive aspects; still fewer refer to subjective feelings. Some definitions postulate consequences flowing from adaptive purposes of emotions.

Few of these formulations meet rigorous criteria for theory building. Plutchik also contends that inconsistency between definitions has not abated over the years; each author tends to describe his piece of the elephant. Here there is room for dissent: some recent efforts at clarifying the field, for instance those of R. Lazarus, Izard, and Plutchik himself, do take account of the major component aspects of emotional experience.

Combining these aspects into a coherent theory, however, runs into familiar philosophical obstacles. Perhaps the steepest hurdle is the question of essence, whether it is useful to delimit a distinct sector of experience that is called emotion. Plutchik's own definition, with which his volume ends, is inclusive, covering the three major domains, physiologic, motor-expressive, and subjective, encompassing "cognitive evaluations . . . autonomic and neural arousal, impulsive action, and behavior designed to have an effect on the stimulus"; he also refers to evolutionary purpose and to the complexity that emerges from combinations of his basic emotions (p. 361). Yet one still is left tantalized: are there, indeed, specific features that set the area of emotion apart from other aspects of experience or behavior, and if so, exactly what are they?

Although the boundary problem remains, Plutchik's effort to place study of emotions within an *evolutionary framework* is valuable. On several occasions he points to continuity up and down the animal kingdom, from humans to termite societies. Both extremes use "nonsyntactical signals," to communicate hunger, alarm, hostility, and other emotional messages, as E. Wilson puts it (quoted in Plutchik, p. 124). One could multiply examples: anxiety observed both at the behavioral and at the molecular level in the sea snail, Aplysia, by Kandell (1983); primate studies involving attachment and loss (Kaufman and Rosenblum, 1967); the impaired cognitive and emotional development that follows deprivation of maternal contact (Harlow and Harlow, 1971); the emotional contagion that develops in a monkey exposed visually to an anxious peer (Miller, Caul and Mirsky, 1968). Plutchik makes a strong case for the primary adaptive role of emotional processes: other elements, "that we call cognitive, are in the service of emotions and bodily needs" (p. 295).

A third theme, that of *core processes,* presents perennial problems. There is wide agreement, which Plutchik shares, that certain emotions are "basic"; others are combinations, blends, or elaborations. Plutchik notes that both Descartes and Spinoza put forward approximations of this view. As history has moved forward, taxonomic sophistication has grown; rough consensus has emerged about the basic emotions (see Knapp, 1983). Still, all observers do not reach perfect agreement, even at times with themselves. The result is a phenomenon that might be called that of the hazy core, ever present, but ever elusive.

Plutchik's model is orderly; it envisions eight basic emotions: fear, surprise, sadness, contempt, anger, anticipation, joy, acceptance. He suggests it is fruitful to see these arranged like a color wheel—in the order just given (p. 164). His circular model places opposites across

from one another, thus sadness opposite joy; and it allows for blending of adjacent emotions, thus fear and surprise to form awe. Plutchik has tested the model using the ratings of student judges asked to determine degrees of similarity and of intensity, rating a large number of emotion terms.

This effort to conceptualize a core, capable of generating more complex emotional blends, has aesthetic appeal. One wonders, however, whether the elements are almost too neatly packaged. "Surprise," which is almost by definition transitory, and "anger," which can burn for hours or years, occupy identical cells. Surely their mechanisms must be quite different. Moreover, the choice and locations of some emotions appear arbitrary. Why "acceptance" and why not "shame"? Similarly, some opposites are intuitively convincing—"sadness" as against "joy," for example—but others are less so. Is "surprise" the true opposite of "anticipation"? Although some strong emotions result logically from blends between neighbors, one can think of others which are harder to fit into this combinatory model: for example, envy, shame, astonishment. Clearly, more empirical work will be necessary to answer such questions. Plutchik deserves credit for outlining a framework in which they can be asked.

Many answers emerge from study about *expressive manifestations* of emotion, particularly in the face, pioneered by C. Bell, along with Darwin, in the last century. Specific "basic" expressions are found in children born blind, pointing to the universality of a facioemotional grammar. Plutchik questions the exclusive role of the face, pointing to emotional manifestations in virtually faceless animals, and to the important role of other avenues of communication, such as the acoustic. We shall see later, however, that his overall Darwinian view is shared by the leading investigators of facial expression. They have used the richness of facial display as an opening wedge into precise study of one crucial communicative area, but do not exclude study of others.

In the *biological* realm, we encounter another theme, the puzzles concerning arousal and inhibition. Plutchik refers to the recurrent view that some sort of "bodily excitement . . . appears to be a necessary element in the description of emotion" (p. 340). Yet the concept of activation is elusive, as is that of inhibition. The terms embrace a variety of neuroendocrine, peripheral and central nervous processes. The expansive, escalating activity of an aroused individual, as well as its counterpoint, leaden retardation, or virtual paralysis, are striking clinical phenomena. The mechanisms behind these generalized tendencies toward amplification or constriction of emotion, as well as

their interaction with other biological processes, are matters for future investigation.

Obviously, biological issues are not confined to activation and inhibition. Contrapuntal erotic and aggressive stirrings, the far-reaching consequences of loss, the relation between emotions in the strict sense and bodily regulatory factors—all are touched on by Plutchik; all pose problems for a future biology of emotions.

To some extent the new "physiology" called for by Engel (1954), is emerging from increasing knowledge of neurohumoral interrelations, elucidated, for example, by Mason (1968), extending to still other homeostatic systems, such as immunoregulation (Ader, 1981), as well as knowledge of the interplay between these systems and genetic mechanisms (Weiner, 1977). It is just as necessary to assess the full complexity of psychological manifestations of emotion. This was part of the thrust of a number of early psychosomatic investigators, for example, the successful predictions by Weiner and his colleagues (1957) of the development of peptic ulcer in Army recruits, based on projective test measures of primitive "oral" conflicts. Efforts to use simplified models, such as generalized (and generally not well defined) "stress," have sooner or later been forced to take account of psychological complexity. For example, all-purpose metrics of "life change" hoped to make psychodynamic formulations superfluous; but such metrics have gradually become more searching and have begun to ask about the subjective meanings that "changes" have for given individuals. We see what might be called a return of the dismissed.

Emotion is intimately involved with *language*. Every human tongue has a wide range of terms that provide important evidence about emotions. Such words fall into clusters. Plutchik mentions the work of J. R. Davitz and many others who have used checklists and dictionary approaches. Again we find tantalizingly near but never complete agreement. Words for emotions reveal not only qualitative, but quantitative differences ("fear" differs from "shyness," and also from "terror"). We know little about how these distinctions are learned. Certainly, families and cultures vary widely in the richness of their emotive vocabularies. Systematic assessment of the variety and clarity of verbal access to emotion, and of its origins, is an essential part of psychoanalytic psychotherapy, and ultimately a target for psychoanalytic clinical investigation.

Language leads in two directions: one is back to the phylogenetic origins of symbolism in relation to emotion; the other is forward toward the elaborated structure of adult human emotional experience and closely related personality components.

Attempts at affect classification, from Galen to the present, have pondered issues of temperament, attitude, and character. The variety of rating scales and checklists in this area have often yielded contradictory results. Studies by Plutchik and his colleagues focus on these perpetually intriguing questions. Pursuing his analogy of the color wheel, they have asked judges to assess a plethora of terms related to character; and Plutchik offers evidence that here, too, polar opposite terms can be arrayed in a "circumplex" (circular) model. Despite some discrepancies, his studies show considerable agreement. It is not entirely clear what this agreement means. "Negative" traits are found on one side of a circular display, "positive" on the other; more "active" traits toward the top, more "passive" toward the bottom. Plutchik himself raises the question: "Is the circumplex in the rater or the ratee"? (p. 197). The consistency across studies supports the existence of an objective reality, but we need to know more about mechanisms and about the relation between manifest labels and more hidden personality features.

These issues of complex mental functioning lead to problems of awareness and defense. The relation between *consciousness* and emotion makes for perennial perspectival difficulties. Freud's familiar statement, "It is surely of the essence of an emotion that we should be aware of it," was followed in the same paragraph by the sentence: "But . . . we are accustomed to speak of unconscious love, hate, anger, etc., and find it impossible to avoid even the strange conjunction 'unconscious consciousness of guilt,' or a paradoxical 'unconscious anxiety' " (1915, p. 177). So much hinges on definition. If one defines emotion as felt experience, it must in some sense always be at least partly conscious. On the other hand, one may conceptualize a variety of partial or potential manifestations that have undeniable emotional qualities yet exist outside of subjective awareness. Plutchik's own comprehensive definition, as indicated already, contains many of these ingredients that may be hidden from both subject and observer. His own empirical studies focus on consciously describable experience; he seldom grapples with the nature and force of emotional elements existing out of awareness.

