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Wegel

THE EPISTEMOLOGICAL BASIS OF  
IMAGINAL EDUCATION

Knowledge Processes

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## Introduction

Speaking at Massachusetts Institute of Technology in 1960, Edwin Land remarked that we had been puny in our conception of the new professions that are possible for men. Given, for example, the vast underdeveloped areas of the world, how do we arrange the use of our own human resources to bring these areas into the modern age speedily and without untoward suffering? Or, given the vast increase in knowledge in all fields of learning, how do we equip our men and women to impart that knowledge to new generations? I am not speaking of moral equivalents of war in James's sense: that is much too modest a conception. Rather, it is in developing the arts of peace that we shall find an expression for the new images that the century has produced. Until then, we shall not become the full beneficiaries of the change that science has wrought. A people who feel that they are living at the full limit of what is possible will have no crises of identity.

Jerome S. Bruner<sup>1</sup>

Epistemology, as a formal arena of enquiry, seeks to establish with what certainty we may say that we know something. It has focused upon the corresponding arenas of linguistics, logic, the philosophy of science, cognition and perception, biology and evolution, to name just a few. An examination of scientific knowledge has served to highlight the issues, for it "...can be more easily studied than common-sense knowledge. For it is common-sense knowledge writ large, as it were."<sup>2</sup> As such, epistemology has systematically examined all of man's attempts to justify his knowledge as verifiable. This paper is particularly indebted to the findings of those who might be called evolutionary epistemologists, who have pointed out that there is no verifiable or non-presumptive knowledge, that all knowledge is theory-laden, and is the result of trial and error, of hypothesis and testing processes.

However, most people are neither disciplined epistemologists nor formally engaged in scientific pursuits. Their knowing is both less systematic than that required by science and additionally concerned with arenas usually considered beyond the scope of science. For those concerned to assist men

and women to live "...at the full limit of what is possible..." an understanding of how one might effectively impact their knowing is critical. It requires an understanding of the perceptual and cognitive processes of man, as they have evolved to their present state. But it also involves an understanding of how man combines his conceptions into operating schemas, worldviews, or, what Kenneth Boulding calls "images". Thus it is with epistemology at this more personal level that this paper is concerned.

## I. MAN : THE IMAGINAL ANIMAL

### A. Consciousness and Selfhood

The approach of evolutionary epistemology stresses the continuity between man and the rest of the animal world. A favorite expression is, "cousin of the amoeba, how can we know for certain?" It recognizes that perception is already presumptive and, as such, is "...a knowledge process. Such an inclusion makes relevant the learning processes of animals. However primitive these may be, they too must conform to an adequate logical epistemology."<sup>3</sup> There is then a systematic examination of how animals in various evolutionary niches "learn", showing that trial and error with selective retention is the basic and common method. Donald T. Campbell, in his as yet unpublished William James Lectures of 1977, demonstrates how this presumptive method is embodied in the development of man, both in structural selectors(e.g., in neurological systems that monitor and modulate sensing and acting neurons, which thus function like filters and amplifiers in electronics) and in capacities that allow vicarious selection, such as sight which allows man to test out possible directions without the necessity of bumping into walls until one finds the door.

Boulding, too, recognizes the continuity of knowledge processes in animals and men. In a chapter entitled "The Image at the Biological Level"<sup>4</sup> he likens a gene to an image, a blue-print for a building, which somehow organizes the accumulation of material. Campbell has a similar passage in his article on "Pattern Matching as an Essential in Distal Knowing" in which he uses the term "template" as well as images, defined as "the storage of behavioral dispositions." (Campbell also traces this concept from Uexküll(1934) "search image" and Tolman(1948) "cognitive map" to cybernetic considerations that reintroduce the term "image".)<sup>5</sup> Boulding goes on to affirm that "Even the simplest living creature is an information-gathering and information organizing structure."<sup>6</sup> He points out that the image, in the genetic structure, teaches

and produces, shaping organization and behavior in the animal, but it learns nothing. It is changed only by "blind mutation". Thus the amoeba has an image of food by which it "judges" materials it takes into itself, and on the basis of which it either assimilates or rejects those materials. He goes on to point out that a decorticated dog will react similarly, but normal dogs, after hesitating when confronting bad-tasting food, will eat it, disclosing that the canine enhanced brain can extend its conception beyond taste to food-in-general and is able to overrule the reflex reaction of the lower nervous system by what he calls "...the image-operated action of the higher centers...."<sup>7</sup> The dog marks a distinctly different level of development from the amoebic use of the image, the level of conscious mental processes.

Boulding goes on to say that man, the symbol user, is even more different from the lower animals. "It may be doubted whether any animal apart from man has what could properly be called self-consciousness, that is an image of its image."<sup>8</sup> Using a similar argument related to the centrality of language, Popper points out that only men have the capacity to not only express themselves and signal a response (as other animals do) but to make descriptive statements which can be factually true or false, and, what he calls the highest evolutionary form, the argumentative function which allows critical discussion, the basis of science.<sup>9</sup> Thus man, Boulding concludes, is distinct from the other animals not "...by any increased capacity for the intake of information....It is the capacity for organizing information into large and complex images which is the chief glory of our species....We not only know, but we know that we know. This reflective character of the human image is unique..."<sup>10</sup>

