

## Chapter 7

# PERSONALITY AND THE ENVIRONMENT

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## 7.1. INTRODUCTION AND OVERVIEW

A remarkable little film produced by the National Film Board of Canada begins with a bucolic picture of a boy rowing a boat on the Ottawa River. As the still frame freezes his action, a rapid change of scale and focus occurs and the image shifts from the boy in the boat to the surrounding area, to the city, the region, the continent, and up to a rocket's view of earth, of the outer planets, and eventually to the farthest reaches of galactic space. In a stunning zoom descent, the camera bursts through successive layers of enveloping space to rest once more on the boy in the boat. Then, in a kind of delayed visual counterpoint, the camera focuses on the boy's arm where a mosquito has just pierced the skin. This time a zoom into microspace unfolds. First, we see a small drop of blood and successive layers of cellular material appear, until the elemental particles of life are bared. Finally, a reverse zoom back up to the common scale reveals once more the human organism in its everyday context: the boy in the boat.

In many respects the film can serve as a symbol and sustained image for the present chapter. Like the boy in the boat, whose name I will take to be David Mendon, the joint themes of personality and the environment can span a remarkable number of issues depending on the power of lens we use, and it will be useful at the outset to clarify just what level of resolution is being sought. As two of the most inclusive terms in the social sciences, *personality* and *environment* could be treated so as to subsume much of cultural anthropology and substantial portions of geography, history, and traditional social psychology. At a considerably more focused level, discussion could center primarily on the environmental disposition research carried out at Berkeley, where individual differences in areas such as urbanism or need for privacy are assessed. To a limited extent, themes at the more comprehensive level will be touched on in this chapter, less as substantive topics for review than as organizing rubrics and historical perspectives within which current research might be placed. To a greater extent the Berkeley tradition will be dealt with, both as a major contribution to environmental psychology and as a historical bridge between environmental and personality psychology. In the main, however, this chapter will focus on a middle-range perspective on personality and environment, somewhere between the galactic scope of capital-letter *Personality* and *Environment* and the microscopic analysis of finely honed environmental dispositions. The scale will be that of examining theory and re-

search on the interaction between persons and their everyday physical milieu: a scale, in short, of Davids rowing boats on rivers.

An alternative way of viewing the selection of topics to be discussed is to see it as *charting the common ground between personality and environmental psychology*. Thus among the topics to be covered are the measurement of environmental dispositions, the application of orthodox personality measures to the prediction of environmentally relevant behaviors, the impact of different types of nonhuman environment on personality processes, and the emergence of a molar interactional psychology and its theoretical and methodological implications. To set the stage for this review it will be useful to provide a picture of the historical context from which the current research perspectives have emerged.

## 7.2. PERSONALITY AND ENVIRONMENT IN HISTORICAL PERSPECTIVE

### 7.2.1. From Antiquity to Classical Personology

#### *Three Recurring Historical Themes About Person-Environment Relations*

The interdependence of human personality and the surrounding milieu is so complete that human thought about environment was most likely coterminous with the emergence of consciousness. Historians, philosophers, and geographers have long speculated on the emergence and course of different conceptions of environment (Glacken, 1967; Sprout & Sprout, 1965; Tuan, 1974), and for the present purpose we can highlight several root themes or historically recurring images concerning the relationship between humans and their physical surround. As Glacken (1967) has so richly documented, three questions have persistently been asked concerning this relationship. The first is *the idea of a designed earth* and involves the question of whether it represents a purposefully made creation. Fostered by mythology, philosophy, and theology, the search for an answer to the teleological significance of the environment has taken different forms throughout the centuries. Of particular significance to the concept of a designed earth was the contrast of nature with artifice. Spiritual harmony was felt to reside in nature, and it would be in the primordial wilderness, not the built environment, that the mysteries of creation would be found. As Glacken (1967) has stressed, the

recurring image of the designed earth represented one of western civilization's great attempts to create a holistic concept of nature and to see order and unity within it.<sup>1</sup>

The second root historical issue, *the idea of environmental influence*, asks whether environmental climate and morphology help mold human nature or the character of social institutions. Largely influenced by medicine and voyaging, the question turned on the obvious differences between people living in different climatic regions or geographical enclaves. The impact of nature on human personality is one of the most ancient theories of individual differences. Astrology, in particular, held a central place in ancient accounts of the sources of human behavior (McReynolds, 1975). Indeed, the most elaborate classical precursors to personality psychology were environmental theories stressing the influence of celestial movements on human destiny and the pervasive effect of geographical elements (earth, air, fire, and water) on human personality.<sup>2</sup> The influence credited to the environment has ranged from extreme forms of determinism in which the human being is seen as "a sort of chip in the stream of history...borne along by a current which he is incapable of resisting, within a channel from which he cannot escape" (Sprout & Sprout, 1965, p. 48) to softer forms of determinism where notions of lawful causation gave way to formulations about environmental influence. Buttressed by technological triumphs over nature and environment and by nineteenth century American pragmatism, a less deterministic view of person-environment relationships, possibilism, emerged, emphasizing freedom of choice and the exclusion of strict environmental determinism (Sprout & Sprout, 1965).<sup>3</sup>

The image of humans as active participants in their environmental transactions represents the third historically recurring issue raised in different forms since antiquity. This question concerns *the idea of humans as environmental agents* and asks how wisely humans have acted upon the earth and what gains and losses have accrued during our tenure on the planet. Again, a diversity of answers to the question of human agency has appeared throughout the centuries. Much recent debate has centered on the role of Christian doctrine in encouraging human dominion over nature, with its twin consequences of progress and despoliation,<sup>4</sup> though the temptation to paint the history of such themes in broad strokes should be resisted, if only because of the inordinate degree of variability within historical movements as vast as Christianity. The critical issue here is the centrality of the theme of agency throughout history and the

importance to all ages of knowing whether our victories over nature are pyrrhic ones.

Consider some conceptual camera work that can be done on the boy in the boat with whom we started in order to capture the psychological, as contrasted with purely historical, meaning of the three classic themes. With regard to the question of a designed earth, we might picture the boy rowing until nightfall and experiencing for the first time a sense of awe at the expanse of stars and sheer scale of nature. Or consider another boy whose journey in the boat will end in his suicide. Before slipping over the side he captures a glimpse of stars and skyline and is struck for the last time with its utter absurdity. These contrasting experiences depict the recurring themes of human response to the question of a designed earth: *an affirmative sense of meaning versus a sense of the basic incoherence of nature.*

Consider the boy again through the filter of the theme of environment influence. He has dozed off and the boat has slipped into a strong current that is rapidly pulling him to some dangerous rocks. He is helpless to fight against the force of the current and with fear resigns himself to the unknown outcome: a chip in the stream of deterministic nature. The psychological response to the determinism of environment is a *sense of passive vulnerability*. Consider, finally, another version of the last scene. Upon waking up and finding he's been drifting, the boy pulls out his 2½-hp Evinrude motor, slings it over the transom, and purrs across the chop to the calm waters off stream. Here the psychological response to nature is the agentic feeling of *mastery or control*. Even so, his competency is bought at the price of dependence on technical artifact and is more precariously achieved than that of another boy, perhaps from an earlier time, who has learned to pit muscle against milieu and steer the boat to safety on his own.

These three historic themes linking the human condition and the environment within which that condition unfolds can serve as the initial set of conceptual goggles through which to review theory and research on the common ground between personality and environmental psychology.

### ***Elaboration of Themes in Classical Psychology***

It is instructive to examine several themes and issues in classical theories of personality that were to influence environmental psychology. This review will necessarily be selective, focusing only on those issues relevant to the major themes discussed in previous sections.

While the nonhuman environment received little explicit attention in orthodox psychoanalytic theory, powerful implicit themes within the theory are concerned with the nature of the human milieu. The very arbitrariness of demarcating a specific aspect of the environment as *physical*, in contrast with the social or intrapersonal, is highlighted by Freudian conceptions of the dynamics of libidinal energy. The capacity of the nonhuman environment to absorb emotional charges directed toward a frustrating social object ensures that the human response to *symbolic* aspects of the environment (e.g., artifacts of loved ones) will display an emotional intensity as powerful as in the domain of the explicitly human. Nowhere has the subtlety of human response to the nonhuman environment from a psychoanalytic perspective been more sensitively portrayed than in Searles's (1960) *The Non-Human Environment: In Normal Development and in Schizophrenia*. Of particular significance to Searles is the persistence of an *unconscious identification of humans with their nonhuman surroundings*, an identification that, while gradually relinquished at the conscious level during ontogenesis, nonetheless threatens to return and swamp the individual during times of stress and emotional disturbance.<sup>5</sup> During psychotic breakdowns symbolic identification with the nonhuman environment can become almost a literal fusion with the mechanical or the inanimate, with Bettelheim's (1959) case of "Joey, the mechanical boy" being perhaps the most famous clinical example.

Certainly within Jungian theory the range of objects deemed to be of emotional significance was increased dramatically and was no longer restricted to those manifesting sexual symbolism. Indeed, the primordial images of nature and the historical recurrence of archetypal geographical and historical themes in independent isolated cultures led Jung (1957) to emphasize the primary, not merely derivative, importance of environmental symbols to the human organism.

Both Freudian and Jungian themes were integrated into the comprehensive program of personological studies begun by Murray at the Harvard Psychological Clinic in the 1930s. Again, while the nonhuman environment was not a focus of classical personology, its role in the determination of human conduct was made explicit:

Since, at every moment, an organism is within an environment which largely determines its behaviour and since the environment changes—sometimes with radical abruptness—the conduct of an individual

cannot be formulated without a characterization of each confronting situation, *Physical and social*. (italics added, Murray, 1938, p. 39)

Murray (1938), in contrast with psychoanalytic investigators, was concerned with developing techniques for the assessment of individual dispositions as well as techniques for the assessment of the characteristics of environments that satisfy or frustrate human needs. These environmental characteristics, termed *press* by Murray, were further differentiated into *alpha* and *beta* press, the former representing environmental characteristics as objective inquiry might disclose them, the latter being subjective constructions of environmental objects and events. Murray also pioneered in the use of life history analysis as a basis for personological investigation. His insistence on the need for temporally extended units of analysis (serials) in the study of lives, together with his innovations in measuring jointly the needs of individuals and the press of their environments, make Murray the most relevant of the classical personality theorists to the concerns of this chapter.

The impact of Lewin (1936) on environmental psychology has been felt more in those areas intersecting with applied social psychology than in the personality domain. However, the linked concepts of life space, foreign hull, and psychological environment were particularly noteworthy as an early representation of person-milieu relations. For Lewin, the life space is the psychologist's primary domain of exploration. It contains the totality of personal and environmental influences on a given individual's conduct at a given point in time. Thus, to return to David in his boat, his life space would comprise David himself and the subjectively salient features of the real world that are influencing him. David's psychological environment thus represents not only environmental objects (e.g., his motor, the family dog) but also purely psychological facts or constructions. The soccer field he is daydreaming about is therefore as much a part of the psychological environment as the river he is rowing in. David's life space is separated by a semipermeable boundary from the foreign hull, an area of reality that is irrelevant to the explanation of his behavior unless it were to penetrate the barrier and become represented in the psychological environment. Thus the deadhead lodged just underneath the water surface belongs to the foreign hull in our rowing example. When the first signs of a leak in the boat are detected by David, however, that which was extrinsic to his life space becomes central: A leaking hull, once detected, is most decidedly not foreign.

The contributions of Murphy (e.g., Murphy, 1947) have not been widely acknowledged, but he was among the first to write in detail about both the economic and historical contexts within which human personality developed. Murphy should be counted among the earliest of those proffering an image of the hierarchical nature of environmental influence.<sup>6</sup>

Kelly's (1955) personal construct theory offered an original and controversial view of the environment from the perspective of personality psychology. Kelly stressed that humans create personal constructs through which they predict and act on their environments and that study of these subjective templates is sufficient for the explanation of human conduct. In contrast to radical environmental theories within general psychology, Kelly's theory offered an alternative that forced psychologists to examine environments from within the idiosyncratic construction systems of the people confronting them, and to eschew misguided attempts to measure the environment objectively.<sup>7</sup>

Finally, the influence of traditional factor or trait models in personality deserves mention. Both Cattell (1979) and Eysenck (1981) expounded major theoretical perspectives emphasizing enduring trait dispositions such as anxiety and extraversion.<sup>8</sup> Trait theorists generated testable hypotheses relating personality to environmental factors. With respect to extraversion, for example, Eysenck postulated individual differences in neocortical arousal that led in turn to predicted differences in preference for stimulating physical environments. While the question of the transsituational generalizability of traits would come to be the major preoccupation of personality psychologists in the 1970s, the influence of orthodox trait models has persisted throughout the early years of environmental psychology, although in a form rather less doctrinaire than before the "trait debate" to be discussed in Section 7.5.1.

The contributions of orthodox or classical personality theories to issues that were to emerge in environmental psychology can be summarized by returning again to David Mendon.

With respect to the issue of whether the environment is seen to be meaningful or meaningless, classical psychodynamic theories would dilate the term *meaning* to include consideration of unconscious determinants of attraction or repulsion toward the milieu. Thus David's rowing may be the acting out of unconscious sexual fantasies or a response to the archetypal power of water symbolism. In a vital sense, he may be drawn to the river by sources beyond his awareness. Murray's conception of beta press,

together with the Lewinian "psychological environment" and Kellian "constructs," emphasize the subjective nature of that milieu and its personally constructed nature and directs us to the cognitive appraisal of David's views of his surroundings. The trait theorists, too, would remind us that there are many for whom anxiety is so great that the achievement of any kind of environmental meaning is highly unlikely.

With respect to the issue of environmental influence, and the boy's sense of power or vulnerability, the concepts of alpha press and foreign hull attest to the physical constraints within which subjective constructs are played. The boy in the boat *will* be a victim of the forces of nature if he cannot escape from the eddy, regardless of his subjective construal of invulnerability. Moreover, the milieu also reflects the hierarchical embedding emphasized by Gardner Murphy. David's nautical journey is subject to the economic realities of owning a boat, the local regulations governing launching access on the Ottawa River, and the absence of heavy freighters in those waters—all aspects of the milieu within which the simple act of rowing a boat is embedded. Trait theorists, too, would attempt to account for the boy's explorations in the boat by invoking notions of the stimulus-seeking characteristics of classic extraverts, or his tendency to hug the shoreline by invoking notions of anxiety level or harm avoidance.

Finally with respect to the theme of human agency, classical personology would inquire into the impact of the boy's actions on the milieu by examining the motives underlying his trip and the consequences of those motives for the milieu itself. If he carries with him a 15-hp outboard, for example, and starts this up on his 10-ft pram, the rooster tailing boy (no doubt also throwing Coke cans overboard) becomes not only an active agent vis-à-vis his environment but a potentially destructive one: polluting the river, annoying the old couple paddling near shore, scaring his father, and delighting his dog.

In short, classical theories of personality might fairly be said to have extended and elaborated the historical notions of person-environment relations and to have set the stage for the explicit construction of an environmental personology in the late 1960s.<sup>9</sup>

### 7.2.2. Two Revolutions in the Psychology of the 1960s

Two revolutions in psychology reached their peak in the 1960s and each had a critical influence on the

shaping of theory and research at the intersection of personality and environmental psychology.