Moving to the concept of *defense,* Plutchik points out the evident lack of a generally accepted, systematic classification, the need for what Waelder called "an alphabet of defenses" (1951). Plutchik and his collaborators, especially Kellerman (who contributes a chapter to the next book reviewed) have approached the defenses also by use of self-reports. A number of statements, such as "I always see the bright side" (putatively reflecting denial) or "If I am angry at my boss I will

probably take it out on someone else" (putatively displacement) were refined into a "Life Style Index" and tested on various groups. Preliminary results suggested relationships between different defenses and various diagnostic and personality groupings. Once more a circumplex structure was suggested, made up of various polar opposites. Defenses are generally seen as maneuvers that prevent awareness of painful or disturbing feelings. Attempts to detect them by conscious self-assessment, even though that is directed at specific behavioral items, may miss their essential automatic and involuntary nature, and also risks distortion by subjects' wishes to please or be socially desirable. Moreover, the effort to force defenses into a procrustean bipolar bed seems premature. One could question whether "repression" is the opposite of "displacement," or "projection" the opposite of "denial." On the other hand, some of Plutchik's conclusions seem sensible, for instance, "the notion that isolation, rationalization, and undoing, all represent variations on the defense of intellectualization and constitute an obsessional syndrome" (p. 348). His venture into the area of defenses must be viewed as tentative, an important preliminary step toward classifying and measuring defensive activity.

An overall critique of Plutchik's volume must recognize its dual purpose. On the one hand it is a textbook, a thoughtful introduction to the field of emotions. By necessity many areas are accorded brief treatment. Psychoanalysts might fault some of his emphases and argue for inclusion of missing favorites, for example Rapaport's 1953 paper. Other specialists might engage in similar special pleading. The intent of his work is to serve as a survey, far-reaching and even-handed. If at times it resembles a patchwork quilt more than a finished mosaic, that may be an accurate reflection of the field.

Plutchik has a second, more ambitious aim, to present his own evolutionary theory. In its broadest outlines, this theory has a convincing ring; few voices these days are raised against evolution. It is in the details, its areas of agreement with or differences from other views, that Plutchik's theory will require future sharpening. His conceptualization of the organization of emotions on the model of a color wheel is attractive; it emphasizes that human feelings are mostly mixtures and blends. Yet, the exact nature of the underlying ingredients and their relation to other processes, psychological or physiological, remain unclear. He raises crucial questions: What is the precise relation of emotions to "drives," or to cognitive elements? What is the nature of evaluation, of what stimuli by what agency? What is the role played by pleasure and pain, by arousal, and by the biological underpinnings of expressive behavior? The answers to these and other questions lie in the future.

A theory, so we are told, will only be overcome by a better theory. Plutchik has offered a unified view of the emotions as a rich tapestry woven out of a finite number of basic strands. The approach is heuristically valuable. It may not do justice to the hierarchical layering and tactical subtlety of emotions reported by psychoanalytic or other clinicians, yet Plutchik's work challenges future observers to produce their own theories, equally well buttressed and comprehensive.

The diversity of views about emotion has led to a number of collections of essays, each constituting a kind of theoretical smorgasbord (Reymert, 1928, 1950; Knapp, 1963; Arnold, 1970). An excellent recent volume amplifies Plutchik's interests: *Emotion: Theory, Research and Experience. Volume 1: Theories of Emotion,* edited with Kellerman. The volume gives a detailed sample of views from fourteen investigators and their colleagues, almost all of these touched on in Plutchik's own book. The fourteen chapters are grouped under three headings: evolutionary, psychophysiologic, and dynamic.

The five "evolutionary" chapters include an initial one by Plutchik, and attempt to link naturalistic and comparative biological animal observations to human studies. J. P. Scott, using a general systems perspective, postulates nine basic behavioral systems, some given rather elaborate names ("et-epimeletic" for "distress and crying"). Once again, these correspond roughly to other "basic" lists. Symbolically elaborated, Scott argues, these give rise to human emotions. He reports on some of his skillful work on separation distress in dogs, showing how some environmental factors relieve it (such as the presence of mother, or injections of morphine), while others fail to do so (imipramine, at least in some breeds, or tranquillizers). I. Eibl-Eibesfeldt and R. A. Chance approach emotion as ethologists, updating Darwin. Eibl-Eibesfeldt reports cross-cultural studies of human behavior, essentially unstaged. He sees affective expression as composed of fixed action patterns, which children enact and which adults combine in various ways with verbalizations. Chance undertakes a more ambitious discussion of the ethological approach, free of preconceptions or experimental distortions. He emphasizes the need to note the full social context of observed behaviors: as elemental a response as salivation in sheep may be influenced by the sight of other sheep salivating. He remarks on the similarity of numerous classifications of emotions, including Plutchik's; and he wonders whether there is not a more sweeping polarity between "agonic" (danger-avoiding) and "hedonic" (pleasure-seeking) reactions. He contrasts "agonic" baboon and "hedonic" chimpanzee temperament and social structure. In this, as in other fields, perhaps we should recall that polarities, like beauty,

may be in the eye of the beholder. Chance further discusses arousal as a partially independent process. "Prolonged startle," he feels, facilitates agonic reactions. He notes that fear leads both to inhibition and to escape; further, it tends to fixate the individual on the source of the fear itself, "a true paradigm for paranoid fear" (p. 106).

The central and longest section of this volume is devoted to psychophysiologic essays. Here age-old mind-body dilemmas—see Weiner (1986) for their history—receive sophisticated attention from K. Pribram, A. Lazarus, and G. Mandler.

Pribram provides a sweeping review of biological theories of emotion. He points out interesting historical continuities, for instance between ancient humoral concepts and present-day endocrinology. Somewhat idiosyncratically, he uses the term "feeling" to designate a major domain; within that he contrasts expressive, impulse-related processes that culminate in action (he calls these "motivational feelings"), with "emotion" proper. The latter results from blocked outlets, arrest, absence of motion, truly "e-motion." This distinction does not seem central to his main argument, which concerns brain organization. After a condensed discussion of midbrain elements that have been identified in emotional behavior, he proposes an important contribution from the cortex: diffuse or "protocritic" sensation joins with holistic parallel processing by the right cerebral hemisphere to produce a global evaluative " 'bodyimage' or 'self.' " This affectively toned self-representation is a central part of what Pribram labels the "esthetic-ethical" dimension of experience.

Lazarus and Mandler are both experienced investigators and theorists, who try to integrate psychological findings with knowledge of peripheral (largely autonomic nervous) physiology. Both consider the contribution to emotional reactions made by cognition; both try to extend the term to include nonconscious aspects. The cognitive emphasis is most marked in Lazarus, who along with his collaborators, A. Kanner and S. Folkman, asserts that emotion is "a product of cognitive activity" (p. 212). This widely held view states that appraisal leads both to action impulses and to "patterned somatic responses." The argument encounters difficulties. Lazarus feels that "each emotion is associated with a particular physiologic response profile"; but he admits that the evidence for this statement is tenuous. How many emotions exist? Which ones are basic? Who does the appraising? How soon in life (since emotions seem to be present at the moment of birth, and since even later in life emotions may behave like quasi-reflex eruptions)? Lazarus touches on these questions, remarking on the core principles regulating emotional transactions of individuals with

their environments, on the concept of coping, and on the adaptive role of positive emotions as "breathers, sustainers, and restorers," as well as on the use of cognitive "unconscious ego processes" to sense affective stirrings and to serve as signals.

Mandler also adopts a largely cognitive stance, attempting to discover the variables that common language and older psychologies have labeled "emotional" (p. 220). He sees "private experience" as an essential component of emotion: "The generation of emotion must take place within a small conscious window to the mind" (p. 226). His model for generative activity is "a gestalt-like concatenation of two major components: visceral arousal and cognitive evaluation" (p. 229). This view contains some ambiguities. On the physiological side it seems to rely largely on the unified conception of the autonomic nervous system, which itself is becoming more complex as receptor physiology blurs traditional boundaries between neural, humoral and immunological systems. On the psychological side, there is the danger of replacing one all-encompassing term, emotion, by another, cognition. I suspect Mandler would agree. He sets forth the aim of "developing the deep structure of the mind," but he adds: "Just as the psychologies of memory, perception, or thought concentrate on processes rather than definition, so a psychology of emotion should concentrate on the underlying psychological processes and mechanisms"; eventually "the umbrella concept of emotion . . . [may] become superfluous" (p. 220).

Mandler touches on some of his own interests: states of dissociation between visceral and cognitive phenomena; the thesis that interruption of ongoing activity is a potent, though not exclusive stimulus for autonomic activation; and the closely related ideas that evaluation is a constant activity of the organism, a derivative of built-in tendencies to approach or withdraw, and that emotional expression is part of "an ancient adaptive system of communication . . . the results of cognitive evaluation of the world and internal states" (p. 229).

Mandler's view is urbane, broad, and balanced. He argues that cognitive psychology provides a general framework, which is coming to include lexical and emotional elements, conscious and unconscious processes, as well as interaction between physiologic and symbolic mechanisms.

These and other contributors to the volume Plutchik has edited with Kellerman, add detailed flavor to his own survey. Together these books provide a broad and balanced view of investigations into emotion, its varied assumptions and empirical cross-currents. Two more sharply focused bodies of work—though both touched on by Plutchik—may benefit from separate treatment. These are, first, the line

of inquiry beginning with Tomkins and, second, studies stemming more specifically from psychoanalysis.

Expression of the Emotions: Tomkins, Izard, and Ekman

If Plutchik, Lazarus, and Mandler are Appolonian in their approach, surely Sylvan Tomkins is Dionysian. His two volumes, *Affect, Imagery, Consciousness*, appeared in 1962 and 1963; ever since, they have had a continuing impact on studies of emotion.