Pierre Teilhard de Chardin, in his imaginative recounting of evolution, The Phenomenon of Man, focuses upon this distinction of man from the other animals by his capacity to reflect upon his consciousness, "... the power acquired by a consciousness to turn in upon itself, to take possession of itself as of an object endowed with its own particular consistence and value:

no longer merely to know, but to know oneself; no longer merely to know, but to know that one knows."<sup>11</sup> This capacity changes the way man acts, for "...the reflective psychic center, once turned in upon itself, can only subsist by means of a double movement which is in reality one and the same. It centers itself further on itself by penetration into a new space, and at the same time it centers the rest of the world around itself by the establishment of an even more coherent and better organized perspective in the realities which surround it."<sup>12</sup> Teilhard goes on to say that reaching this point of awakening of thought marks a transformation which affects the whole state of the planet, a process he calls noogenesis. "When for the first time in a living creature instinct perceived itself in its own mirror, the whole world took a pace forward."<sup>13</sup> Thus he compares the birth of consciousness of consciousness to the advent of life itself in his tripartite schema of the material universe, the emergence of the biosphere, and the development of the noosphere.

Teilhard goes on to say that this development of self-consciousness puts new challenges before man. One of the more visible is the struggle of intelligence "...to overcome the encircling illusion of proximity..."<sup>14</sup> first in spatial scope, and then in the temporal extension, in both past and future. He recalls Julian Huxley as he says, "The consciousness of each of us is evolution looking at itself and reflecting upon itself."<sup>15</sup> His conclusion is that for modern man, evolution is no longer simply a biological process, but that for the first time, to some extent, its course is within the control of man's intelligence, that man is responsible for the future course of evolution.

Whatever one thinks of Teilhard's scientific analysis, he highlights the significance of consciousness of consciousness as a development that requires an appreciation of the discontinuity of human knowledge processes from those of the animal world. It does not negate the hypothetical nature of knowledge

described by the evolutionary epistemologists. It requires, as the evolutionists themselves acknowledge and extensively practice, the treatment of man as possessing unique capacities which sharply distinguish him from other animals. Thus while he can be said to be the cousin of the amoeba, as a reminder of his inbuilt fallibility (a perspective without which man labors entirely within the realm of illusion), man is such a distant cousin that he lives in what might be called an entirely different realm of reality, that of self-consciousness (or perhaps better, in the noosphere). It is at this level that the issues of epistemology on the more personal level are joined. This is a crucial distinction, for as Bruner has pointed out, the way one looks at man profoundly affects his standard of what is considered humanly possible.<sup>16</sup>

Soren Kierkegaard was operating under similar categories of consciousness when he created his formula of selfhood: "The self is a relation which relates itself to its own self...(and that) by relating itself to its own self and by willing to be itself, the self is grounded transparently in the Power which posited it."<sup>17</sup> Thus for Kierkegaard, selfhood is a relational category. The self is a web of relationships to the world, to other life forms, to other selves, to its own body. Of course, for Kierkegaard, it was not the nature of these relationships which were critical, but man's willingness to have them. He goes on to describe in detail the ways in which man refuses to be these relationships through naivete, circumspection (perhaps a more accurate expression of his meaning for post-Freudians looking back at Kierkegaard's earlier use of the term "introversion"), and defiance. However, it would seem that one cannot divide the nature of one's relationships and his willing to be them, for in fact, his willingness or unwillingness to be the relations he is colors and shapes those very relationships. Boulding's concept of the image is helpful in grasping how this occurs.

## B. Images and Their Functions

Boulding suggests that man operates on the basis of his picture of the world he lives in, that he has a picture of his globe and where he is located on it, his place in time, and of how the world works. The term for this picture of his world is an "image". He contrasts this kind of knowledge with that which carries with it "...an implication of validity, of truth..." by calling it subjective knowledge. But, far from therefore being of lesser value than that knowledge which is the more usual province of formal epistemology, for those who are concerned to exercise the responsibility Teilhard described, this subjective knowledge is of primary importance, for as Boulding contends, "It is this image that largely governs my behavior."<sup>18</sup>

Images might be understood as theoretical interpretations of a wide variety of cognitive data. Bruner points out the importance of a concept like the image when he highlights the importance of the poet and the necromancer who look at life "sidewise" rather than "head-on" and thereby stir things together into new connections that become what he calls "happy hunches". He suggests the scientist's fetish for objectivity often leads him to hide such sources in himself for his hypotheses. He goes on to say, "We honor (our highly limited capacity for taking in and processing information) by learning the methods of compacting vast ranges of experience in economical symbols--concepts, language, metaphor, myth, formulae. The price of failing at this art is either to be trapped in a confined world of experience or to be the victim of an overload of information."<sup>19</sup> Thus, it would seem that man is forced to forge images as creative inventions to make sense of what would otherwise be an "overload of information". In this sense, perhaps images are more objective, or participate more directly in the schema of objective knowledge, than Boulding is willing to claim. Certainly others have used comparable



metaphors in their writings. In some senses such images can be likened to Quine's more formal use of the idea of a "field of theories"<sup>20</sup> or to Tolman's rejection of direct s-r bonding in favor of the metaphor of a "map room".<sup>21</sup>

Boulding<sup>22</sup> suggests that man's images are particularly rich and complex as a result of their symbolic character. Yet paradoxically, they seem to be largely beyond expression for most men. He is at pains to point out that only individuals have images. There are no social images that exist independently. Public images can be conceived of only as images that many people hold commonly. In an indiscriminating list, he articulates ten types of images that men hold. They are more easily understood and used when grouped together.