### ***The Cognitive Revolution***

The cognitive revolution can be traced through virtually all the subdisciplines of behavioral science.<sup>10</sup> During the 1950s and early 1960s, psychological theory witnessed several related shifts in perspective: the Piagetian transformation of a behaviorally dominated developmental psychology, the rise of cognitive models to counterbalance drive-reductive theories of emotion, the shift from a peripheralistic experimental psychology to a central, mediational one, and the gradual domination of social motivational theory by models emphasizing cognitive balance, congruency, and dissonance reduction. Within personality theory itself, the cognitive, information-processing perspective, in areas as far apart as psychoanalytic theory and personal construct theory, began to displace earlier perspectives. Within psychoanalytic theory increased attention was paid to ego-control functions and to the *conflict-free ego sphere* (Hartmann, 1958) in contrast to the more unconsciously determined personality processes. The cognitive revolution might be said to have reached its emotional zenith in the mid to late 1960s when, particularly in the fields of social, personality, and clinical psychology, not only were our theoretical variables transformed but our views of the human condition seemed to shift rapidly and radically. In a fairly short period of time, say, from 1964 to 1970, articles, books, and scholarly discussions about human personality stressed its *active* nature, emphasized its constructive propensities, and endorsed an optimistic view of the human condition. The *bête noire* of the day was the passive, drive-reductionist model that treated human beings as automatons. Despite the often shrill tone of the polemic, the image of the human personality that emerged during the cognitive revolution was a more active creature than at any other period of this century. Thus when environmental psychologists and personality psychologists began to chart their common ground a particularly sanguine image of personality was already in ascendance; an image that, if it did not serve as the major substantive theory of personality, was at least a pervasive shaper of the issues that were soon to emerge.

### ***The Contextual Revolution***

The contextual revolution in psychology can be seen as arising in parallel with the cognitive revolution, and each on occasion served as the implicit, and sometimes explicit, foil to the other. Within theories of

perception, Gibson's (1960) call for a more stimulus-centered view of the perceptual process emphasized the characteristics of objective stimulus events, placing less stress on the proximal stimulus patterns detected by the organism. A related development, Brunswik's (1943, 1956) twin contributions of the ecological representativeness of experimental design and his lens model, provided a major impetus toward a more fully contextual theory of behavior. His ecological representativeness argument was based on his concern that the stimulus characteristics used in conventional experiments were unrepresentative of the patterns of stimulation that naturally occur in the organism's ecosystem and that more representative sampling was called for in order to clarify the nature of our perceptual systems. His lens model, which, as Craik (1983) has recently observed, has had the lesser influence of his two major contributions, emphasized the interrelationship between distal and proximal stimuli in perception, and the functional importance of being able to predict distal relationships from patterns of proximal cues. Brunswik's emphasis on the need for psychologists to chart both the proximal and distal features of environmental stimulation represented another important precursor to environmental psychology.

If Brunswik's concept of ecological representativeness called attention to the need for more contextually sensitive accounts of perceptual phenomena, Barker's (1968) ecological psychology sounded the call for a full-scale excursion into that context as a major, untapped domain of psychological research. His highly original work on the nature and dynamics of *behavior settings* could be seen as either an immediate precursor to or an early exemplar of environmental psychology. In contrast to perspectives that assumed that the major causal influences on behavior were endogenous to the organism (e.g., motivational state, perceptual set), Barker insisted that the behavior setting itself had a "claim" on the individual that deserved serious psychological examination. When at a bicycle club meeting we behave bicycle club; when we are at a funeral we act funeral; when at a *festschrift* for Barker we wax *festschrift*. Barker's detailed accounts of the content and claim of behavior settings in small towns in the United States and England, in schools and many other locations, opened up a major subfield within what is now regarded as environmental psychology (see Wicker Chapter 16, and Barker, Chapter 40, this volume). Of more relevance to the present chapter, Barker's ecological psychology also contrasted with orthodox personality theories that stressed the intrapsychic determinants of be-

havior. Ecological psychology stressed the propaedeutic task of gathering extensive naturalistic data on what goes on in different types of settings, including the critical role of the physical milieu in shaping human activities. Thus instead of probing intrapsychic causes for hostility or sociability it sought to determine in what kinds of settings aggressive or hostile acts occur most frequently, or in what natural enclaves sociability flourishes.

In a nutshell, the contextual revolution shifted the search for laws in psychological research from the self-contained individual to the natural milieu within which that individual was located. Moreover, in its extreme form, contextualism stripped personality psychology of the exclusive right to explanatory primacy, making a strong case that the claim of the context was causally significant. Personologists, clinicians, and others were to grapple repeatedly with this contention during the next decade. To capture the essential message of the contextualist position in understanding human action and its personological implications, consider again the boy in the boat. If we observe him over the course of a day, an exercise in hemerography, in Barker's (1968) terms, we might observe a hundred behavioral acts that could be seen as manifestations of his personality, on the one hand, or as behaviors evoked by the particular setting or settings in which he was situated. Thus his rowing, sloppiness, and bare-chestedness could be seen as aspects of his personality or as the kinds of behaviors typically pulled out by the behavior setting known as a fishing trip. As we shall see, as the 1960s were drawing to an end, the contextualist perspective grew stronger and began to stake its claim on the field.

#### ***Mischel's Personality and Assessment***

If one book could be selected both as representing the twin revolutions of the 1960s and as setting the stage for the next decade of disputation at the interface of personality and environmental psychology, it would be Mischel's tour de force of 1968, *Personality and Assessment*. In essence, Mischel's book was a frontal attack on the dominant personality paradigm that posited stable traits as the determinants of human behavior. Mischel's book had an immediate impact on the field of personality and applied psychology. While the contextual, or situationalist, slant of Mischel's book is often stressed, a less noticed but equally important emphasis within the 1968 book was derived from his advocacy of a personal construct perspective (Kelly, 1955) on human behavior. Thus for Mischel there was a double jeopardy to using

broadly designative trait concepts such as dominance or sociability. First, contextually, he interpreted the empirical research evidence to that date as indicating little cross-situational generality to behavior, a conclusion consistent with ecological psychology's emphasis on the claim of settings on behavior. Second, Mischel's perspective was explicitly cognitive: He envisaged individuals as actively monitoring their behavior and changing it in the light of feedback. Two exemptions from the tyranny of trait-like impulses were thus apparent in Mischel's (1968) view of human personality: An exemption on the grounds of contextual diversity and an exemption based on the cognitive acuity of an active agent. In short, as the 1960s drew to an end both revolutions had crested and had found common outlet in a book that was in many respects the harbinger of the 1970s.

#### **7.2.3. Person-Environment Themes in Other Disciplines**

Craik (1970) has shown that the emergence of environmental psychology reflected both internal disciplinary pressures, as reviewed previously, and external forces. Among the latter were questions of a psychological nature raised by researchers and practitioners in ecology, architecture, geography, sociology, and literary history. We can briefly summarize the major issues raised by each of the fields and their relevancy for the study of environmental psychology and personality.

During the 1960s, there was a remarkable increase in the extent and visibility of research in ecology and environmental medicine. Among their concerns were the effects of pollution and overcrowding and the general vulnerability of the human ecosystem. Apart from its direct effect on other areas of environmental psychology, this perspective raised crucial concerns about the kind of life and human personalities we were trying to create, however implicitly, in our theories of personality and the applied programs derived from them. Bartz (1970), for example, captured the essence of the ecological challenge to one of the more popular, if contentious, perspectives in personality theory:

In a recent issue of the *American Psychologist*, Maslow (1969) asserts that in our developing humanistic concern "The first and over-arching Big Problem is to make the Good Person (p. 732)." I would suggest that this is an irrelevant concern if we do not first insure having a *living* person, with enough to eat, room in which to live, and an environment worth liv-

ing in. To the man who is starving in the street, who has watched his children die of disease and malnutrition and his country collapse in anarchy, questions of what makes a "good person," self-actualization, psychotherapy, interpersonal relations, and our many other humanistic diversions become just so much esoteric bull. (p. 502)

Within architecture and city planning a related concern with designing for enhanced quality of life was being felt. With increasing urgency, designers began to inquire of psychologists what kinds of human needs had to be taken into account in order to enhance the habitability of rooms, houses, neighborhoods, and regions (Perin, 1970). Before 1970, the response was, of necessity, brief. Little systematic research existed on user needs or design criteria for enhanced responsiveness to the physical environment.

Similar questions were being asked in the fields of geography and resources management, where the interaction of human agents and their environments had been explored for years, often with ad hoc adoption of psychological assessment devices. Two examples will suffice to convey the psychological aspects of research in this field. A highly productive research program on human adaptation to natural hazards centered on the exploration of motivational and decision-making factors of individuals living in hazardous regions (e.g., Kates, 1976). A second research perspective examined the opposite pole of environmental influence, the salutary effect of recreational settings such as riverine environments and mountains (e.g., Shafer, 1969).

Concern with the physical form of human communities had been a staple of sociology and anthropology for decades; of particular relevance to environmental psychology were studies on the consequences of slum clearance on the well-being of residents in "urban villages" (Gans, 1962; Young & Willmott, 1957). While it had been originally thought by planners that physical relocation from crowded slums to the sanitized high-rise apartments would enhance resident satisfaction, the results established that critical trade-offs were involved. Despite their physical shortcomings, high-density slum areas were found to promote and sustain a critically important set of social ties between individuals, their "extended families," and the neighborhood community. The superficially more hygienic high-rises, by contrast, failed signally in providing the vital source of community and social support.

In both literary and historical scholarship, themes of the interrelation of the human and physical milieu have been pursued for centuries. Representative of

these traditions are three writers who share a common concern with the symbolic potency of the nonhuman environment and the strength of bond between people and their nonhuman environments. The philosopher Bachelard (1964) captured the subtle emotional significance of mundane architectural form in a series of essays on aspects of dwellings such as corners, windows, and so on. French writer and film director Robbe-Grillet (1965) explored the impact of a literary genre called *la chosisme*, or Thingism, in which physical objects were given equal existential standing with persons. In marked contrast to perspectives that treated objects merely as personification of human phenomena, Robbe-Grillet's perspective stressed the primary, unmediated significance of physical objects to humans. Similarly, L. Marx's (1967) *The Machine in the Garden* traces the evocativeness of machine imagery, the train in particular, as juxtaposed to the pastoral images that once had dominated American literature. For our present purpose, what is interesting about these literary and historical examples is the tacit psychological theory, particularly personality theory, that they presupposed. Their common theme, the symbolic richness of nonhuman objects and the physical milieu in human identity, was not to be explored in depth by environmental personologists for another decade.

#### ***Relationship of Historic Themes to Issues in Related Disciplines***

Together these five areas of research, along with the endogenous movements within psychology itself, characterized the intellectual milieu that greeted those committed to developing an environmental psychology during the late 1960s.

In summarizing these influences, we can discern how they exemplify or expand the historically dominant themes identified earlier. The theme of the designed earth with its contrasting psychological responses of meaning or incoherence is reflected in the study of place attraction in geography, habitability in the design professions, and the symbolic potency of milieu in literary and historical analysis. The historic theme of environmental influence and its consequences for human vulnerability or active exploration is expanded in ecological and geographical research on environmental risks and hazards and in architectural concern with responsive rather than coercive design. With respect to the historical question of human agency, ecological concern with responsible stewardship of natural resources echoes an ancient theme.

The concept of the physical environment as a



creator of *community* from the sociological/anthropological fields can be regarded as a new major dimension at the same level as the other three dimensions.<sup>11</sup>

In short, cognitive and contextual shifts within psychology, together with diverse influences outside it, reflected and elaborated ancient environmental themes. The stage was now set for the systematic, empirical investigation of personality and the environment.

#### 7.2.4. Rise of the Personological Perspective in Environmental Psychology

The personological perspective in environmental psychology was already articulated as early as 1966 and received its clearest exposition in Craik's writings (1966, 1968, 1970). For present purposes we can distinguish three major characteristics of this approach:<sup>12</sup> (1) a historical continuity with the classical personality assessment paradigm summarized in the previous section, (2) delineation of the themes and issues in other disciplines that could provide a conceptual basis for the generating of environmentally relevant scales for personality assessment, and (3) specific guidelines for the development of measures of environmental dispositions.

#### ***The Classical Assessment Paradigm and the Beginning of Environmental Personology: The IPAR Connection***

The Institute of Personality and Research (IPAR) at Berkeley under the direction of Donald MacKinnon, an emigré from Murray's Harvard Psychological Clinic, carried on the tradition of assessment begun in that clinic in the 1930s.<sup>13</sup> The now-classic series of studies on the assessment of creative individuals provides an intriguing and direct link to the development of a personological perspective in environmental psychology. One of the graduate students at IPAR at the time the creative architects were being studied was Kenneth Craik. MacKinnon (1963) noted that Craik, while perusing the data files, had unearthed an interesting correlate of creativity in architects: the extent to which they had experienced many domestic moves in childhood. This could lay claim to being the first empirical finding at the interface of personality and what was to become environmental psychology. Shortly after this, Craik served as a field observer in a large architectural firm. Not only did this expose the physical context within which creative architects work, it also disclosed many of the assumptions held by designers about human dispositions and needs

vis-à-vis the physical environment. The possibility of exploring this new domain via the framework and methods of classical personology at IPAR proved irresistible.

#### ***Conceptual and Methodological Base of Environmental Disposition Measurement***

In the earliest writing on environmental personology, Craik (1966, 1968, 1970) outlined the need to study individual differences vis-à-vis the physical environment and to develop individual difference measures tapping a diverse set of environmental themes. He outlined the logic of an environmental trait inventory including the creation of a comprehensive item pool. As Craik noted, there is no coherent field of environmental counseling with cumulative wisdom comparable to that available to the developers of inventories in fields such as clinical psychology. The source of items was to be drawn from those who had direct experience in environmental fields (e.g., naturalists and construction workers) as well as references to literary works dealing with environmental themes such as those discussed in Section 7.2. Craik suggested several specific scales that might be constructed, including a Pastoralism scale, an Urbanite scale, a Ludite scale, and an Ecological Perspective scale.<sup>14</sup>

The psychometric mission of environmental personology was clear: it was to generate a valid set of scalable folk concepts (Gough, 1968) related to a broad range of environmental themes. As Craik has argued, the domain of folk concepts studied prior to the rise of environmental personology was largely restricted to the interpersonal and the intrapersonal domain. An environmental personology would dilate the range of objects about which folk concepts are developed to include the natural and built environments. It would remain for McKechnie (1972) to demonstrate the empirical validity of an environmental disposition inventory.