Tomkins starts his first volume with a flourish, directing an unambivalent attack on behaviorism, followed by a genuinely ambivalent attack on psychoanalysis. Consciousness in the psychoanalytic view, he asserts, is "the epiphenomenal servant of the unconscious"; and he criticizes the concept of unconscious determinism, seeing it as a derivative of an ancient "hydraulic" model. He starts to elaborate a theory of consciousness, saying that it *is* image. However, the terms from his title, imagery and consciousness, virtually disappear. His focus from this point on is almost exclusively on affect.

He sees the "affect system" as an evolutionary achievement, replacing "drive." His use of "drive" amounts to setting up something of a straw man: he equates it with limited, site-specific biological needs such as hunger and thirst (although at times in a somewhat confusing fashion he also includes "pain" as a drive). Affect he sees as diffuse, flexible. Affects are amplifying mechanisms but also "primary motivators." He anchors them in the central nervous system as part of a "central assembly," although he is never too precise as to the exact components of this assembly. What he does do is describe imaginatively the variations in affect organization, the way in which affects combine, or replace one another; he also talks of their transformation by habituation, miniaturization, accretion, as well as by delay and avoidance. In effect, while rejecting the concept of ego as such, he makes insightful additions to the understanding of what others have termed ego defenses.

From this provocative theoretical launching pad, he pursues the major, more empirical thesis of his work; this is that the primary site of the affects is the face. The face expresses affect to others and to the self by way of feedback. He anticipates future investigations by high-speed photography, which will show differences between voluntary and involuntary emotional displays. He notes the close relation of the face to hand, eye, and ear (actually at times he seems to be talking about the head rather than just the face, noting its enormously rich inervation). His dictum becomes an organizing principle: "affect is primarily facial behavior."

This dictum leads into successive chapters which provide a wide-ranging discussion of his facially derived basic affects. These start with "interest-excitement," marked by characteristic attention-serving constriction of periorbital muscles. He refers to this component as an "affect most seriously neglected," intimately related to arousal and a key element in creativity.

"Enjoyment-joy," with its characteristic crinkling, smiling facial expression, can be traced back, as Darwin had noted, to lower animals and, Tomkins notes, is an innate response of infants. Tomkins goes on to trace the role of smiling in social bonds and ends up with a section on the libidinal pleasures of speech and types of religious joy.

"Surprise" is a "resetting" affect, ancillary to every other (also, one might argue, different from others in its momentary nature; we are faced with the question of whether observable facial expression really confers a "basic" status on expressive behaviors).

"Distress-anguish" again has the characteristic facial expression along with the expressive manifestations of sobbing and tears. In discussing this emotion, as with some others, Tomkins slips close to the James-Lange position: "awareness of the feedback of the crying response is the experience of grief or suffering" (Vol. 2, p. 5). Tomkins discusses the toxicity of crying, especially of an infant, to the adult listener. He traces the vicissitudes of distress in adulthood, including its defensive modifications. Once more, without subscribing to the concept of ego, he supplies rich details about ego operations; they may lead to frozen, isolated sadness or to mixtures of sadness with other affects, or to defensive replacement of sadness by accentuating other emotions. Affective components may reenforce one another, so that sadness, fear, and rage culminate in storms of depression.

"Shame" provides even more fertile ground for his clinical observations. He points out the obscure nature of its characteristic physiologic manifestation, blushing. He concludes that shame is an "innate auxiliary affect . . . a specific inhibition of continuing interest and enjoyment." In subsequent chapters, he talks about the force and intensity of shame in major mental disorders, anticipating many subsequent observers who have borne witness to this relationship.

"Contempt" and "disgust" are the final members of his basic emotions; they lead into the final chapters on humiliation. He sees these two affects as having characteristic facial, particularly oral-nasal, expressive physiognomy. They differ from each other and from shame. Contempt is "primarily an auxiliary response to the hunger drive designed to prevent the ingestion of noxious material" (p. 232). Disgust he sees as stemming from nonvisual sources, innate reactions

to touch and smell. Again one might wonder about these precise distinctions. (Indeed, Tomkins himself has continued to struggle with them, and later [1981] has conceptualized contempt and disgust as closer to genuine "drives" than other affects.)

In his closing chapters, Tomkins discusses the impact of humiliation. He sees this as a "generic term including both the affect of shame-humiliation and the affects of contempt-disgust" (p. 263). It is the way in which the environment can impose upon an individual a sense of weakness and helplessness, which may culminate in "affect magnification"—a useful concept essentially of positive feedback—and in an orgy of self-punishment.

As he considers the impact of shame, Tomkins discusses the vicissitudes of an affect. It may remain overt and dominate—the "monopolistic" solution; it may remain hidden and emerge under specific conditions—the "iceberg" model; it may remain in a state of competition—essentially a conflict model; or it may be smoothly integrated into an overall personality. His own version of "habitual" reflex anxiety, serving as a trigger, is essentially a formulation of signal anxiety. He digresses to an original but unformed theory of memory, emphasizing that actual information may be genuinely lost, but that also primitive residues may remain embedded in adult expressive behavior. He suggests a quasi-calculus of memory forms in relation to affect experiences. They may be summed or averaged to develop predictive trends and to otherwise represent multiple emotional events. Tomkins closes with a clinically interesting, if incomplete, assertion of the importance of "monopolistic humiliation theory" as a characteristic of paranoid schizophrenia.

Volume 2 of *Affect, Imagery, Consciousness* ends in midstream. It is as if Tomkins were writing faster and faster. There is no bibliography. A third volume was planned but has not been completed after thirty years. He himself implies that the two extant volumes were finished during a sabbatical leave (adding that he was also father of a newborn son). Obviously, the book was a creative accomplishment, pouring out an accumulated store of thoughts and observations. The result is rich and stimulating. One can quarrel with his theory, point out contradictions or physiologic misinformation. For instance, he clings to an example of dyspnea. This symptom, he states, does not occur in pilots exposed to low oxygen: the "drive" to breathe is not sufficient; only if "anxiety" is added is the result respiratory distress. This statement overlooks the well-known physiologic facts that oxygen deficit *per se* is narcotic; only carbon dioxide excess leads to respiratory distress, with or without amplifying affect. Similarly, his physiologic

view that affects are differentiated from one another by some process he calls "density of neural firing" is a bold but poorly spelled out and poorly substantiated concept. However, to focus on some faults in the book is to overlook its creativity, the sweeping, inventive wealth of ideas, and the penetrating nature of many of its observations. Its heuristic value and its potential contribution to a future psychodynamically informed view of emotions is enormous.

The subsequent course of Tomkins' work is of interest. He inspired and collaborated with empirical investigations, as we shall see in discussing Izard and Ekman. His own thinking did not undergo substantial modification. In a number of manuscripts (1968, 1979, 1981; also chapters in Plutchik and Kellerman, and in Ekman, reviewed here), he repeatedly attacks a straw man of "drive" which he sees as the psychoanalytic antithesis to his view of affect as preeminent motivator. He proposes some new ideas, for example, that specific changes in the skin, particularly in temperature, and in voice patterns, may characterize expressive aspects of emotions. In the psychological sphere, he attempts to deal with the complexity of human emotion and its defensive regulation by a concept of "backed up affect," which encompasses the familiar problems of suppression and repression.

He also has tried to link up affect to enduring structures of human experience. He sees "innate affects, which necessarily color our every experience of the world" as becoming organized in a set of scenes (1979, 1981). That is his version of "script" theory. In a way not entirely clear, he sees affect as "magnified" by operant learning, as an individual strives to intensify desirable and minimize undesirable experiences. This is Tomkins' version of a minimax hedonic motivational strategy. Script for him appears to be a mixture of recurrent memory, anticipatory rehearsal, and persisting fantasy. He hints at the hierarchical nature of script organization, speaking of "nuclear scripts," repeatedly reenacted or reexperienced scenes that include central characters. The notion of scripts makes a potential important contribution to the theory of nondiscursive thought, to the way in which personal or "episodic" memory (Tulving, 1972) is laid down and retrieved. Thus Tomkins tries to go beyond affect *per se* and contribute to further understanding of the structural organization of psychic life and self-systems.

Tomkins' most important contribution remains his continued emphasis on the affect processes as a rich, independent, inviting territory for exploration, one essential to our continued knowledge about human experience. Tomkins raises many of the crucial questions about emotion: their origins in childhood and, before human child-

hood, in the animal kingdom; the coexistence of multiple emotional processes and the factors governing their ebb and flow; their relation to images (indeed, one wishes he had pursued the theme of imagery raised in his original title and initial chapter). He touches on important issues of affect in relation to symbolization, which bear upon our understanding of early human relationships. These are being examined by psychoanalytic investigators and also by cognitive psychologists.

Tomkins' adversarial style, and his insistence on affect as a separate fiefdom, make assimilation of his views difficult. Nevertheless, his verve and vision have profoundly advanced our understanding of the affective-instinctive-motivational underpinnings of human behavior.

Tomkins began a limited revolution—a paradigm shift, in Kuhnian terms. Theoretical and empirical elaboration came from a number of colleagues and successors, chiefly Carroll Izard and Paul Ekman.