Using Teilhard's double movement of man in centering upon his world and himself, Boulding's first four types of images might be considered together. The first three comprise man's image of the world: his spatial image(his location and the space around him), his temporal image(the stream of time and his place in it) and his relational image(by which Boulding means the universe as a system of discernable regularities, and man's grasp of how things work and interact). It would seem artificial to keep these separate, and yet each of these arenas will become important in the consideration of techniques of changing images. The second crucial arena is man's personal image--his image of himself in a universe of persons, roles, and organizations.

Boulding's next two categories seem to be descriptive of the second level in Kierkegaard's definition of selfhood: the relating to the relations. If the self as a relation can be understood to refer to the whole series of relations implied by one's image of the world and of oneself, then the relating to those relations can be talked of in terms of values and affections. The value image is the ordering, on a scale of better and worse, the parts of the whole image. To the extent that values are socially objective, it might be better to consider them part of one's image of the world; to the extent

that they are one's evaluation of the world and the self, they express his relationship to himself. The affectional image expresses the emotional relationships one takes to his world, to other selves, and to himself. It is intricately interwoven with the value image in that men evaluate their various emotions, inevitably placing them on a scale of better and worse, both generally and relativistically in particular situations. This is clearly a different usage of "image" than that used in the preceeding categories, and might better be considered simply as qualities of the relationship one takes to his images of the world and the self, thus restricting the term "image".

The next four of Boulding's categories are even further removed from the former usage of the term image. They might better be considered four sets of criteria for making judgments about images of the world and of the self. They are: first, the division into images that are held consciously, those that are in the unconscious but are capable of being raised to consciousness, and those that are in the sub-conscious, monitoring and distorting the perception of data. Second is the criterion of certainty-uncertainty or clarity-vagueness, by which images may be evaluated. Third, and closely related to the second, is the reality-unreality criterion, by which an image may be checked for correspondence to "outside" reality. Boulding recognizes that since man never receives data from reality directly and thus one is checking the correspondence of an image with his perception of reality. In fact, Boulding suggests man can only check the correspondence of an image with "images of reality". The fourth, and last, of Boulding's categories is the private/public scale of an image, the extent to which an image is shared by others in one's society.

To oversimplify, man has an image of his world and an image of himself. These images are made up of many smaller order images. He relates to these images both evaluatively and affectively. These images operate at various levels of consciousness, with various degrees of certainty and reality.

Some of them are shared broadly across his society. These images are inextricably intertwined. As Bruner writes, "...man's image of himself... is not independent of his image of the world."<sup>23</sup> The converse is equally true.

### C. A Hierarchy of Images

Boulding clearly implies the existence of a hierarchy of images that ranges from the imprinted biological images of genes and of reflex reactions, through the interpretive organizing of data perceptions, to the images of the multiple elements that make up one's world, and culminating in the unifying images of one's world and of oneself.

It would appear that this schema is correlative to the more formal studies of perception and cognition described by evolutionary epistemologies. Thus Boulding states at the outset that there are no raw facts, that all facts that intrude on a being are in reality messages that are received, if not solicited, interpretively. Language sets men apart from the animals and creates a "universe of discourse" of commonly held images. Finally, he suggests that such knowledge can never be validated. But he wishes to focus on the organic nature of the organization of knowledge, rather than on describing the presumptive nature of the mechanisms of the growth of knowledge.

Bruner, with his abiding passion for education, seems to share this concern even as he reports on his far more formal and systematic studies of cognition. Thus he can talk about categorization, in ways which are similar to Boulding's use of images, as the essential process which avoids an overload on the mental apparatus.<sup>24</sup> Similarly, in dealing with memory, he points out that the key issue is not storage--capacity far exceeds the ability of use--but the means of retrieval.<sup>25</sup> He then points out that the key to retrieval is the organizing principle through which data is stored and the ability to like the data with the principle used at a later time. Boulding's image is just such a link.

At the unifying level, images seem to play paradigmatic roles. Bruner indicates that the history of culture is the development of such organizing ideas whose power is in their capacity for making the world understandable and, at times, predictable and changeable. He says that our perceptions are received through such organizing ideas or images, that they are "...filtered through the programmed readiness of our senses. The program(cf. "image") is constructed with our expectations and those are derived from our models or ideas about what exists and what follows what."<sup>26</sup> Paradigmatic images seem to function in much the same way that Thomas Kuhn<sup>27</sup> suggests that paradigms function for science: as exemplars of how life is to be understood, and as setters of the agenda of research, of hypothesis and testing, of trial and error, of living. In a later section, the corresponding difficulty in changing paradigms will be made analogous to the difficulty in changing a person's unifying images.

#### D. The Formation of Images

What are the sources of man's images? At the most basic level, they can be assumed to be biologically implanted, the selected survivals of the evolutionary process. At the perceptual and cognitive levels, they must surely be similarly selected in the trial and error process, so well described by the evolutionary epistemologists. Most early-developed images must be learned ostensively. Thus images are to be distinguished from abstract ideas which developmentally are placed later in childhood. Studies in early-childhood education conducted in the Westside ghetto of Chicago in the 1960's discovered well-formed self- and racial-images in three year olds.<sup>28</sup> These images are socially learned from parents, siblings, playmates, television, billboards, toys, and many other sources.