At the same time as the intellectual path breaking proceeded on the frontier of environmental personology, the whole paradigmatic foundation of orthodox personality psychology was under attack and suffering the first stages of Mischel shock. As dispositions were both a focus of attack in the trait debate and key units of analysis in the new environmental personology, it will clarify discussion of both areas if we pause to examine just what an environmental disposition entails. Consider, for instance, David Mendon's father, Samuel, who was standing on the shore watching his son on the river. It is perhaps more than a little coincidental that Craik (1976) has provided a

detailed sketch of this hypothetical Samuel Mendon, who, at the time Craik wrote about him, lived in Massachusetts:

Mr. Samuel Mendon is a district manager for a nationwide corporation who has recently been reassigned to a branch office in a moderately large American city. He has been offered a choice of offices in several geographic settings and elected the north-eastern section of the country. In resettling, did Mr. Mendon and his family decide to live well out into the countryside or in the suburban outskirts or within the older central district? Did they seek a purely residential neighborhood with single-family homes, and a large shopping center nearby, or perhaps, a neighbourhood with assorted dwellings, grocery store, post office, drugstore, physician, churches, elementary schools all located within it? ... What recreational use does Mr. Mendon make of the outdoor environment? If his weekend avocation is nautical, does he purchase a motor boat (or sailboat or cabin cruiser or a Monterey fishing boat)? Does he sail along highly used and developed waterfronts with diverse facilities or on remote pastoral lakes? If at vacation time he is a wilderness user, does he stay on the periphery or does he backpack in? ... How are his children learning to use, appreciate and understand the physical environment, and how does that learning reflect family activities and values? On weekdays, does Samuel Mendon use his lunch time to explore the city, stroll its streets, sample its restaurants, and browse in its shops, or does he remain in his building at the local cafeteria? ... A year after his arrival in his new habitat, has Mr. Mendon adjusted with ease or difficulty to his move? (Craik, 1976, p. 64)

And why, it might be asked, has Mendon recently moved to Canada?

Let's consider some of Samuel Mendon's actions in terms of whether they support the ascription of an environmental disposition. Let's assume that in the choice situations offered by Craik, Mendon has opted to live on a hobby farm 15 miles outside of a medium-sized city, that he chooses to spend recreational periods backpacking in the wilderness, and that he spends his lunch hours walking down by the river, as far away from the office as he can get. We should note at the outset that his cognitive ("deciding"), affective (e.g., "seeking"), and behavioral (e.g., "purchasing," "using lunch time," etc.) characteristics have all been described. Assuming that we continue to list relevant exemplars of his thoughts, feelings, and actions concerning the physical environment, what if any attributions can we make about his relatively enduring environmental dispositions? Or, more importantly at this point, what *allows* us to form such a dispositional predicate about him? In what sense is

it a legitimate enterprise to ascribe traitlike characteristics to people? On the basis of the information provided (assuming we knew which of the choices he opted for), can we say that he is basically an "outdoors person," a snob, a "macho-machine sport type," or a nature lover? And what do these terms, in fact, convey? Are they hypothetical statements enabling us to predict, within certain measurable error limits, Mendon's behavior? Or are they simply verbal summaries of how he's been behaving up till now? Are they predictions or merely ways of conveying the gist of a person's conduct for a given period of time?

Buss and Craik (1983a, 1983b) have given a provocative treatment of these and several other crucial issues in personality and dispositional theory. To illustrate their argument we can contrast four alternative models of dispositions.

Ryle (1949) developed a philosophical account of dispositions that emphasized their status as hypothetical statements. Akin to dispositional terms in physics, such statements entailed an intrinsic characteristic of the object under consideration, a particularly popular example of which was the brittleness of a glass bottle. This intrinsic characteristic (brittleness) would, in conjunction with a given situation (e.g., having a rock thrown at it on a beach), yield a consequent result (shattering). Note that the occasion for the manifestation of the disposition of fragility, the situation or context of having rocks thrown at it, is an essential component for identification of the disposition. Moreover, the dispositional ascription is formally a hypothesis of the form if *a* under conditions *b*, then *c* will follow. As with the bottle, so too with Barry, a high school senior who has been close to a full-blown anxiety attack brought about by a romantic complexity in his life, about which he is now musing while throwing stones on the river shore. Let's assume that his anxiety is posited as a dispositional attribute that, under certain circumstances, will manifest itself in action of a specifiable sort. Further, let's assume that the situation most likely to generate the expression of anxiety is when his macho defenses are down and he has imbibed to excess. If Barry is an anxious sort of individual, then when he's under the influence of alcohol or drugs he'll suffer an anxiety attack. The same logical entailments apply to Barry and the bottle; both shatter when they're stoned.

A major alternative to Ryle's formulation was presented by Hampshire (1953), who argued for a view of dispositions not as hypothetical predictions but rather as summary accounts of an individual's characteristics to date, based on the frequency with which

he or she has manifested occurrences of a particular type of action signaling a given dispositional quality.<sup>15</sup> Under this formulation, had Barry not manifested any instances of anxious conduct, the attribution of an anxious disposition would be untenable. And the greater the frequency with which acts codable as anxious are observed in him, the more credence is given to the ascription of the dispositional label of *anxious*. Buss and Craik, in highlighting the contrast between the Rylean and Hampshirean positions, opt clearly for the latter, which, following Alston (1971), they refer to as an act-frequency approach to dispositions in contrast to a *purposive-cognitive* conception. Buss & Craik suggest that, in crucial ways, the frequency and purposive-cognitive concepts may be components of incommensurate approaches. Let's examine this possibility by returning to Samuel Mendon and his environmentally relevant thoughts, feelings, and actions. With respect to his choices of living on a hobby farm and engaging in wilderness activities, for example, can the frequency of such acts serve as an uncontentious basis for the ascription of, say, pastoralism to Sam Mendon?<sup>16</sup> According to the act-frequency perspective this would be so. However, consider whether the following information would make matters more complex. Consider that, from the cognitive-purposive standpoint, each of these choices was made in order to satisfy his most central, preoccupying personal goal, *pleasing his wife, Molly*. Were we to assess how enjoyable he actually found the country life, the backpacking, and canned beans, we might find out that he hated them, that he saw them as being utterly un-Mendonian, and that the only reason for throwing himself to the mortgage holders and mosquitoes was to placate Molly. Is he still a pastoralist? Or more a posturalist? Perhaps a highly empathic person? A wimp? Just what is to count as the attributional home of a natural act when there are multiple alternative constructions of it (Kelly, 1955), each with some claim to ontological purity? As Buss and Craik argue:

Efforts to clarify the conceptual and empirical interrelations among various middle-level personality approaches to the categorization of acts, and to explanatory systems offer an important road to the revival of theoretical discourse that Maddi (1980) has advocated. Indeed, this endeavor is likely to occupy personality theorists in a profitable fashion during this decade of the 1980s. (1983a, p. 124)

As we proceed with discussing the rise of empirical research on environmental dispositions, it will be helpful to bear in mind these conceptual subtleties. For now, it should be emphasized that a resurgence

of interest in dispositional analysis has appeared in recent personality theory and that molar-level acts are seen as the common focus of disparate conceptual frameworks.

### 7.3. ENVIRONMENTAL DISPOSITIONS

#### 7.3.1. Environmental Dispositions as Differential Orientation

A major task in developing measures of environmental orientation is to demarcate clearly just what aspects of the environment are to be partitioned; in short, the development of an environmental taxonomy is an important component of the development of environmental disposition scales (see Pervin, 1978). In this section, we shall approach the taxonomic task by providing increasingly fine gradations of environmental classifications. We shall start first with dispositional measures that attempt to differentiate global environmental orientation from nonenvironmental orientation and proceed down to scales that differentiate the *type* of environmental object as a basis for dispositional assessment, and finally to the quality of orientation or *type* of action vis-à-vis demarcated aspects of the environment. The global conceptions have a longer history of usage in personality theory and research; the more finely honed measures of environmental dispositions have been the product of more recent research.

#### *Measures Using an Inner-Outer Dichotomy*

Though seldom discussed as such, a number of commonly used personality measures can be seen as measuring environmental dispositions as much by default and implication as by design. As Hogan and Cheek (1983) have recently argued, the differentiation of inner and outer is a fundamental one in personality research, and broad-based individual differences in orientation toward the environment or away from the environment (and by implication toward oneself) underlie four of the most frequently used measures of individual differences: measures of extraversion, external locus of control, field dependency, and self-monitoring.

Research on introversion-extraversion is extensive (Eysenck, 1981; Stelmack, 1981; Wilson, 1977) and is based on a multilevel model of personality that spans neurophysiological, psychological, and social domains. It is postulated that extraverts and introverts differ in their chronic levels of cortical arousal, extraverts being chronically understimulated and in-

troverts chronically overstimulated. As a result of these differences, and in order to reach an optimal level of arousal, extraverts require greater environmental stimulation than do introverts. Differences in excitability of reward and punishment centers in the brain have also been postulated, with extraverts being hypersensitive to seeking out reward cues and introverts to avoiding punishment cues in the environment (Gray, 1972). The net result is that, in general, extraverts will be actively engaged in environmental transactions, while introverts will be more likely to avoid them.<sup>17</sup>

While introversion-extraversion appears to derive largely from physiological differences, another major individual difference variable, locus of control, is more clearly the product of socialization and learning experience than of heredity. Internals, relative to externals, are characterized by ascribing greater responsibility to themselves than to their external environments for successes and failures, particularly the former. They seem to adopt a stance toward the environment that is more active, perhaps manipulative, and more goal oriented, than do their external peers. As in extraversion, it is often assumed that there is a homogeneous dimension of environmental (or external) orientation that stands in contrast to internal orientation. Despite the fact that there have been numerous reports on the multidimensionality of external orientation (e.g., Paulhus, 1983; Reid & Ware, 1974), studies continue to be carried out with the singular dimension as a major predictor variable, while few studies have examined the impact of internal versus external locus of control as it relates to specifically environmental variables (see Trigg, Feriman, Perry, & Janisse, 1976; Wolk, 1976; Wolk & Telleen, 1976). It should be expected that, relative to the historic themes outlined earlier, external orientation toward the environment should be one of passive resignation while that of the internal should be one of attempted mastery. We shall see in a later section what the long-term consequences of such orientational differences might be in the light of the *interaction* of personality and environmental characteristics.

Another major dimension of personality used in research has been the dimension of field dependence-field independence (Witkin, Dyk, Fatereson, Goodenough, & Karp, 1962), which, while arguably a cognitive abilities trait, is sufficiently broad in scope to warrant treatment as a personality variable. Field-dependent individuals have been found to adopt global perceptual stances to their environments, not differentiating clearly among environmental components, while field-independent individuals are more

likely to articulate their environmental fields. Berry (1977), for example, has shown how field independence and dependence may be based on aspects of the resource ecology within which people live. He showed that Inuit subjects scored high on measures of field independence, while natives of an agricultural society in Africa were more field dependent. Similar links between analytic and global perception of the environment have been reported by Hart (1977) with respect to sex differences. He attributes the greater tendency for males to score high on field independence to their greater latitude in early childhood to explore their environments. The free range of exploration given males is, according to Hart, notably higher than for same-age sisters.

Finally, another dimension that relates an inner with an outer orientation has figured in the studies by Snyder on self-monitoring (Snyder, 1979). Again, a tendency to look inward to one's own feelings and perceptions versus a tendency to look outward for social and environmental cues differentiates the two types. The high self-monitor is one who looks to the outward situation (i.e., monitors his or her social presence) as a guide to correct conduct, while the low self-monitor is more likely to base feelings and judgments on context-free absolutistic judgments.

Each of these dimensions of personality is based on a crude distinction between inner and outer, yet each has generated an impressive corpus of research.<sup>18</sup> They can be seen as forming the first rung of an increasingly variegated taxonomy of environmental dispositions, in which those who look outward at the environment, be it for stimulation, as a source of power, or as a guide to conduct, are differentiated from those who look inward, be it to reduce external stimulation, as a fundamental locus of control, or as the repository of context-independent standards of conduct. While we have briefly noted several examples of the use of these measures in predicting environmental psychological variables, there has been relatively little work done on applying these scales to areas of environmental psychology.

A number of linkages can be postulated theoretically between these individual difference scales and the recurring environmental themes discussed earlier. Thus with respect to the question of environmental meaning versus incoherence we might suggest that introverts and extraverts would differ in their sense of environmental coherence, depending on the level of stimulation to which they were exposed; introverts obtaining a greater sense of coherence from understimulating and extraverts from highly arousing environments. With respect to the

question of environmental influence, the dimension of internal versus external locus of control seems particularly relevant. The external is more likely to manifest dispositions of passive vulnerability and the internal more likely to attempt to explore or control. With respect to general environmental competency, it is likely that field-dependent individuals would be less adept at exploratory and way-finding tasks in the environment, while their field-independent colleagues would fare better. With respect to a nurturing versus exploitative orientation toward the environment, it is likely that, given their more aggressive stance toward their milieu, both extraverts and internal locus of control individuals may put their environments at risk.

Such broadband dispositions can guide the questions we ask of events such as Sam Mendon watching his son rowing a boat on a Thursday afternoon. Depending on whether, for example, Sam scores as a field-independent, internal extravert or a field-dependent, external introvert, we might expect different forms of shoreline waiting. The former would be expected to be vigilant, actively pursuing the sight of a boat along the shoreline, perhaps actively pacing along the shore and calling out occasionally. The latter may sit quietly on a log, glancing out to the misty river but essentially lost in reverie until his boat comes in.

Psychometrically, these first-order environmental disposition measures can claim relatively high bandwidth but low fidelity with respect to the prediction of environmental criterion variables. More importantly, such measures do not make distinctions between different types of environmental objects; they posit a rather undifferentiated Big Environment that serves as an alternative to a Big Self orientation. As a consequence, attempts to differentiate between selective orientation to, say, social objects in contrast to the physical objects are not illuminated by such measures.

#### ***Measures Based on Partitioning the Environmental Component into Primary Elements***

One way of moving toward a more environmentally oriented approach to dispositional assessment is to begin the job of taxonomizing the environment into a set of more differentiable objects or focuses. One attempt along these lines began with a philosophical analysis of the primary objects comprising environments (Little, 1972b, 1976a, 1976b). Following Strawson (1964), it was suggested that environments comprise two irreducible objects: material bodies

(things) and persons. Just as Strawson showed that neither of these primitive categories can be reduced to more analytically basic components, that is, that they are primary in a fundamental sense, persons and things as primary environmental objects may have psychological significance as well.

To test the assumption that person orientation and thing orientation might serve as useful dispositional measures linking the personality and environmental domains, a series of studies was begun (Little, 1968) that led to the construction of a thing-person orientation scale (TP Scale) (Little, 1972a). This scale comprises 24 items, of which half are person-oriented items and half thing-oriented items. Individuals are asked their preference for activities, for example, repairing a watch (thing orientation), or interviewing someone for a newspaper column (person orientation).