Izard pursued Tomkins' notion of fundamental affects and helped to show the universality of their facial manifestations, particularly in his book, *The Face of Emotion* (1971). His data included photographic studies of children, and also a large number of questionnaire studies with adults; the latter concentrated on profiles of multiple emotions recorded by individuals in a variety of emotion-provoking situations. Many of his empirical findings are summarized in *Human Emotions*. Here Izard gives a systematic discussion of his grouping of basic emotions, nine in number.

"Interest-excitement," he considers to be a wellspring of motivation—this largely by including within its purview the multiple, tangled functions of arousal. "Enjoyment-joy" he conceptualizes as a unified emotional experience, although he admits to some difficulties over its active and passive variants; these seem to imply different ingredients. "Surprise-startle" makes his basic list, though he acknowledges, "it is not an emotion in the same sense" that other core elements are. "Fear" and "sadness" he sees as further primary states. They become mixed with other elements to form the more complicated clinical conditions, anxiety and depression. Similarly, "anger," "disgust," and "contempt," although separate emotions, are frequently found interacting. "Shame and shyness" have a "common psychological substrate with guilt"; he sees them as "inhibiting" cognitive and other ongoing processes in ways not entirely clear, and also as being somehow "activated by the partial reduction of the neural activity . . . of either interest-excitement or enjoyment-joy." Finally, he includes guilt as one of his basic emotions, acknowledging that it lacks distinct facial

or other expressive manifestations; nevertheless its powerful social force gives it a preemptive quality. Guilt also serves for him as a bridge to psychoanalytic theory; and he summarizes briefly Freud's original formulation of the superego as heir to oedipal conflicts.

Izard endeavors to tidy up the sprawling theoretical edifice left by Tomkins. Broadly informed, he addresses many of the major problems facing the student of emotion. The term, Izard insists, must include "characteristic neurophysiologic, expressive, and experiential components." He attempts to take account of psychoanalytic views, relying chiefly on Rapaport's model, along with criticisms of this by R. Holt and H. Dahl; he also mentions J. Singer's studies pointing to links between "pure unorganized emotion and cognition" (Plutchik and Kellerman, p. 167).

Izard also argues, in agreement with E. Schactel, that emotion is a continuous, pervasive component of all action. He stresses also how emotions interact with each other and with "homeostatic drives, perceptual and cognitive and nervous processes" (p. 43). However, his major thesis, which he condenses under the rubric, "Differential Emotion Theory," is that "discrete emotions of human experience" —those on his basic list—are essentially irreducible building blocks. They constitute the principal human motivators. Although he states that each has its own special central nervous system connections, he underlines the primary importance, for each, of the face: "At the neuromuscular level emotion is primarily facial activity and facial patterning" (p. 48). Their relation to consciousness comes by way of the face: "When neurochemical activity via innate programs produces patterned facial and bodily activities . . . the feedback from these activities is transformed into conscious forms" (p. 49). We grit our teeth and then feel angry. The ghost of a James-Lange view (James, 1884, 1890) reappears, updated; its many perplexities remain.

When Izard touches on clinical issues of control and modification of emotional patterns, limitations of this "facial" emphasis become apparent. Since discrete (facially mediated) emotions are modified primarily by other similar discrete emotions, management becomes facial manipulation: "Since the facial muscles involved in producing expressions are under voluntary control, this component of the emotional system can be used to regulate emotional experience" (in Plutchik and Kellerman, p. 182). This formulation would seem to favor therapeutic injunctions such as "Keep a stiff upper lip," or, "Smile!"

The scientific fruits of Tomkins' theory are most fully reaped in the work of Ekman and his collaborators, especially W. Freisen and P. Ellsworth. Ekman's orientation has been rigorously empirical; he

has set himself a task of hypothesis testing. Empirical studies carried out by his group have been fundamental in validating the conclusion that facial expression is universal for encoding and decoding human emotional communication. The second edition of their volume, *Emotion in the Human Face,*[2] includes elaboration of data from the previous edition. It chronicles methodological advances: an earlier facial affect scoring technique (FAST) involving observer judgments of three facial sectors, has been superseded by the Facial Action Coding System (FACS) designed to measure movements visible in all facial behaviors regardless of context. The FACS system yields precise measures of a variety of expressive states. Its validity has been confirmed by another more restricted approach of Schwartz and his colleagues (1976), electromyographic recording in sad and happy subjects.

Ekman also provides a critical review of general concepts of emotion, including questions about simultaneous display and subtle alterations of facial expression. He further discusses experimental approaches and the need for verifying emotional experience by independent criteria, as well as problems of sampling and recording.

The volume points out that in addition to discrete categories of expression, there may be continuous *dimensions* underlying or contributing to emotion. Investigators such as H. Schlossberg, C. E. Osgood, and N. H. Frijda have independently found such dimensions; the most important appear to be pleasure-unpleasure and interest-activation. Ekman's main point, however, is the general agreement that has been found on at least seven categories of emotional expression. He emphasizes that commonalities have been demonstrated early in life, including studies of blind children that we have already mentioned.

The authors discuss in detail the cross-cultural research to which Ekman and his collaborators have contributed. Thirteen groups of different ethnicity have been examined, including a definitive study of 189 adults and 130 children from a preliterate New Guinea culture, using a technique first described for working with groups of children. The task involved sets of three photographs, from which observers were asked to choose one that matched a brief story involving a single emotion. Adults and children from the remote New Guinea tribes (and in a later study of the Dani in West Iran) were carefully selected because they had had no contact with Western civilization; these ultra-

[2]Ekman is sole or first author of nine chapters, some along with Friesen and Ellsworth. Additional chapters are contributed by W. Redican (on phylogenesis), M. O'Sullivan (on test construction), J. Hager (on asymmetries in facial expression), and Tomkins (on affect theory).

naive judges choose the "correct" photograph about 80% of the time. They failed in one category, namely to distinguish fear from surprise.

In almost the inverse approach, Japanese and American subjects were shown emotionally evocative films; both national groups displayed virtually identical facial expressions. These were recorded while subjects were unaware of being observed. When talking later to compatriots about the experience, the Japanese but not the Americans masked negative emotions with a happy face. Ekman points out, as does Izard in a slightly different vein, that it is not emotional expression *per se* but contextual features—events antecedent or consequent to, or attitudes coexisting with the emotion—that are likely to reveal differences between cultures. The same undoubtedly holds for differences between individuals within cultures.

Ekman and Oster summarize: "There is unambiguous evidence of universality only for the expression of happiness, anger, disgust, sadness and combined fear/surprise" (p. 149). Such evidence of a pancultural element in facial expression is impressive. Predictably, it does not confirm everyone's theoretical predictions perfectly; but it shows that for a significant majority of key human emotions there is a universal language of display.

Ekman goes on to take up a number of remaining problems. What are the mediating mechanisms? Since these are presumably innate neurologically wired connections, the question leads to problems of cerebral asymmetries and feedback from periphery to the central nervous system. He has pursued the feedback question and obtained important evidence that facial expression, both posed and disclosed during recall of emotions, can result in specific autonomic nervous patterns discernible from one another (Ekman, Levenson, and Friesen, 1983).

In discussing the importance of context in assessing emotion, Ekman touches on additional avenues of emotional expression, acoustic-linguistic, kinesic-gestural, and visceral, remarking: "There is little excuse any longer for examining the face independently" (p. 196). The volume also mentions the problem of individual differences in encoding and decoding ability; and it provides an excellent review of developmental issues, "one of the most rapidly progressing areas of research on the face" (p. 396). Here Ekman stresses the necessity to examine the "interaction between infant and caregiver" (p. 397). He further indicates the need to investigate individual differences and emotional blends, as well as expressive manifestations in persons interacting with each other; also the relation of all these factors to long-standing processes such as personality disorders (see Ekman and Frie-

sen, 1974) and to psychosomatic diseases. Such emphases suggest bridges, which Ekman has occasionally crossed, to clinical, including psychodynamic, psychology and psychiatry.

Ekman's work is sharply focused behavioral research of the highest caliber. It answers some questions precisely, points to those unanswered, and to new questions raised by the very answers themselves. Thus, it is more than a mere testing of Tomkins' hypotheses. It represents a careful interdigitation between the experimental laboratory and the ethological tradition of detailed naturalistic observation. This tradition has been carried into human studies by students in the field that is loosely designated as semiotics, pursued students of emotional and other aspects of extralexical communication—that is, of paralinguistic, motor, and visceral-physiologic signals. The early explorations of R. L. Birdwhistell (see Knapp, 1963; Scheflen, 1963; Mahl, 1977) have been followed by an outpouring of effort in this area.

A perspective on this thrust emerges in a further contribution by Ekman, the *Handbook of Methods in Nonverbal Behavior,* jointly edited with Scherer. The Handbook's specific focus, nonverbal behavior, overlaps with but is not coextensive with emotional expression. The editors provide a useful historical summary; they remark that Freud saw nonverbal behavior as an avenue to unconscious, repressed elements in behavior; and they touch on a few successors who attempted to pursue this early interest. However, the dominant focus of the introductory chapter, setting the tone for the rest of the volume, is on systematic studies outside of the clinical arena and on the variety of methodological options available for study of individual subjects as targets by themselves, or as participants in a social field.