Thus images participate in the dynamic that Campbell refers to in the first of his William James Lectures as "socially dependent knowing." Often unconsciously the child comes to accept for himself operating images which

he receives through trust in what are "admitted fallible reports other persons make of what they have seen and done." This is social dependence, not just at the informational level at which Campbell was dealing, and which is chancy enough(cf. Asch's famous experiment in which all but one of the subjects were in reality collaborators in the experiment and, by agreement, unanimously reporting incorrectly), but at the behaviorally affective level of interpreting images. The children in the above study, in some respects, bore out the well-known Cooley-Meade articulation of "the looking-glass self" that has been overstated in the summary, "I am what I think you think I am." The children had accepted an image of themselves communicated to them by their society, and an image of the world divided racially, with an evaluative relationship that it was better to be white than to be black as they were.

Images are learned socially. They are tried out by the individual. If they seem to "fit", to correspond to, and make sense out of, the data coming from reality, they become a part of one's knowing. However, the more images function at the unifying level, that is, the more they function paradigmatically, the less open they are to being either verifiable or falsifiable. They become self-justifying at two levels. Just as suspicion, when injected into a relationship, regularly engenders a suspicious response(and trust engenders trust), so a projected self-image or image of the world(e.g., as racially hostile) will tend to elicit a confirming response. Secondly, because images operate as interpreters of received data, perception is biased so as to confirm these unifying images.<sup>29</sup> Thus, despite anomalies, paradigmatic images are resistive to falsification, and function in ways similar to those of what Imre Lakatos calls the hard core of a research program: "This core is 'irrefutable' by methodological decision of its protagonists; anomalies must lead to change only in the 'protective' belt of auxiliary 'observational' hypotheses

and initial conditions."<sup>30</sup> Thus there is a commitment to maintaining one's images which corresponds to the scientist's commitment to his fundamental paradigms. But, lest it appear that images are simply irrationally maintained without support, it must be remembered that, since these images are learned socially, much of the testing elicits a confirming response from the individual's associates, indicating it has been correctly learned, quite apart from questions of its correspondence with reality.

Thus the connection between public and private images plays a crucial role in the formation of images in an individual. Many of the paradigmatic and perceptual/conceptual level images are learned by interiorizing public images, images shared broadly across society. Sometimes they are learned in a fashion similar to that of learning a language, as discussed above. Sometimes they are assumed as a consequence of assuming a role in an organization, assuming the images of both one playing that role and of the organization itself(i.e., the public image of the organization shared by its members and others). Such is the case with the child as he first goes to school and takes on the role of student. Further, this means that changes in public images may be expected to entail changes in the privately held images of those in that society.<sup>31</sup> This feature is critical to the techniques of shifting images, to be examined at the end of this article.

## II. ALTERING MAN'S IMAGES

### A. Images Control Behavior

In describing the pattern of his own everyday life, Boulding asserts that his images of his life control his behavior. It is not a simplistic nor naïvely deterministic assertion, for he acknowledges the unpredictability of intervening events. Rather, the control is the conditioning of expectations and the formation of characteristic responses. Bruner lays the ground work for a similar affirmation when he tries to explain the idea of action. He writes that "...action can be understood in terms of the selective principle by which we use the knowledge available to us...(Man) represents the world to himself and acts in behalf of or in reaction to his representations. The representations are the products of his own spirit as it has been formed by living in a society with a language, myths, a history, and ways of doing things."<sup>32</sup> He then spells out how this happens in an essay entitled, "The Control of Human Behavior".

Bruner posits two forms of control in society: the deliberate or public controls embodied in laws, regulations, and formal education; and the non-deliberate controls of the society's guiding myths and values which he calls the latent culture (preferring that term to the anthropologists' "covert culture"). He then contends that totalitarian states (whose morality permit such approaches) may attempt "...to control men by shaping their conception of the world in which they live."<sup>33</sup> He contends that such control is more advantageous than direct control through punishments and rewards since it is self-administered and avoids the mitigating lag between behavior and response inherent in external controls. Such control is possible, in part, because early established conceptions of reality tend to function as first editions,

upon which later editions are fashioned, at times with corrections to be sure. However, such early versions of social reality have a pre-emptive power. The primary vehicle of such control is language and myth which <sup>together</sup> are the key to joint action. They predispose men to particular ways of thought and arrangements of the shared subjective reality, a Weltanschauung. Other vehicles of control are the granting of affiliations or its counterpart, social rejection; the limitation of opportunity, as a result of which studies in early sensory deprivation have demonstrated a consequent dulling of curiosity and venturesomeness; and the operation of compensatory schedules in which it has been recognized that to be deprived of something one has already grasped as his, by right, is worse than not achieving one's desires--that the loss symbolizes both a loss of support and overt ostracism.

Bruner, while calling upon intellectuals to exchange their role of myth-slayer for that of myth-maker, rather naively asserts that only immoral totalitarian governments would attempt to control society through such cognitive and indirect (one might "imaginal") means. Aside from the obvious logical inconsistency that suggests that control that promotes behavior one abhors is in some way different in kind from control that promotes behavior one approves, in point of fact, the very restrictive control he finds so offensive is wide-spread in the so-called "free societies", with the implicit, and usually explicit, support of the governments and social elites concerned. Two examples may help to both demonstrate this reality and further explain how images control behavior.