Person orientation and thing orientation have been shown to be internally consistent, independent, broadband dimensions of environmental orientation that generate a fourfold typology of primary specialist types: nonspecialists, person specialists, thing specialists, and generalists. These groups differ predictably on a number of dimensions related to environmental behavior. For example, person specialists are found more frequently in occupations relating to people (e.g., social work, counseling), while thing specialists are more often found in professions such as chemistry, physics, or engineering (Little, 1976a). When construing urban scenes, person specialists focus primarily on persons and social stimuli, while thing specialists construe more in terms of physical appearance, amenities, and so on. Nonspecialists tend to be more egocentric in their construing, suggesting that they are better regarded as being self-specialists, focusing on their particular goals and projects rather than the environment as such. Finally, generalists were shown to construe in a more complex fashion and to use integrative, aesthetic constructs (Little, 1976a). These differences between individuals in terms of primary orientation may also be applied reflexively to professional groups who make decisions regarding the environment (Murphy, 1978; Sewell & Little, 1973). A detailed summary of person-thing orientation within a framework of environmental psychology has appeared elsewhere (Little, 1976b). In essence, this research extends the work on inner-outer orientations one step further by suggesting that we need to know to what specific elements extraverts extravert themselves, over what kind of objects internals have control, and on what kinds of environmental stimuli field-dependent people

depend. Thus the work on person-thing orientation occupies a middle-level position between monolithic environment versus self-dichotomies and the more fine-grained and qualitative distinctions to be discussed later.<sup>19</sup>

### 7.3.2. McKechnie's Environmental Response Inventory

The first major empirical effort in the development of a multiscale environmental disposition inventory was carried out by McKechnie (1972, 1977, 1978) under the direct aegis of the Berkeley IPAR group.

Using the historical, literary, and other materials prescribed by Craik as his source, McKechnie compiled a provisional item pool covering a comprehensive set of environmental dispositional themes. Then, through a detailed process of factor analysis, rational scaling, and testing of convergent and discriminant validity, a final 184-item Environmental Response Inventory (ERI) was constructed comprising scales of Pastoralism, Urbanism, Environmental Adaptation, Stimulus Seeking, Environmental Trust, Antiquarianism, Need for Privacy, and Mechanical Orientation.

Several studies have documented the utility of the ERI in predicting environmental behavior. Kegel-Flom (1976) showed that optometrists migrated to locations that were highly consistent with Urbanism scale scores on the ERI. Both attitudes (McKechnie, 1977) and planning policy stands (Charns, 1973) have been shown to relate to ERI profiles, and Collins and Hardwick (1974) have created an intriguing map of the Greater Vancouver area, based on the ERI profiles of a 0.1% random sample of residents in the region. Gifford (1980) tested several hypotheses linking ERI scores with evaluative ratings of slides of public buildings. Of particular interest was the effectiveness of the Environmental Adaptation scale in predicting a broad range of preferences, particularly for the big and the new. Gifford suggests that the high scorers on Environmental Adaptation are development oriented, a view consistent with the dominance over nature theme carried by this scale. Corroborative evidence is found in Buss and Craik (1983c), who have developed a measure of two contrasting worldviews and correlated them with ERI and other measures. Scores on worldview A, which emphasizes support for high growth and high technology, showed substantial positive correlation with Environmental Adaptation scores and negative correlation with worldview B, which emphasizes limits to technological growth and less emphasis on materialism.

A clear demonstration of the interrelations be-

tween personality and environmental and recreational dispositions was carried out by Phillips (1978) using the ERI, a modification of McKechnie's (1975) Leisure Activities Blank, and a measure of orientation and attentional deployment (Nideffer, 1974). She showed that the ERI scales figured prominently in a set of 10 major clusters linking personality and recreational orientation. For example, a cluster called Extraverted Sociable has very high loadings from the ERI's Environmental Adaptation scale, an All-American cluster is loaded highly by low scores on Need for Privacy, and a cluster called Intellectual Dilettante is largely defined by Urbanism. Finally, Defensive Introvert cluster members score extremely high on Need for Privacy.

As the first major attempt to measure environmental dispositions, the ERI represents a noteworthy research accomplishment. Despite its careful development and its applicability to a broad spectrum of potential applied fields, published studies with the ERI have appeared infrequently (see Stokols, 1982). There are two possible reasons for this. First, the ERI was published at the peak of attacks on the field of personality assessment. One aspect of this attack (Mischel, 1968; Peterson, 1965; Sechrest, 1976) was the contention that simple self-ratings on trait dimensions may have greater validity than the more cumbersome multiitem inventory approach.<sup>20</sup> This view was expressly taken against the ERI in a critical review by Richards (1978).<sup>21</sup> Another possible reason for a relatively low incidence of studies using the ERI is the change in national climate that has occurred in most western industrial democracies, at least during the decade since the ERI was developed. While the physical milieu, as we have seen earlier, was a major focus of the popular consciousness during the early 1970s, it later came to be eclipsed by economic factors, including energy and unemployment, as issues of national concern. Thus, the themes addressed by the ERI may have lost some of their "folk relevancy" over the decade, irrespective of their objective importance. Perhaps the most important contribution of the ERI is that it has provided an essential foundation on which other environmental dispositions, enduring, ephemeral, and emerging, may be constructed.

### 7.3.3. Other Individual Difference Measures in Environmental Psychology

While McKechnie's ERI represents the most complex and ambitious scale construction research in environmental personology, there have been other individual difference measures concerned with assessing people's responses to the natural and built environ-

ments. Some of the more recent of these can be briefly discussed.<sup>22</sup>

Three of McKechnie's scales, Need for Privacy, Stimulus Seeking, and Antiquarianism, have counterparts in the work of other environmental psychologists. Marshall (1970, 1972), in one of the first research studies within the Berkeley tradition, developed a Privacy Preference Scale based on a conceptual analysis of privacy including legal, psychological, and sociological conceptions (e.g., Westin, 1967). Her Privacy Preference Scale (PPS) comprises six factors: Solitude, Intimacy, Anonymity, Reserve, Not Neighboring, and Seclusion. Several derivations of her scale have been reported (e.g., Hunter, Grinnell, & Blanchard, 1978), and others have subsequently examined the issue of the multidimensional versus unidimensional status of the Privacy concept (e.g., Pedersen & Shears, 1973; Wolfram & Wearing, 1982). Wolfram and Wearing (1982), in addressing the issue of multidimensionality, have proposed a hierarchical model of privacy based on their own adaptation of Marshall's scales for an Australian sample. They report an interesting "two-level" hierarchy that they claim is intermediate between a "holistic" view of Privacy, which would posit a single overarching factor, and a reductionist model, which would posit a fairly large number of orthodonal privacy measures.

Stimulus or Sensation Seeking is one of the most thoroughly studied individual difference measures, and its degree of overlap with Extraversion makes it rather arbitrary whether to include it with general personality measures or as a specific environmental disposition measure (e.g., McCarroll, Mitchell, Carpenter, & Anderson, 1967; Schiff, 1971; Zuckerman, 1979; Zuckerman, Kolin, Price, & Zoob, 1964).<sup>23</sup>

With respect to Antiquarianism, two geographers (Taylor & Konrad, 1980) reported a factor-analytic investigation of scales that they developed to tap several dispositions to the past such as historical nostalgia. Four factors emerged (e.g., Conservation, Historical Interest) *each* of which correlated highly and significantly with McKechnie's Antiquarianism scale, suggesting that Antiquarianism subsumes diverse but interrelated aspects of orientation toward the past.

Mehrabian and Russell (Mehrabian, 1977; Mehrabian & Russell, 1974) have also been concerned with developing several measures of individual differences in response to the physical environment. They have constructed tests of arousal-seeking tendency (Mehrabian & Russell, 1973) and the tendency to screen out environmental stimuli and studied the implications of this for stimulus overload and arousability.<sup>24</sup>

A closely related set of scales appears in the work of Nideffer (1974), who has developed a test of attentional and interpersonal style. Nideffer argues that attention can be studied in terms of two broad dimensions: breadth of focus (narrow vs. broad) and direction (inner vs. outer); this yields scales that tap combinations of attentional variables (e.g., broad internal vs. broad external) and also scales for assessing both internal and external stimulus overload and the ability to focus and a scale measuring amount of information process.

#### 7.3.4. Using Conventional Personality Inventories to Predict Environmental Behavior

While the foregoing sections have given details on new measures of individual differences deemed important for the study of person-environment interactions, orthodox inventories have also been used to predict environmentally relevant criterion variables.

Gough's California Psychological Inventory (1975) is an excellent example of a standard personality inventory that focuses primarily on intra- and interpersonal "folk concepts" (Gough, 1968) but that has been adopted for use by environmental psychologists. Borden and Francis (1978), for example, have shown that the CPI Dominance, Capacity for Status, and Sociability scales significantly differentiate individuals high in environmental concern from those low on environmental concern. Bryant (1982) has shown the relationship of CPI scale scores to a sense of direction and geographical orientation, suggesting that individuals scoring high on Capacity for Status, Sociability, and Self-acceptance more actively engage and monitor the environment in their daily transactions.<sup>25</sup>

Gough has taken some interesting steps to adapt his own CPI for use in problems relating to environmental and population concerns. He developed a Personal Values Abstract (Gough, 1972) based on a subset of CPI items that is designed to measure dimensions of relevance to contemporary social and environmental issues. One of these scales, Modernity, is likely to serve as an important moderator variable in predicting the relationship between environmental dispositions (e.g., pastoralism) and criterion variables (e.g., practicing birth control).<sup>26</sup>

#### 7.3.5. Toward an Integrated Model of Environmental Dispositions

Given that systematic empirical work on environmental dispositions is only a decade old, it would be



premature to expect a coherent and well-validated taxonomy of such dispositions to have emerged in the literature. There is a need for two types of investigations in order to clarify the domain of environmental dispositions. First, taxonomic studies within the domain of environmental orientations and dispositions should be undertaken (see Pervin, 1978). It would be valuable to examine whether the diverse set of measures discussed previously might be resolved into a circumplex structure similar to that discovered in the interpersonal domain (Wiggins, 1982). For example, environmental dispositions may be structured around two major orthogonal axes representing an active-passive dimension and a nurturance-exploitation dimension, corresponding to similar factors in the social sphere. Second, for research on environmental dispositions to be fully integrated with research on other individual difference domains, it will be necessary for interdomain studies to be carried out in order to determine to what extent environmental dispositions (or what Wiggins refers to as material traits) overlap with dispositions in other primary areas such as the interpersonal, intrapersonal, and character domains. Phillips (1978), as mentioned, has examined the interdomain linkages between environmental dispositions, interpersonal dispositions, and recreational patterns and in general found substantial interrelations.

Our summary of the empirical studies on environmental dispositions has taken us far downstream from our starting point. Lest we forget David and leave him languishing in his boat, let's go back to see just what mutual relevancy, if any, exists between his nautical actions and the research just summarized.

To start, while the intensive study of single cases is an honorable if seldom observed tradition in personology (Carlson, 1971), it has been overshadowed by an even more venerable tradition: the normative analysis of relationships between test scores and criterion measures. Normative analysis resembles what happens when the camera swings upward to get an aerial view of the river. First, David Henry Mendon rowing his white 16-ft clinker-built boat becomes just a kid on the river. Higher still he becomes one of 78 walking (or rowing) blobs discriminable at the level of the village or the municipal sub-region. From this perspective, general trends can be detected such as the tendency for people to go inside when it rains, and to come out again when it's sunny. But the individual acts that generate these aggregate patterns are literally lost to sight in aerial photography and conceptually lost to sight in the normative analysis of psychological test scores. Con-

sider the question of how test items relate to natural acts (e.g., item 23 on the ERI and any of David's naturally occurring acts during the week of August 18). Until very recently personologists would have argued that there is *no* necessary relation between them, or, at best, that the relation is only symbolic, tangential, and arbitrary. The act of rowing a boat *might* be loosely linked with the tendency to say "yes" to a test item asking for expressions of interest in, say, outdoor activities or fishing. But adherents of a strict empirical keying approach to test theory (e.g., Bass, 1962; but see Burisch, 1984; Hase & Goldberg, 1967; Wiggins, 1973) would rule out even this degree of correspondence between acts and items. In short, personal acts and psychological test items inhabit two different domains of conceptual discourse. Similarly, it might be thought that the development of empirical scales for the assessment of environmental dispositions is systematically irrelevant to the issues we discussed in Section 7.2.4 about acts and their meaning. But, as we hinted at earlier, the past 5 years have witnessed major strides in personology directed toward bridging the gap between acts and items and providing a sound rationale for conjoining them. So, while David will be left floating for a section or two, we shall return to him before closing. In the meantime, we should resolve not to sell him down the river just yet.

#### 7.4. THE IMPACT OF THE EVERYDAY PHYSICAL ENVIRONMENT ON HUMAN PERSONALITY

##### 7.4.1. Meaning, Structure, and Community as Core Dimensions

While in Section 7.3 we discussed the nature of environmental dispositions—the ways in which individuals differ in their orientations and modes of approaching their environments—in the present section we will examine the impact of the physical environment on human personality. Several of the themes that will concern us here have been anticipated in Section 7.1, where primordial themes of person-environment interaction were introduced. Here we wish to focus in more detail on contemporary research that bears on three major areas of impact of the physical environment. The first area will be referred to as *meaning* and will examine evidence that the physical milieu can contribute to a sense of coherence in individuals by providing a place identity, or contrastingly can provide the grounds for alienation. A second major area



will be referred to as environmental *structure* and will concern the extent to which environments constrain, shape, and give structure to our everyday activities. The third area examines the extent to which the physical environment creates and sustains a *sense of community* and the impact this has on human health and well-being.<sup>27</sup> Two additional, oblique dimensions will also be discussed: the impact of environment on stress and competency. Finally, for each of these topic areas we shall illustrate the importance of taking into account the individual differences in environmental dispositions that we have discussed in detail in the past section.

#### 7.4.2. Meaning and Personal Identity: A Sense of Place

There is evidence in both the clinical and the environmental literature that a sense of place is closely related to a sense of personal identity: that we are, in an important sense, the places that we inhabit. Several lines of research can be used to illustrate the kinds of questions asked by those who posit the interrelatedness of place and personal identity.

Searles (1960) provided one of the earliest treatments of the interrelatedness of physical milieu and sense of personal identity. Stressing the essential kinship of individuals and the domain of the inorganic, he postulated that normal development involves movement from global unity with environment, as in the newborn, to increasing differentiation and distancing during the course of development.<sup>28</sup> Searles presents some intriguing examples of how some schizophrenics, moving through periods of rapid transition, may regress to a stage of symbiotic identity with the nonhuman environment, becoming themselves little more than physical artifacts. Thus at the deepest levels of human attachment establishing a sense of oneness with the physical surround appears to be important. In contrast, when there is little opportunity to establish a bond with the physical milieu or to develop a sense of place, normal development appears to be at risk.