Particularly useful is their discussion of problems entailed in coding and hence decoding nonverbal, as contrasted with verbal behavior. Verbal, (perhaps better called lexical) signs tend to be discrete, invariant, and arbitrary. "Nonverbal" (including the purely acoustic aspects of verbalization) tend to be continuously graded, probablistic, and iconic. Among these manifestations, however, one finds a wide range: gestures may be emblematic, that is, iconic yet ritualized, so as to be on the whole invariant, discrete, and often voluntary (for example, a shoulder shrug or a wink). On the other hand, loudness of voice or flushing of the face are probable signs of the state of the sender, more ambiguous, less volitional, and in some ways more surely "emotional."

These contrasts become important when one compares two major sources of information about emotion, facial display and the voice. The face reveals a series of discrete visible patterns; these can be

measured by a variety of techniques (such as Ekman and Friesen's FACS system), which can distinguish single expressions, including ranges of intensity or combinations of more than one expression.

Acoustic qualities are more subtly blended and more difficult to disentangle from lexical message. Emotional cues are linked to pitch, loudness, timbre, and to variations of these and other qualities. Scherer, in his thorough review chapter, describes efforts to obscure lexical content by devices such as band pass filters, including a sophisticated randomized splicing technique of his own. These preserve voice quality and sequence cues, which together convey most of the emotional import; however, no method of disguise is perfect. In this regard, it would seem that more use might be made of judgments about emotion from speech uttered in a language totally foreign to the listener. For now, we are left with puzzles: a sensitive listener on the telephone, for instance, can often detect the mood of a speaker after only a few syllables; yet we are at a loss to know by just what cues.

Going beyond face and voice, other chapters pursue methodological refinements: in the study of body motion (H. A. Rosenfeld); gaze and mutual gaze (R. W. Exline and B. J. Fehr); the organization of face-to-face interaction (Kendon); conversational patterns (C. West and D. H. Zimmerman); problems of conducting studies involving judges (R. Rosenthal); issues of analyzing complex sequences of behavior (J. Van Hoof). A technical appendix deals with refinements of audio-visual recording (H. G. Walbott).

This handbook concentrates on experimental methods; it includes some naturalistic field studies, but clinical or related inferences are shunned. At times acknowledgment is made of a potentially disturbing impact of experimental or observational procedures; thus "continuously looking confederates, to simplify the measurement of mutual gaze, may well affect the obtained level of such a phenomenon" (Exline and Fehr, p. 130). But the volume subscribes to the principle that methodologic exactitude flows from public, externally observable behavior. West and Zimmerman extol the merits of ethnomethodology; this approach is "not concerned with the interior goings on of the acting subject, nor . . . with rendering a description of the particular meanings attributed to situations by participants" (p. 511). They go on to invoke Coulter (1979): "Nothing in ethnomethodology's program commits us to a view of human conduct as beyond the categories of the public, social world. There are no 'egos,' no irreducible 'impulses,' no 'subjective meanings,' no 'interior states.' " This view throws down a gauntlet to those who find such

concepts useful, who find it valuable to search for subjective meanings and private states, particularly in studying emotions. It challenges proponents of these concepts to define them clearly and to refine methods that test their utility.

The Psychoanalytic, Developmental Perspective

Psychoanalytic contributions to the study of emotion have resulted in a profusion of clinical detail and a confusion of theory. Patients come to psychotherapy because of emotional distress: psychoanalytic technique aims to penetrate defensive mechanisms that ward off full awareness of distress and to expose underlying conflicts, primarily as they emerge in the immediate therapeutic encounter. This strategy is intended to sustain emotional intensity.

However, psychoanalytic methods, free association and interpretation of unconscious elements, have not readily made contact with other approaches in the natural sciences. Detailed recordings of therapeutic interactions, with all their emotional richness, have been scarce items, although this limitation shows signs of change, especially in the recent burgeoning of psychotherapy research (Gill, 1982; Horowitz, 1984; Luborsky, 1985; Strupp, 1973).

Psychoanalytic theory presents further complications. It has been beset by the various problems facing the student of emotion. Even within psychoanalysis many different definitions and a wide range of partial models and theoretical approaches are evident (see M. G. Drellich's review, Chapter 1, in Cantor and Glucksman, reviewed below).

As mentioned earlier, Rapaport (1953) made a major effort to establish a theoretical foundation, based on traditional psychoanalytic concepts of energy, drive, and discharge. Following Freud, he proposed a neatly counterbalanced model in which emotion and thought were alternative outlets for underlying instinctual forces. However, his comprehensive synthesis left many threads still dangling, including strands connected with basic instinct theory itself.

A recent attempt at clarification and simplification of classical psychoanalytic theory is that of Brenner (in Plutchik and Kellerman, Chapter 13; see also Brenner, 1974, 1975). Brenner sees affects (or emotions) as a combination of "ideas plus pleasure-unpleasure sensations." Thus anxiety is "unpleasure accompanied by an expectation that something unpleasurable is going to happen," while sadness is "unpleasure connected with ideas of something bad that has already happened" (p. 345). Since "ideas" always have an individual history, emotions are "never precisely the same in any two individuals" (p.

346). Ideas, moreover, are in part unconscious and must be uncovered by the psychoanalytic method, which "makes it possible not only to understand the reasons for the unreliability of subjective data . . . but also to overcome those reasons" (p. 342).

In *A Structural Theory of the Emotions,* de Rivera presents a different psychodynamic approach, which is taken up and extended by Dahl. DeRivera's monograph—itself the outgrowth of a doctoral dissertation—begins with his analysis of some of the major prior theories of emotion. He concentrates on the paradox: emotions "move" us, have impact, reflecting the impact of the world as it impinges on us; yet they are "in" us and feel like a source of energy and intent. Then he turns to his own theory. This is primarily cognitive: he singles out a number of bipolar aspects of emotion. Is their object "me" or "it," the Self (as in "I feel sad") or the Other (as in "I admire him")? Do they move the person experiencing the emotions toward the "Other" (as in desire), or away (as in fear)? Do they have further characteristics of "belonging" or "recognition" or "being"—these latter rather confusingly defined. He ends up with a matrix of 24 cells.

In support of the validity of this matrix, de Rivera describes culling a list of emotion terms (in English) from the writings of eleven authors, beginning with Spinoza in 1675, ending with Davitz in 1969. Aided by judges (in a way not entirely clear), he winnowed this list to 154 terms; he reports that all of those could be fitted into his 24 cells. He ends his monograph with some important questions about variations in labeling emotions among different cultures, and to some extent among individuals in a single culture.

DeRivera's somewhat problematic findings served as a stimulus to Dahl. Dahl simplified the model, taking as essential bipolar aspects the "it" versus "me" perspective, the "direction of the emotions," coming from the Self (as agent) or to the Self (as recipient), and the hedonic aspect of "attraction" versus "repulsion." Using these polarities, he arrived at eight basic emotions—again roughly corresponding to the core so often found. He and Stengel (1978) asked judges to rate a large number of emotion words along the pared-down set of three dimensions; judges did so with significant reliability.

Dahl argues further (1978) that all emotions have an "appetitive" structure, that is, that they comprise a wish and press toward consummation. The appetitive metaphor fits some emotional categories (such as love, or even anger) better than others (such as shame or guilt, or depression).

Dahl's work along with de Rivera's, is an effort to present a systematic and above all testable psychoanalytic theory. It is in the cog-

nitive, phenomenologic, taxonomic tradition. M. H. Stone (in Cantor and Glucksman, Chapter 2) points out the similarity of Dahl's classification to that proposed by Descartes in his *Passiones Animae*. Descartes also found a group of primary emotions, six in number. Actually, this correspondence over a 300-year span would seem to be a special case of what I referred to earlier as the hazy core phenomenon (see also Knapp, 1983)—namely, the agreement among students using different approaches that there is an organized cluster of basic emotions, and rough yet never quite exact agreement as to what these are, still less as to how they are generated.

Many other questions remain about the relation between emotions and psychoanalysis itself as a body of theory and observation. For example, where does the term emotion fit with respect to other motivational concepts, such as drive, need, impulse? What are the specific kinds of pleasure and unpleasure (or pain), and how do they enter into various emotions? For example, does the pain of terror differ qualitatively from the pain of sorrow? To what extent are cognitive factors an essential component of emotions? To what extent must we say that other more primitive factors (phylogenetic and ontogenetic) shape cognitive structures, or at least exist independently from them? As Zajonc (1985) puts it, are there preferences which need no inferences? And exactly what kind of cognitive structures do end up participating in emotional experience—images, symbols, fantasies? What is their relation to the organization of memories and to consciousness? How are emotional aspects warded off from conscious life and how do they continue to exert influence on conscious action? The final sections of this review will examine psychoanalytic contributions that have grappled, not always systematically, with such questions.

Collected Essays

Among several collections of psychoanalytic papers, two recent volumes have gathered together contributions focused on emotion.

The *World of Emotions: Clinical Studies of Affects and Their Expressions*, edited by Socarides, contains 31 essays, spanning the years from Rado, writing on "Melancholia" in 1927, to J. Alexander on "Horror" in 1972.

The title underlines the clinical emphasis. The various approaches involved are actually fourfold: to explore expressive manifestations of emotions revealed in clinical encounters; to describe the ideational structures of fantasy, cognitive belief, and attitude, that are

involved in emotions; to expose the layering and mixing of emotional components, serving protective and defensive ends; and to speculate about early antecedents of all those components.