The first example comes from an experiment in community reformulation, begun in 1964 in the black ghetto of Chicago's Westside, called Fifth City. After an extensive examination and compilation of the critical problems facing the community: economic, political, educational, stylistic, and symbolic, it



was discerned that the key factor was the underlying understanding that nothing could really be changed. This factor was talked about by the people of the community as "The Nigger Image"--that to be black was to see oneself as a nigger, a nothing, a "hanky-head", the victim of "Mr. Charley". This widespread radical self-depreciation came to be called "The Victim Image". It was pervasive across the community, from the youngest, as has already been mentioned, to the eldest. It undercut every attempt to deal with the many more surface problems.

Where did such an image come from? Why was it so universally held? Bruner's categories helpfully explain this. The language and mythology of American society communicated this public image of negro worthlessness. Black and white alike used the term "nigger" with shared understanding of all the negative connotations involved. The myth of American life and success, communicated in literature, school, media, and public life was visibly the story of white success and negro failure. The rare negro successes highlighted the racial expectation by focusing upon how this one rose above the failure all about him. Even the advertising in the community urged the residents to cease being black, and, through the use of skin lighteners and hair straighteners, to emulate the superior and desirable whites. Affiliation and rejection patterns further reinforced this image by lumping all negroes together in the ghetto and effectively isolating them from mainstream activities of American society except in the most demeaning servant relationships. The limitation of opportunities shut off the very drives necessary to alter the prevailing social conditions.

One high school math teacher discovered how this worked. After months of trying to get through to her tenth graders, she decided to try to motivate them by relating her course work to their future success. One day she asked each

student what he or she would be doing ten years later. The dominant response of the boys was that they would be sitting on a street corner drinking wine. The corresponding response among the girls was that they'd be supporting themselves and their children by prostitution. Suddenly the teacher understood why her students were not motivated to learn geometry. The image of their future dictated disinterest. Geometry was irrelevant. Similarly, the American myth of the right of equality and affluence for every citizen, contradicted on every side by ghetto poverty, announced the social ostracism directed towards the negro--an ostracism that simple observation of the way people lived in the ghetto seemed to confirm as well deserved, and was echoed in turn in the residents' relations to their neighbors.

How does the victim image control behavior? It is a self-fulfilling reality. The conviction of impossibility and failure produces, in turn, the very evidence that reinforces the conviction. As Bruner indicates, in a slightly different context, for a person to search out and find regularities, he must expect them or be aroused to expect them so he will devise ways of searching and finding. "One of the chief enemies of search is the assumption that there is nothing one can find in the environment by way of regularities or relationship."<sup>34</sup> The same thing is true if one substitutes "success" for "regularity". Expecting failure, one is not surprised to do poorly in school (and social pressure from one's fellow students makes it dangerous to do otherwise, if one could). Having failed to get the skills requisite to economic advancement, one receives only the left-over, the demeaning and undesirable jobs, the poorest paid ones. This means one lives in the poorest housing, eats the poorest food, suffers the poorest health. The evidence of failure confirms the image, and solidifies the torpor of impossibility and the patterns of escapism.

In an entirely different context, a very similar pattern was discovered. In another community reformulation project, this time in the small village of Maliwada in the state of Maharashtra, India, the same pattern of paralysis engendered by a sense of victimism was encountered. This time it was not overtly racial in origin. In this case the stultifying mythology found its roots in the rigidity of the social system of caste and religious communalism, in the oppressive weight of five centuries of subsistence level agricultural poverty, and confirmed by the cultural and technological gap between urban development and rural poverty. Though the causes and conditions were dramatically different, the same cyclically defeating pattern was discovered, rooted in the image of victimization and self-depreciation, and producing nearly identical results in education, employment, and the living environment. In both communities one encountered a public image, personally believed and appropriated by most of the residents and determinative for most of their behavior.

#### B. Image Shifts as World-view Alterations

Images can be changed. They are not changed easily. Resistance to such change is high. They are never changed due to conflicting evidence alone. Such evidence is either reinterpreted to fit or dismissed as the exception that proves the point. An image is only given up when a more adequate one is available to replace it, one that makes more sense out of what is happening in one's life. When unifying images change, it is a revolutionary event, radically altering a person's world-view and creating a whole new way of living for him. In these ways, such a change is analogous to paradigm shifts in science as Kuhn describes them.<sup>35</sup>

Boulding distinguishes between one's images and the messages that reach it (though the presumptive nature of such messages has already been examined as has the effect of images in soliciting and receiving such messages). He says such messages may affect an image in one of three ways. The first is that the image may be left unchanged. Many messages have no effect upon one's images, either being largely ignored, as background noise is, or confirming the image. The second effect is one of simple addition, in which the change is in line with the image but extends it (cf. the "normal science" role relative to scientific paradigms in Kuhn's model). "There is, however, a third type of change of the image which might be described as a revolutionary change. Sometimes a message hits some sort of nucleus or supporting structure in the image, and the whole thing changes in a quite radical way."<sup>36</sup> Like Kuhn, Boulding relates this revolutionary change to religious conversion--calling such a conversion a spectacular instance of an image change.

Karl Popper seems to be writing of the same kind of experience in describing what he calls the searchlight theory of knowledge.<sup>37</sup> He uses the phrase "horizon of expectations" in a fashion very similar to Boulding's use of "image". He suggests that man's observations are in response to expectations, either confirming or correcting them. He portrays man as living in the center of a horizon of expectations which, on occasion, can be destroyed, in part or wholly, by the impact of some observation. He also refers to that horizon of expectations as a frame of reference. Where it is destroyed, it must be rebuilt in such a way as to account for the damaging observation.