While Searles's psychoanalytic treatment of place-person interdependency is primarily Freudian in orientation, Cooper-Marcus (Cooper, 1975) has taken an explicitly Jungian approach to examining the house as symbol of the self. Cooper argues that houses and the spaces within them become symbolic of the different structures postulated by Jung as comprising human personality. For example, she sees living room areas as being the equivalent of the personae, or masks, through which we present our-

selves for social consumption. Living rooms provide a particularly sensitive indicator of the self that individuals wish to project to others. Cooper goes on to suggest that other areas of the house are equivalent to the darker, unconscious regions of personality (e.g., private areas within the bedroom) and there are considerable social sanctions imposed against intrusion into such areas in another person's dwelling.<sup>29</sup>

Wapner and his colleagues (e.g., Wapner, 1981; Wapner, Kaplan, & Ciotton, 1981) have presented a perspective on self-world relationships that expands our notion of the interrelatedness of place/space and personal development. By juxtaposing and integrating Wernerian developmental theory with Burke's (1966) dramaturgic model of human action, they have generated a program of research on genetic dramaturgism that provides a sensitive picture of the subtleties of place identity in human development. Space-place entities are seen as being important not only as the mere *setting* for social activities; they may also comprise superordinate values (e.g., the acquisition of property) that direct actions, and, of particular significance to this section, places can also be seen as agents themselves, as when an individual is battling the elements for survival.<sup>30</sup>

Another innovative approach to the area bridging environmental and social psychology is Csikszentmihalyi and Rochberg-Halton's (1981) study of the symbolic importance of domestic objects and the centrality of domestic symbols in self-definition. Noting the absence of systematic empirical research on domestic symbols and household objects, they developed a conceptual framework that emphasizes that

objects affect what a person can do, either by expanding or restricting the scope of that person's actions and thoughts. And because what a person does is largely what he or she is, objects have a determining effect on the development of the self, which is why understanding the type of relationship that exists between people and things is so crucial. (p. 53)

To explore these relationships, the authors interviewed several hundred individuals about their most cherished household objects and the reasons they were valued. The most frequently cited objects were pieces of furniture, visual arts, and photographs. Reasons for cherishing these objects included past memories and associations, intrinsic qualities, style, and utilitarian and personal values. Physical objects, in short, can be significant across a broad spectrum of meanings, from devices for mere self-gratification,

through devices for social memory, up to symbols of enduring traditions and values.

Together, these four representative approaches to the relationship between people and their environment converge on the proposition that our physical surroundings may play an important role in creating a sense of meaning in our lives apart from their function as mere facilitators of social action.

It is likely that the meaningfulness of place and its importance in the development of personal identity are closely related to demographic and individual difference variables. Csikszentmihalyi and Rochberg-Halton (1981) have shown how both age and social class influence what particular type of object is cherished for what kind of reason. Beds, for example, are seen to be particularly important for children, in contrast to other age groups, as objects of personal attachment, while they are valued as heirlooms or for aesthetic reasons by older groups. Among personality variables likely to be important in mediating the environment as a source of positive or negative affect are those identified by McKechnie (1974) as major environmental dispositions. Indeed, perhaps the most useful contribution such variables can make at this stage in the development of environmental personology is to demarcate the major areas where environmental meaning will show wide individual differences. For example, individuals high in Urbanism should find city sights and sounds uplifting and rewarding, while those high on Pastoralism should seek delight in more sylvan settings.

#### 7.4.3. Structure and Environmental Overload: The Vicissitudes of Control

There is a general thesis of considerable popularity within environmental psychology to the effect that humans have limited capacity for processing information, that contemporary environments, particularly urban ones, provide a surfeit of such information, and that this situation in part creates much of the malaise of current living. Certainly the most influential statement of this thesis was Milgram's (1970) elegant formulation of the insidious effects of information input overload in generating urban pathology. While reflecting ideas earlier formulated by the Chicago school of urban sociologists (e.g., Wirth, 1938), Milgram's ability to relate urban indifference and hostility to the vagaries of information processing struck a responsive chord in social psychologists who, no doubt, valued the blend of cognitivism, contextualism, and social relevance in Milgram's perspective. Milgram identified large populations, high density, and social

heterogeneity as the major demographic facts generating a state of information input overload in cities. He argued that, in an attempt to reduce such incipient overload, people created a set of adaptive responses, including reduction of quality and quantity of interactions with others, the setting up of preference hierarchies guiding the choice of with whom to interact, and the diverting of certain social responsibilities to more specialized individuals and groups. More insidiously, norms of noninvolvement became institutionalized, so that it became socially unacceptable to be responsive to others. Milgram's model stemmed primarily from a social-environmental perspective, so it is not surprising that individual difference issues were underplayed. However, one obvious dimension that likely moderates the relationship between overload and malaise is that of introversion-extraversion.

For many an extravert, the noise, pace, and complexity of the urban surround are precisely the stimulus conditions most conducive to optimal performance. The demographic conditions that are anathema to the introvert are a major attraction to the extravert. Thus, while the overload-social pathology link has been a highly influential contribution to environmental *social* psychology, it raises one of the most critical issues viewed from the perspective of environmental *personology*. In the presence of ubiquitous interactions between personal characteristics and environmental preference, how can a sound theory of environmental meaning or attraction be advanced?<sup>31</sup>

The Glass and Singer (1972) research paradigm for the study of stress has fostered some of the most elegant experimentation in environmental psychology. The key notion underlying this research has been that noxious stressors such as very loud noise can have deleterious effects on postadaptational behavior; in effect, there may be costs of adaptation to environmental stress. Moreover, one of the key mitigating forces of such costs is the extent to which individuals perceive themselves as having control over the source of stressful stimulation. Not only is the time needed for adaptation to a noise stressor found to be lessened if individuals are told they can turn it off with an escape button, but the psychological costs of adaptation such as lowered frustration tolerance level and efficiency appear to be lessened as well (Glass & Singer, 1973). It is intriguing to note that it is mere *perceived* control that has a potent effect in these studies. Subjects did not, in fact, press the button. Indeed, in some cases the buttons were not even operative. It might be suggested that the

emphasis on perceived environmental control so nicely exemplified in the Glass and Singer paradigm meshed perfectly with the burgeoning research on internal locus of control in the personality literature.<sup>32</sup> In both areas there was a tendency to view perceived control over environmental stimulation as a Good Thing, and control lodged in external sources as undesirable. It is legitimate to ask, however, whether the advocacy of an internal orientation could be potentially hazardous, given the vicissitudes of fortune and the pervasive role of chance and circumstance in natural environments (see, e.g., Bandura, 1982). What if internal control expectations are unrealistic? What if Glass and Singer's subjects *had* pushed the button but found it wasn't hooked up? Would they have actually adapted less well to noise stressors than those who had *no* expectations of control at all? What if David's Evinrude motor didn't start up when his boat got caught in the rip tide? What happens to internal locus of control individuals if external events conspire to thwart their most cherished goals? A hint of what might happen is contained in an intriguing report by Schultz (1976; see also Schulz & Hanusa, 1978). In a preliminary study he showed that, when elderly people were visited by college students under conditions of either their control (i.e., the elderly) or the students', those who had control reported higher scores on measures of health and well-being. However, on termination of the study (i.e., when control was relinquished by the group previously having control) the results reversed dramatically. The group who had control and then lost it had subsequent declines in both health and well-being. This suggests that both the monolithic view of personality that sees internality as an unmitigated good and monolithic views of environmental design that see control by the inhabitant as a cardinal virtue may be shortsighted. It would appear that the interaction of person with milieu is crucial here. Highly internal individuals may perform better in environments that allow for control, but externals may not. Indeed, externals appear better adjusted than internals in environments that are constraining (see Wolk, 1976; Wolk & Kurtz, 1975; Wolk & Telleen, 1976).<sup>33</sup>

A similar shift away from a simplistic emphasis on the need for control has occurred recently within the field of health psychology. Antonovsky (1979) has put forward the case that one of the key factors influencing human health and well-being is a well-developed *sense of coherence* that he defines as:

a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic

feeling of confidence that one's internal and external environments are predictable and that there is a high probability that things will work out as well as can be reasonably expected. (p. 123)

Antonovsky insists that this sense of coherence is *not* simply a sense of control. The latter is a matter of having things under *your* control; the former is perceiving that "things are under control" (p. 155). Kaplan (1983) has also addressed this issue and applied it directly to the field of environmental psychology. He argues that current pressure to design environments for user control is ill conceived; that even if it were desirable, it would be unrealizable in a world of intrinsically limiting and constraining conditions. He goes on to suggest that a more realistic and desirable goal for environmental designers is to design supportive and restorative environments. Supportive environments are high in information availability and in legibility (Lynch, 1960) and they foster a sense of participation. Restorative environments are those that foster repose, stimulate intrinsically enjoyable activities, and capture a person's attention. From the perspective of a coherence model, in contrast to a control model, the ideal milieu is not infinitely flexible or flimsy, but fascinating.

Together, the perspectives of Antonovsky and Kaplan shift our concerns with environmental structure from an emphasis on overload and the need for control to a focus on environmental compatibility and coherence. Not only do we anticipate that there will be important individual differences moderating general environmental models but we see emerging a subtle relevancy of the personological, for the environmental, aspects of psychology. Fine shifts in our understanding of certain personality variables such as problematic aspects of internal locus of control illuminate homologous aspects of environmental variables such as the shift from controllable to supportive environments. A similar parallelism appears in the third of our major dimensions of environmental influence on personality: the sense of community.

#### 7.4.4. The Psychological Sense of Community

One of the most critical dimensions along which environments can vary is that of providing the physical basis of a sense of community. At the microlevel, some environments are sociofugal, pushing people away from each other and fostering social isolation. Others are sociopetal and pull people together (e.g., Altman, 1975; Osmond, 1957; Sommer, 1969). At

more of a macrolevel, Moos (1976) had distinguished between environments high on a *relationship* dimension, that is, stimulating interpersonal contacts, while at the neighborhood level we can differentiate those environments that promote a sense of kinship and community from those that engender social disintegration and alienation.<sup>34</sup>

One of the earliest and most innovative treatments of this general theme of the interdependence of personality and a sense of community was Alexander's (1967) model of the "City as a Mechanism for Sustaining Human Contact." Alexander argues that the Industrial Revolution created opportunities for two closely related human characteristics to emerge: autonomy and withdrawal. Autonomy was created as a result of the emancipation of individuals from collective farming due to mechanization. The capacity to earn an independent livelihood led to the migration of individuals to the burgeoning cities. These in turn created sufficient stress that individuals began to withdraw into themselves. Alexander proposed that the long-range effect of industrialized urbanization has been the emotional isolation of individuals and concomitant social disorganization. The central components of the syndrome are seen to be the creation of isolated, inward dwellings that lead to practical difficulties of sustaining intimate contact with friends and neighbors and that have particularly insidious effects on children who, living in isolation, begin to believe in their own self-sufficiency and nondependence on others. This in turn leads to a *desire* to live in isolated, autonomous independence, and the circle closes. Central to Alexander's thesis is the following prescription:

An individual can be healthy and happy only when his life contains three or four intimate contacts. A society can be a healthy one only if each of its individual members has three or four intimate contacts at every stage of his existence. (pp. 67-68)

He goes on to show that such intimacy requires an urban architecture based on a particular set of geometrical features. These features encourage the formation of frequent, intense, but casual exchanges that are not constrained by role prescriptions. Without our going into the details of Alexander's architectural solution to this design problem, several key implications of his proposal deserve comment. First, it is one of the most clearly articulated models of the impact of architectural form on human personality. Second, it postulates that the lack of correspondence between fundamental human needs and urban form is generating individual and social pathologies. Finally, it proposes that, by judicious architectural change,

human personality can change, and benefits to health and well-being will ensue. The relevancy of this early formulation to social ecological models for the enhancement of human well-being (e.g., Little & Ryan, 1978, 1979; Moos, 1976) is noteworthy.

While Alexander provides some architectural devices for ensuring that individuals have a choice for *when* interaction with others is to be encouraged (through the use of glassed "open for business" areas in the home easily visible from the street), his assumption of the universality of the need for this level of intimate contact is contentious. Again, the individual difference dimensions in the personality field are relevant. There is considerable empirical evidence that extraverts have a higher need for social stimulation than do introverts (Wilson, 1977). Indeed, it is not unlikely that introverts would find the emotional load of "three or four" intimate contacts at each stage of the life cycle sufficient inducement to beat a hasty retreat to the wilderness for a respite from conviviality. In short, personality factors will likely serve as key moderators of the effects of environment on human well-being, and this might mitigate whatever ameliorative effects innovative environmental design might have.

Alexander's paper is a strikingly original contribution to environmental personology, even though it was intended as a critique and guide to architectural planning. In recent years a number of studies have appeared that, while seldom citing Alexander, deal with important aspects of his model. Perhaps the most extensive set of studies has been those concerned with the role of social support networks in sustaining mental and physical health and with the environmental structures that promote this support. It has become commonplace in the community psychology literature, for example, to ascribe salutary effects to the presence of social networks (e.g., Tolsdorf, 1976).<sup>35</sup>

A recent major study in Australia, however, challenges the assumption that the availability of social networks has a direct effect on health and well-being. Henderson, Byrne, and Duncan-Jones (1981) have reported a carefully designed study on the impact of social resources on neurotic behavior. They conclude that it is not so much the availability of social resources but the perception of their usefulness that seems to promote well-being. Moreover, personality factors seem critical in influencing whether resources are evaluated positively or negatively.<sup>36</sup> Even if social networks or intimate Alexandrian quartets exist as potential "cushions" (Butt, 1971) and helping resources, their effectiveness is screened through personality characteristics that serve as critical compo-

nents of the environment-outcome linkage. While the physical milieu can provide the grounds for community and social support, it cannot extort a sense of community from those who, be it out of confusion or conviction, choose to turn away and seek a life of solitude<sup>37</sup>

#### 7.4.5. Stress and Competency as Environmental Effects on Personality

While environmental meaning, structure, and community are likely to subsume most of the major dimensions of environmental influence, there are two other dimensions that should be briefly mentioned in order to round out our discussion of the impact of environment on personality.

The dimension of environmental stress deserves special comment, particularly in light of the frequency with which it is attracting serious environmental research (e.g., Evans, 1982; see also Evans & Cohen, Chapter 15, this volume). It is at present unclear whether environmental stress should be regarded as simply one aspect of environmental structure, as may have been implied in the last section, or whether it stands as a basic dimension on its own. One of the most valuable contributions of recent work in this area has been clarification of the difference between varieties of environmental stress. Campbell (1983) has distinguished between the concepts of acute stressors, daily hassles, and what she calls *ambient* stressors. The latter are described as being chronic, negatively valued, nonurgent, physically discernible, and intractable to the efforts of *individuals* to change them. While research that has focused primarily on acute stressors and daily hassles has identified a number of relevant personality or coping factors that facilitate adaptation such as perceived control, it is likely that the personality factors that relate to ambient stressors, in terms of both effects and mediators, are of a different sort. Of particular relevance here are units of analysis involving longer temporal spans for their enactment than are characteristic of most personality variables. As Stokols (1983) has recently documented, one of the most noteworthy recent trends in environmental psychology has been the adoption of units of analysis involving temporally extended sequences of person-environment interaction. Once more, an effective parallelism appears to be emerging, with elaboration and articulation of personality constructs both illuminating and reflecting similar distinctions in the domain of environmental attributes.<sup>38</sup>

Another area of environmental influence that cannot be easily subsumed under the major headings is

that of competency, the extent to which environments are able to inculcate, sustain, and support feelings of personal efficacy. An excellent example of the impact of the physical environment on a specific area of competency is provided by Cohen, Glass, and Singer (1973), who reported a field study examining how noise in New York City apartment buildings influenced the reading ability of children. They discovered that children living on the lower floors showed poorer auditory discrimination and subsequent reading achievement than did children living on the higher floors. It appears that children, in order to adapt to loud ground noise, learn to screen out auditory cues. By also screening out speech-relevant cues, the children fail to learn some discriminative skills essential for learning to read. It is intriguing but sobering to conjoin this result with evidence on the development of preparedness for speech acquisition in young infants. It has been reported (Condon & Sander, 1974) that a finely coordinated synchronization exists between muscular movements in babies and the pattern of sound stimulation coming from parent speech exchanges. This neuromuscular synchronization may reflect the laying down of a neural substratum necessary for the development of speech acquisition, and for later social interaction. If so, the results of the apartment noise studies are rather ominous. By interfering with synchronized exchanges between developing infants and their parents and peers, environmental noise may block the acquisition of basic interactional skills necessary for both academic and social competency.<sup>39</sup>

#### 7.4.6. Summary and Critique of the Environmental Influence Research

This section has reviewed perspectives supporting the proposition that the physical environment plays a significant role in creating a sense of meaning, structure, and community among its inhabitants, in generating stress, and in providing the context for enhanced competency. We have also, for each of these areas, indicated the key moderating role of personality factors and pointed to the dangers of assuming more homogeneity of need or response than in fact exists. Moreover, we are increasingly able to specify the kinds of personal dispositions most likely to mediate the major classes of environmental effects. An extensive array of potential linkages between individual dispositions and environmental effects can be generated by conjoining the dispositional measures summarized above with the dimensions of influence discussed in the present section. For example, for individuals characterized by a high degree of

aesthetic orientation and environmental concern, the physical milieu may be a major, perhaps the prepotent, source of meaning in life. For others, perhaps more person-oriented, dependent, and anxious individuals, the physical milieu may be a bland backdrop against which social figures stand stark and salient. With respect to environmental structure we have argued that urban overload may be a major source of malaise for some and a sought-out source of stimulation for others, and that the social intensity of communal living may be nirvana or nuisance, depending on one's capacity for intimacy.