The collection contains some penetrating, pioneering papers. Perhaps foremost among them is Ernst Kris's (1940)[3] "Laughter as an Expressive Process." Kris takes as starting point Freud's formulation of "energy discharge" in laughter, but does not let that conceptual position blind him to other perspectives. His concern is with motor-expressive aspects, the study of which, he intimates, must follow Darwin (1872) more than Freud. He also mentions social communicative aspects, which may be overridingly important, as in contagious group laughter. Kris points out that repressed ideation may be revealed by the "grammar of facial movements"; this occurs in the involuntary laugh or smile of a condoling person—a "pathognomonic parapraxis" (p. 103). He also comments on the "artificial and empty smile" of a dancer or acrobat, which serves as a mask; and he asserts that its impression of artificiality stems from "false innervation" of the zygomatic or orbicularis muscles (p. 101)—a clinical intuition anticipating by almost half a century Ekman's precise demonstrations (1985) of measurable differences in facial muscular activity between natural and simulated affect.

G. Zilboorg in another seminal paper, "Anxiety without Affect" (1933) reported early observations on how the expressive motor aspects of anxiety, the ideational content of fearful experience, and the subjective sense, "I have the bodily feeling of panic," all may be split off from one another.

The ideational structure of emotional disturbance, and its connection with human relationships, is central to Helene Deutsch's (1942) ground-breaking description of "as if" personalities. These are individuals whose "emotional relationship to the outside world and to their own egos appears impoverished," becoming replaced by a kind of shallow, imitative capacity to adopt a pseudo-identity, lacking true warmth or genuine bonds.

In a different vein, Rado (1927) examines the structure of melancholia; he dissects out from the manifest surface of suffering and pain the hidden plea to an all-powerful other person: "I will . . . offer myself as an expiatory sacrifice if you will only interest yourself in me and be kind to me" (p. 15).

Such structures have clear defensive and adaptive aspects. These are more fully highlighted in two sparkling contributions by Green-

[3]In this section, dates in parentheses refer to original date of publication.

son. "Boredom" (1953), he sees as a symbolic expression of deprivation and frustration, a way station that approaches but manages to avoid overt depression. "Enthusiasm" (1962), he sees as the opposite, a kind of "normal" mania.

Zetzel's (1949) well-known paper on "Anxiety and the Capacity to Bear It" goes from defensive structure to hypothetical roots: she sees the capacity to tolerate anxiety as closely related to the ability to look inward, be insightful; both stem from early capacities to recognize internal conflicts and their tensions without being overwhelmed and thrown into maladaptive compulsive action or equally maladaptive symptom formation.

S. S. Feldman's familiar "Crying at the Happy Ending" (1956) starts with an expressive phenomenon, another common "emotional parapraxis," the tears and sadness that well up at moments consciously understood or experienced as those of great happiness. He suggests that this paradoxical reaction stems from universal, nearly insatiable early longings. If he does not completely resolve all the puzzles behind the tears, he points to important mysteries in our deepest wellsprings of emotion.

It is not possible here to do justice to all the papers in this collection. They continue similar themes with varying emphases. Helene Deutsch (1937) points to protective defenses in "Absence of Grief"; O. Sperling (1948) discusses defensive organization in, "On the Mechanisms of Spacing and Crowding of Emotions."

Defenses overlap with ideational and fantasy components: witness, W. R. Bion's (1958) "On Arrogance"; Bion found several patients in whom this attitude was mixed with curiosity and stupidity, all part of a near psychotic regressive reaction during treatment. Similarly, "On Being Empty of Oneself" by E. Balint (1963) deals with complicated fantasies and attitudes of a borderline patient whose sense of emptiness was intimately related to a conviction that she was not "seen" or recognized by others. Also S. Levin's (1971) "The Psychology of Shame" discusses the vicissitudes of shame during development and during the course of psychoanalytic treatment; Levin starts with Freud's (1905) original notion of shame as an "internal barrier to the libido." Shame can dominate one's core fantasy of self; this aspect was elaborated by Piers and Singer (1953), in a different way by Tomkins (in *Affect, Imagery, Consciousness*, Vol. 2), and recently by Wurmser (1981).

Fantasies permeate and interact with expressive manifestations. These figure prominantly in C. P. Adatto's (1957) essay "On Pouting"; Adatto undertakes to analyze the specific lip protrusion in this emo-

tional state, interwoven with sullen silence, tracing both to a child's feeling of neglect and covert demand for attention. J. A. Arlow (1957) in "On Smugness" discerns an attitude of self-complacency, also accompanied by an expressive aura that tends to enrage those who encounter it. M. N. Searl's (1933) "On Screaming" examines the phenomenon of chaotic infantile rage and its later persistence as explosive outbursts or as retreat to silence; Searl speculates—albeit with minimal evidence—that conflicts over screaming may contribute to respiratory disorders such as stuttering, speech inhibitions, or even bronchial asthma.

Other contributions also deal with presumed ontogenetic precursors of adult emotional states: the "Bitterness" of traumatic weaning (J. Alexander, 1960); the "Gloating" over a vanquished sibling (R. Whitman and Alexander, 1968); the primitive, narcissistically disordered sense of self in "pathological jealousy" (P. Pao, 1969).

Socarides has not only selected carefully but has provided thoughtful editorial prefaces; he has also contributed two insightful papers of his own. "On Vengeance" (1966) deals with the complicated wishes to "get even"; "On Disillusionment" (1971) concerns the even more complicated "desire to remain disappointed," to nurse one's wrath in a stew of sour grapes, if I may blend emotional metaphors in the way emotions themselves often become blended.

Affect: Psychoanalytic Theory and Practice, edited by Cantor and Glucksman, is a collection of more recent papers, all presented at the twentieth anniversary meeting of the American Academy of Psychoanalysis in 1981. Most of them are also clinical in focus, although they include efforts to survey theoretical issues.

Four papers, overlapping somewhat, discuss developmental aspects. C. J. Kestenbaum addresses the pervasiveness and essential nature of the emotional dimension in human experience, using as illustration the science fiction film, *Invasion of the Body Snatchers:* this portrays alien invaders destroying humans, while reproducing counterfeit replicas of them, cognitively and motorically intact, but sucked dry of all emotion. Both Kestenbaum, and, in another chapter, S. L. Bennett, review many of the observations of emotions in infancy and the crucial importance of emotional transactions between infant and caretakers. D. E. Schecter takes up the varieties of anxiety encountered in infants and children: stranger anxiety, apprehension communicated quasi-contagiously by an anxious parent, fear of separation, anxieties stemming from internalized sources of shame and guilt.

The lion's share of the volume is strictly clinical. R. Spiegel summarizes views of emotion as an information-evaluation process, along

lines laid down by Arnold (1970). J. Bemporad and S. Arieti discuss the treatment of depression. Bemporad calls attention to what he terms the "Omnipotent Other in the internalized systems of the depressed patient." This fantasied relationship is usually transferred lock, stock, and barrel into the consulting room, where it must receive early and repeated attention if therapy is to succeed. Arieti, discussing patients who are more seriously disturbed, speaks in like manner of the "Dominant Other" whose loss in actuality or by disappointment often precipitates depression. In a superb case report of a successfully treated woman, he illustrates this "cognitive" concept of a needed-hated parent whom the patient is trying simultaneously to propitiate and to defy.

The term "cognitive" has come to have a special luster. "Cognitive" approaches to treatment have grown in popularity. Cognitive psychology has assumed a prominence formerly enjoyed by behaviorism; Erdelyi (1985) has remarked on its kinship to some central concepts in psychoanalysis, which he calls "Freud's cognitive psychology" (1985). However, the deeply depressed patient experiences the world of others as diffusely and overwhelmingly bad, lacking in all possibilities of satisfaction, so that the self is paralyzed, unable to contemplate going forward in life. These fantasies form a very special class of cognitions, which call for more extensive study.

There are other stimulating contributions in this volume. W. Bonime writes about the energizing role of anger; he sees it capable of promoting the sense of self and self-efficacy, a discovery made by some contemporary athletes "pumping up" themselves on the center court of Wimbledon or elsewhere. G. Sartran has a scholarly essay on the different varieties of loneliness—loneliness from loss of a close attachment, and loneliness from either losing or never having had a whole social network; this second sequence results in impoverishment and emptiness; it breeds not "loneliness" but as Adler and Buie put it (1979), a malignant form of "aloneness."

M. R. Green considers not only hopelessness, but hope. He notes a tendency in both psychology and art to devote less attention to positive anticipations and more to despair. Though hope springs eternal, its opposite more often makes the headlines. Green marshals evidence for the importance, actually the necessity, for hope: it mobilizes energies, sustains day-to-day pursuit of goals, and maintains psychic well-being, perhaps also physical well-being. Green comes close but does not quite explicitly suggest reversal of the old aphorism so that it reads, "While there's hope there's life."