What causes an image shift to occur? Can images be validated? Is coherence necessary for images? Boulding<sup>38</sup> indicates that coherence does not guarantee truth or validity and goes on to point out that "reality" itself is not guaranteed to be consistent and coherent. Images are maintained for

a number of reasons, not all of which are adequate. As has already been described, many individuals adopt images that correspond to the public image of their sub-culture. Often these images have survival value, both in stability as a public image and in preserving the organism holding the image. So the self-depreciating negro avoided the dangerous confrontation with white society which resulted in numerous lynchings in the decades leading up to the 1960's. These images developed in an orderly pattern, incorporating the feedback messages from both the sub-culture and the dominant culture. They were confirmed by the individual's authority figures from grandmother to teacher to policeman. However, none of these elements guarantees that one's images correspond to reality, though implicitly the image contains within it the notion that the outside world is really there and is adequately reflected by the images. Thus an image requires a faith commitment. It represents the investment of one's life. It is held on the basis of its ability to organize one's life and activity meaningfully. Images are changed only when an alternative image is presented that more adequately make sense of one's world and/or his own life.

### C. Occasioning Image Shifts

While Boulding has powerfully described the concept of the image and described how it operates and changes, he is very weak in explaining how image shifts may be occasioned. Yet, if one is to take seriously the responsibility for the future that Teilhard has described as in man's hands, this is a crucial issue. Bruner, in arguing that scientists and humanists must reclaim their powerful positions as myth-makers, is suggesting one means of assuming that responsibility. In this Boulding would concur. What are other ways?

Boulding does clearly indicate the difficulty of occasioning image shifts. He takes seriously the habitual nature of man. His first revised law of economic life is that man will tend to do today (or in any cyclically recurring time pattern) what he did yesterday, thereby avoiding the negative value of uncertainty, unless there are good reasons to do otherwise. His second law is that good reasons have to do with dissatisfaction with what happened yesterday.<sup>39</sup> He then applies this awareness to the changing of images. He describes that change as a fearful plunge into the unknown. Thus images are only changed if there is a great dissatisfaction with the routine of one's life or if a very high value is attached to change itself. However, he points out a crucial dynamic: that once a new image has been successfully established and demonstrated, as for example the possibility of tripling the yield of jowar (sorghum) in the fields of Maliwada, by the use of hybrid seeds, powerful messages will spread that image and almost automatically reorganize the images of the laggards.

Bruner and his collaborators likewise acknowledge the difficulties in changing man's basic categorizations. Since such categorization reduces the necessity of constant learning by creating normal responses to familiar situations, a change in ways of categorizing will require a subsequent change of behavior and a learning of a new pattern of responses.<sup>40</sup> In an essay on Freud, he reminds his readers, "If we have learned anything in the last half century of psychology, it is that man has powerful and exquisite capacities for defending himself against violations of his cherished self-image."<sup>41</sup> He further points out that in his studies in categorization people were unwilling or unable to use information from negative instances as fully as from positive ones, because that required the more difficult step of transformation of information. He observed that it takes more information to

cause the abandonment of a hypothesis that fits one's general notions once it is formulated, than it does to form a new hypothesis from raw data.<sup>42</sup> Thus it might be expected that shaking someone loose from an established image might be very difficult, as in fact it is.

A revolutionary image shift happens only when an inadequate paradigmatic image is confronted by a more adequate image that attacks the inadequacies in the former image. It is an explosive occurrence, an assault upon strongly held defensive positions which are highly valued, for they summarize the meaning of one's life. To exchange one image for another requires an act of creativity--so well described by Bruner as producing an effective surprise that unexpectedly strikes one with wonder and astonishment and yet at the same time has a quality of obviousness about it that produces a shock of recognition. "The triumph of effective surprise is that it takes one beyond common ways of experiencing the world....creative products have this power of re-ordering experience and thought...."<sup>43</sup> In what could as well be a description of one's experience after adopting a new paradigmatic image, he says, "Good representation, then, is a release from intellectual bondage."<sup>44</sup>

To occasion an image shift, Boulding suggests one must perceive the weak points in another's images and then pry them apart by symbolic messages.<sup>45</sup> Unfortunately, he does not tell how that may be accomplished. However, Teilhard does provide a clue. As has already been indicated, he suggests that the development of consciousness, the development of the noosphere, is the struggle of intelligence "...to overcome the encircling illusion of proximity."<sup>46</sup> Thus, occasioning image shifts happens as comprehensive and expansive images are presented as alternatives to more reduced and limiting images of one's world and oneself.

In presenting alternatives to an individual's image of the world (and one must remember that images are always held by individuals; they are not abstractions), it is helpful to observe Boulding's three elements which were earlier grouped together. Here they represent three complimentary approaches: spatial, temporal, and relational. One element of victimism is almost inevitably a severe restriction of one's image of his space. Thus few of the people of Fifth City had much of a picture of Chicago beyond a few blocks from their homes. A surprisingly large proportion of the population of Maliwada had never been away from their village, not even the 12 kilometers to Aurangabad, the district capital with a population of over 100,000. This meant that they had never seen a city, nor any human settlement of more than 2,000 people! They had no conception that life could be other than it had always been for them. The simple expedient of organized trips to Aurangabad presented a dramatic alternative image of the scope of the space a Maliwadan lived in. Similarly a plane ride over Chicago, locating their homes in relation to the rest of the metropolitan area, enlarged the image of the space Fifth Citizens considered that they lived within. Less dramatic imaginal education uses simplified images of the globe's geo-social continents and systematic grids that relate one's community to the regions and areas of one's own continent. In such ways, one may explode another's entrapping parochialisms.