Clearly a major agenda item for research in environmental personology will be to chart more extensively the empirical linkages between environmental dispositions and dimensions of the physical milieu and their combined impact on human and environmental well-being and adaptation. While the research on physical environments and personality is still relatively underdeveloped, if we dilate the environment to include not only physical but also more broadly based social and situational factors, a large and growing literature on interactional psychology exists that is highly relevant to our theme. We now turn to this.

## 7.5. PERSONALITY, ENVIRONMENT, AND INTERACTIONAL PSYCHOLOGY

### 7.5.1. The Trait Debate and the Origins of Interactional Psychology

As discussed earlier, Mischel's (1968) *Personality and Assessment* had a transforming effect on the field of personality and social psychology. The initial impact was to shift attention from trait-like stabilities of human personality to the situational or contextual factors controlling human behavior, a shift that harmonized well with the growing contextual revolution in the ecological, environmental, and behavior modification streams in psychology. Part of the data base on which Mischel had drawn were studies examining the amount of variance attributable to persons, situations, and their interaction in influencing particular behaviors such as stress or anxiety (Endler, Hunt, & Rosenstein, 1962). These studies continued to grow in the late 1960s and early 1970s until a fairly substantial data base existed to examine whether persons, situations, or person-by-situation interactions accounted for the bulk of variance in relevant human behaviors (Argyle & Little, 1972; Endler & Magnusson, 1976; Magnusson & Endler, 1977). Examination of the conceptual and empirical issues concerning the

relative contributions of these sources of behavioral variation comprised a new field of research: interactional psychology (Endler & Magnusson, 1976; Furnham & Jaspars, 1983; Hunt, 1975; Magnusson, 1980; Magnusson & Endler, 1977). While this is now a large and diffuse field of its own, several aspects of it bear directly on the present chapter and will be dealt with selectively.

### 7.5.2. Methodological Issues in $P \times E$ Interactionism

A number of important methodological issues have attended the rise of an interactional psychology dealing with the representativeness of situations, the selective exposure of persons to situations, and the nature of the measurement unit in examining person  $\times$  environment interaction. Each of these can be briefly examined.

Bowers (1973), in surveying 11 studies, concluded that interactions are stronger in their effects than either situation or person effects, while others reached opposing conclusions (e.g., Gifford, 1981; Sarason, Smith, & Diener, 1975). One of the criticisms of the first wave of interaction studies was that the proportion of variance explained by either main or interaction effects could be artificially inflated by sampling extreme cases of either persons or situations. For example, if one measured competency in three similar social situations in a small Icelandic village with three individuals, an Icelander, a unilingual Samoan, and a multilingual but psychotic anthropologist from Cleveland, the chances are great that persons would swamp situations as sources of variation. Similarly, situations would overwhelm persons as sources of variation if one were to measure anxiety level in a group of homogeneous, middle-aged, Rotarian cost accountants observed watching the news at home, driving the Santa Ana Freeway, and being launched from Cape Kennedy. The point is that the early demonstrations of the need for an interactional psychology were unsystematic in their choice of situations or persons so that any attempt to draw substantive conclusions about the relative effects of persons and situations or their interaction was indeterminate. Technical criticisms of the models used to test effect sizes were also published (e.g., Golding, 1975; Olweus, 1977). Another criticism of the early treatments of interactionism was that they had overpolarized the positions of the classic personologists and the situationalist. A cursory glance at the history of personality psychology informs us that most of the classical formulations, even those explicitly sym-

pathetic to traits, recognized the role of situational and interactional effects (Ekehammar, 1974; Herrmann, 1980). Indeed, the belief that individual conduct is a joint function of person and situation has long been a truism among personologists. So interactional psychology in its formative period was criticized from one perspective for the inappropriateness of the methodological tools through which it apportioned variance due to persons and contexts, and from another point of view as little more than cliché. What seemed to be required was a clear rationale for sampling the situations presumed to influence human conduct.

A second and related issue hinged on the question of whether in interactional studies the subjects were given a choice in the settings in which they were involved, rather than simply responding to an experimentally created setting. One interpretation of the early evidence supporting situational and interactional effects was that individuals selectively enter settings and situations in accordance with their interests, abilities, and dispositions, a position consistent with a more personological orientation.<sup>40</sup> Thus if Barry is a furtive, romantic fool he likely seeks out settings in which he can wax furtively romantic: skulking along river banks, or lurking on the periphery of "people-places." To expose individuals to the same experimentally contrived situation and to conclude that they all tend to behave in similar ways is to throw out the personological baby with the Barkerian bathwater.<sup>41</sup>

Another methodological issue in many respects subsumes the others and has been raised frequently in recent discussions on the nature of interaction as a psychological concept (e.g., Alker, 1977; Buss, 1978; Endler, 1982; Magnusson, 1982; Overton & Reese, 1977; Ozer, 1982). At the simplest level, we can ask whether we wish to adopt a mechanistic view of person-situation interaction or a systemic interactionism.<sup>42</sup> The former is best exemplified by studies using ANOVA designs in which the interaction between persons and situations is revealed by the *statistical* interaction effect of separately measured person factors and separately measured environment factors. A poignant illustration of the rather passive, unsystemic nature of early mechanistic interactionism in environmental psychology has been sketched recently by Russell and Ward (1982). Commenting on the image of our subjects implicit in the first decade of research in environmental psychology, they suggest:

The subjects who volunteered in the environmental psychology laboratory 10 years ago were fragile crea-

tures.... They didn't really produce their own behavior. They drifted aimlessly about until they encountered a behavior setting. Suddenly they sprang to life, behaving according to the setting's program until, duties completed, the setting ended. Then they fell lifeless again until their next behavior setting. The thought even occurred that we should forget about such puppets and study the behavior setting directly. The creatures were the medium for the behavior setting's message. (p. 681)<sup>43</sup>

But in the mechanical interaction model not all creatures were effective media in all settings; there was preferential selection of certain individuals to particular situations. Thus, Herman, Alice, and David may, if exposed to Pinecrest Public Library and the river on a Thursday morning, show differential patterns of enjoyment or stress. Alice and David prefer the river setting, while Herman finds the greatest pleasure and least stress in the reading room at Pinecrest library. On the basis of many such studies, we might conclude that enjoyment and stress show high interaction effects. We might even measure the subjects on dispositional variables and conclude that those who were more comfortable in the river settings were more pastoralist or sensation seeking in their environmental orientations than those seeking out reading rooms. This would also be consistent with a mechanical interaction research agenda. But such an agenda seems rather like a five-year plan for a behavioral accounting firm, totting up variance payable to one dispositional department here, or to a situational ledger there. One might also say that rather than capturing the essence of person-environment *interaction* one has a whole paradigm in place for the examination of person-environment *interpassivity*. What has happened to that purposive, active creature born during the cognitive revolution? Does it matter, for example, that the *reasons* Alice and David preferred the river setting were very different? Alice may have been actively seeking out rural delights, while David simply needed a place to escape the storms of pubescent politics. Herman, meanwhile, was feeling the swells and sprays of a whale hunt as he walked the deck of the Pequod Public Library, reading *Moby Dick*.

### 7.5.3. Toward a Systemic Interactional Methodology: Emerging Perspectives

While still at an early stage of development, several new approaches to the assessment of individuals in context have been emerging that, in contrast with the mechanical  $P \times E$  interaction approaches, focus di-



rectly on an interactional unit of analysis. These perspectives appear to offer some possibility of theoretical and empirical integration of issues intersecting the domains of environmental and personality psychology.

### ***Natural Acts and Molar Imperatives***

The common point of convergence of these new approaches is the assessment and analysis of molar-level natural acts, actions, or activities. To deal first with the issue of naturalness, a good example of such an interactional unit would be the action of David rowing a boat on the Ottawa River on Thursday afternoon. Such a datum is "natural" in two senses. The act itself is a datable occurrence, one which is grounded in time and place and to which questions such as Where?, With whom?, and When? are appropriately asked.<sup>44</sup> A second sense in which it is natural is that action occurs without coercion from the experimenter. Thus, in contrast with items on orthodox tests and with the raw behaviors studied in traditional experimentation, David's rowing has greater claim to ontological status. The use of such natural units of analysis is extensive, and some exemplars will be briefly sketched.<sup>45</sup>

Klinger (1977; Klinger, Barta, & Maxeiner, 1980) has made creative use of paging devices to sample what he calls the "current concerns" and activities of individuals in situ. Ecologically oriented behavior analysts have undertaken the sampling of naturally occurring acts (Rogers-Warren & Warren, 1977), and Hurlburt (1979) has used paging devices to sample the thoughts occurring at the time of paging (see also Cameron, Stewart, Craig, & Eppelman, 1973).

Another technique used for sampling natural acts and activities is the keeping of logs and diaries of situations experienced over a period of time (e.g., Diener, Larsen, & Emmons, 1984; Pervin, 1983; Sjöberg, 1981). While the sampling of such natural acts is less representative in a statistical sense, the units sampled by diaries and logs allow for a greater amount of personal screening for relevancy (to say nothing of propriety) than do methods involving pagers and beepers.

Mention should also be made of the extensive studies carried out on time budget research (Chapin, 1968; Chapin & Hightower, 1966; Szalai, 1972) that attempt to examine the spatial and temporal characteristics of everyday activity. Like logs and diaries, time budget analysis aims at assessing the full spectrum of daily activities, though typically this is done by asking the respondent to check off time spent in broad normative categories (e.g., social activities, domestic chores) rather than the more idiosyncratic

acts and events recorded in logs and diaries (e.g., seeing Elizabeth; fixing David's torn pants).

Buss & Craik's (1980, 1983a) innovations in measuring dispositions by focusing on topographically independent acts can also be regarded as a contribution to the search for natural units of analysis. Their initial methodology involved having respondents check off whether, during the past 2 years, they had engaged in any of a list of acts that had been nominated by judges as representative of a given trait domain (e.g., the item "pushed ahead of someone in a movie line-up" might be an exemplar of the trait domain of "dominance"). More recently, however, they have started to record act trends based on observer (spouse) reports as well as self-reports (Buss & Craik, 1984; see also Moscovitz & Schwartz, 1982).

It was suggested that these new perspectives seem to offer promise for integration of themes in personality and environmental psychology. It is noteworthy, therefore, that some of the researchers just cited have come primarily from the perspective of environmental design and urban planning (e.g., Chapin's time budget research), while others have approached the same units of analysis as vehicles for trait ascription in personological studies (e.g., Buss & Craik). Another potential area of convergence facilitated by the use of natural acts as units of analysis is that of ethological and evolutionary perspectives on person-environment interaction. For example, within personality psychology, Hogan (1982; Hogan, Jones, & Cheek, 1984) has made the case for a socioanalytic theory based in part on an analysis of the types of fundamental tasks and roles demanded by our evolutionary provenance. Similarly, Kaplan (1972), writing from within an environmental framework, has stressed the adaptive aspects of basic forms of environmental activity.

We may turn now to consider the molarity issue of molar-level natural acts. It should be noted that several different powers of lens have been used by those exploring natural acts. For example, imagine David as a subject in the studies of each of the researchers discussed above. For those employing paging or beeper technology, David might well have been beeped just as he was cutting through the rough chop. One can image him responding to the prompt with the reply that he's in the process of saving his neck, with the nautical nature of his escape left unspecified. Thus his concern with the current (in the hydrological, not temporal, sense) becomes his preeminent current concern and the fishing trip fades into peripheral vision. In a study using logs or diaries, he may simply list "went fishing," adding for the time budget researcher, "2:30-4:08." Much as it



was with the zoom lens imagery with which we began, we might ask what is the best level of molarity at which to capture the characteristics of the scene.

Considerable agreement seems to exist that it is necessary to focus on relatively molar-level acts in order to capture patterns of characteristics in both people and their settings. Until recently, however, there was little in the way of methodological agreement as to how such molar imperatives were to be operationalized. However, the work of Rosch (1975, 1978) on the characteristics of natural categories provided an elegant combination of conceptual differentiation and allied methodological techniques for measuring the vertical and horizontal structure of natural categories. *Vertical structure* refers to the nested, hierarchical nature of categories developed by humans for the construing of common objects both physical (e.g., Rosch, 1975, 1978) and social (e.g., Cantor & Mischel, 1979). Rosch, Simpson, and Miller (1976), working with superordinate- (molar), middle-, and subordinate- (molecular) level categories for physical objects, found that middle-level concepts were particularly rich, vivid (imageable), and distinctive relative to the higher and lower levels. Cantor and Mischel (1979), similarly, have shown how middle-level concepts in the social domain optimize information processing. This middle level of molarity is regarded as a "basic level" for information processing. *Horizontal structure* refers to the differentiation of objects into different content categories irrespective of level of abstraction.