Taken as a whole, these two psychoanalytic collections meet clin-

ical phenomena as they occur in the productions of the artist or of the freely associating patient. Experienced clinicians describe nuances of emotional expression, fusions of concomitant ideation and fantasy, and putative links between these manifestations and primordial roots. Collectively, the essays makes a valuable mosaic. One could think of many other squares—contributions by Freud himself (1926), Abraham (1912), E. Bibring (1953), Ferenczi (1911), Fenichel (1934), F. Deutsch (1953), Greenacre (1953), Jacobson (1953), Modell (1973, 1975), Rangell (1966), Rycroft (1955), Schur (1955), Valenstein (1973), to pick examples almost at random, as well as by some others to be mentioned in the following paragraphs.

There is a need both for systematic theoretical treatment of emotions and for rigorous methods that transcend clinical judgment while still making use of clinical data. It is worth noting that, within psychoanalysis, theoretical restlessness is beginning to appear, and is resulting in methodological forays. Most of these deal tangentially rather than directly with emotions, but they point to change. A brief final section will touch on some of these new directions.

New Directions

Clinical reports have continued to document particular emotional phenomena, and surveys have reviewed extant psychoanalytic emotion theory (Rangell, 1967; Castelnuovo-Tedesco, 1975). Sashin (1985) has suggested the use of catastrophe theory to account for the vicissitudes of emotional expression, especially their sudden shifts. The fruitfulness of this approach will hinge on development of ways to connect his intricate mathematical model to empirically specified data.

In addition, experimental and naturalistic approaches have paralleled psychoanalytic inquiry—such as Spence's (1970) report of human and computer efforts to decode key emotional communications associated with gastric pain, or Martindale's (1977) elegant study of emotional factors contributing to the speech disruptions in a patient with Tourette's Syndrome, or the animal experiments already mentioned (Kaufman, 1967; Miller et al., 1968; Harlow and Harlow, 1971). Schwartz and his colleagues (1980) have studied physiologic aspects of emotions relived in the laboratory. Shevrin has looked at the role of emotional repressiveness in subliminal perception (1973). Weiner (1977) documents the fruitful work that has extended and partly confirmed some of Alexander's (1950) original hypothesis about the role of emotion in psychosomatic disorders.

This review will comment additionally on four major psychoanalytic currents—the clinical-theoretical thrust of, (1) self-psychology, and (2) object relations theory; (3) the interface between psychoanalysis and linguistics; and (4) the growing body of knowledge relevant to all of these areas, stemming from infant and child observation.

Kohut (1977) and his collaborators have dealt with important issues about the emergence of a continuous, coherent self out of a stage of incomplete differentiation. The immature individual needs an actual other person—a "selfobject" in Kohut's terms—to complete his sense of self and his ability to function in the world. The Kohutian group also describes how individuals whose self-identity is thus incomplete and fragile, may be emotionally uncontrolled or withdrawn and defensively cold, to cover their vulnerability. Kohut stresses the need to make contact with such persons through empathy.

Empathy, of course, is not the province of any single psychoanalytic group, but acknowledged by most psychoanalysts as the means by which one human being uses his own fantasies, feelings, and global perceptions to grasp the emotions and attitudes of another. Basch (1983) has tried to formalize the place of empathy within a theoretical framework that includes the self and emotion; and in a "Reexamination of the Concept of Affect" (1976) he has endeavored explicitly to make contact with the expressive theory and findings of Tomkins, Izard, and Ekman. Basch suggests that the discrete expressive categories discovered by these investigators are congruent with a psychoanalytic developmental schedule, which forms an adaptive communicative structure for behavior emerging prior to discursive thought and language. He comes close to saying, though he does not quite do so, that Freudian "instinct" can be subsumed under Tomkins' theory of affect.[1] Equally important, Basch is also among those who imply that "self" itself, to a large extent, must be sought in the domain of emotion.

The object-relations viewpoint, as used here, refers to a broad emphasis on the unique motivational importance of early human relationships and their continued internal representations later in life. British observers were the first to stress this viewpoint, beginning with the Kleinian group, and continuing with individuals such as Winnicott, pediatrician-psychoanalyst, who captured the emotional climate of the small child and his need for soothing, as well as the role during inevitable separations of a substitute, usually inanimate "transitional object" (1958). Similarly, Bowlby (1969, 1973) strongly influenced by

[1]This point has also been made by G. Stechler (personal communication).

animal ethology, pointed out that the balance of hedonic forces in infancy promoted formation of bonds to essential caretakers; hence the devastating consequences of loss. Bowlby shared the cognitive view that appraisal of the environment can initiate emotional reactions. Yet he was far from a naive environmentalist; for example, he remarked that intense emotion may occur in dreams without immediate environmental precipitants, and, for that matter, detached from many expressive communicative concomitants. Jacobson (1964), and later Kernberg (1975, 1976) were among those who expanded the study of severely disturbed patients and their violent, archaic fantasies, wishes, and fears, along with equally archaic defenses, such as splitting and projective devices. Kernberg has consistently emphasized the emotional intensity encountered in such patients; and he comes close to elaborating a coherent motivational theory. The concept of early emotions, persisting throughout life repetitively in ingrained schemata of self and others, is compelling. It accounts for the determining "force" described by Freudian and other drive theories, but it makes easier the task of linking this force to the human milieu that shapes it.

Different approaches have stemmed from interest in linguistics (and, as we have seen, from the wider, foggier horizons of semiotics). Studies here have touched on the emotions, the codes by which they are communicated, and the ways in which they shape and are shaped by words.

Perhaps the most radical psychoanalytic venture into this area is that of Schafer in *A New Language for Psychoanalysis* (1976). Schafer dissects out the pragmatic dimension of language. This has always been the concern of psychoanalysts; their technique searches for hidden intentions. Schafer insists that the clinician should concentrate single-mindedly on the active intent behind passive metaphors, for example, "Nothing comes to mind," meaning "I don't want to talk." In the emotional sphere, he proposes that quasi-passive statements of feeling (more accurately intransitive statements) ("He felt joyous") be replaced by clear action terms ("He enjoyed"). At times, such a translation is simple and may, indeed, promote the speaker's "owning" feelings. But in trying to establish a monolithic rule, the effort fails. Emotional experience has its paradoxical aspects, expressed by de Rivera; these are acknowledged, indeed, by Schafer himself, namely, that emotions seem bivalent, partly unbidden, even uncontrollable, yet they embody intentions. Language tries to capture this intricate transduction. To demand that it use only intention terms is to confine it, at best, to only half the essence of emotion.

Other psychodynamic students have noted convergences between language and emotion: Felix Deutsch, already mentioned; H. Brosin, F. Fromm-Reichman, G. Bateson, R. L. Birdwhistell, and N. A. McQuown, in their celebrated but, alas, never published monograph, The Natural History of an Interview; as well as Scheflen, who continued their venture (see Kendon in the *Handbook*, reviewed above). Jacobs (1975) called attention to how shared posture in the therapeutic situation may be an indicator and facilitator of empathic attunement.

Words themselves are, of course, the concern of Lacan (1965), although surrounded by his own verbal mists. The latter have been partially dispelled by thorough exegists, such as Leavy (1977) and Muller and Richardson (1982). Lacan's dicta about the unconscious, that it "is structured like a language," and "is the discourse of the Other," can be read as a statement that early layers of cognitive, and also affective, experience reflect the linguistic propensity of all humans, and that this, in turn, inevitably involves not mere monologue, but always dialogue.

Other psychoanalytic scholars, such as Shapiro (1979), have pointed to analogies between N. Chomsky's postulated deep linguistic structures and "deep" psychodynamic elements. The analogy risks being facile, a little like that drawn by analysts to animal ethology; yet it is hard to deny that there is order in the way covert aspects of behavior, including emotional aspects, are encoded in speech and, in turn, decoded by listening. Particularly intriguing is the way in which affective qualities are conveyed by verbal imagery, including phonology—the area of sound symbolism—explored Edelson (1975) in a painstaking dissection of Wallace Stevens' poem, *The Snowman*. Bucci (1985) has proposed a model of dual encoding to account for the interlocking strands of denotative and connotative thought—to use S. Langer's (1948) terms—or generalized semantic memory versus individualized episodic memory—to follow Tulving (1972).

Such inquiry has addressed the presence of a continuous emotional background music to all of speech—noted also by Deese (1973). A further line of study has called attention to the opposite, instances where the emotional dimension appears to be largely absent. Marty and De M'Uzan (1954) reported patients with psychosomatic symptoms who had a monotonous, affectively deadened style of communicating, which those authors termed "pensée opératoire." Sifneos (1974) later named the phenomenon "alexithymia" ("no words for mood"); he, too, felt it was associated with psychosomatic illness. A number of subsequent authors testified to this linkage although without precisely spelling out their evidence (e.g., Taylor, 1984). Some

even suggested that alexithymia might be the result of irreversible brain processes, which made emotions and associated fantasies unavailable to consciousness; faced with challenge, such patients reacted with impulsive action or with pathophysiologic symptoms. In part, this argument was based on similarities between such patients and those with right hemispheric brain lesions and prosodic speech disturbances (Weintraub et al., 1981; Kent, 1982). The argument is tenuous; there are similarities, but these by no means establish identity between the groups. Others have noted primitive fantasies in these patients and flickering of intense but terrifying emotion.

The term alexithymia seems to capture a broad phenomenon. It probably varies in intensity and cuts across diagnostic categories. This point is made by Krystal, who has found affective impoverishment in some drug addicts and in severely traumatized patients, such as holocaust survivors (1979, 1982a, 1982b). Unlike Sifneos, Krystal does not find such patients immune to psychotherapeutic influence. Indeed, he provides some cogent prescriptions for the difficult task of engaging them, educating them about the emotional dimensions of experience, as well as enhancing their access to emotions by techniques of guided fantasy and imagery.