Stretching the amount of time a person can encompass releases him from the bondage to immediacy and to the way it's always been done--which usually means the way it's been done in the easily remembered past. This is attacking the illusion of proximity of time. Boulding has written that nations are the creations of historians and that the image one has of the past gives rise to



his image of the present and the future.<sup>47</sup> History is not an objective record of the past, but is rather a selected record, shaped by the images of the historian and, in turn, shaping the images of those who appropriate it. Maliwada sits at the foot of the Deogiri Fort, for a brief time some five centuries ago the capital of India. But for the people of Maliwada it represented only a ruin where the last Nizam of Hyderabad finally was forced to accede to the Indian union in 1948. It communicated nothing to their image of their village and its future. However when the story of the glory of the fort as the capital of India was recovered, and of Maliwada (literally: the village of the farmers) as the providers of the kings, a new sense of the future emerged. People began to grasp that Maliwada's future could be as glorious as her past. It is perhaps true to say that one's grasp of the future as possibility is in direct proportion to the scope and glory of one's image of his past. Just so, in Fifth City, it was a course in black heritage, built from images contained in Lerone Bennett's Before the Mayflower, tracing the black man from African prince to slave to freedman to inheritor of the modern urban world, that released residents to claim a new future for themselves and for their community. A decade later Arthur Haley's Roots has once again demonstrated the power of shifting people's images of their temporal frame. Boulding points out that the person or nation who has a sense of destiny goes somewhere, even if not always where they expect.<sup>48</sup>

Bruner, in the essay in which he suggests that man today is pre-empting the powers of fate, is breaking out of the bondage of necessity, states that man's sense of potency increases as he is able to embrace the enlarged scope of technology.<sup>49</sup> To put that another way, as men grasp how the technological urban society of which they are a part (even in remote Maliwada) works, as they develop images which explain the mysteries and extend their direct relationships in interaction, they experience a new sense of power. Thus diagramming the

mechanics of a bank loan, assisting in the filling-in of the application, accompanying individuals to the bank for the interview, and advising in the purchase of new cattle by the farmers at a full-scale cattle auction, is more than simply technological assistance. It is opening up a whole new world of experience. It is a radical cracking of the subsistence image of life, the initiation of a whole new world-view. It was a revolutionary happening for those Maliwada farmers, making possible whole realms of other "modern" approaches to agriculture. It literally opened a new world of possibilities for them far beyond the increased profits of expanded milk output.

The shift in an individual's personal self-image is met with the greatest resistance, as has already been noted. It often entails replacing an image of failure and worthlessness with a sense of one's own significance. This is not an easy task. Once again the enemy is the illusion of proximity. One's personal image must be expanded beyond self-preoccupation. Identity with one's own people and with mankind as a whole, sharing in the common dignity of man, is a crucial step. Identity with one's own people by race, language group, or nationality is perhaps easiest to accomplish. However, it requires a focus upon the gifts of that people, which are perhaps easier to see in the larger aggregate than in oneself. Thus recovering the sense of glory in Maliwada farmers providing for a civilization when the capital was nearby, and linking that to the significance of providing food for famine-ravaged modern India, created the context for a birth of new pride for many of Maliwada's farmers and a sense of self-worth which had been previously lacking. Such a shift in self-image requires a new affirmation of oneself, gifts and neuroses and all. It means a reappropriating of one's own past as the significant history without which one would not be who he is, and in the light of which the openness of

the future appears. Only in light of such an image shift could a young man who had previously spent his days loafing around Maliwada, become a pre-school teacher, then perfect his second language, English, and then take a leading faculty position in a recurring eight week training school to train other young men and women from across Maharashtra in the methods of economic and social development in their villages. Similarly, when the image "Black is Beautiful" swept across America, individual blacks were presented with an alternative to the "nigger image", and adopting it found they saw the world in a whole new way. Such a dramatic change in behavior followed the adoption of that public image that skin lighteners and hair straighteners have become things of the past. Black men have become proud of being black, and wish for nothing else.

#### D. Shifting Public Images

It must be remembered that Boulding says only individuals hold images, that all images are first of all private images. However, when a number of people hold an image in common, it may be spoken of as a public image. One must distinguish between public images and symbolic expressions which aim at creating public images. These symbolic expressions have crucial significance in that they create the milieu in which individual's forge their images of the world and of themselves, and corporately create new public images.

In thinking about the symbolic expressions that affect the shifts of public images, a model that corresponds to the three elements of an individual's image of the world is preferable. Diagrams, publically displayed, that depict the spatial relatedness of the community, and locate each individual in the larger schema, help to define the community and create a common sense of identity. The use of symbolic names for streets and nodes similarly assists

individuals in forging a commonly held spatial image. Similarly, myths that recount the greatness of the community and the culture of which is is a part enhance the public temporal image. Ian Barbour sums up the function of myths this way, "Myths are stories which are taken to manifest some aspect of the cosmic order. They provide a community with ways of structuring experience in the present. They inform man about his identity and the framework of significance in which he participates."<sup>50</sup> Rituals and slogans are often the everyday shorthand for renewed mythologies. Similarly, some expression of how society functions is necessary, whether it be a representation of the relation of the social processes: economic, political, and cultural, or a design of the programmatic efforts of reformulation for their community, or an abstract of a comprehensive curriculum that reflects the shared wisdom of man.