A key notion in this literature is that of the prototype of a given domain. Individuals seem readily able to sort objects into those that are and those that are not good exemplars of a given category. Robins and sparrows, for example, are seen as good exemplars or prototypes of the domain of birds; albatrosses are not. In contrast with classical two-valued logic, most everyday categorization involves the use of fuzzy sets organized around such prototypical instances. A great deal of current research is examining both the vertical and the horizontal structure of concepts in the physical and social domains, including the domain of situations (Cantor, Mischel, & Schwartz, 1982) and environments (Tversky & Hemenway, 1983). Given our concern in this section with interactional units of analysis, we might ask to what extent natural acts, like natural objects, can be analyzed in terms of the vertical and horizontal structure features examined in other domains. To date, there has been relatively little work done on the classification of acts or actions. Buss & Craik (1983a), however, have joined Roschian analysis of natural categories with

psychometric research on multiple-act criteria and with the previously discussed summary view of traits to generate a new program of research on dispositions. In essence, Buss and Craik see trait domains as natural categories of acts, each with its prototypical exemplars and internal structure. They develop lists of domain-relevant acts, have judges rate each act for its prototypicality for the domain in question, and then get respondents to indicate which of a set of such acts they have engaged in over the past 2 years. In a series of empirical studies across a diversity of trait domains, Buss and Craik have been able to show that orthodox trait measures (e.g., CPI and PRF scales) correlate significantly and highly with the frequency with which individuals report engaging in acts rated as highly prototypical for that domain. A gradient of predictor-criterion correlations is found, such that as the prototypicality of acts diminishes the correlations diminish. Further, the degree of association between acts in one trait domain and acts in adjacent domains (e.g., hostile vs. dominant acts) can be measured, and results to date support a circumplex ordering of interpersonal traits around two orthogonal dimensions of warmth and dominance (Buss & Craik, 1983d, 1984; Wiggins, 1979).

The shift in the status of acts within the personality paradigm as reflected in the work reported in this section is noteworthy. In the classic personality paradigm, personality tests comprising multiple items were validated against criterion variables that were often single acts of unknown (or at least unverified) prototypicality vis-à-vis the domain under study. By aggregating multiple, molar-level, topographically independent acts of high prototypicality into composite criterion variables, new conceptual life seems to have been breathed into the classical trait paradigm. Equally noteworthy is the convergence on molar-level natural acts by researchers in the cognitive social learning and personological domains (see Little, 1982). Though with different conceptual expectations about temporal and cross-situational generality (Funder & Ozer, 1983; Mischel & Peake, 1982), it is of considerable interest that two fields of research that only a decade ago were engaged in conceptual hostilities now at least have the same acts to grind.

### **Personal Projects Analysis**

While natural molar-level acts serve as a common focus for new personological and cognitive social learning perspectives, the systemic and interactional nature of such acts is central to another recently developed framework, personal projects analysis (Little,

1983). Based on a model of specialization that stresses the selective channeling of individual orientations and competencies (Little, 1972b, 1976b), personal projects analysis provides a methodology within which the social ecological implications of natural acts (Little & Ryan, 1978, 1979; Sundberg, 1977; Sundberg, Snowden, & Reynolds, 1978), as well as their personological relevance, are given due emphasis. A detailed introduction to the methodology appears elsewhere (Little, 1983), but selected aspects can be highlighted in order to show how the approach contributes to the major themes of this chapter. Indeed, in many respects we can use projects analysis as a means for pulling together some of the diverse themes running through our review.

Personal projects are essentially extended sets of personally relevant action. They can include such concerns as "getting my car fixed," "visiting Stowe," "taking David fishing," and "controlling my temper better." Methodologically, they are elicited by asking individuals to write down their current concerns and activities. The respondents are encouraged to make the list as idiosyncratic as they wish. With respect to the issue of the vertical structure of acts, personal projects can range from highly molecular-level acts (e.g., "feed the cat") to highly molar goals and values (e.g., transform western thought). After elicitation is completed, respondents rate each project on a set of 17 dimensions chosen for their relevancy in capturing key individual difference variables (e.g., perceived control over projects) and for their likely association with criterion variables relating to personal, social, and physical well-being (e.g., stress, time adequacy).

Respondents are also asked to describe where and with whom each project is taking place, and these open columns allow access to the social ecological context within which the individual's projects are embedded. Finally, they complete a cross-impact matrix that examines the impact of each project on the others in terms of conflict, mutual facilitation, and so on. This matrix can also be applied to examining the cross-impact of two or more individuals' project systems.

The result is a set of interrelated measures on the current concerns, activities, problems, pursuits, and commitments of individuals, phrased in their own terms and rated on dimensions currently regarded as critical to the understanding of person-environment interaction. The matrix can be examined ipsatively, that is, within the single case, or normatively. In the former case, we examine the correlations between dimensions for the single case and ask whether, for

example, stressful projects for this individual also happen to be those that are low in visibility to other people; or whether projects high in control also happen to be low in difficulty.

Normatively, the project list can be regarded as the functional equivalent of a set of test items, and column scores on, say, perceived control of projects can be treated as scale scores and treated normatively like other individual difference variables. Thus, excluding the open columns, 17 normative scales can be scored for each individual from the standard projects matrix. Personal projects can thus serve as a unit of analysis through which the reciprocal interactions between person and environment can be expressed directly. In a sense, they serve as carrier units for interactional analysis. Rather than examining practical orientation or outdoor interests as person variables, and mean snowfall or inclemency as environmental variables, we look at the spontaneous elicitation of personal projects like "shoveling the driveway" that simultaneously informs us of systemically linked aspects of the person and her milieu. Such projects allow us to determine what salient features of both environment and persons need to be invoked in order to explain their interaction: an inductive analytic procedure which, in Cronbach's (1975) terms, allows us to "pin down the contemporary facts" (p. 126) as a primary task. Several key themes of the chapter can now be drawn together by showing how projects methodology attempts to assess the systematic interaction between persons and environments.

The actual content of personal projects, the *what* of daily concerns, speaks to the first issue raised in this chapter—the enduring, historically dominant themes about people in their environmental settings. The three themes of environmental meaning, control, and stewardship can be seen emerging in such projects as "escape to the cottage for the weekend," "fix the air conditioner," and "start a car pool with Julian," though the themes are screened through the particular social ecological niche within which the individual lives and require knowledge of that niche for their proper interpretation. It is possible also to examine the links between these dominant themes and other personal and environmental variables: What are the project dimension profiles of environmentally responsive projects, for example. Are they more stressful and conflictful than projects that lead to environmental despoliation?

When discussing themes raised by other disciplines, we noted that one way in which they could be incorporated into environmental personology would

be their being used as the content for questionnaire items in multiscale inventories as in the ERI. A somewhat different approach to interdisciplinary linkages occurs with projects analysis. The content of the projects can be directly appropriated by other disciplines for direct subsumption within their own professional and scientific construct systems. For example, resource planners can examine spatial aspects of urban design by looking at the relationships between project content and the distance between prime locations within which those projects are enacted (see, e.g., Martensson, 1977). Sociologists with a linguistic orientation can examine the phrasing level of project content as related to social class. It is also possible to create ad hoc columns for analyzing projects on dimensions of particular interest to a given discipline. We have used a column looking at the financial load of projects to explore economic issues, for example, and various elaborations of the "with whom" column have been used to operationalize social network variables of interest to sociologists (Palys & Little, 1983).

Projects methodology can also be used to examine some of the personality variables discussed in Sections 7.2 and 7.3. Variables such as internal versus external locus of control can be assessed with projects methodology by use of the appropriate normative scales. Additionally, content analysis of the projects à la Buss and Craik's approach is possible. Act frequency counts for certain central dispositional domains can be performed. Rapley (1983), for example, analyzed the extent to which personal projects were rated as prototypically person oriented (e.g., "helping Jenny with her problems") and/or thing oriented (e.g., "fixing my universal joint"), thus providing a measure of individual differences tapping the same domain as the Thing-Person Orientation Scale reviewed previously, but using ecologically representative units of analysis instead of rather arbitrary scale items. Each of the personality and environmental dispositions discussed in Section 7.3 could, in principle, be appraised by the process of generating natural acts or personal projects and having them rated for their centrality to different dispositional domains. In some cases it will be necessary to "tune" the elicitation phase of projects analysis to a particular content domain (e.g., to projects relating to recreational activities, or to energy concerns) in order to canvass a sufficiently large number of scalable projects or acts. The main point to be stressed here is that, whereas orthodox test items allow us to ascribe traits to individuals but do not allow access to systemic ecological analysis, natural acts and personal

projects allow *both* functions to be performed. They can serve both as markers for dispositional assessment and as a source of nourishment for the social ecological researchers. With such units you can have your trait and eat it, too.

Each of the major dimensions of environmental influence on personality discussed in Section 7.4 has been operationalized with projects methods. In one study, for example, physical symptomatology was shown to be a joint function of high project hassle (a structure variable) and low social support (a community variable), while project meaning has been a consistent predictor of measures of well-being and life satisfaction (Little, 1983).

With respect to interactional psychology, a key issue we discussed was the hierarchical nature of acts, and the question arose as to whether we could talk about an optimal level of molarity. While the work of Cantor and Mischel suggests that middle-level units will be optimal, projects analysis offers an alternative way of handling the question of molarity level. We assume that individuals adapt to a preferred level of molarity in phrasing their projects to themselves and others, and one of our methodological tasks is to assess the molarity level by a process we call *left and right laddering*.

Right laddering involves asking the respondent to answer, for each project, just *how* he or she will be carrying out the project over the next 2 weeks. This generates molecular acts one "ladder rung" down from the level at which the project was originally phrased. This act, in turn, can be ladderized and so on until an irreducible act is generated that can be grounded in time and space (i.e., it can literally be scheduled).

Left laddering comprises a parallel process with the question, *Why?* When this question is asked for each project, several different types of responses can occur. Motives, justifications, general accounts, reasons, perceived causes, and superordinate goals and values can be elicited. When the respondent reaches a terminal point beyond which no further superordinate account is possible, the process stops. This procedure allows us literally to count the ladder steps between the molecular and molar scan of a given project. The level at which a person phrases projects may be shifted in one direction or the other. For example, some persons phrase their projects at a very molecular level (one step removed from a schedulable act), while others may drift into molar abstractions and become lost in semantic hyper-space.<sup>46</sup>

A fundamental difference exists between research

that does not inquire into the superordinate accounts of acts and that which, like projects analysis, takes such accounts as a critical concern. Recall our earlier discussion about Sam Mendon and our puzzling over whether we should see him as a certifiable McKechnie Pastoralist or not. Knowing that the reasons he was engaged in Pastoralist activities was to please his wife, do we still wish to credit him with a disposition based on the outward and visible signs of his actions? This is a surprisingly complex question. Projects analysis would argue that, to the extent an act trend can be discounted by a superordinate account from the respondent, dispositional attribution by mere act frequency is no longer tenable. Buss and Craik's act frequency approach, I believe, would argue otherwise.

To summarize this section, several new approaches in personality and environmental psychology seem to be converging on the analysis of natural acts as units of analysis. While offering alternative, perhaps conflicting, approaches to the appraisal of persons in context, they agree that the proper focus for research and analysis is the naturally occurring molar act. David rowing his boat, then, is not just a convenient symbol for the concerns of this chapter; it comprises the fundamental unit of an emerging interactional psychology. By way of conclusion, let us revisit him, see where we have been, and look at the prospects upstream.

## 7.6. RETROSPECT AND PROSPECTS FOR THE STUDY OF PERSONALITY AND THE ENVIRONMENT

### 7.6.1 Retrospect: Pictures at an Exhibition

We began by looking at a boy rowing a boat on the river and noted how he could fade into insignificance either by soaring up into macrospace or by zooming down into microspace. The image is a fitting one to capture the status of research at the interface of environmental and personality psychology. Many different camera angles and lenses can examine his nautical pursuits, and each provides a partial glimpse of an inordinately complex phenomenon. Let's conduct one last tour of these alternative pictures at a conceptual exhibition.

We saw first how his activity can be construed as an exemplification of historic themes about human-environment relations: the search for meaning in the coherent image of a designed universe or the sense

of alienation and homelessness; the sense of control or of futility in the face of natural or built disasters; the pursuit of harmony with, or hegemony over, the physical milieu. This image should remind us that themes about the interpenetration of human personality and its physical surround predate our current psychological concern by centuries, and that the kind of perspective afforded by historical geography is required for those wishing seriously to study the interplay of environment and personality.

We also saw how different perspectives within and outside of psychology have approached the physical environment and its human impact: how the boat trip could variously be seen as embodying an archetypal symbol, as comprising a term in an equation showing behavior to be a joint function of person and environment, as an incipient act of environmental depredation, or as the central plot of a narrative about growing up in contemporary society. We saw, in short, that simple acts of persons in environments can be variously construed, and that these multiple constructions all have equal epistemic claim: their capacity to provide a coherent account of environmental action depending on the disciplinary or personal perspective through which the act is viewed and the goal of observing it in the first place.

While these issues emerged from the fairly lofty vantage point of Sections 7.1 and 7.2, in Section 7.3 we zoomed into the psychological counterpart of microspace and examined a drop of environmental action under the lens of environmental disposition research. In a sense we were searching for the basic anatomy of dispositions toward the physical environment, and we concluded that the outlines of its major components were becoming apparent. However, it was here that we noted that, by viewing the deeper structure of acts through the filter of orthodox trait measurement, we simultaneously blurred the primary subjects of our composition; neither David nor his riverine milieu was visible any more. Orthodox trait inventories were seen to have an ambivalent status and, in an attempt to capture our subjects again, the last two sections shifted lenses once more—back up to the level of mundane activity in its natural context.

In Section 7.4 an attempt was made to show how contemporary research on the impact of environments on personality had suggested that the physical milieu provides for a sense of meaning, of structure, and of community, themes that are contemporary counterparts of the primordial ones discussed in Section 7.2. The role of the physical environment in generating both stress and a sense of competency

was also reviewed, showing that themes particularly relevant to the present-day environment join the more traditional themes on our research agenda. Central to the section was the warning that the full effect of these environmental factors could only be seen if individual differences of the kind reviewed in Section 7.3 were taken into account. Just as David got lost at the microlevel of trait measurement, he also disappeared when the viewfinder was fixed on the water. A picture of a raging river evokes different interpretations if, in the lower left-hand corner, one substitutes the grinning face of a sensation-seeking, congenital extravert for the green visage of an overloaded and underconfident introvert.

In the opening parts of Section 7.5, this theme of the interaction of personal and environmental variables was examined in some detail, and it was concluded that the most veridical, if not most evocative, pictures of environmental behavior will involve carefully constructed split screens: one of the person, through the filter of trait variables or other individual difference measures; the other of the situation or environment, again through the filter of climate variables or other measures of environmental characteristics. While acknowledging the legitimacy of such snapshots, the final subsection of Section 7.5 developed the case that for a truly illuminating picture of environmental action a freeze-frame snap was not enough. In arguing the case for the systemic analysis of sequences of natural acts, we were calling for the conceptual equivalent of home movies—where the temporally expanded pictures of mundane acts and their sometimes predictable, sometimes perplexing, sequelae unfold. We concluded that several new perspectives, including the act frequency approach and personal projects analysis, offer different vantage points for attaining such a goal. It remains now to look forward to what seem to be the priorities and prospects for these emerging perspectives on environment and personality.

### 7.6.2 Prospects and Priorities: A Third Revolution?

The field of environmental personology has gone through an intriguing first decade. While it comprised one of the foundation blocks of environmental psychology, its parent discipline has gone through a difficult period and has emerged with a major reconstruction of its mandate and its research agenda. While the willing suspension of disciplinary faith is difficult to achieve, I think it fair to say that there is a strong current of excitement in contemporary per-

sonology and that its environmental offshoot is feeling its ripples and creating some of its own. In particular, the new emphasis on natural acts as focal variables in personological inquiry sets new priorities for research investment in the next few years. One obvious need is for systematic application of the Buss and Craik act frequency model to the domain of environmental dispositions. Not only should this comprise the creation of act lists of relevant environmental actions and demonstration of their relationship to major inventories like the ERI, but the detailed observation of acts in situ should be high on the priority list of future studies. Similarly, the empirical mapping of relationships between major dispositional domains such as environmental, social, and self-orientations should be expanded.