McDougall (1982, 1984) has also provided detailed case vignettes of isolated and detached patients, whose rigid avoidance of emotional communication evokes emotions of frustration in the therapist. She sees their "alexithymic" features as embedded in narcissistic and borderline character disturbance, indeed, part of a wider "affect pathology." One might add that strictly emotional constriction tends to covary with limited capacity for insight and impaired psychological mindedness. We know little not only about possible biologic determinants of such limitations, but also about possible psychological contributions. McDougall (1982) points the way: "As the infant becomes verbal, and as direct bodily communication gives way to symbolic communication with the parents, the family discourse continues to convey to the growing child the way in which affects are to be named, those that are regarded as legitimate and those that must be despised or denied access to consciousness" (p. 381).

All of these psychoanalytic strands lead back to childhood. Psychoanalytic studies of child development have their own developmental history: the clinical observations of Sigmund then Anna Freud, of Melanie Klein, a child analyst, of Spitz (1957), Winnicott (1958) and many others; systematic clinical studies and theory formation, as by Mahler and her collaborators (1975); and a recent wave of empirical, naturalistic, and experimental studies by students of develop-

ment, such as the careful observations of Stern (1974), and the work of Sander (1975), who is guiding ongoing followup investigations of neonates seen with their families a quarter of a century ago.

Prominent among those who have tried to refine psychoanalytic theory of emotion in the light of developmental observations is Emde, along with his collaborators (1976; 1980a,b,c; 1983). Emde notes that emotions are not sharply delimited entities, but rather a complex organizational aspect of behavior. Some emotions reflect or contribute to conflict; others are normal and necessary parts of human adaptation. His scrutiny of infants and their caretakers supports the concept of discrete expressive-communicative behaviors wired in from birth; but he also advances evidence that at least two other important dimensions play a role in emotional experience—the hedonic and the activational. He remarks on the shift from endogenous rhythms to social control of emotional responses, and finally to a measure of internal control by virtue of anticipation; and he supports the view that emotions other than anxiety alone, or even depression, develop an obligatory, rapid signal capacity. He also remarks on how transient emotional states contribute to lasting moods and character traits. In a more general sense, he, too, notes that continuity of emotional experience is a major contributing factor to the sense of self.

This same view is developed by Stechler and Kaplan (1980) in a study of infants filmed at regular intervals during the first two years of life in family and individual sessions. These authors demonstrate the power of emotions such as anxiety and shame, which stand out, as a growing sense of autonomy struggles to emerge from and is shaped by the social milieu, especially by the mother.

In a similar examination of pairs of infants repeatedly videotaped at roughly six, twelve, and eighteen months of age, Demos (1982) was able explicitly to identify Ekman and Friesen's expressive categories, occurring in pure form and also in blends. She saw these as influenced by cultural pressures, such as the social desirability of smiling, or the need to conceal and restrain anger. Demos's study showed that expressive patterns varied considerably among infants, and she suggested tentative causal correlations between the variations and family transactional style. This work is eminently psychodynamic, an example of meticulous observation and careful clinical interpretation. As Demos puts it, "The data are astonishingly rich and there is a wealth of information to be mined in the field of affective expressions" (p. 159).

Summary: Themes and Vistas

The term emotion encompasses a vast terrain, riddled with conceptual pitfalls. Data about emotion come from at least three contrasting sources: observation of expressive behaviors, physiologic measurements, and subjective reports. Each of these areas has yielded partial theories of emotion. Efforts to integrate the parts must avoid several traps. One is naive dualism, which takes many forms, such as pitting "higher" cognitive functions against the baser emotions. Emotional processes in fact are at a borderline between the ideational and the physiological, as well as on a frontier between the voluntary and the involuntary (Knapp, 1969, 1976); their study requires scientific binocular vision. The vision must also see beyond a simplistic psychology of separate faculties. Several authors, G. Mandler and Emde, for example, have noted the ubiquity of emotional activity, the progressive blurring of boundaries around it. Indeed, they have suggested that as our knowledge advances, the term emotion may become obsolete. Emotional phenomena, however, will remain, with all their fascination. They are being pursued in a ferment of activity, from which a number of themes emerge.

One theme is *phylogenetic continuity*. This is emphasized especially by Plutchik, also by many others. Ernst Kris (1940) noted that students of emotional expression owed more to Darwin than to Freud. Throughout the animal kingdom distinctive display systems express, and perforce communicate, central adaptive states; and man from birth onward is no exception. In the intricate nonlexical codes by which emotion is communicated, the face plays a key role. Possibly this is simply because it is in the head, intimately tied to the major sensing organs and to the brain.

Tomkins picked up the face and ran with it. His insight into the vital importance of facial expression in emotional communication was tested by himself, Izard, Ekman, and their collaborators; and it was found, within limits, to hold true around the globe. Feedback from the face has been shown to modulate physiologic manifestations of emotion. Some authors, Izard at times, and recently Zajonc (1985) in a provocative paper, argue that facial feedback is the force that pulls the cart of emotion. That claim seems extreme; we may have gut feelings, of anger or joy, alone, at night, even in the company of others, regardless of whether we scowl or smile.

Psychophysiologic continuity is another theme. Neurochemical and neurohumoral mechanisms are an intrinsic part of emotions (Engel, 1977; Weiner, 1977). They may contribute to dimensions of emotional

experience which coexist with discrete categories of expression. The most frequently cited dimensions are the hedonic—pleasure and pain—and the activational, which by necessity encompasses also the inhibitory. Krystal has dealt with the hedonic dimension (1981) and has commented on aspects of activation in emotions (1982). I have suggested a preliminary model of possible interactions among hedonic, activational, and expressive emotional components (1967, 1981, 1983). How these domains interface with more slowly moving metabolic stirrings and needs, and how these processes are integrated with one another and with cognitive activities, such as memory or planning, remain a future agenda for study.

Ontogenetic continuity, a final theme, may help elucidate these interrelations. One of the most striking confirmations of Tomkins' views has been the demonstration (by Izard, Emde, Demos, and others) that clear-cut expressive categories appear in the first weeks of infant life. Emotions have a timeless, stereotyped power and persistence; yet the growing individual, with greater or less success, and with aid or hindrance from those around him (and ultimately within him), organizes, modulates, and tempers his emotions. Emde, Stern, Sander, Stechler and Kaplan, Mahler, and many others are investigating this ontogenetic sequence.

Emotional reactions "involve the organism as a whole"—to use Young's words (in Plutchik, p. 34). Emotions remain as a continuous part of the fabric of human experience, as noted by Mandler, also by Izard and Kestenbaum. Deese calls attention to how they permeate language. Pribram suggests that diffuse brain processes make this state of affairs not only possible, but necessary. "Self," a repetitive, fluctuating, intensely if ambivalently evaluated, and above all elusive conglomerate results primarily from continuous emotional flux. Basch, Izard, Emde, Pribram, state this truth, each in somewhat different ways. Variations in their statements may well stem from the complexity of putting such nonlexical symbolic experience into words. The finer structure of self-organization, its biological as well as its psychological roots, remains to be elucidated.

Where does psychoanalysis fit? As a theoretical and empirical discipline, psychoanalysis has important contributions that may expand this knowledge about emotions. Unfortunately, the gap has widened between clinical, still heavily psychoanalytic, approaches, and other studies of "nonverbal communication." It is ironic that while cognitive psychologists are taking a genuinely new look at unconscious processes (see Erdelyi, 1985), many students of communication are still gripped by a neo-behaviorist spell, insisting that only what can be caught on videotape is real.

The challenge to psychoanalysis is being faced by theorists such as Bowlby, Dahl, and by clinical innovators, Kernberg, Kohut, Basch, and their collaborators, whose theories are in part an outgrowth of experience with severely disturbed patients.

Empirically, the clinical encounter is still a source of crucial emotional material. Psychoanalytic investigators are devising ways to make use of it, particularly as part of systematic research into the field of psychotherapy, for instance Horowitz (1975, 1976, 1979), Gill (1982), and Luborsky (1985). Other laboratory approaches to memory, to associative processes, to defenses against feeling, and to the brain mechanisms involved in speech production and symptom formation, promise also to throw light on emotions.

Moreover, clinical experience has much to say about the motivational impact of hidden or forbidden emotions, and also their differential influence. Freud's grand dichotomy of preeminence—desire versus hate—needs some modification; despair and terror have their power, too. But all emotions are not equal, regardless of muscle movements or questionnaire responses. As Orwell said, some are more equal than others.

Developmental studies, such as those of Emde, Demos, and others, provide vitally important opportunities to explore differences among emotions, as they emerge and are precisely observed, in a milieu that includes human intentions and attitudes. Key human figures are teachers in the area of emotion; they become internally represented figures, restraining, training, modulating, clarifying, inspiring.

Let me end this glance at the past by hazarding two predictions about the future. First, the face of psychoanalysis will be changed by the fast-moving currents of research into emotion. Second, the roots of new knowledge will be enriched by psychoanalytic inquiry into the origins, the tenacious persistence, and the protean variety of human passions.

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