Education is society's established means of communicating public images from one generation to the next. It is a crucial arena for those interested in exercising their responsibility for the future. Bruner highlights the role of education, saying it "...must also seek to develop the processes of intelligence so that the individual is capable of going beyond the cultural ways of his social world, able to innovate in however modest a way, so that he can create an interior culture of his own....To be whole he must create his own version of the world...."<sup>51</sup> For the youngest children, it is creating a context in which positive self-images and expansive images of the world may flourish. One dare not wait until victim images are firmly established to start this job. It is an opportunity which is missed at great risk, for "...to make up for a bland impoverishment of experience early in life may be too great an obstacle for most organisms."<sup>52</sup> But perhaps the key to the educational process is in training the students(adult or child) in

the methods of problem-solving rather than in learning predetermined solutions, for in that way, the student learns that the future can be created, that he can exercise responsibility for it, and that entails a self-image and an image of the world which are the opposite of the illusory proximity of radical self-depreciation.

# FOOTNOTES

1. Jerome S. Bruner, On Knowing, Atheneum, New York, 1969, p. 165.
2. Karl R. Popper, The Logic of Scientific Discovery, Basic Books, New York, 1959, p. 42.
3. Donald T. Campbell, "Evolutionary Epistemology" in P.A. Schipp (Ed.), The Philosophy of Karl Popper (Vol. 14, I & II) The Library of Living Philosophers, Open Court Publishing Co. La Salle, ILL., 1974, p. 418.
4. Kenneth E. Boulding, The Image, Ann Arbor Paperbacks, The University of Michigan Press, 1956.
5. Donald T. Campbell, "Pattern Matching as an Essential in Distal Knowing" in K.R. Hammond (Ed.), The Psychology of Egon Brunswick, Holt, Rinehart and Winston, Inc., New York, 1966, pp. 91f.
6. Boulding, op. cit., p. 35.
7. Ibid, p. 43.
8. Ibid, p. 45.
9. Karl R. Popper, Objective Knowledge, "Of Clocks and Clouds", Oxford University Press, London, 1972, p. 276f.
10. Boulding, op. cit., p. 25.
11. Pierre Teilhard de Chardin, The Phenomenon of Man, Harper Torchbooks, Harper & Row, New York, 1965 edition (originally 1955), p. 165.
12. Ibid, p. 172.
13. Ibid, p. 181.
14. Ibid, p. 216.
15. Ibid, p. 221.
16. Bruner, op. cit., p. 150.
17. Soren Kierkegaard, Fear and Trembling and Sickness Unto Death, Princeton University Press, Princeton, N.J., 1969 printing, pp. 146f.
18. Boulding, op. cit., pp. 5f.
19. Bruner, op. cit., pp. 6f.
20. W.V. Quine, From a Logical Point of View, Harvard University Press, 1953, p.43.
21. as reported by Bruner, Goodnow, and Austin in A Study of Thinking, John Wiley & Sons, Inc., New York, 1956, p. vii.
22. The following discussion is in reference to the chapter of The Image entitled "The Image of Man and Society", pp. 47-63.

23. Bruner, On Knowing, p. 159.
24. Bruner et al, A Study of Thinking, from the "Introduction".
25. Bruner, On Knowing, p. 94.
26. Ibid, p. 120.
27. Thomas S. Kuhn, The Structure of Scientific Revolutions, The University of Chicago Press, Chicago, 1970 edition.
28. in studies at the Fifth City Preschool, Chicago, Illinois. See Image, Journal of The Ecumenical Institute, Number Two, 1964 and Number Three, 1965.
29. Compare Francis Bacon's "Idols of the Tribe" in his Advancement of Learning, quoted by Campbell in his unpublished William James Lectures, 1977, Lecture 4, p.77.
30. I. Lakatos and A. Musgrave, Criticism and the Growth of Knowledge, Cambridge University Press, 1970, p. 133.
31. Boulding develops the idea of the public image in his chapter "The Image of Man and Society" in which he talks of the "stock of images in society" and then elaborated on it in the following chapters.
32. Bruner, On Knowing, pp. 129f.
33. Ibid, p. 132.
34. Ibid, p. 85.
35. See Kuhn, op. cit., Chapters IX - XIII, but especially Chapter X.
36. Boulding, op. cit., p. 8.
37. Popper, Objective Knowledge, pp. 344-347.
38. Boulding, op. cit., see Chapter 11, "The Image and Truth: Some Philosophical Implications".
39. Ibid, pp. 86f.
40. Bruner et. al, A Study of Thinking, p. 12.
41. Bruner, On Knowing, pp. 150f.
42. Bruner et al, A Study of Thinking, pp. 237f.
43. Bruner, On Knowing, p. 22.
44. Ibid, p. 26.
45. Boulding, op. cit., p. 134.
46. Teilhard, op. cit., p. 216, see above, p. 5 of the text.

47. Boulding, op. cit., p. 114.
48. Ibid, p. 125.
49. Bruner, On Knowing, p. 160.
50. Ian G. Barbour, Myths, Models and Paradigms, Harper & Row, New York, 1974, p.5.
51. Bruner, On Knowing, p. 116.
52. Ibid, p.7.