An important shift in research strategy has been occurring recently in personality psychology, but it has received very little explicit notice. This is the shift from a focus on the measurement of independent, predictor variables via orthodox tests to a detailed concentration on dependent variables (see Buss & Craik, 1983a; Christie, 1978; McClelland, 1981). McClelland has succinctly captured the nature of this reversal of traditional approaches to measurement in personality:

Traditionally personality theory has started with the person. A lot of different measures are obtained, they are intercorrelated, and a scale for some personality dimension is derived from these correlations. Then we determine whether it gives a reliable estimate of the characteristic and finally we attempt to relate this personality dimension to some transactions with the environment, usually with poor success. Let us reverse the process, start with the transactions with the environment, try to identify the competencies involved and work backwards to the personality measures that will predict them. (1981, pp. 103-104)

It is precisely these transactions with the environment that we have identified as natural acts, and increasingly they are being adopted as units in diverse fields, including personology (Buss & Craik, 1983a), interactional psychology (Little, 1983), and environmental psychology (Russell & Ward, 1982; Stokols, 1982, 1983). Another major priority for environmental personology over the next decade will thus be to clarify and expand research on such units and to show how they link to relevant dimensions of individual and environmental differences.

Another priority area is that of the intensive study of single cases within environmental personology. Particularly if systemic interactionism is analyza-

ble only at the level of individual systems, a position held by those studying personal projects, it becomes essential to track individuals through the temporally and spatially expanded course of daily living and to highlight the prototypic transactions that characterize the individual's projects and pursuits. Then it will be possible inductively to form classificatory systems detailing the modal types of transaction between persons and their environments.

We have been dealing with some new priorities in personology and environmental psychology that may, in fact, reflect larger movements and currents of thought within psychology and related disciplines. It will be fitting, in conclusion, to climb to a somewhat higher vantage point and survey the larger terrain.

The case can be made that a third revolution, a counterpart to the cognitive and contextual revolutions, is under way. While it is difficult to label precisely, there is some merit in considering it to be a *conative* revolution. Conation, of course, refers to purposive action and intentionality, and a conative psychology attempts to account for the genesis of acts, actions, and activities of individuals. Treated classically as independent of cognitive and affective propensities, conative processes appear to subsume aspects of the cognitive, the affective, the behavioral, and even the contextual features of human conduct. MacIntyre (1981) in a trenchant analysis of problems in contemporary accounts of ethics and human action has captured the essence of a contextually sensitive conative analysis: "We cannot...characterise behaviour independently of intentions, and we cannot characterise intentions independently of the settings which make those intentions intelligible both to agents themselves and to others" (p. 192).

A number of perspectives in contemporary philosophy, many of them virtually uncited by researchers in relevant cognate areas, converge on analyzing the nature of intentional action (e.g., Anscombe, 1963; Binkley, Bronaugh, & Marras, 1971; Gould & Shotter, 1977; Harré & Secord, 1972; Hornsby, 1980). The integration of this literature, particularly the analytic philosophy of action, with corresponding areas of psychological research would be of considerable merit. Related studies in hermeneutics and in the theory of narrative (van Dijk, 1976) have concerns that overlap with the systemic interactional perspectives on environmental behavior. Within psychology, research efforts on "personal goals" (Staub, 1980), current concerns (Klinger, 1975, 1977), life tasks (Cantor & Kihlstrom, 1983), activity (Atkinson & Birch, 1970; Snyder, Gangestad, & Simpson, 1983), and scripts (Abelson, 1981) all

have a common focus of looking at the intentions, competencies, and superordinate goals, plans, or projects that guide and gate natural action.

Whether these disparate areas converge to form a new, psychological action theory or whether a conative revolution arises to counterbalance the other major movements of this century (see Hilgard, 1980), there is ample evidence that environmental personology will have company in its quest for a viable theory of human activity in its personal and environmental contexts. While the discovery of convivial intellectual company is a pleasant event, the "more holistic than thou" sentiment that can accompany merging subfields often results in more conceptual sterility than fecundity. Indeed, perspectives within environmental and interactional psychology that seem to hold promise for future research still comprise genuine theoretical alternatives. Recall, for example, Buss and Craik's (1983a) concern that cognitive-purposive and act frequency formulations on dispositions may represent incommensurate approaches. What is exciting, however, is that, even though clear conceptual differences remain and will continue to sharpen our research ventures, fields of research traditionally regarded as speaking different languages are now beginning to talk, and constructive discourse, rather than silence, seems to be beckoning.

The systemic examination of natural acts has accomplished one important thing: Trait psychologists, social learning theorists, environmental psychologists, social psychologists, and diverse groups in related fields are able to focus on a common unit of analysis. Literally, and in the most technical sense, the study of David Mendons rowing boats on Thursdays allows us, at last, to get our acts, together.

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## NOTES

1. Glacken (1967) makes the intriguing suggestion that the design argument in natural history favored the study of interrelationships of things rather than the study of taxonomies and that the theocentric view of a designed world was the intellectual precursor to current ecological conceptions.

2. It should be noted that as early as fifth century B.C. humoral theory assumed that local environmental conditions could affect the mixture of the humors in the body. Thus humoral theory, far from being a fixed temperament theory as seems often to be depicted, is perhaps better seen as an ancient precursor to a microlevel interactional psychology, or more specifically an environmental psychopharmacology.

3. The later models of explanation within geographic theory, probabilism, cognitive information processing models, and so on are reviewed by Craik (1970) and Sprout and Sprout (1965).

4. See White (1967).

5. Compare also Schachtel (1959).

6. Murphy's (1947) chapters on "Economic Determinism," "History as the Proving Ground," and "Situationism" are particularly interesting as precursors to contemporary topics in environmental psychology, particularly those stressing a social ecological perspective (e.g., Bronfenbrenner, 1979; Little & Ryan, 1979; Moos, 1974, 1979).

7. Research on cognitive perspectives in environmental psychology is dealt with in more detail in Golledge, Chapter 5, this volume. For early treatments of environmental psychology from a Kellian perspective see Little (1968) and Harrison and Sarre (1971). For those bitten by Kelly's bug, an effective antidote for cognitive swelling can be found in Wohlwill's (1973) "The Environment Is Not in the Head."

8. We are referring here primarily to the early writing of both these theorists. Cattell (1979), for example, has recently expanded his trait model to include an *ecometric* component that specifies measurement procedures for capturing environmental aspects of person-environment interaction. This serves as a counterpart to the psychometric component of earlier models. His expanded *ecometric model* for measurement of stimulus, situation, observer, personality, and role factors is a major advance over simple trait models (see also Ozer, 1982).

9. It should be noted also that personality theory and research during the late 1950s and 1960s began to abandon broad-based theoretical views and turned instead to more circumscribed ventures, typically dealing with single vari-

ables (e.g., locus of control, sensation seeking, etc.). Rather than review this development at length we shall incorporate relevant details into a subsequent section of environmental disposition measures.

10. An early and now classic treatment of the joint movement toward cognitive models in the areas of animal, child, and personality/clinical psychology was White's (1959) theoretical analysis of the concept of competence.

11. Two other dimensions, stress and competency, can also be discerned in this exogenous literature, which, while arguably subthemes of the environmental influence and human agency themes respectively, seem to have attracted sufficient recent attention to be accorded separate status. For details of the early influences on environmental stress see Evans and Cohen, Chapter 15, this volume. Research of the competency-inducing aspects of environmental design was apparent in the education field, particularly interactional educational psychology (Tomlinson, 1981).

12. An additional characteristic of Craik's approach is the application of the orthodox personality paradigm to the assessment of environmental displays via the same assessment strategies used to evaluate human personality. While this may well be the most original contribution of the personological paradigm to environmental psychology, it falls outside the terms of reference for this chapter.

13. The IPAR approach has a number of important defining characteristics and a key literature (not all of it home-grown) well exemplified by Gough (1965), MacKinnon (1963), and Wiggins (1973) (see also Loevinger, 1957). Among the characteristics of the assessment paradigm that were to be incorporated into environmental personology were the use of multiple assessment devices and the use of consensual ratings by expert assessors of individuals observed extensively over several days.

14. A core component of the Berkeley perspective is Gough's assessment approach, best exemplified in the California Psychological Inventory (CPI) (Gough, 1975). Several of Gough's principles for scale construction were incorporated into Craik's program for environmental personology. For example, Craik endorsed the use of environmental folk-concepts, cross-culturally generalizable, functionally important traits through which people coded their own and others' conduct. Also Gough's (1965) tripartite procedure for establishing test validity was to be incorporated into the measurement of environmental dispositions.

15. See also Wiggins (1974) for a particularly helpful treatment of these distinctions.

16. As we shall see in a later section, a pastoralist is one who is disposed toward the enjoyment and conservation of the natural environment in an intellectual and aesthetic fashion.

17. Recent attempts to explore the physiological and neurochemical basis of extraversion should also be noted (see, e.g., Ballenger, Post, Jimerson, Lake, Murphy, Zuckerman, & Cronin, 1983; Stelmack & Wilson, 1982).

18. We are not implying that because these different di-



mensions posit a common distinction between inner and outer orientation they will necessarily intercorrelate as individual difference measures. However, Furnham (1984) provides evidence that extraversion is significantly correlated with a set of measures to be discussed in the next section.

19. Windley (1975) has also presented a searching critique of the logic of environmental disposition research.

20. Mention should also be made of other measures of orientation and interest that, while not explicitly designed for the study of environmental dispositions, are likely to be effective predictors of response to the physical milieu. Both the Strong Campbell Interest Scale (Campbell, 1971) and Holland's work on vocational preferences (Holland, 1966) tap a diversity of environmentally relevant interests (e.g., realistic orientation, artistic orientation, etc.).

21. See also Burisch's (1984) treatment of this issue in the context of an excellent comparative analysis of strategies of personality scale construction.

22. Sonnenfeld (1969) and Winkel, Malek, and Thiel (1969) were among the very earliest of contributors to environmental disposition research. One of Winkel and colleagues' factors pitted those high in need for environmental order against those preferring diversity and ambiguity. Given recent work on the functions of category systems and prototypes in environmental construing (e.g., Cantor, Mischel, & Schwartz, 1982; Tversky & Hemenway, 1983) it is intriguing to note that one of the items defining this scale was "I think a church should look like a church, a school a school, etc."

23. As this chapter was going to press a major publication on sensation seeking appeared (Zuckerman, 1984) that posits central catecholamine neurotransmitter involvement in sensation seeking within a brain-behavior, feedback-loop model. See also the intriguing exploratory study by Balenger and colleagues (1983) on the positive relation between cerebrospinal fluid calcium ion levels and extraversion.

24. Mehrabian and Russell's (1974) work is notable both for its links with early Russian work on the neurophysiological basis of personality (see, e.g., Gray, 1972) and contemporary extraversion research and for relating these variables to specific environmental characteristics. This encourages a more dynamic and context-sensitive model of environmental dispositions than those perspectives assuming fixed traits.

25. It would be interesting to see whether these same individuals tend spontaneously to adopt different "environmental sets" (Leff, 1978; Leff & Gordon, 1980) than low scorers when engaged in environmental encounters.

26. Driver and Knopf (1977) have also used Jackson's Personality Research Form (Jackson, 1967) to examine environmental criterion variables.

27. It should be noted that meaning, structure, and community have been chosen not only for their broad applicability as theoretical constructs (e.g., Toffler, 1980) but also because they emerge, empirically, as major dimensions of daily activities in personal projects research (Little, 1983) (see Section 7.5.3.).

28. See also the detailed theoretical account of development by Heinz Werner (1948) and the current applications of that perspective to the environmental area by Seymour Wapner and his colleagues (e.g., Wapner, Kaplan, & Ciotone, 1981).

29. It would be intriguing to see whether Snyder's (1979) high self-monitors are particularly likely to differentiate their dwellings in terms of different aspects of self that can be presented, while low self-monitors are content to be Barry whether it's in the bathroom or bedroom. The high self-monitor should also be more likely to experience distress if visitors pop in unannounced, that is, without giving an opportunity for the self-reflective aspects of the house to be tidied up and shoved under the couch.

30. A related perspective is provided by Sarbin (1968, 1976), who was an innovative pioneer on the spatial ecology of self-identity as well as an important influence on the early development of environmental personology at Berkeley. See also his recent comments on the work of Proshansky, Fabian, and Kaminoff (1983) on place identity.

31. It should also be noted that Milgram's model has stimulated critiques about the assumption of differential urban overload above and beyond the role played by individual differences. See, for example, Fischer (1982).

32. See the recent volume by Lefcourt (1982) for a comprehensive survey of measurement and research on locus of control.

33. See also Rodin and Langer (1977) and Langer (1983) on the issue of whether perceived control is adaptive.

34. The absence of both environmental meaning and community seems to be involved in the genesis of alienation. See Schacht (1970) and Stokols (1975).

35. The literature on social networks is growing rapidly. For a recent overview see Gottlieb (1983).

36. The personality characteristics that appear to dampen the effectiveness of social network support resemble neuroticism, though they may simply reflect a general negativity and tendency to see existential bottles (and battles) as half-empty. For a discussion of this issue see Henderson and colleagues (1981).

37. The tendency to see solitude as a rather negative phenomenon can be balanced by examining the varieties of asceticism and voluntary isolation. See, for example, Harper (1965), who refers to this as metaphysical homelessness.

38. Again, the relationship between stress levels and well-being is likely to be moderated by personality variables. Some provocative work by Kobasa, Maddi, and colleagues, for example, has shown that psychological hardiness may be a key moderator of the relationship between stress and health status (Kobasa, 1979; Kobasa, Hilker, & Maddi, 1979; Kobasa, Maddi, & Kahn, 1982).



39. Many other examples of the impact of environmental variables on competence could be given. For example, Wicker (1969) reported a valuable study showing the association of undermanned settings with higher cognitive complexity for events within that domain.

40. Extensive research on this issue out of the Personality and Social Ecology Program at Illinois has been recently reported (see Diener, Larsen, & Emmons, 1984; Emmons, Diener, & Larsen, 1984).

41. Not only may individuals differ in the type of situations or setting to which they gravitate, but Snyder (1979) has argued convincingly that high self-monitors may be particularly sensitive to situational cues and will shift their social presentations to accommodate to the particular aspect of self most appropriate to the setting.

42. This has been referred to as dynamic interactionism (Overton & Reese, 1977; Magnusson, 1980) and organic interactionism (Buss, 1977).

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44. See Pervin (1983) for a discussion of the need for units that allow these kinds of questions to be asked.

45. Stern's (1970) Activity Checklist should also be cited as an early prototype of individual difference measures based on activity preference.

46. An annotated bibliography of studies using personal projects analysis is available from the Social Ecology Laboratory, Department of Psychology, Carleton University, Ottawa, Ontario, Canada, K1S 5B6.

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